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# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 1, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.99 | 761.8 | 72.1 | 22.3 | 64 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.00 | 762.0 | 62.6 | 17.0 | 63 | WSW | | | 1 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.01 | 762.3 | 65.7 | 18.7 | 85 | NW | | | 3 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.97 | 761.2 | 77.0 | 25.0 | | NW | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.99 | 761.7 | 71.6 | 22.0 | | W | | | 4 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.05 | 763.3 | 73.9 | 23.3 | | NNE | | | 2 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.97 | 761.1 | 67.1 | 19.5 | | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | 30.10 | 764.5 | 74.1 | 23.4 | 25 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.04 | 763.0 | 77.9 | 25.5 | 17 | W | | | 1 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.02 | 762.6 | 84.7 | 29.3 | 24 | SSE | | | 2 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.78 | 756.3 | 59.4 | 15.2 | 48 | NE | | | 3 | | 8 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.84 | 757.9 | 50.7 | 10.4 | 68 | W | | | 2 | | 10 | | | 0.004 | 0.1 | | Dr. Wierzbiski. |
| Eperies | | | 29.76 | 755.8 | 48.6 | 9.2 | 75 | N | | | 2 | | n,k,s | | S | 0.181 | 4.60 | | Julius Mikolik. |
| Gratz | 28.56 | 725.4 | 29.79 | 756.6 | 58.3 | 14.6 | 43 | NE | | | 4 | | 7 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.21 | 716.4 | 29.58 | 751.3 | 62.6 | 17.0 | 33 | WNW | | | 1 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.59 | 726.2 | 29.94 | 760.5 | 48.6 | 9.2 | 58 | NW | | | 3 | | 10 | | | 0.079 | 2.0 | | Prof. C. Wagner. |
| Lemberg | | | 29.66 | 753.3 | 54.3 | 12.4 | 73 | N | | | 2 | | 6 | | | 0.177 | 4.5 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.76 | 756.0 | 60.6 | 15.9 | 68 | WNW | | | 1 | | 10ks | | | 0.006 | 0.16 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.63 | 752.6 | 63.5 | 17.5 | 79 | Calm | | | 0 | | 7 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.80 | 756.8 | 62.8 | 17.1 | 74 | NW | | | 1 | | 7 | | | 0.039 | 1.0 | Raining | P. Busin. |
| Vienna | | | 29.88 | 758.9 | 51.3 | 10.7 | 48 | NNW | | | 3 | | 9 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.71 | 729.1 | 30.21 | 767.3 | 40.5 | 4.7 | 62 | NW | | | 2 | | 8 | | | 0 | 0 | | |
| Brussels | | | 30.28 | 769.1 | 46.0 | 7.8 | 63 | NNE | | | 2 | | 8 | | N | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.30 | 769.7 | 47.5 | 8.6 | 75 | NNE | | | 3 | | 8 | | | 0.004 | 0.1 | | |
| Maeseyck | | | 30.57 | 776.4 | 44.2 | 6.8 | 69 | NNW | | | 2 | | 7 | | | 0.016 | 0.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

M06.1
U58s

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | 30.15 | 765.9 | 45.5 | 7.5 | 32 | NW | | | 7 | | 7 | N | | 0.008 | 0.2 | Rain & snow | Prof. T. Hoh. |
| Berlin | | 30.06 | 763.4 | 50.9 | 10.5 | 32 | NW | | | 1 | | 6 | | | 0.024 | 0.6 | | Prof. Arndt. |
| Breslau | | 29.96 | 761.0 | 47.1 | 8.4 | 43 | NW | | | 4 | | 9 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | 30.17 | 766.3 | 44.4 | 6.9 | 59 | NE | | | 3 | | 10 | | | 0 | 0 | | Albert Senz. |
| Cassel | | 30.16 | 766.1 | 42.4 | 5.8 | 48 | N | | | 7 | | 6 | NW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | 30.21 | 767.3 | 44.2 | 6.8 | 54 | NE | | | 4 | | 8 | | | 0 | 0 | | Director Lose. |
| Emden | | 30.37 | 771.4 | 43.9 | 6.6 | 53 | NNW | | | 5 | | 1 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | 30.20 | 767.0 | 51.1 | 10.6 | 29 | N | | | 3 | | 7 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 9.03? | 737.4? | 30.15? | 765.8? | 43.7 | 6.5 | 76 | ENE | | | 5 | | 10 | NE | | 0.035 | 0.9 | Raining | M. Wilhelm. |
| Hamburg | | | 30.10 | 764.4 | 44.2 | 6.8 | 41 | NNW | | | 5 | | 8k,s | | | 0 | 0 | | Captain F. Hegemann. |
| Kiel | | | 30.04 | 763.0 | 46.0 | 7.8 | 86 | NW | | | 3 | | 3 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.80 | 757.0 | 40.3 | 4.6 | 84 | NW | | | 5 | | 10 | | | 0.012 | 0.3 | | Prof. L. Luther. |
| Köslin | | | 29.96 | 761.0 | 42.8 | 6.0 | | N | | | 4 | | 1 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 30.09 | 764.3 | 46.0 | 7.8 | 57 | NW | | | 4 | | 7 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.78 | 756.3 | 43.2 | 6.2 | 82 | NW | | | 4 | | 10ks | | | Inap. | Inap. | | Reinbrecht & Skalweit. |
| Münster | | | 30.18 | 766.5 | 49.1 | 9.5 | 63 | NW | | | | | 2 | | | 0.016 | 0.4 | Light rain | Prof. E. Heis. |
| Neufahrwasser | | | 29.89 | 759.2 | 39.4 | 4.1 | 82 | NNW | | | 4 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.95 | 760.6 | 48.0 | 8.9 | 44 | NW | | | 5 | | 7 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.20 | 767.1 | 43.0 | 6.1 | 75 | NE | | | 1 | | 6 | | | 0.071 | 1.8 | | Dr. Schur. |
| Stuttgart | | | 30.13 | 765.4 | 42.4 | 5.8 | 58 | N | | | 2 | | 8 | N | | 0.016 | 0.4 | Rain & graupel. | Prof. Schoder |
| Treves, (Trier) | | | 30.09 | 764.3 | 46.9 | 8.3 | 38 | W | | | 7 | | 4 | | | 0.004 | 0.1 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 8.55 | 725.1 | 30.10 | 764.5 | 39.9 | 4.4 | 76 | WNW | | | 4 | | 10 | NW | | 0.071 | 1.8 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.07 | 763.6 | 43.5 | 6.4 | 67 | WNW | | | 5 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.66 | 753.4 | 61.3 | 16.3 | | SW | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | |

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.23 | 666.2 | | | 68.0 | 20.0 | 68 | NE | | | 2 | | 3c | | NE | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.95 | 760.7 | 45.9 | 7.7 | 37 | NW | | | 4 | | 1 | | | | | | |
| Fanöe | | | 30.07 | 763.6 | 42.4 | 5.8 | 54 | NW | | | 6 | | 4 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 30.36 | 771.2 | 36.1 | 2.3 | 52 | N | | | 4 | | 9 | | | | | | |
| Vestervig | | | 30.04 | 762.9 | 41.0 | 5.0 | 90 | NW | | | 7 | | 2 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.29 | 769.4 | 53.6 | 12 | 65 | NE | | | 4 | | 8kn | | NE | 0 | 0 | Very cloudy | Normal School. |
| Amiens | | | 30.28 | 769.2 | 49.6 | 9.8 | | NW | | | 3 | | 5 | | N | 0 | 0 | Cloudy, | Normal School. |
| Avignon, Normal School | | | 29.98 | 761.6 | 63.1 | 17.3 | 40 | NNW | | | 8 | | 0 | | | 0 | 0 | Clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.24 | 768.2 | 46.0 | 7.8 | 50 | NE | | | 3 | | 10 | | N | 0 | 0 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.34 | 770.5 | 45.1 | 7.3 | 77 | NNE | | | 2 | | 10 | | NNE | 0.004 | 0.10 | Covered | Normal School. |
| Besançon | | | 30.21 | 767.2 | 47.1 | 8.4 | 56 | N | | | 4 | | 5 | | NW | 0.390 | 9.9 | Cloudy | Normal School. |
| Bourg en Bresse | | | 30.22 | 767.6 | 51.8 | 11 | 63 | N | | | 4 | | 5kn | | S | 0.169 | 4.3 | Cloudy | Normal School. |
| Bourges | | | 30.21 | 767.2 | 48.6 | 9.2 | 76 | NE | | | 6 | | 5 | | SE | 0.071 | 1.8 | Cloudy | Normal School. |
| Brest | | | 30.23 | 767.7 | 56.7 | 13.7 | 47 | ESE | | | 4 | | 4k | | ESE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 30.09 | 764.3 | 60.8 | 16 | 55 | W | | | 2 | | 2 | | E | 0.12 | 3. | Slightly cl'dy | Normal School. |
| Caen | | | 30.35 | 770.8 | 48.0 | 8.9 | 59 | N | | | 4 | | | | S | 0 | 0 | | Normal School. |
| Chartres | | | 30.27 | 768.9 | 46.0 | 7.8 | 94 | NE | | | 2 | | 10 | | W | 0.067 | 1.7 | Covered | Normal School. |
| Châlons-sur-Marne | | | 30.26 | 768.6 | 46.8 | 8.2 | 57 | NNE | | | 4 | | 8k | | SSE | 0 | 0 | Very cloudy | Normal School. |
| Clermont | | | 30.16 | 766.0 | 48.0 | 8 9 | 76 | N | | | 2 | | 8 | | N | 0.083 | 2.1 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 30.22 | 767 5 | 43.2 | 6.2 | 53 | N | | | 2 | | 8 | | N | 0 | 0 | Very cloudy | Normal School. |
| Commune de Gréasque* | | | 29.91 | 759.8 | 63.5 | 17.5 | 28 | NW | | | 4 | | 2 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.04 | 762.9 | 53.2 | 11.8 | 49 | NW | | | 8 | | 5k | | SE | 0.049 | 1.25 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 30.23 | 767.9 | 56.3 | 13.5 | 55 | ENE | | | 6 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Le Mans | | | 30.31 | 769.8 | 47.3 | 8.5 | 57 | E | | | 2 | | 5 | | E | 0.020 | 0.5 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.16 | 766.1 | 50.9 | 10.5 | 46 | NE | | | 2 | | 5 | | | 0.071 | 1.8 | Cloudy | Normal School. |
| Lorient | | | 30.30 | 769.6 | 55.4 | 13.0 | 30 | ENE | | | 3 | | 5 | | NE | 0 | 0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.23 | 767.8 | 49.8 | 9.9 | 72 | N | | | 4 | | 5 | | E | 0.008 | 0.2 | Cloudy | Mr. Marchal. |
| Metz | | | 30.28 | 769.1 | 43.7 | 6.5 | 51 | NW | | | 3 | | 8k | | NW | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 30.16 | 766.1 | 43.9 | 6.6 | 85 | N | | | 4 | | 10 | | S | 0 | 0 | Covered | Normal School. |
| Nismes | | | 29.91 | 759.7 | 64.4 | 18 | 26 | N | | | 8 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.20 | 767.1 | 46.8 | 8.2 | 70 | N | | | 2 | | 5 | | N | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 30.30 | 769.7 | 46.2 | 7.9 | 42 | NNE | | | 2 | | 9k | | N | 0 | 0 | Almost cov'd | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.24 | 768.1 | 58.6 | 14.8 | 48 | NE | | | 4 | | 2 | | SW | 0 | 0 | ¾ covered | Naval Observatory. |
| Rouen | | | 30.28 | 769.1 | 47 3 | 8.5 | 55 | NNE | | | 2 | | 10 | | N | 0 | 0 | Covered | Normal School. |
| Tarbes | 29 03 | 737 3 | 30.10 | 764.6 | 59.0 | 15 | 55 | W | | | 1 | | 2 | | E | 0.059 | 1.5 | Slightly cl'dy | Normal School. |
| Villefranche | | | 30.13 | 765.3 | 53.1 | 11.7 | 76 | N | | | 6 | | 8 | | NW | 0.244 | 6.2 | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.82 | 757.3 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.85 | 758.2 | 65.3 | 18.5 | 39 | NW | | | 5 | | 0 | | | 0 | 0 | Clear | The Staff. |
| Mont-Louis | 24.87 | 631.6 | 30.18 | 766.6 | 44.1 | 6.7 | 43 | NNW | 16.8 | 7.50 | | | 2 | | W | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.29 | 769.3 | 45.9 | 7.7 | 49 | N | | | 2 | | 10 | | N | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 30.05 | 763.3 | 63.5 | 17.5 | 37 | NW | 26.1 | 11.67 | | | 2 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty and M. Baylac, Obs'r |
| Pic du Midi, (Plantade,) H. P. | 22.51 | 571.8 | | | 40.1 | 4.5 | | N | | | 1 | | 6 | | | 0 | 0 | | |
| Saint Maur, (near Paris) | | | 30.29 | 769.4 | 47.1 | 8.4 | 59 | N | | | 1 | | 8 | | | 0 | 0 | Very cloudy | E. Renou. |
| Toulouse, Observatory | | | 30.18 | 766.5 | 59.7 | 15.4 | 44 | NNW | | | 3 | | 3 | | | 0 | 0 | | The Staff. |
| Tours | | | 30.27 | 768.8 | 52.2 | 11.2 | 57 | NNE | | | 2 | | 10 | | N | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.29 | 769.4 | 46.8 | 8.2 | 57 | NE | | | 1 | | 9 | | | 0 | 0 | Almost cov'd | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.96 | 761.0 | 61.5 | 16.4 | 89 | E | 10.1 | 4.5 | | | 8kn | | | 0 | 0 | Cloudy | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. | | Barometer. Reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. Direction. | Wind. Velocity. | | Wind. Force. | Clouds. Amount. | | Clouds. Direction. | | Rain-fall or melted snow in the past 24 hours. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | | |
| Bamberg | | | 30.15 | 765.9 | 45.5 | 7.5 | 32 | NW | | | 7 | | 7 | N | | 0.008 | 0.2 | Rain & snow | Prof. T. Hoh. |
| Berlin | | | 30.06 | 763.4 | 50.9 | 10.5 | 32 | NW | | | 1 | | 6 | | | 0.024 | 0.6 | | Prof. Arndt. |
| Breslau | | | 29.96 | 761.0 | 47.1 | 8.4 | 43 | NW | | | 4 | | 9 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.17 | 766.3 | 44.4 | 6.9 | 59 | NE | | | 3 | | 10 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.16 | 766.1 | 42.4 | 5.8 | 48 | N | | | 7 | | 6 | NW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.21 | 767.3 | 44.2 | 6.8 | 54 | NE | | | 4 | | 8 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.37 | 771.4 | 43.9 | 6.6 | 53 | NNW | | | 5 | | 1 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.20 | 767.0 | 51.1 | 10.6 | 29 | N | | | 3 | | 7 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 29.03? | 737.4? | 30.15? | 765.8? | 43.7 | 6.5 | 76 | ENE | | | 5 | | 10 | NE | | 0.035 | 0.9 | Raining | M. Wilhelm. |
| Hamburg | | | 30.10 | 764.4 | 44.2 | 6.8 | 41 | NNW | | | 5 | | 8k,s | | | 0 | 0 | | Captain F. Hegemann. |
| Kiel | | | 30.04 | 763.0 | 46.0 | 7.8 | 86 | NW | | | 3 | | 3 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.80 | 757.0 | 40.3 | 4.6 | 84 | NW | | | 5 | | 10 | | | 0.012 | 0.3 | | Prof. E. Luther. |
| Köslin | | | 29.96 | 761.0 | 42.8 | 6.0 | | N | | | 4 | | 1 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 30.09 | 764.3 | 46.0 | 7.8 | 57 | NW | | | 4 | | 7 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.78 | 756.3 | 43.2 | 6.2 | 82 | NW | | | 4 | | 10ks | | | Inap. | Inap. | | Reinbrecht & Skalweit. |
| Münster | | | 30.18 | 766.5 | 49.1 | 9.5 | 63 | NW | | | | | 2 | | | 0.016 | 0.4 | Light rain | Prof. E. Heis. |
| Neufahrwasser | | | 29.89 | 759.2 | 39.4 | 4.1 | 82 | NNW | | | 4 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.95 | 760.6 | 48.0 | 8.9 | 44 | NW | | | 5 | | 7 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.20 | 767.1 | 43.0 | 6.1 | 75 | NE | | | 1 | | 6 | | | 0.071 | 1.8 | | Dr. Schur. |
| Stuttgart | | | 30.13 | 765.4 | 42.4 | 5.8 | 58 | N | | | 2 | | 8 | N | | 0.016 | 0.4 | Rain & graupel. | Prof. Schoder |
| Treves, (Trier) | | | 30.09 | 764.3 | 46.9 | 8.3 | 38 | W | | | 7 | | 4 | | | 0.004 | 0.1 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.55 | 725.1 | 30.10 | 764.5 | 39.9 | 4.4 | 76 | WNW | | | 4 | | 10 | NW | | 0.071 | 1.8 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.07 | 763.6 | 43.5 | 6.4 | 67 | WNW | | | 5 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.66 | 753.4 | 61.3 | 16.3 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.04 | 559.8 | 29.84 | 757.9 | 29.7 | — 1.3 | 98 | WSW | | | 6 | | 7 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 21.98 | 558.3 | 29.75 | 755.7 | 31.1 | — 0.5 | | E | | | 1 | | 6 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.74 | 755.5 | 64.2 | 17.9 | 48 | SW | 3.8 | 1.7 | | | 5 | | | 0.083 | 2.1 | | Ab. Dem. Morgini. |
| Padua | | | 29.73 | 755.2 | 63.3 | 17.4 | 53 | SSW | 6.3 | 2.8 | | | 4 | N | | 0.504 | 12.8 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.74 | 755.3 | 64.4 | 18.0 | 53 | WNW | 0.7 | 0.3 | | | 4 | | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.75 | 755.6 | 63.1 | 17.3 | 66 | E | | | 2 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.46 | 722.8 | 29.76 | 756.0 | 63.0 | 17.2 | 42 | SE | | | 2 | | 7 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.80 | 757.0 | 64.8 | 18.2 | 21 | N | | | 6 | | 3 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.77 | 756.2 | 70.9 | 21.6 | 46 | W | | | 2 | | 4 | W | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.77 | 756.1 | 67.5 | 19.7 | 34 | NE | | | 2 | | 2 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.78 | 756.4 | 66.0 | 18.9 | 39 | SE | 2.5 | 1.1 | | | 4 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 27.90 | 708.6 | 29.78 | 756.4 | 64.8 | 18.2 | 22 | NW | | | 4 | | 3 | N | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.86 | 758.4 | 64.2 | 17.9 | 40 | WNW | | | 2 | | 8 | | | 0.039 | 1.0 | Light rain | Prof. L. Vassallo. |
| Genoa | | | 29.80 | 756.9 | 65.1 | 18.4 | 52 | SE | 7.4 | 3.3 | | | 2 | N | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.78 | 756.3 | 65.1 | 18.4 | 43 | NW | 5.0 | 2.5 | | | 4 | N | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.76 | 755.9 | 66.2 | 19.0 | 46 | WNW | | | 4 | | 7 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.80 | 756.8 | 68.0 | 20.0 | 33 | NE | | | 2 | | 9 | NE | | 0.098 | 2.5 | Raining | Cav. F. Meucci. |
| Leghorn | | | 29.81 | 757.1 | 64.4 | 18.0 | 55 | NNW | 4.3 | 1.9 | | | 5 | NW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.58 | 725.9 | 29.77 | 756.2 | 62.4 | 16.9 | 44 | SE | 1.8 | 0.8 | | | 7 | NE | | 0.161 | 4.1 | Raining | Prof. L. Toscani. |
| Urbino | 28.26 | 717.7 | 29.79 | 756.7 | 55.4 | 13.0 | 55 | ENE | | | 4 | | 4 | | | 0.354 | 9.0 | Raining | Prof. P. Serpieri. |
| Pesaro | | | 29.81 | 757.1 | 59.5 | 15.3 | 68 | NW | 23.0 | 10.3 | | | 2 | NW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.80 | 756.8 | 60.4 | 15.8 | 68 | WNW | | | 2 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.79 | 756.6 | 67.3 | 19.6 | 41 | NNE | | | 4 | | 6 | NW | | 0.679 | 2.0 | | Avv. P. Pontiselli. |
| Rome | | | 29.71 | 754.7 | 66.2 | 19.0 | 36 | N | 12.5 | 5.6 | | | 3 | | | 0.138 | 3.5 | | Proc.'s P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.72 | 754.9 | 62.1 | 16.7 | 50 | NE | | | 2 | | 10 | NE | | 0.039 | 1.0 | Light rain | Prof. L. Palmieri. |
| Lecce | | | 29.69 | 754.1 | 57.2 | 14.0 | 76 | ENE | 6.9 | 3.1 | | | 8 | ENE | | 0.854 | 21.7 | Raining | Prof. C. DeGiorgi. |
| Cosenza | | | 29.73 | 755.2 | 57.2 | 14.0 | 73 | NE | 9.4 | 4.2 | | | 9 | | | 0.327 | 8.3 | Thunder-storm | Prof. F. D. Conti. |
| Cagliari | | | 29.84 | 758.0 | 65.3 | 18.5 | 42 | N | | | 6 | | 3 | NW | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.71 | 754.5 | 54.0 | 12.2 | 58 | SE | | | 2 | | 5 | | | 0 | 0 | | Prof. F. Caffero. |
| Palermo | | | 29.74 | 755.4 | 63.9 | 17.7 | 52 | W | 16.8 | 7.5 | | | 9 | W | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.81 | 706.3 | 29.71 | 754.6 | 61.2 | 16.2 | 61 | W | | | 6 | | 7 | SE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.71 | 754.6 | 68.0 | 20.0 | 52 | NW | | | 6 | | 9 | NW | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.76 | 755.8 | 59.0 | 15.0 | 59 | NE | 2.7 | 1.1 | | | 8 | E | | 0.177 | 4.5 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.70 | 754.4 | 66.5 | 19.2 | 89 | S | 2 | 0.9 | | | 10 | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.12 | 587.3 | 30.13 | 765.3 | 56.8 | 13.8 | 52 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.33 | 770.3 | 47.8 | 8.8 | | NNE | | | 4 | | | | | 0.016 | 0.4 | | |
| Groningen | | | 30.16 | 766.0 | 43.0 | 6.1 | | N | | | 4 | | | | | 0.004 | 0.1 | | |
| Helder | | | 30.26 | 768.5 | 41.4 | 5.2 | | NNW | | | 4 | | | | | 0.008 | 0.2 | | |
| Utrecht | | | 30.22 | 767.5 | 45.9 | 7.7 | 17 | NNW | | | 4 | | 8 | | | 0.012 | 0.3 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.03 | 762.7 | 33.8 | 1.0 | 96 | NNW | 25.9 | 11.6 | | | 10 | | | 0.068 | 0.2 | Snowing | |
| Brönö | | | 29.72 | 754.8 | 37.4 | 3.0 | 66 | W | 9 | 4 | | | 3 | | | 0.024 | 0.6 | | |
| Christiania | | | 29.82 | 757.5 | 41.9 | 5.5 | 27 | WNW | 2 | 1 | | | 10 | | | 0 | 0 | | |
| Tromsö | | | 29.43 | 747.4 | 33.4 | 0.8 | 82 | Calm | 0 | 0 | | | 10 | | | 0.331 | 8.4 | Snowing | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.65 | 753.2 | 60.4 | 15.8 | 87 | SSW | 2.5 | 1.1 | | | 6 | | | 0.276 | 7.0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.98 | 761.5 | 74.7 | 23.7 | 40 | E | 6.9 | 3.1 | | | 3 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 29.95 | 760.8 | 67.1 | 19.5 | 73 | SE | 6.3 | 2.8 | | | 0 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.02 | 762.6 | 69.4 | 20.8 | 57 | NE | 4.9 | 2.2 | | | 4 | WSW | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 29.72 | 754.8 | 65.1 | 18.4 | 80 | SSW | 6.9 | 3.1 | | | 5 | | | 0.339 | 8.6 | Light rain | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | |
|---|---|---|---|
| S. S. India | | | Lt. S. A. P. de Mirando. A. D. Pedroso, Commd't |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.80 | 757.0 | 52.9 | 11.6 | 44 | W | 16 | 7 | | | 8 | | | | | | Astronomical Obs. |
| Wilna | | | 29.67 | 753.7 | 53.6 | 12.0 | 82 | Calm | 0 | 0 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.72 | 754.9 | 47.8 | 8.8 | 67 | NE | 9 | 4 | | | 9 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.74 | 755.3 | 41.7 | 5.4 | 76 | NNE | 7 | 3 | | | 10 | | | | | | Central Physical Obs |
| Kuopio | | | 29.68 | 753.8 | 40.3 | 4.6 | 59 | E | 13 | 6 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 29.71 | 754.7 | 58.8 | 14.9 | 49 | ENE | 9 | 4 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.71 | 754.7 | 57.6 | 14.2 | 72 | E | 13 | 6 | | | 10 | | | | | | Kurdakof |
| Kertch | | | 29.72 | 754.9 | 56.5 | 13.6 | 81 | SSW | 13 | 6 | | | 9 | | | | | | Lagorio. |
| Moscow | | | 29.93 | 760.2 | 56.8 | 13.8 | 47 | S | 9 | 4 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 29.70 | 754.4 | 48.2 | 9.0 | 84 | ENE | 9 | 4 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.68 | 753.9 | 40.8 | 4.9 | 61 | NNW | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.35 | 720.2 | 29.75 | 755.6 | 59.2 | 15.1 | 66 | NNW | 22 | 10 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.48 | 748.7 | 56.7 | 13.7 | 79 | WSW | 13 | 6 | | | 10 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.88 | 759.0 | 57.4 | 14.1 | 37 | Calm | 0 | 0 | | | 1 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischei. |
| Ekaterinburg | 29.05 | 737.8 | 30.00 | 762.1 | 45.1 | 7.3 | 59 | E | 18 | 8 | | | 3 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.13 | 714.4 | 29.75 | 755.7 | 76.5 | 24.7 | 64 | Calm | 0 | 0 | | | 4 | | | | | | Michelson. |
| Barnaul | | | 30.11 | 764.9 | 45.0 | 7.2 | 30 | NW | 4 | 2 | | | 0 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.92 | 760.0 | 42.4 | 5.8 | 36 | S | 2 | 1 | | | 4 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | | | | | | | | | | | | | | | Mossin. |
| Peking, (China) | | | 29.87 | 758.7 | 56.5 | 13.6 | 42 | SE | 18 | 8 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.60 | 751.7 | 44.8 | 7.1 | 48 | NW | 20 | 9 | | | 2 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 30.7 | — 0.7 | | WNW | 7 | 3 | | | 10 | | | | | Snowing | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.98 | 761.5 | 72.1 | 22.3 | 42 | W | 1.5 | 0.67 | | 0 | 2 | | | 0 | 0 | Cloudy | Royal Observatory. |
| San Fernando | | | 29.97 | 761.2 | 79.5 | 26.4 | 46 | ESE | 7.2 | 3.2 | | 0 | 1 | | ESE | 0 | 0 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.97 | 761.3 | 77.5 | 25.3 | 84 | SSW | 2.7 | 1.2 | | 10pc | 3n | | | 0.161 | 4.1 | Covered | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.65 | 753.1 | 29.8 | — 1.2 | 80 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.61 | 752.2 | 41.7 | 5.4 | 60 | SW | | | 2 | | 7 | | | 0 | 0 | | |
| Hernosand | | | 29.65 | 753.1 | 43.9 | 6.6 | 38 | NW | | | 2 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 29.73 | 755.2 | 42.8 | 6.0 | 31 | W | | | 4 | | 3 | | | 0 | 0 | | |
| Wisby | | | 29.77 | 756.1 | 37.8 | 3.2 | 66 | NNW | | | 4 | | 0 | | | 0.068 | 0.2 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.73 | 755.2 | 43.7 | 6.5 | 61 | SW | 10.1 | 4.5 | | | 1 | | | 0.017 | 0.42 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimet r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.63 | 727 3 | 30.07 | 763.6 | 52.9 | 11.6 | 43 | NE | | | 3 | | 4 | | | 0.102 | 2.6 | Clouds | The Observatory. |
| Zurich | 28.45 | 722.6 | 30.12 | 765.1 | 44.2 | 6.8 | 79 | N | | | 2 | | 9 | | | 0.157 | 4.0 | Rainy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +2.8 mm; Thermometer, —2.8 cent.; Relative Humidity, —15 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimet r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.71 | 754.5 | 63.1 | 17.3 | 50 | ESE | 2 | 1.0 | | | 6 | | SW | 0.177 | 4.5 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.06 | 763.5 | 73.4 | 23.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.65 | 753.2 | 57.9 | 14.4 | | SE | | | 1 | | 10 | | | | | Thunder-storm | |
| Valona | | | 29.69 | 754.2 | 57.7 | 14.3 | | SW | | | 1 | | 5 | | | 0 | 0 | Cloudy | A. Bukran. |
| Varna | | | 29.69 | 754.0 | 60.8 | 16.0 | | S | | | 2 | | 5 | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.2 | 73.9 | 23.3 | 65 | W | | | 2 | | 7c,s | NW | SE | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimet r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.77 | 756.1 | 35.3 | 1.8 | 95 | NE | 5 | 2.2 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.86 | 758.4 | 42 | 5.6 | | SW | 3 | 1.3 | | | 10s | | SW | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B | | | 29.75 | 755.6 | 38 | 3.3 | 100 | NW | 4 | 1.8 | | | 10n | | N | 0.88 | 22.4 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.75 | 755.6 | 43 | 6.1 | 92 | E | 13 | 5.8 | | | 10n | | | 0.49 | 12.45 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.80 | 756.9 | 41.3 | 5.2 | 76 | SW | | | 1 | | 10s | | | 0 | 0 | Unsettled | James Smith, M. A. |
| Dalhousie, N. B | | | | | 35.2 | 1.8 | 100 | E | | | 1 | | | | | 0.32 | 8.1 | Raining | H. A. Johnson. |
| Esquimault, B. C | | | 30.14 | 765.5 | 41.1 | 5.1 | 99 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.75 | 755.6 | 36 | 2.2 | 95 | NE | 7 | 3.1 | | | Fog | | NE | 0.52 | 13.2 | Foggy | J. McWilliams. |
| Fredericton, N. B | | | 29.79 | 756.7 | 45.1 | 7.3 | 84 | N | 3 | 1.3 | | | 10 | | | 0.035 | 0.89 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.15 | 765.8 | 36 | 2.2 | 80 | N | 4 | 1.8 | | 5k | 2ks | NW | NW | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.96 | 761.0 | 33.6 | 0.9 | 93 | NW | | | 2 | | 10n | | | Inap | Inap | Threatening | H. J. Strang, M. A |
| Granton, Ontario | 28.77 | 730.7 | 29.90 | 759.4 | 35 | 1.7 | 90 | NW | | | 1 | | 10n | | | Inap. | Inap. | Cloudy | James Grant. |
| *Halifax, N. S | | | 29.75 | 755.6 | 40 | 4.4 | 98 | SE | 1 | 0 4 | | | Fog | | | 0.678 | 17.22 | Foggy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.93 | 760.2 | 37.0 | 2.8 | 65 | SW | | | 2 | | 8cs | 0 | SW | Inap. | Inap. | Cloudy | Geo. Dickson. |
| Heart's Content, N. F | | | 30.10 | 764.5 | 34 | 1.1 | 84 | NE | | | 1 | | 10 | | | 0 | 0 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 29.90 | 759.4 | 41 | 5.0 | 84 | W | 4 | 1.8 | | | 10ks | | W | 0 | 0 | Cloudy | S. Woods, M. A |
| *Montreal, Quebec | | | 29.80 | 756.9 | 42 | 5.6 | 80 | W | 16 | 7.2 | | | 10n | | W | 0.01 | 0.3 | Cloudy | C. H. McLeod, C. E |
| *Parry Sound, Ontario | | | 29.88 | 758.9 | 33 | 0.6 | 78 | W | 8 | 3.6 | | 2k | 5ks | W | W | 0.01 | 0.3 | Fair | Rev. R Mosley. |
| Port Dover, Ontario | | | 29.91 | 759.7 | 38 | 3.3 | 81 | NW | 6 | 2.7 | | 10k | 0 | W | | 0.01 | 0.3 | Cloudy | H. Morgan. |
| Port Hastings, N. S | | | 29.81 | 757.2 | 40.7 | 4.8 | | SE | 12 | 5.4 | | | | | | 0 | 0 | Foggy | Peter Grant |
| Port Stanley, Ontario | | | 29.92 | 760.0 | 38 | 3.3 | 78 | W | 4 | 1.8 | | | 10ks | | SW | Inap. | Inap. | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.78 | 756.4 | 42 | 5.6 | 91 | Calm | 0 | 0 | | | 10n | | | 0.21 | 5.3 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | | | 36 | 2.2 | 57 | NW | 14 | 6.3 | | | 5s | | NW | 0.04 | 1.0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | 29.81 | 757.2 | 45 | 7.2 | 96 | SE | 4 | 1.8 | | | 10 | | | 0.01 | 0.3 | Cloudy | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.90 | 759.4 | 36 | 2.2 | 71 | NW | 7 | 3.1 | | | 10n | | W | 0.01 | 0.3 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.87 | 758.7 | 36 | 2.2 | 71 | NW | 5 | 2.2 | | | 10n | | NW | Inap. | Inap. | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28 59 | 726.2 | 29.90 | 759.4 | 34.2 | 1.2 | 94 | NW | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29 91 | 759.7 | 40 | 4.4 | 96 | SE | 17 | 7.6 | | | 10n | | | 0.24 | 6.1 | Light rain | T. C. Hill. |
| *Toronto, Ontario | | | 29.91 | 759.7 | 39 | 3.9 | 75 | NW | 4 | 1.8 | | 5cs | 5ks | W. | W | Inap. | Inap. | Cloudy | Magnetic Observatory. |
| Windsor | | | 29.74 | 755 4 | 46.0 | 7.8 | 94 | S | 2 | 0.9 | | | 10n | | | 0.035 | 8.9 | Fair | John E. Oram. |
| Woodstock, Ontario | | | 29.90 | 759.4 | 38.4 | 3.6 | 87 | W | 5 | 2.2 | | | 8s | | | 0 | 0 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.14 | 765.5 | 38.0 | 3.3 | 81 | N | | | | Sm'e | Sm'e | | | Inap. | Inap. | Fair | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Lower. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.83 | 757.7 | 44 | 6.7 | 67 | NW | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Alpena, Mich. | | | 29.95 | 760.7 | 33 | 0.6 | 89 | NW | 6 | 2.7 | | | 10n | | NW | 0.02 | 0.5 | Light snow | |
| Atlantic City, N. J. | | | 29.82 | 757.4 | 51 | 10.6 | 65 | N | 10 | 4.5 | | 1c | 0 | W | | 0.06 | 1.5 | Clear | |
| Augusta, Ga. | | | 30.04 | 763.0 | 59 | 15.0 | 54 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.89 | 759.2 | 47 | 8.3 | 70 | N | 9 | 4.0 | | 5k | 2s | NW | NW | 0.06 | 1.5 | Fair | |
| Barnegat, N. J. | | | 29.81 | 757.2 | 51 | 10.6 | 59 | N | 18 | 8.0 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Bismarck, Dakota | 28.22 | 716.8 | 29.90 | 759.4 | 37 | 2.8 | 80 | Calm | 0 | 0 | | 1cs | 5s | | N | 0 | 0 | Fair | |
| Boston, Mass. | | | 29.75 | 755.6 | 46.5 | 8.1 | 100 | E | 5 | 2.2 | | | 10n,fg | | | 0.26 | 6.6 | Light rain | |
| Breckenridge, Minn. | | | 30.08 | 764.0 | 38 | 3.3 | 62 | NE | 4 | 1.8 | | 2k | 0 | | | 0 | 0 | Fair | |
| Buffalo, N. Y. | | | 29.87 | 758.7 | 37 | 2.8 | 90 | SW | 10 | 4.5 | | | 10s | | W | 0 | 0 | Cloudy | |
| Burlington, Vt. | | | 29.83 | 757.7 | 44 | 6.7 | 67 | N | 3 | 1.3 | | | 10s | | N | 0.03 | 0.8 | Cloudy | |
| Cairo, Ill. | | | 30.08 | 764.0 | 47 | 8.3 | 69 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.36 | 694.9 | 29.93 | 760.2 | 35 | 1.7 | 69 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 50 | 10.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.72 | 754.9 | 63 | 17.2 | 83 | W | 6 | 2.7 | | 8k | 0 | W | | 0.11 | 2.8 | Fair | |
| Cape Henry, Va. | | | 29.84 | 757.9 | 51 | 10.6 | 72 | N | 11 | 4.9 | | | 10s | | N | Inap. | Inap. | Cloudy | |
| Cape Lookout, N. C. | | | 29.82 | 757.4 | 59 | 15.0 | 76 | NW | 14 | 6.3 | | 1k | Haze | NW | | 0.12 | 3.0 | Fair | |
| Cape May, N. J. | | | 29.85 | 758.2 | 48 | 8.9 | 77 | NW | 18 | 8.0 | | 5k | 0 | NW | | 0.03 | 0.8 | Fair | |
| Charleston, S. C. | | | 29.98 | 761.5 | 56 | 13.3 | 39 | NW | 11 | 4.9 | | 2cs | 0 | W | | 0.03 | 0.8 | Fair | |
| Cheyenne, Wyoming | 23.86 | 606.0 | 29.80 | 756.9 | 40 | 4.4 | 83 | NW | 8 | 3.6 | | 10c | 0 | W | | 0 | 0 | Cloudy | |
| Chicago, Ill. | | | 29.99 | 761.7 | 39 | 3.9 | 73 | W | 5 | 2.2 | | 2c | 2s | NW | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.99 | 761.7 | 40 | 4.4 | 64 | W | 5 | 2.2 | | 10ck | Sm'e | NW | | Inap. | Inap. | Cloudy | |
| Cleveland, Ohio | | | 29.95 | 760.7 | 35.5 | 1.9 | 80 | SW | 9 | 4.0 | | | 10n | | | 0.02 | 0.5 | Light snow | |
| Corsicana, Tex. | | | 30.12 | 765.0 | 49 | 9.4 | 71 | SW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 30.07 | 763.8 | 39 | 3.9 | 81 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.06 | 763.5 | 57 | 13.9 | 57 | SW | 8 | 3.6 | | 1k | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.64 | 625.8 | 29.86 | 758.4 | 39 | 3.9 | 63 | S | 4 | 1.8 | | | 8s | | | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 29.93 | 760.2 | 34 | 1.1 | 79 | NW | 6 | 2.7 | | | 10n | | | 0.01 | 0.3 | Light snow | |
| Dodge City, Kan. | 27.30 | 693.4 | 29.59 | 751.6 | 44 | 6.7 | 67 | SE | 8 | 3.6 | | 2c | 0 | W | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 30.04 | 763.0 | 36 | 2.2 | 70 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 30.09 | 764.3 | 36 | 2.2 | 62 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.75 | 755.6 | 43 | 6.1 | 100 | N | 4 | 1.8 | | | 10n | | | 2.20 | 55.9 | Light rain | |
| Erie, Pa. | | | 29.89 | 759.2 | 38 | 3.3 | 80 | SW | 8 | 3.6 | | | 10s | | SW | 0.06 | 1.5 | Cloudy | |
| Escanaba, Mich. | | | 30.02 | 762.5 | 31 | —0.6 | 70 | NW | 8 | 3.6 | | 2c | 0 | NW | | 0 | 0 | Clear | |
| Florence, Arizona | | | | | 60 | 15.6 | | | | | | 0 | 2s | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 30.04 | 763.0 | 50 | 10.0 | 64 | E | 6 | 2.7 | | | 10n | | | Inap. | Inap. | Light rain | |
| Ft. St. Michael, Alaska | | | 29.75 | 755.6 | 32 | 0.0 | 100 | N | | | 2 | 10ck | 0 | S | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.78 | 731.0 | 29.89 | 759.2 | 54 | 12.2 | 43 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.29 | 718.6 | 29.94 | 760.5 | 49 | 9.4 | 77 | SE | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Galveston, Tex. | | | 30.18 | 766.6 | 69 | 15.6 | 54 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 29.99 | 761.7 | 36 | 2.2 | 75 | NW | 8 | 3.6 | | | 10s | | NW | 0.02 | 0.5 | Cloudy | |
| Indianapolis, Ind. | | | 30.04 | 763.0 | 38 | 3.3 | 71 | NW | 4 | 1.8 | | 5c,cs | 0 | | | Inap. | Inap. | Fair | |
| Indianola, Tex. | | | 30.20 | 767.1 | 67 | 19.4 | 46 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.03 | 762.7 | 62 | 16.7 | 36 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.06 | 763.5 | 46 | 7.8 | 61 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.96 | 761.0 | 73 | 22.8 | 96 | NW | 8 | 3.6 | | | 10ks | | NW | 0.27 | 6.9 | Cloudy | |
| Kittyhawk, N. C. | | | 29.85 | 758.2 | 51 | 10.6 | 97 | N | 26 | 11.6 | | | 10s | | | 0.30 | 7.6 | Cloudy | |
| Knoxville, Tenn. | | | 30.09 | 764.3 | 42 | 5.6 | 58 | NW | 4 | 1.8 | | 6k | 0 | W | | 0 | 0 | Cloudy | |
| LaCrosse, Wis. | | | 30.07 | 763.8 | 34 | 1.1 | 69 | N | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.03 | 762.7 | 45 | 7.2 | 67 | Calm | 0 | 0 | | 5k | Fog | | | 0 | 0 | Fair | |
| Louisville, Ky. | | | 30.05 | 763.3 | 44 | 6.7 | 66 | SW | 6 | 2.7 | | 5k | Haze | W | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 29.91 | 759.7 | 49 | 9.4 | 37 | NW | 6 | 2.7 | | 10k | 0 | NW | | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 64 | 17.8 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.98 | 761.5 | 30 | —1.1 | 79 | W | 8 | 3.6 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Memphis, Tenn. | | | 30.11 | 764.8 | 51 | 10.6 | 59 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| Milwaukee, Wis. | | | 30.04 | 763.0 | 38 | 3.3 | 63 | NE | 4 | 1.8 | | 0 | 2s | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.16 | 766.4 | 56 | 13.3 | 50 | N | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.14 | 765.5 | 53 | 11.7 | 66 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.84 | 732.5 | 29.90 | 759.4 | 40 | 4.4 | 73 | SW | 12 | 5.4 | | | 10s | | SW | Inap. | Inap. | Threatening | |
| Mt. Washington, N. H. | 23.53 | 597.6 | 29.89 | 759.2 | 30 | —1.1 | 89 | W | 12 | 5.4 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn. | | | 30.10 | 764.5 | 44 | 6.7 | 67 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.78 | 756.4 | 53 | 11.7 | 38 | N | 15 | 6.7 | | 8ck | Haze | N | | 0 | 0 | Fair | |
| New London, Conn. | | | 29.77 | 756.1 | 52 | 11.1 | 66 | NW | 7 | 3.1 | | 2k | 8s | E | W | 0.06 | 1.5 | Cloudy | |
| New Orleans, La. | | | 30.16 | 766.1 | 61 | 16.1 | 50 | NE | 3 | 1.3 | | 0 | Sm'e | | E | 0 | 0 | Clear | |
| Newport, R. I. | | | 29.77 | 756.1 | 48 | 8.9 | 92 | SW | 3 | 1.3 | | | 10s | | SW | 0 | 0 | Threatening | |
| New York, N. Y. | | | 29.83 | 757.7 | 51 | 10.6 | 52 | NW | 9 | 4.0 | | 2k | 2ks | W | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 29.86 | 758.4 | 51.5 | 10.8 | 65 | NE | 19 | 8.5 | | | 10s | | NE | 0.01 | 0.3 | Cloudy | |
| North Platte, Neb. | 26.98 | 685.3 | 29.54 | 750.3 | 44 | 6.7 | 84 | E | | | | | 10ks | | E | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.93 | 734.8 | 30.03 | 762.7 | 41 | 5.0 | 74 | Calm | 0 | 0 | | 2c | 0 | | | 0 | 0 | Clear | |
| Oswego, N. Y. | | | 29.88 | 758.9 | 44 | 6.7 | 64 | SW | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| Pembina, Dakota | | | 30.13 | 765.3 | 36 | 2.2 | 70 | NW | 8 | 3.6 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Philadelphia, Pa. | | | 29.85 | 758.2 | 47 | 8.3 | 69 | N | 9 | 4.0 | | 5c | Haze | SW | | 0.03 | 0.8 | Fair | |
| Phœnix, Arizona | | | | | | | | | | | | | | | | | | | |
| Pike's Peak, Col. | 17.62 | 447.5 | 29.83 | 757.7 | 13 | —10.6 | 100 | W | 52 | 23.2 | | 10cs | 0 | NW | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 29.92 | 760.0 | 38 | 3.3 | 71 | W | 5 | 2.2 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Port Huron, Mich. | | | 29.91 | 759.7 | 32 | 0.0 | 100 | N | 9 | 4.0 | | | 10n | | NE | 0.01 | 0.3 | Light snow | |
| Portland, Me. | | | 29.75 | 755.6 | 48 | 8.9 | 85 | NE | 4 | 1.8 | | | 10n | | | 0.50 | 12.7 | Light rain | |
| Portland, Oregon | | | 30.21 | 767.3 | 41 | 5.0 | 100 | Calm | 0 | 0 | | | Fog | | | 0.10 | 2.5 | Foggy | |
| Punta Rassa, Fla. | | | | | | | | | | | | | | | | | | | |
| Prescott, Arizona | | | 29.97 | 761.2 | 69.5 | 20.8 | 87 | N | 9 | 4.0 | | | 10s | | W | 0.34 | 8.6 | Cloudy | |
| Rochester, N. Y. | | | 29.85 | 758.2 | 41 | 5.0 | 73 | W | 11 | 4.9 | | 10ck | 0 | W | | 0 | 0 | Cloudy | |
| Salt Lake City, Utah | 25.52 | 648.2 | 29.85 | 758.2 | 41 | 5.0 | 91 | NE | 2 | 0.9 | | | 10n | | | 0.66 | 16.8 | Light rain | |
| Sandy Hook, N. J. | | | 29.83 | 757.7 | 51 | 10.6 | 59 | N | 10 | 4.5 | | 2c | 0 | W | | 0 | 0 | Fair | |
| San Diego, Cal. | | | 29.97 | 761.2 | 57 | 13.9 | 81 | W | 4 | 1.8 | | | 10s | | W | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.90 | 759.4 | 51 | 10.6 | 78 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.24 | 590.3 | 29.78 | 756.4 | 35 | 1.7 | 70 | Calm | 0 | 0 | | 5c | 0 | | | Inap. | Inap. | Fair | |
| Savannah, Ga. | | | 30.02 | 762.5 | 57 | 13.9 | 46 | NW | 10 | 4.5 | | 5c | 0 | W | | 0.04 | 1.0 | Fair | |
| Shreveport, La. | | | 30.18 | 766.6 | 56 | 13.3 | 83 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 29.87 | 758.7 | 54 | 12.2 | 73 | NW | 12 | 5.4 | | 5c | 0 | W | | 0.25 | 6.3 | Fair | |
| Springfield, Mass. | | | 29.81 | 757.2 | 53 | 11.7 | 50 | N | 5 | 2.2 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 30.07 | 763.8 | 43 | 6.1 | 59 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.08 | 764.0 | 57 | 13.9 | 40 | N | 14 | 6.3 | | 2c | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.04 | 763.0 | 37 | 2.8 | 45 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | | | | | | | | | | | | | | | |
| Thatcher's Island, Mass. | | | 29.77 | 756.1 | 47 | 8.3 | 92 | Calm | 0 | 0 | | | 10n | | | 0.32 | 8.1 | Rain & fog | |
| Toledo, Ohio | | | 29.95 | 760.7 | 36 | 2.2 | 80 | W | 7 | 3.1 | | | 10n | | W | 0.04 | 1.0 | Light snow | |
| Tucson, Arizona | 27.45 | 697.2 | 30.00 | 762.0 | 50 | 10.0 | | S | | | | 1c | 0 | W | | 0 | 0 | Clear | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er —10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tybee Island, Ga. | | | 29.99 | 761.7 | 56 | 13.3 | 43 | NW | 12 | 5.4 | | 2ck | 0 | W | | 0.15 | 3.8 | Clear | |
| Vicksburg, Miss. | | | 30.17 | 766.3 | 52.5 | 11.4 | 72 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T. | 24.14 | 613.1 | 29.62 | 752.3 | 30 | — 1.1 | 89 | Calm | 0 | 0 | | | 10n | | SE | 0.41 | 10.4 | Light snow. | |
| Washington, D. C. | | | 29.92 | 760.0 | 45.5 | 7.5 | 64 | N | 6 | 2.7 | | 5k | 5s | SW | SW | 0.03 | 0.8 | Cloudy | |
| Wickenburg, Ariz. | | | | | 51 | 10.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C. | | | 29.87 | 758.7 | 53 | 11.7 | 61 | NW | 16 | 7.2 | | 2cs | 0 | SW | | 0.27 | 6.9 | Fair | |
| Wood's Holl, Mass. | | | 29.78 | 756.4 | 48 | 8.9 | 92 | SE | 2 | 0.9 | | | Fog | | | 0.05 | 1.3 | Dense fog | |
| Yankton, Dakota | 28.78 | 731.0 | 30.10 | 764.5 | 38 | 3.3 | 81 | NE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 30.12 | 765.0 | 60 | 15.6 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I. | | | 30.16 | 766.1 | 79 | 26.1 | 74 | Calm | 0 | 0 | | 2k | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I. | | | | | 79 | 26.1 | | E | | | 2 | | | | | 0.74 | 18.8 | | Dr. G. H. Davison |
| Clifton, Ja., W. I. | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A. | | | 29.97 | 761.2 | 81 | 27.2 | 87 | E | | | 2 | 5k | 6ks | E | | 0.460 | 11.68 | ¾ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A. | 30.03 | 762.8 | | | 78.8 | 26 | | E | | | | | | | | 1.378 | 35.00 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A. | | | | | 66.5 | 19.2 | 87 | Calm | | | 0 | | 10n | | | 1.51 | 38.1 | Cloudy | Thomas Herran. |
| York Factory, B. A. | 25.28 | 642.1 | | | 18.0 | — 7.8 | 92 | NW | 25 | 11.2 | | | 9s | | | 0 | 0 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I. | | | 30.20 | 767.1 | 71.5 | 21.9 | | NE | | | 3 | | | | | 0 | 0 | Hazy | Daniel Smith. |
| Makawao, Maui, H. I. | | | 30.03 | 764.3 | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,200 (?) ft., or 1066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.9 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,136 ft., or 1,565.2 m.; Dodge City, 2,856 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,800 (?) ft., or 548.7 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.6 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 (?) ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,130.7 ft., or 4,304.1 m.; Salt Lake City, 4,332.2 ft., or 1,320.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3,488 inches; Campo, 2.37 in.; Cheyenne, 5.84 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.51 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather at Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.98 | 761.5 | 62 | 16.7 | 46 | 7.8 | 62 | N | | | 2 | | 8 | | W | 0.04 | 1.0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.95 | 760.7 | 56.5 | 13.6 | 51.5 | 10.8 | | SSW | | | 4 | | 4 | | NNW | 0 | 0 | | | Fair | |
| Navy Yard, Norfolk, Va | 29.99† | 761.7† | 51 | 10.6 | 52 | 11.1 | 66 | N | 14 | 6.3 | | | 10n | | | 0 | 0 | | | Overcast | |
| Navy Yard, Pensacola, Fla | 30.21 | 767.3 | | | 57 | 13.9 | 58 | N | 5 | 2.2 | | | 3 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.83 | 757.7 | 64 | 17.8 | 46 | 7.8 | 92 | NNE | 1 | 0.4 | | | 10 | | | 0.75 | 19.1 | | | Rainy | |
| Naval Hospital, Yokohama, Japan | 29.62 | 752.3 | 70 | 21.1 | 67 | 19.4 | 92 | SW | | | 6 | | 10sd | | SW | 0 | 0 | | | Cloudy | |
| Adams, N. 31° 34′ W. 45° 00′ | 29.97 | 761.2 | 66 | 18.9 | 66 | 18.9 | 89 | NNW | | | 3 | | 7 | | N | | | Light | N | D. clouds | |
| Alert, Yokohama, Japan | 30.47 | 773.9 | 68 | 20.0 | 68 | 20.0 | 95 | SSW | | | 4–6 | | 10 | | SSW | | | Calm | None | Squally | |
| Alliance, N 33° 10′ E. 26° 37′ | 29.96 | 761.0 | 68 | 20.0 | 65 | 18.3 | 78 | S | | | 2 | | 5 | | E | | | Smooth | S | Pleasant | |
| Ashuelot, N. 20° 15′ E. 111° 10′ | 29.52 | 749.8 | | | 78 | 25.6 | 91 | SE | | | 3 | | 2 | | | | | Moderate. | SSE | Hazy | |
| Canonicus, New Orleans, La | 30.16 | 766.1 | 50 | 10.0 | 63 | 17.2 | 52 | SE | | | 2 | | 0 | | | | | | | Clear | |
| Colorado, New York, N. Y | 29.85 | 758.2 | 57 | 13.9 | 52 | 11.1 | 69 | NW | 8 | 3.6 | | | 6 | | N&W | 0 | 0 | | | D. clouds | |
| Essex, Vera Cruz, Mexico | 30.08 | 764.0 | 75 | 23.9 | 76 | 24.4 | 86 | NNW | | | 5 | | 10 | | SSW | 0 | 0 | | N | Misty | |
| Frolic, Monte Video, Uruguay | 30.00 | 762.0 | | | 73 | 22.8 | 90 | NNW | | | 3 | | 10n | | | Blank | Blank | Smooth | | D. clouds | |
| ‡Gettysburg, Messina, Sicily | 29.82 | 757.4 | | | 63 | 17.2 | 100 | WNW | | | 2 | | 6 | | WNW | | | Calm | None | Showery | |
| Hartford, St. Pierre, Martinique, W. I. | 30.15 | 765.8 | 80 | 26.7 | 80 | 26.7 | 77 | E | 3.6 | 1.6 | | | 9 | | | 0.062 | 1.57 | | | Overcast | |
| Kearsarge, Nagasaki, Japan | 29.97 | 761.2 | 70 | 21.1 | 65 | 18.3 | 94 | Calm | | | 0 | | 5 | | SE | Blank | Blank | Calm | None | Hazy | |
| Lackawana, N. 19° 09′ W. 105° 22′ | 30.00 | 762.0 | | | 76 | 24.4 | 91 | N | | | 1–2 | | 6 | | SSW | | | Smooth | | D. clouds | |
| Marion, N. 38° 40′ E. 25° 32′ | 29.70 | 754.4 | 66 | 18.9 | 64 | 17.8 | 94 | WSW | | | 4 | | 9 | | ENE | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.36 | 745.7 | 48 | 8.9 | 38 | 3.3 | 72 | WSW | | | 1 | | 10 | | WSW | | | | | Cloudy | |
| Monocacy, Shanghai, China | 29.84 | 757.9 | | | 66 | 18.9 | 84 | SW | | | 2 | | 2 | | SW | | | | | D. clouds | |
| Monongahela, Baltimore, Md | 29.90 | 759.4 | 48 | 8.9 | 51 | 10.6 | | NW | | | 1 | | ..k | | | | | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.18 | 766.6 | | | 59 | 15.0 | 59 | NW | | | 5 | | 4 | | SE | 0.5 | 13. | | | D. clouds | |
| Omaha, Panama | 30.02 | 762.5 | 80 | 26.7 | 80 | 26.7 | 87 | NW | | | 1 | | 7 | | N | 0.05 | 1.3 | Calm | None | Pleasant | |
| Ossipee, N. 22° 37′ W. 78° 01′ | 30.03 | 762.7 | 80 | 26.7 | 77 | 25.0 | 91 | SSW | | | 2 | | 2 | | SW | | | Calm | None | D. clouds | |
| Palos, Shanghai, China | 29.99 | 761.7 | 66 | 18.9 | 62 | 16.7 | 88 | ENE | | | 2 | | 0 | | | | | | | Clear | |
| Pensacola, N. 16° 22′ W. 99° 25′ | 30.08 | 764.0 | | | 83 | 27.8 | 79 | N&W | | | 1 | | 2 | | | 0 | 0 | Moderate | W | Hazy | |
| Plymouth, Natchez, Miss | 30.10 | 764.5 | 66 | 18.9 | 61 | 16.1 | 71 | SW | | | 2 | | 0 | | | 0 | 0 | | | Clear | |
| Ranger, N. 36° 14′ W. 49° 18′ | 30.20 | 767.1 | | | 60 | 15.6 | 94 | NW | | | 3 | | 4 | | S&E | | | Moderate. | S&E | Pleasant | |
| Richmond, Near Monte Video, Uruguay | 30.01 | 762.2 | 70.2 | 21.2 | 68.8 | 20.4 | 95 | N | | | 3 | | 10 | | | Blank | Blank | Calm | None | Overcast | |
| Rio Bravo, Matamoras, Mexico | 30.06 | 763.5 | | | 55 | 12.8 | ? | NE | | | 1 | | 3 | | N&E | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.96 | 761.0 | 64 | 17.8 | 47 | 8.3 | 62 | NW | | | 3 | | 9 | | | 0.05 | 1.3 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.80 | 756.9 | 55 | 12.8 | 48 | 8.9 | 85 | NW | 6 | 2.7 | | | 5 | | WSW | 0.12 | 3.0 | | | Fair | |
| Swatara, Aspinwall, N. G., S. A. | 30.02 | 762.5 | 82 | 27.8 | 80 | 26.7 | 91 | Calm | | | 0 | | 10k | | | Blank | Blank | Smooth | | Overcast | |
| Tennessee, Yokohama, Japan | 29.65 | 753.1 | 71 | 21.7 | 71 | 21.7 | 95 | S | | | 1–2 | | 10 | | | | | Smooth | | D. clouds | |
| Trenton, Villefranche, France | 29.88† | 758.9† | 70 | 21.1 | 66 | 18.9 | ? | SE | 7 | 3.1 | | | 7 | | | 0.2 | 5. | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.75 | 755.6 | 61 | 16.1 | 59 | 15.0 | 94 | SE | | | 1 | | 7 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.80 | 756.9 | 57 | 13.9 | 56 | 13.3 | 94 | SE | 2 | 0.9 | | | 10 | | | 0.25 | 6.3 | | | Drizzling | |
| Wyoming, Washington, D.C | 30.26† | 768.6† | 58 | 14.4 | 48 | 8.9 | | WNW | | | 1 | | 10 | | | | | | | D clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.85 | 758.2 | 82 | 27.8 | 91 | SSE | | | 1 | | 5ks | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 49° 7′, W. 21° 43′ | E by N ¾ N | 6.5 | 29.84 | 757.9 | 54.5 | 12.5 | | ESE | | | 2 | | d | | SE | Short sea. | | Rain & mist. | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 47° 20′, W. 35° 4′ | SW by W ½ W | | 29.33 | 745.0 | 51.1 | 10.6 | | N | | | 3 | | n | | | Moderate. | | Thick with rain. | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

## RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

## MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, Providence, R. I. | | | 29.74 | 755.4 | 52 | 11.1 | 100 | Calm | | | | | 10n | | | | | Rainy | Capt. James Jorgensen |

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz. cirrus, cumulus, stratus, nimbus, scud, macro, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 2, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.96 | 760.9 | 71.2 | 21.8 | 67 | N | | | 3 | | 1 | | | 0 | 0 | Clear. | Michel. |
| Algiers | | | 29.96 | 760.9 | 61.9 | 16.6 | 65 | E | | | 3 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.02 | 762.4 | 65.5 | 18.6 | 71 | NW | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.01 | 762.3 | 69.8 | 21 | | WNW | | | 5 | | 3 | | | 0 | 0 | Fair | Jacques. |
| Sfax | | | 30.05 | 763.2 | 69.8 | 21 | | W | | | 3 | | 5 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.02 | 762.5 | 77.9 | 25.5 | | NNE | | | 2 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.97 | 761.2 | 68.4 | 20.2 | | W | | | 2 | | 0 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.07 | 763.8 | 78.8 | 26.0 | 11 | SSE | | | 2 | | 0 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.04 | 763.0 | 78.1 | 25.6 | 14 | W | | | 1 | | 0 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.06 | 763.4 | 81.5 | 27.5 | 16 | SE | | | 1 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.03 | 762.8 | 51.3 | 10.7 | 39 | NE | | | 4 | | 7 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.03 | 762.7 | 46.4 | 8.0 | 29 | NE | | | 1 | | 8 | | | 0.020 | 0.5 | | Dr. Wierzbiski. |
| Eperies | | | 29.93 | 760.1 | 46.8 | 8.2 | 50 | N | | | 4 | | ..cks | | | 0.026 | 0.65 | | Julius Mikolik. |
| Gratz | 28.78 | 731.1 | 30.05 | 763.2 | 48.6 | 9.2 | 29 | NW | | | 6 | | 0 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.29 | 718.5 | 29.69 | 754.0 | 56.5 | 13.6 | 60 | N | | | 2 | | 5 | | | 0.687 | 17.45 | Raining | Prof. Reissenberger. |
| Kremsmünster | 28.79 | 731.3 | 30.18 | 766.5 | 40.6 | 4.8 | 56 | NW | | | 3 | | 10 | | | 0.138 | 3.5 | | Prof. C. Wagner. |
| Lemberg | | | 29.89 | 759.2 | 40.6 | 4.8 | 71 | N | | | 2 | | 10 | | | 0.020 | 0.5 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 30.00 | 761.9 | 55.2 | 12.9 | 47 | ENE | | | 2 | | 6ks | | | 0.019 | 0.48 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.91 | 759.6 | 49.3 | 9.6 | 73 | N | | | 1 | | 10 | | | 0.575 | 14.60 | | Karl Stancel. |
| Trieste | | | 30.02 | 762.4 | 57.2 | 14.0 | 37 | E | | | 2 | | 2 | | | 0 | 0 | Almost clear | P. Busin. |
| Vienna | | | 30.11 | 764.7 | 44.2 | 6.8 | 39 | NW | | | 4 | | 8 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.74 | 729.9 | 30.24 | 768.0 | 41.2 | 5.1 | 48 | NNW | | | 2 | | 6 | | | 0 | 0 | | Royal Observatory |
| Brussels | | | 30.29 | 769.3 | 45.1 | 7.3 | 63 | N | | | 1 | | 10 | | N | 0 | 0 | Covered | |
| Furnes | | | 30.28 | 769.1 | 46.4 | 8.0 | 52 | NW | | | 1 | | 10 | | | 0.008 | 0.2 | | |
| Maeseyck | | | 30.16 | 766.1 | 46.8 | 8.2 | 68 | WSW | | | 2 | | 8 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.22 | 767.6 | 39.6 | 4.2 | | NNE | 14 | 6.3 | | | 9 | | | 0.020 | 0.51 | Drizzling | William Boswell. |
| Ardrossan | | | 30.26 | 768.6 | 49 | 9.4 | | W | | | 2 | | 1 | | | | | Blue sky | William McNeil. |
| Armagh, Observatory | | | 30.31 | 769.9 | 50.2 | 10.1 | | SSW | 10 | 4.5 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson |
| Bidston, (Liverpool Obs.) | | | 30.27 | 768.8 | 47.8 | 8.8 | | NW | 17 | 7.6 | | | 1 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.26 | 768.6 | 52.8 | 11.6 | | ESE | | | 1 | | 10 | | | | | Overcast | J. Dreyer. |
| Bradford, Yorkshire | | | 30.24 | 768.1 | 47.1 | 8.4 | | Calm | | | 0 | | 4 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 79.6 | 26.4 | | NE | | | 2 | | 5? | | | | | Overcast? | Pvt. G. W. Roberts, [illegible] |
| Cambridge, Observatory | | | 30.28 | 769.1 | 49.0 | 9.4 | | NW | | | 1 | | 10 | | | | | Overcast | H. Todd. [illegible] |
| Cardington | | | 30.28 | 769.1 | 52.0 | 11.1 | | SW | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.36 | 771.1 | 47.2 | 8.4 | | Calm | | | 0 | | 5 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.79 | 731.3 | 30.30 | 769.6 | 45.4 | 7.4 | | E | | | 3 | | 7 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.28 | 769.1 | 48 | 8.9 | | SSW | | | 2 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.30 | 769.6 | 47 | 8.3 | | ESE | | | 2 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.24 | 768.1 | 48.7 | 9.3 | | NE | | | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.29 | 769.4 | 48.0 | 8.9 | | ENE | | | 3 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.65 | 702.3 | 29.88 | 758.9 | 71.5 | 21.9 | | E | | | 2 | | 2 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.94 | 760.5 | 89 | 31.7 | | N | | | 1 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.19 | 766.8 | 53 | 11.7 | | SE | | | 1 | | 4 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.92 | 760.0 | 66.5 | 19.2 | | E | | | 3 | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.21 | 767.3 | 50.6 | 10.3 | | W | | | 1 | | | | | | | Blue sky | Lewis Stuart. |
| Great Yarmouth | | | 30.29 | 769.4 | 47 | 8.3 | | NNE | | | 3 | | 4 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y, | | | 30.30 | 769.6 | 46.6 | 8.1 | | W | | | 1 | | 10 | | | | | Overcast | The Staff, for G. B. Airy |
| Guernsey | | | 30.26 | 768.6 | 49 | 9.4 | | ESE | | | 2 | | 7 | | | | | D. clouds | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.27 | 768.8 | 53 | 11.7 | | E | | | 4 | | 4c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.29 | 769.4 | 47 | 8.3 | | NNW | | | 2 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.31 | 769.9 | 47.9 | 8.8 | | WSW | 6 | 2.7 | | | 7k | | | | | Hazy | The Staff. |
| Kingstown | | | 30.31 | 769.9 | 49 | 9.4 | | SE | | | 4 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.26 | 768.6 | 48.8 | 9.3 | | SW | | | 2 | | 8 | | | | | D. clouds | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 29.90 | 759.4 | 66.0 | 18.9 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 30.26 | 768.6 | 39 | 3.9 | | NNW | | | 3 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.03 | 762.7 | 73.0 | 22.8 | | NW | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.27 | 768.8 | 52.3 | 11.3 | | SSW | | | 3 | | 7k | | SW | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.25 | 768.3 | 51.2 | 10.7 | | SSW | | | 2-3 | | 9 | | | | | Hazy | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.27 | 768.8 | 51 | 10.6 | | W | | | 1 | | 6 | | | | | D. clouds | J. W. Lucas. |
| Plymouth | | | 30.28 | 769.1 | 48.4 | 9.1 | | E | | | 2 | | 4 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.27 | 768.8 | 55 | 12.8 | | S | | | 4 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.29 | 769.4 | 53 | 11.7 | | SSW | | | 1 | | 5 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.25 | 768.3 | 51.8 | 11.0 | | E | | | 3 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.24 | 768.1 | 37.5 | 3.1 | | NW | 28 | 12.5 | | | 10 | | | Blank | Blank | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.62 | 752.3 | 62.0 | 16.7 | | WSW | | | 1 | | 8 | | | Blank | Blank | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.16 | 766.1 | 48.4 | 9.1 | | SE | | | 1 | | 8 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.36 | 771.1 | 54.2 | 12.3 | 52 | W | | | 3 | | 1 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.24 | 768.1 | 49.2 | 9.6 | | NW | | | 0 | | 6 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.26 | 768.6 | 39 | 3.9 | | NNE | | | 5 | | 10 | | | | | Snowing | John Smith. |
| Stratfield Turgiss | | | 30.32 | 770.1 | 47.8 | 8.8 | | N | | | 1 | | 3 | | | | | D. clouds | Rev. Charles H. Griffith |
| Thurso | | | 30.23 | 767.8 | 38 | 3.3 | | N | | | 4 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.26 | 768.6 | 55 | 12.8 | | SE | | | 6 | | 5 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.23 | 767.8 | 53.6 | 12.0 | | SE | 26 | 11.6 | | | 10 | | | | | Hazy | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 45 | 7.2 | | W | | | 1 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.94 | 760.5 | 72.9 | 22.7 | 54 | SSE | 6 | 2.7 | | 2 | 4 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.22 | 767.6 | 62.0 | 16.7 | 82 | SE | | | 2 | | 10k | | | 0.01 | 0.3 | | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.23 | 767.8 | 51.0 | 10.6 | | NW | | | 2 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 29.85 | 758.2 | 77.1 | 25.1 | 64 | SE | 14.3 | 6.4 | | 0 | 1 | | SE | 0 | 0 | Blue sky | C. Meldrum. |
| Melbourne, Observatory | | | 30.04 | 763.0 | 51.6 | 10.9 | 83 | ESE | 6 | 2.7 | | | 2 | | | 0 | 0 | Very fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.32 | 770.1 | 47 | 8.3 | | NW | | | 3 | 5 | 5 | N | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.18 | 766.6 | 33 | 0.6 | | N | | | 7 | 4 | 7 | N | | B'ank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | Capt. G. H. Jones. |
| Barque Sorato, N. 26° 55′, W. 21° 50′ | 3 | WNW | Blue sky | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have generally been carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the Minister of Foreign Affairs.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.24 | 666.5 | | | 69.8 | 21.0 | 73 | NE | | | 2 | | 3c | | NE | 0 | 0 | | Federico Maison. |

Note.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.99 | 761.7 | 42.8 | 6.0 | 36 | NW | | | 4 | | 5 | | | | | | |
| Faröe | | | 30.07 | 763.6 | 41.9 | 5.5 | 62 | W | | | 6 | | 7 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 30.36 | 771.1 | 32.4 | 0.2 | 64 | N | | | 4 | | 10 | | | | | | |
| Vestervig | | | 30.00 | 761.9 | 41.7 | 5.4 | 69 | NW | | | 7 | | 4 | | | | | | |

Note.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinct on between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.26 | 768.7 | 53.6 | 12 | 85 | NE | | | 4 | | 5kn | | NE | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 30.28 | 769.1 | 52.2 | 11.2 | | NNE | | | 3 | | 8 | | NNE | 0 | 0 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 30.04 | 763.0 | 62.6 | 17 | 38 | NNW | | | 6 | | 0 | | | 0 | 0 | Clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.23 | 767.8 | 49.6 | 9.8 | 39 | ENE | | | 3 | 2c | | N | | 0 | 0 | Slightly cl'dy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.32 | 770.0 | 48.2 | 9 | 52 | ENE | | | 1 | | 8 | | NE | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.24 | 768.0 | 51.8 | 11 | 48 | NE | | | 6 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg en Bresse | | | 30.22 | 767.6 | 56.1 | 13.4 | 58 | N | | | 4 | | 8n | | S | 0 | 0 | Very cloudy | Normal School. |
| Bourges | | | 30.23 | 767.9 | 48.9 | 9.4 | 84 | NE | | | 6 | | 1 | | W | 0 | 0 | Clear | Normal School. |
| Brest | | | 30.14 | 765.6 | 54.1 | 12.3 | 54 | E | | | 3 | | 9k | | E | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 30.02 | 762.6 | 65.7 | 18.7 | 38 | W | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Caen | | | 30.29 | 769.3 | 50.0 | 10 | 48 | NE | | | 2 | | | | SW | 0 | 0 | | Normal School. |
| Chartres | | | 30.24 | 768.2 | 46.6 | 8.1 | 97 | ENE | | | 2 | | 8 | | W | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 30.26 | 768.7 | 47.5 | 8.6 | 48 | N | | | 3 | | 5ck | | W | 0 | 0 | Cloudy | Normal School. |
| Clermont | | | 30.12 | 765.1 | 52.7 | 11.5 | 46 | NE | | | 1 | | 1 | | NE | 0 | 0 | Almost clear. | Puy de Dome Obs'y. |
| Commercy | | | 30.25 | 768.3 | 44.6 | 7 | 57 | NE | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Commune de Gréasque* | | | 30.04 | 762.9 | 64.2 | 17.9 | 39 | NW | | | 2 | | 8 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.11 | 764.7 | 54.1 | 12.3 | 56 | NW | | | 2 | | 5k | | S | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 30.13 | 765.2 | 55.4 | 13 | 53 | E | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Le Mans | | | 30.25 | 768.3 | 49.6 | 9.8 | 44 | NE | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Lons-Le-Saulnier | | | 30.14 | 765.6 | 50.5 | 10.3 | 59 | NE | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Lorient | | | 30.24 | 768.2 | 51.4 | 10.8 | 43 | E | | | 3 | | 5 | | E | 0 | 0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.22 | 767.5 | 50.0 | 10 | 74 | N | | | 2 | | 0 | | | 0 | 0 | Clear | Mr. Marchal. |
| Metz | | | 30.31 | 769.9 | 44.6 | 7.0 | 48 | NNE | | | 3 | | 6k | | NNE | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 30.19 | 766.9 | 44.6 | 7 | 82 | N | | | 4 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Nismes | | | 30.03 | 762.8 | 60.1 | 15.6 | 52 | N | | | 8 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Orleans | | | 30.19 | 766.8 | 49.6 | 9.8 | 62 | N | | | 2 | | 5 | | NE | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 30.29 | 769.3 | 45.5 | 7.5 | 43 | NE | | | 3 | | 10 | | | 0 | 0 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 30.12 | 765.1 | 58.3 | 14.6 | 42 | NE | | | 6 | | 1 | | SW | 0 | 0 | Clear | Naval Observatory. |
| Rouen | | | 30.29 | 769.3 | 48.7 | 9.3 | 42 | NNE | | | 2 | | 8 | | E | 0 | 0 | Very cloudy | Normal School. |
| Tarbes | 28.91 | 734.4 | 29.98 | 761.6 | 59.9 | 15.5 | 53 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Villefranche | | | 30.15 | 765.9 | 54.1 | 12.3 | 74 | NE | | | 4 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.80 | 757.0 | 78.8 | 26 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.98 | 761.6 | 64.6 | 18.1 | 36 | W | | | 2 | | 1 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Mont-Louis | 24.84 | 631.0 | 30.16 | 766.0 | 50.4 | 10.2 | 39 | NNW | 18.6 | 8.33 | | | 2 | | W | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.23 | 767.8 | 46.8 | 8.2 | 48 | ENE | | | 2 | | 10 | | ENE | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 30.05 | 763.3 | 60.8 | 16.0 | 46 | S | 11.2 | 5.00 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | § § Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.49 | 571.3 | | | 50.0 | 10.0 | | N | | | 1 | | 0 | | | 0 | 0 | Clear | § § and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 30.27 | 768.9 | 46.9 | 8.3 | 49 | NE | | | 2 | | 10 | | | 0 | 0 | Covered | E. Renou. |
| Toulouse, Observatory | | | 30.11 | 764.7 | 55.9 | 13.3 | 48 | N | | | 1 | | 1 | | | 0 | 0 | | The Staff. |
| Tours | | | 30.19 | 766.9 | 52.9 | 11.6 | 47 | ESE | | | 4 | | 5 | | E | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.27 | 768.8 | 46.8 | 8.2 | 48 | NE | | | 2 | | 10 | | | 0 | 0 | Covered | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.89 | 759.3 | 59.0 | 15.0 | 89 | ESE | 5.8 | 2.6 | | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J. |

Note.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometrical observations for altitude, the constant 135. millimeters has been added. At Clermont the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:71, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.23 | 767.9 | 47.3 | 8.5 | 24 | NW | | | 5 | | 5 | NW | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.15 | 765.8 | 46.4 | 8.0 | 66 | S | | | 3 | | 6 | | | 0.118 | 3.0 | | Prof. Arndt. |
| Breslau | | | 30.14 | 765.5 | 43.9 | 6.6 | 43 | NNW | | | 4 | | 9 | | | 0 | 0 | | Royal University Obs'y |
| Carlsruhe | | | 30.24 | 768.2 | 46.4 | 8.0 | 46 | NE | | | 1 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.22 | 767.6 | 45.3 | 7.4 | 54 | N | | | 3 | | 7 | WNW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.24 | 768.1 | 49.1 | 9.5 | 46 | NW | | | 4 | | 7 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.26 | 768.7 | 42.6 | 5.9 | 55 | WNW | | | 3 | | 2 | | | 0.008 | 0.2 | Snowing | Prof. Prestel. |
| Frankfort on the Main | | | 30.30 | 769.5 | 48.0 | 8.9 | 38 | NNW | | | 1 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 29.02? | 737.1? | 30.01? | 762.3? | 48.6 | 9.2 | 49 | SSW | | | 1 | | 2 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.16 | 766.1 | 41.4 | 5.2 | 66 | NW | | | 3 | | 9ks | WNW | | 0.028 | 0.7 | Fair | Captain F. Hegemann. |
| Kiel | | | 30.09 | 764.3 | 42.1 | 5.6 | 76 | W | | | 5 | | 10 | | | 0.079 | 2.0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.99 | 761.8 | 46.2 | 7.9 | 46 | SW | | | 2 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 30.07 | 763.7 | 40.3 | 4.6 | | NW | | | 4 | | 2 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 30.22 | 767.6 | 42.8 | 6.0 | 49 | NW | | | 2 | | 7 | WNW | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.00 | 762.0 | 41.5 | 5.3 | 68 | WNW | | | 5 | | 3ks | | | 0.012 | 0.3 | | Reinbrecht & Skalweit. |
| Münster | | | 30.21 | 767.4 | 44.6 | 7.0 | 66 | NW | | | | | 2 | | | 0.012 | 0.3 | Snowing | Prof. E. Heis. |
| Neufahrwasser | | | 30.06 | 763.4 | 47.5 | 8.6 | 55 | WSW | | | 2 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.10 | 764.4 | 46.6 | 8.1 | 91 | NW | | | 3 | | 7 | | | Inap. | Inap. | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.26 | 768.6 | 47.5 | 8.6 | 42 | NE | | | 2 | | 8 | | | 0.028 | 0.7 | | Dr. Schur. |
| Stuttgart | | | 30.24 | 768.2 | 45.3 | 7.4 | 40 | NE | | | 1 | | 6 | NE | | Inap. | Inap. | | Prof. Schoder |
| Treves, (Trier) | | | 30.14 | 765.6 | 46.9 | 8.3 | 47 | NE | | | 2 | | 8 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.67 | 728.3 | 30.23 | 767.8 | 41.7 | 5.4 | 50 | WNW | | | 1 | | 8 | WNW | | 0.012 | 0.3 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.14 | 765.6 | 39.9 | 4.4 | 56 | WNW | | | 4 | | 8 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.64 | 752.9 | 65.5 | 18.6 | | SW | | | | | | | | | | ½ clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.09 | 561.1 | 29.89 | 759.2 | 29.5 | — 1.4 | 93 | W | | | 2 | | 1 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.07 | 560.6 | 29.98 | 761.6 | 25.7 | — 3.5 | | E | | | 1 | | 0 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.96 | 761.0 | 58.5 | 14.7 | 31 | SW | 1.3 | 0.6 | | | 1 | | | 0.398 | 10.1 | | Ab. Dem. Morgini. |
| Padua | | | 30.00 | 762.0 | 55.2 | 12.9 | 44 | SE | 8.1 | 3.6 | | | 1 | | | 0.441 | 11.2 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.99 | 761.8 | 57.0 | 13.9 | 52 | SE | 4.9 | 2.2 | | | 2 | W | | 0.394 | 10.0 | | Conte Alm. Da Schio |
| Verona | | | 29.99 | 761.8 | 60.4 | 15.8 | 57 | E | | | 2 | | 6 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.06 | 728.0 | 29.97 | 761.2 | 60.3 | 15.7 | 37 | S | | | 4 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.91 | 759.8 | 62.4 | 16.9 | 16 | S | | | 6 | | 0 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.99 | 761.7 | 64.8 | 18.2 | 44 | E | | | 2 | | 3 | NW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.96 | 760.9 | 60.3 | 15.7 | 34 | SSE | 3.8 | 1.7 | | | 1 | | | 0 | 0 | | Prof. P. F. Denza. |
| Moncalieri | | | 29.99 | 761.8 | 59.0 | 15.0 | 34 | NE | | | 4 | | 3 | NW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Mondovì | 28.07 | 713.0 | 29.95 | 760.8 | 55.8 | 13.2 | 28 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.00 | 762.0 | 59.9 | 15.5 | 56 | E | | | 8 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.95 | 760.7 | 65.5 | 18.6 | 22 | N | 5.6 | 2.5 | | | 0 | | | 0.008 | 0.2 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.00 | 762.1 | 59.4 | 15.2 | 43 | SE | 4.3 | 1.9 | | | 6 | E | | 0.150 | 3.8 | | Dott. G. Manzi. |
| Parma | | | 29.99 | 761.7 | 60.8 | 16.0 | 60 | ESE | | | 4 | | 1 | | | 0.051 | 1.3 | | Prof. P. Pigorini. |
| Florence | | | 29.98 | 761.6 | 63.1 | 17.3 | 36 | NE | | | 4 | | 3 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.95 | 760.7 | 63.9 | 17.7 | 36 | ENE | 11.9 | 5.3 | | | 2 | N | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.76 | 730.4 | 29.95 | 760.7 | 57.0 | 13.9 | 36 | ENE | 2.5 | 1.1 | | | 6 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.45 | 722.7 | 29.99 | 761.7 | 48.9 | 9.4 | 49 | NE | | | 6 | | 2 | | | 0.071 | 1.8 | | Prof. P. Serpieri. |
| Pesaro | | | 30.03 | 762.7 | 54.9 | 12.7 | 48 | NE | 29.3 | 13.1 | | | 1 | NE | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.02 | 762.4 | 57.6 | 14.2 | 40 | N | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.95 | 760.6 | 65.1 | 18.4 | 39 | NNE | | | 4 | | 4 | NE | | 0.012 | 0.3 | | Avv. P. Ponticelli. |
| Rome | | | 29.90 | 759.4 | 65.8 | 18.8 | 43 | E | 8.1 | 3.6 | | | 2 | ENE | | 0.004 | 0.1 | | Prof's P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.90 | 759.5 | 64.8 | 18.2 | 49 | WNW | | | 2 | | 8 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.81 | 757.1 | 60.1 | 15.6 | 54 | NNW | 22.4 | 10.0 | | | 2 | | | 0.130 | 3.3 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.85 | 758.2 | 63.0 | 17.2 | 68 | NE | 3.8 | 1.7 | | | 7 | | | 0.051 | 1.3 | Light rain | Prof. F. D. Conti. |
| Cagliari | | | 29.91 | 759.7 | 67.3 | 19.6 | 36 | N | | | 4 | | 1 | N | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.83 | 757.7 | 64.4 | 18.0 | 31 | N | | | 4 | | 8 | SE | | 0.057 | 1.4 | Raining | Prof. F. Cafiero. |
| Palermo | | | 29.74 | 755.4 | 63.9 | 17.7 | 52 | W | 16.8 | 7.5 | | | 9 | W | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.91 | 708.9 | 29.81 | 757.2 | 61.0 | 16.1 | 57 | NW | | | 6 | | 4 | SE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.81 | 757.1 | 68.9 | 20.5 | 51 | SE | | | 4 | | 5 | W | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.56 | 750.7 | 62.2 | 16.8 | 46 | ENE | 0 | 0 | | | 8 | E | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovì, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.11 | 764.8 | 59 | 15.0 | 76 | N | 2.5 | 1.1 | | | 10 | | | 0 | 0 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.8 | 30.11 | 764.7 | 56.3 | 13.5 | 54 | Calm | 0 | 0 | | 0 | 10 | | E | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.32 | 770.2 | 46.6 | 8.1 | | N | | | 2 | | | | | 0.008 | 0.2 | | |
| Groningen | | | 30.15 | 765.9 | 45.0 | 7.2 | | NNW | | | 5 | | | | | 0.012 | 0.3 | | |
| Helder | | | 30.25 | 768.3 | 41.9 | 5.5 | | NW | | | 4 | | | | | 0.063 | 1.6 | | |
| Utrecht | | | 30.23 | 767.8 | 47.7 | 8.7 | 31 | NW | | | 3 | | 8 | | | 0.031 | 0.8 | Very cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.02 | 762.6 | 38.8 | 3.8 | 57 | NNW | 17.4 | 7.8 | | | 4 | | | 0.004 | 0.1 | | |
| Brönö | | | 29.88 | 758.0 | 38.1 | 3.4 | 63 | WSW | 9 | 4 | | | 3 | | | 0 | 0 | | |
| Christiania | | | 29.86 | 758.5 | 40.1 | 4.5 | 27 | NNW | 2 | 1 | | | 6 | | | 0 | 0 | | |
| Tromsö | | | 29.74 | 755.3 | 34.2 | 1.2 | 85 | SW | 7 | 3 | | | 6 | | | 0.079 | 2.0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.66 | 753.3 | 56.3 | 13.5 | 89 | W | 3.1 | 1.4 | | | 8 | | | 0.394 | 10.0 | Raining | Dr. J. A. Sampaio |
| Campo Major | | | 29.86 | 758.5 | 79.3 | 26.3 | 40 | E | 8.1 | 3.6 | | | 5 | E | | 0 | 0 | | Dr. A. M. R. dos Santos |
| Funchal, (Madeira) | | | 29.89 | 759.1 | 69.3 | 20.7 | 55 | WSW | 8.1 | 3.6 | | | 1 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.88 | 759.0 | 72.9 | 22.7 | 44 | WSW | 11.2 | 5.0 | | | 5 | SW | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 29.70 | 754.4 | 57.2 | 14.0 | 89 | W | 4.9 | 2.2 | | | 10 | | | 0.240 | 6.1 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. A. P. de Lt. S. Mirando |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.02 | 762.4 | 45.3 | 7.4 | 37 | NW | 13 | 6 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.91 | 759.8 | 48.4 | 9.1 | 35 | NNW | 4 | 2 | | | 9 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.85 | 758.1 | 48.4 | 9.1 | 32 | W | 4 | 2 | | | 5 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.84 | 757.8 | 42.1 | 5.6 | 75 | WNW | 13 | 6 | | | 6 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.74 | 755.5 | 45.3 | 7.4 | 66 | ESE | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.67 | 753.7 | 57.4 | 14.1 | 55 | N | 7 | 3 | | | 9 | | | | | Solar corona | Physical Cabinet. |
| Nikolaiev | | | 29.69 | 754.1 | 62.6 | 17.0 | 48 | NE | 13 | 6 | | | 3 | | | | | | Kurdakof. |
| Kertch | | | 29.71 | 754.7 | 61.0 | 16.1 | 69 | SSE | 9 | 4 | | | 6 | | | | | | Lagorio. |
| Moscow | | | 29.83 | 757.7 | 57.7 | 14.3 | 49 | N | 7 | 3 | | | 5 | | | | | | Meteorological Obs. |
| Lugan | | | 29.60 | 751.7 | 47.1 | 8.4 | 79 | WNW | 9 | 4 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.85 | 758.1 | 38.8 | 3.8 | 93 | NNE | 9 | 4 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.43 | 722.1 | 29.80 | 756.9 | 69.3 | 20.7 | 42 | SSE | 4 | 2 | | | 6 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.70 | 754.4 | 67.8 | 19.9 | 36 | WSW | 16 | 7 | | | 7 | | | | | | Sebastianof. |
| Kasan | | | 29.93 | 760.1 | 60.1 | 15.6 | 35 | ENE | 16 | 7 | | | 7 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischei. |
| Ekaterinburg | 29.08 | 738.7 | 30.06 | 763.4 | 37.4 | 3.0 | 95 | Calm | 0 | 0 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.28 | 718.4 | 29.90 | 759.4 | 80.8 | 27.1 | 38 | Calm | 0 | 0 | | | 4 | | | | | | Michelson. |
| Barnaul | | | 30.10 | 764.6 | 47.7 | 8.7 | 35 | NW | 4 | 2 | | | 0 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.85 | 758.3 | 40.5 | 4.7 | 79 | NW | 2 | 1 | | | 10 | | | | | Raining | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | | | | | | | | | | | | | | | Mossin. |
| Peking, (China) | | | 29.89 | 759.2 | 55.2 | 12.9 | 89 | SE | 13 | 6 | | | 9 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.96 | 761.0 | 46.8 | 8.2 | 58 | N | 4 | 2 | | | 6 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 29.3 | — 1.5 | | W | 13 | 6 | | | 10 | | | | | Snowing | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.91 | 759.6 | 73.4 | 23.0 | 43 | N | 3.7 | 1.67 | | 0 | 1 | | | 0 | 0 | Almost clear | Royal Observatory |
| San Fernando | | | 29.85 | 758.2 | 72.9 | 22.7 | 41 | ESE | 30.6 | 13.7 | | 2 | 5 | S | SE | 0 | 0 | | Naval Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.06 | 763.4 | 72.7 | 22.6 | 64 | NNE | 11.9 | 5.3 | | 0 | 1ks | | | 0.031 | 0.8 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.82 | 757.4 | 43.2 | 6.2 | 65 | NE | | | 2 | | 5 | | | 0 | 0 | | |
| Umea | | | 29.73 | 755.2 | 40.6 | 4.8 | 87 | N | | | 2 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 29.70 | 754.4 | 34.3 | 1.3 | 83 | NE | | | 2 | | 10 | | | 0.142 | 3.6 | Snowing | |
| Stockholm | | | 29.76 | 756.0 | 37.8 | 3.2 | 56 | WSW | | | 4 | | 4 | | | 0 | 0 | | |
| Wisby | | | 29.81 | 757.1 | 39.6 | 4.2 | 49 | WNW | | | 6 | | 5 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.74 | 755.4 | 37.6 | 3.1 | 66 | W | 9.2 | 4.1 | | | 1 | | | 0.045 | 1.15 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.69 | 728.8 | 30.14 | 765.5 | 48.2 | 9.0 | 57 | NE | | | 3 | | 0 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.54 | 724.9 | 30.21 | 767.2 | 46.0 | 7.8 | 49 | N | | | 1 | | 5 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +4.3 mm; Thermometer, —5.5 cent.; Relative Humidity, —1 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.66 | 753.3 | 63.3 | 17.4 | 63 | SW | 7 | 3.0 | | | 8 | | SW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.11 | 764.8 | 77.5 | 25.3 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.69 | 754.2 | 63.1 | 17.3 | | SE | | | 2 | | 10 | | | | | | |
| Valona | | | 29.79 | 756.7 | 60.4 | 15.8 | | NW | | | 2 | | 10 | | | 0.59 | 15. | Covered | A. Bakran. |
| Varna | | | 29.65 | 753.0 | 57.2 | 14.0 | | NW | | | 2 | | 10 | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.72 | 754.9 | 86.0 | 30.0 | 40 | S | | | 2 | | 6c | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.72 | 754.9 | 28.7 | —1.8 | 94 | NE | 3 | 1.3 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.92 | 760.0 | 34 | 1.1 | | Calm | 0 | 0 | | | 10s | | N | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.70 | 754.4 | 40 | 4.4 | 95 | NE | 6 | 2.7 | | | 10s | | NE | Inap | Inap. | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.67 | 753.6 | 41 | 5.0 | 99 | NE | 5 | 2.2 | | | 10s | | | 0.015 | 0.38 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.81 | 757.9 | 34.4 | 1.3 | 69 | SW | | | 1 | | 10s | | | 0 | 0 | Cloudy | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.72 | 754.9 | 41.8 | 5.4 | 95 | NW | | | 1 | | | | | 0.11 | 2.8 | Clearing | H. A. Johnson. |
| Esquimault, B. C. | | | 30.05 | 763.3 | 49.3 | 9.6 | 78 | W | | | | 10cs | 0 | | | 0 | 6 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.77 | 756.1 | 34 | 1.1 | 98 | NE | 12 | 5.4 | | | 10n | | | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.70 | 754.4 | 43.1 | 6.2 | 77 | NE | 7 | 3.1 | | | 10 | | | 0.700 | 17.78 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.12 | 765.0 | 34 | 1.1 | 79 | NE | 7 | 3.1 | | 2ck | 7ks | W | W | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.09 | 764.3 | 37.3 | 2.9 | 92 | NW | | | 1 | 6k | 0 | NW | | 0 | 0 | Clearing | H. J. Strang, M. A. |
| Granton, Ontario | 28.91 | 734.3 | 30.04 | 763.0 | 35 | 1.7 | 80 | NW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.59 | 751.6 | 46 | 7.8 | 92 | N | 5 | 2.2 | | | 10n | | | 0.021 | 0.53 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.03 | 762.7 | 35.5 | 1.9 | 64 | SW | | | 2 | 0 | 10? | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.96 | 761.0 | 39 | 3.9 | 91 | NE | | | 1 | | 10 | | | 0 | 0 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 29.91 | 760.5 | 37 | 2.8 | 81 | NW | 8 | 3.6 | | | 10ks | | NW | 0 | 0 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.79 | 756.7 | 38 | 3.3 | 69 | W | 8 | 3.6 | | 2k | 2ks | W | | 0 | 0 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.01 | 763.0 | 34 | 1.1 | 74 | NW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.03 | 762.7 | 35 | 1.7 | 70 | NW | 10 | 4.5 | | 0 | 0 | | | 0.03 | 0.8 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 29.62 | 752.3 | 41.5 | 5.3 | | Calm | 0 | 0 | | | | | | 0 | 0 | Foggy | Peter Grant. |
| Port Stanley, Ontario | | | 30.05 | 763.3 | 38 | 3.3 | 62 | NW | 7 | 3.1 | | 0 | 0 | | | Inap. | Inap. | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.76 | 755.9 | 39 | 3.9 | 91 | NE | 5 | 2.2 | | | 10n | | NE | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | | | 31 | —0.6 | 62 | NW | 15 | 6.7 | | | 8s | | NW | Inap. | Inap. | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 29.69 | 754.1 | 43 | 6.1 | 75 | NE | 5 | 2.2 | | | 10 | | | 0.65 | 16.5 | Cloudy | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.03 | 762.7 | 37 | 2.8 | 81 | NW | 2 | 0.9 | | 2cs | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 30.01 | 762.2 | 36 | 2.2 | 56 | NW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | R. J. Cole. |
| Stratford, Ontario | | | 30.04 | 763.0 | 33.7 | 0.9 | 81 | NW | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.72 | 729.5 | 29.67 | 753.6 | 40 | 4.4 | 98 | NE | 4 | 1.8 | | | 10n | | | 0.38 | 9.7 | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 30.03 | 762.7 | 37 | 2.8 | 68 | NW | 10 | 4.5 | | 0 | 0 | | | Inap. | Inap. | Clear | Magnetic Observatory. |
| Windsor | | | 29.59 | 751.6 | 45.0 | 7.2 | 91 | NE | 6 | 2.7 | | | 10n | | | 0.01 | 0.3 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.07 | 763.8 | 38.4 | 3.6 | 68 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.94 | 760.5 | 42.0 | 5.6 | 91 | N | | | | Sm'c | Sm'c | | | 0.05 | 1.3 | Fair | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.76 | 755.9 | 40 | 4.4 | 83 | NW | 15 | 6.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Alpena, Mich. | | | 30.11 | 764.8 | 37 | 2.8 | 54 | NW | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Atlantic City, N. J. | | | 29.82 | 757.4 | 46 | 7.8 | 69 | NW | 16 | 7.2 | | 1k | 0 | | | 0.11 | 2.8 | Clear | |
| Augusta, Ga. | | | 30.10 | 764.5 | 55 | 12.8 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.92 | 760.0 | 45 | 7.2 | 68 | NW | 12 | 5.4 | | 5k | 5s | | | Inap. | Inap. | Cloudy | |
| Barnegat, N. J. | | | 29.77 | 756.1 | 47 | 8.3 | 61 | NW | 24 | 10.7 | | 5ck | 2s | NW | NW | 0.11 | 2.8 | Fair | |
| Bismarck, Dakota | 28.18 | 715.8 | 29.81 | 757.2 | 49 | 9.4 | 71 | SW | 3 | 1.3 | | 2cs | 8s | | SW | 0 | 0 | Cloudy. | |
| Boston, Mass. | | | 29.66 | 753.4 | 42.5 | 5.8 | 100 | N | 14 | 6.3 | | | 10n,fg | | | 0.42 | 10.7 | Light rain | |
| Breckenridge, Minn. | | | 29.99 | 761.7 | 44 | 6.7 | 67 | SE | 3 | 1.3 | | | 10ks | | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.97 | 761.2 | 37 | 2.8 | 71 | NW | 5 | 2.2 | | 1k | 0 | | | Inap. | Inap. | Clear | |
| Burlington, Vt. | | | 29.82 | 757.4 | 42 | 5.6 | 65 | N | 6 | 2.7 | | | 10s | | N | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 30.17 | 766.3 | 48 | 8.9 | 49 | E | 8 | 3.6 | | 5c | 0 | | | 0 | 0 | Fair | |
| Campo, Cal. | 27.37 | 695.2 | 29.94 | 760.5 | 37 | 2.8 | 63 | Calm | 0 | 0 | | 8k | 0 | W | | 0 | 0 | Fair | |
| Camp Verde, Arizona | | | | | 58 | 14.4 | | SE | | | | 5ck | Haze | S | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.87 | 758.7 | 48 | 8.9 | 49 | NW | 16 | 7.2 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 29.89 | 759.2 | 46 | 7.8 | 62 | NW | 21 | 9.4 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.01 | 762.2 | 48 | 8.9 | 56 | NW | 26 | 11.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 29.83 | 757.7 | 45 | 7.2 | 68 | NW | 32 | 14.3 | | 5k | 0 | NW | | 0.01 | 0.3 | Fair | |
| Charleston, S. C. | | | 30.07 | 763.8 | 55 | 12.8 | 62 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.94 | 608.1 | 29.88 | 758.9 | 57 | 2.8 | 100 | N | 16 | 7.2 | | | 10s | | | 0.05 | 1.3 | Threatening | |
| Chicago, Ill. | | | 30.14 | 765.5 | 40 | 4.4 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.11 | 764.8 | 40 | 4.4 | 64 | W | 4 | 1.8 | | 0 | Sm'e | | | Inap. | Inap | Clear | |
| Cleveland, Ohio | | | 30.07 | 763.8 | 39.5 | 4.2 | 68 | NW | 7 | 3.1 | | 0 | 2s | | NW | 0.07 | 1.8 | Fair | |
| Corsicana, Tex | | | 30.04 | 763.0 | 53 | 11.7 | 81 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 30.18 | 766.6 | 42 | 5.6 | 65 | SW | 4 | 1.8 | | 4cs | 0 | | | 0 | 0 | Fair | |
| Denison, Tex. | | | 29.99 | 761.7 | 58 | 14.4 | 69 | SW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.68 | 626.9 | 29.90 | 759.4 | 42 | 5.6 | 83 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 30.07 | 763.8 | 36 | 2.2 | 62 | NW | 1 | 0.4 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Dodge City, Kan. | 27.13 | 689.1 | 29.36 | 745.7 | 52 | 11.1 | 72 | W | 10 | 4.5 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Dubuque, Iowa | | | 30.16 | 766.1 | 39 | 3.9 | 72 | NW | 1 | 0.4 | | 2cs | 0 | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.06 | 763.5 | 38 | 3.3 | 62 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Eastport, Me. | | | 29.66 | 753.4 | 48 | 8.9 | 83 | NE | 8 | 3.6 | | 5k | 5s | NE | NE | 0 | 0 | Fair | |
| Erie, Pa. | | | 30.02 | 762.5 | 36 | 2.2 | 70 | NW | 10 | 4.5 | | 5ck | Haz | N | | 0.01 | 0.3 | Fair | |
| Escanaba, Mich. | | | 30.12 | 765.0 | 36 | 2.2 | 61 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | | | | | 60 | 15.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.93 | 760.2 | 62 | 16.7 | 56 | SE | 5 | 2.2 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Ft. St. Michael, Alaska | | | 29.55 | 750.6 | 33 | 0.6 | 89 | N | | | 4 | 10c | 1s | S | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.70 | 729.0 | 29.79 | 756.7 | 58 | 14.4 | 53 | SW | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.30 | 718.8 | 29.97 | 761.2 | 44 | 6.7 | 92 | SE | 15 | 6.7 | | | 10n | | | 0.72 | 18.3 | Light rain | |
| Galveston, Tex. | | | 30.11 | 764.8 | 64 | 17.8 | 52 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 30.13 | 765.3 | 40 | 4.4 | 56 | N | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.15 | 765.8 | 38 | 3.3 | 54 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.07 | 763.8 | 69 | 20.6 | 70 | SE | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.09 | 764.3 | 62 | 16.7 | 46 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.07 | 763.8 | 44 | 6.7 | 67 | SE | 5 | 2.2 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.05 | 763.3 | 70 | 21.1 | 71 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Kittyhawk, N. C. | | | 29.94 | 760.5 | 46 | 7.8 | 54 | NW | 21 | 9.4 | | 1k | 0 | SW | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.15 | 765.3 | 43 | 6.1 | 66 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 30.15 | 765.8 | 39 | 3.9 | 72 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.96 | 761.0 | 51 | 10.6 | 86 | E | 9 | 4.0 | | 5cs | 0 | | | 0.06 | 1.5 | Fair | |
| Louisville, Ky. | | | 30.14 | 765.5 | 40 | 4.4 | 55 | NE | 10 | 4.5 | | 1c | 0 | NE | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.00 | 762.0 | 47 | 8.3 | 40 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 58 | 14.4 | | W | | | | 0 | 5ks | | | 0 | 0 | Fair | |
| Marquette, Mich. | | | 30.06 | 763.5 | 57 | 2.8 | 71 | W | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.14 | 765.5 | 53 | 11.7 | 48 | SE | 8 | 3.6 | | 0 | 5ks | | SW | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 30.17 | 766.3 | 38 | 3.3 | 71 | NE | 1 | 0.4 | | | Fog | | | 0 | 0 | Foggy | |
| Mobile, Ala. | | | 30.15 | 765.8 | 59 | 15.0 | 65 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.15 | 765.8 | 55.5 | 13.1 | 68 | N | 1 | 0.4 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.98 | 736.1 | 30.06 | 763.5 | 57 | 2.8 | 62 | NW | 17 | 7.6 | | | 10s | | NW | 0.06 | 1.5 | Cloudy | |
| Mt. Washington, N. H. | 23.41 | 594.6 | 29.77 | 756.1 | 25 | — 3.9 | 100 | N | 6 | 2.7 | | | Fog | | | 0.13 | 3.3 | Foggy | |
| Nashville, Tenn. | | | 30.17 | 766.3 | 49 | 9.4 | 57 | N | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.70 | 754.4 | 46 | 7.8 | 68 | N | 15 | 6.7 | | 8ck | Haze | NW | | 0.17 | 4.3 | Cloudy | |
| New London, Conn. | | | 29.67 | 753.6 | 46 | 7.8 | 76 | NW | 11 | 4.9 | | 8s | 2n | W | N | 0.01 | 0.3 | Light rain | |
| New Orleans, La. | | | 30.14 | 765.5 | 63 | 17.2 | 62 | W | 2 | 0.9 | | 0 | Sm'e | | NW | 0 | 0 | Clear | |
| Newport, R. I. | | | 29.64 | 752.8 | 45 | 7.2 | 92 | NW | 16 | 7.2 | | | 10n | | N | 0.09 | 2.3 | Light rain | |
| New York, N. Y. | | | 29.78 | 756.4 | 46 | 7.8 | 47 | NW | 17 | 7.6 | | 5ck,k | 0 | SE | | 0.01 | 0.3 | Fair | |
| Norfolk, Va. | | | 29.94 | 760.5 | 46 | 7.8 | 68 | NW | 18 | 8.0 | | 8k | 0 | NW | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.98 | 685.3 | 29.53 | 750.0 | 45 | 7.2 | 67 | E | | | | | 10ks | | E | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.91 | 734.3 | 30.00 | 762.0 | 45 | 7.2 | 84 | SE | 9 | 4.0 | | | 10n | | | 0.14 | 3.6 | Light rain | |
| Oswego, N. Y. | | | 29.91 | 759.7 | 39 | 3.9 | 63 | NW | 15 | 6.7 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 30.07 | 763.8 | 41 | 5.0 | 73 | E | 7 | 3.1 | | | 10n | | | Inap. | Inap | Light rain | |
| Philadelphia, Pa. | | | 29.84 | 757.9 | 44 | 6.7 | 59 | NW | 22 | 9.8 | | 2ck | 5ks | N | NW | 0.01 | 0.3 | Cloudy | |
| Phœnix, Arizona | | | | | | | | | | | | | | | | | | | |
| Pike's Peak, Col. | 17.63 | 447.8 | 29.84 | 757.9 | 16 | — 8.9 | 83 | W | 26 | 11.6 | | 0 | 8s | | | 0.03 | 0.8 | Fair | |
| Pittsburg, Pa. | | | 30.03 | 762.7 | 37 | 2.8 | 71 | N | 6 | 2.7 | | | 10ks | | N | 0.07 | 1.8 | Cloudy | |
| Port Huron, Mich. | | | 30.06 | 763.5 | 36 | 2.2 | 62 | NW | 5 | 2.2 | | 0 | 0 | | | 0.04 | 1.0 | Clear | |
| Portland, Me. | | | 29.64 | 752.8 | 46 | 7.8 | 77 | N | 14 | 6.3 | | | 10n | | | 0.29 | 7.4 | Light rain | |
| Portland, Oregon | | | 30.12 | 765.0 | 45 | 7.2 | 92 | Calm | 0 | 0 | | 0 | 5s | | | 0 | 0 | Fair | |
| Punta Rassa, Fla. | | | 30.12 | 765.0 | 63.5 | 17.5 | 49 | NE | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | | | | | | | | | | | | | | | | | | | |
| Rochester, N. Y. | | | 29.92 | 760.0 | 38 | 3.3 | 54 | NW | 22 | 9.8 | | 1k | 0 | NW | | 0.02 | 0.5 | Clear | |
| Salt Lake City, Utah | 25.49 | 647.4 | 29.82 | 757.4 | 40 | 4.4 | 75 | NW | 4 | 1.8 | | 0 | 0 | | | 0.12 | 3.0 | Clear | |
| Sandy Hook, N. J. | | | 29.78 | 756.4 | 47 | 8.3 | 55 | NW | 26 | 11.6 | | 2ck | 2cs | | NW | 0.16 | 4.1 | Fair | |
| San Diego, Cal. | | | 29.93 | 760.2 | 58 | 14.4 | 70 | S | 2 | 0.9 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| San Francisco, Cal. | | | 29.87 | 758.7 | 50 | 10.0 | 80 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.10 | 586.7 | 29.64 | 752.8 | 41 | 5.0 | 48 | N | 5 | 2.2 | | 5c | 0 | | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.09 | 764.3 | 57 | 13.9 | 57 | NW | 4 | 1.8 | | 0 | Haz | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.13 | 765.3 | 59 | 15.0 | 70 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.05 | 763.3 | 50 | 10.0 | 38 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.72 | 754.9 | 46.5 | 8.1 | 54 | NW | 12 | 5.4 | | | 10ks | | NW | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 30.16 | 766.1 | 45 | 7.2 | 61 | E | 4 | 1.8 | | 2c | 5s | | | 0 | 0 | Fair | |
| St. Marks, Fla. | | | 30.12 | 765.0 | 55 | 12.8 | 68 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.05 | 763.3 | 42 | 5.6 | 66 | E | 1 | 0.4 | | 2c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 65 | 18.3 | | SW | | | | 0 | Haze | | | 0 | 0 | Hazy | |
| Thatcher's Island, Mass. | | | 29.65 | 753.1 | 42 | 5.6 | 91 | N | 12 | 5.4 | | | 10n | | N | 0.10 | 2.5 | Light rain | |
| Toledo, Ohio | | | 30.10 | 764.5 | 38 | 3.3 | 54 | NW | 8 | 3.6 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Tucson, Arizona | 27.36 | 694.9 | 29.91 | 759.7 | 58 | 14.4 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tybee Island, Ga. | | | 30.06 | 763.5 | 55 | 12.8 | 68 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss. | | | 30.14 | 765.5 | 57 | 13.9 | 69 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T. | 24.27 | 616.4 | 29.75 | 755.6 | 33 | 0.6 | 79 | Calm | 0 | 0 | | 1k | 0 | NE | | 0.06 | 1.5 | Clear | |
| Washington, D. C. | | | 29.95 | 760.7 | 44 | 6.7 | 60 | NW | 15 | 6.7 | | 8ck | 2ks | NW | NW | Inap. | Inap. | C'loudy | |
| Wickenburg, Arizona | | | | | 60 | 15.6 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C. | | | 30.04 | 763.0 | 48 | 8.9 | 49 | NW | 8 | 3.6 | | 1ck | 0 | W | | 0 | 0 | Clear | |
| Wood's Holl, Mass. | | | 29.62 | 752.3 | 47 | 8.3 | 92 | N | 5 | 2.2 | | | 10s | | N | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.77 | 730.7 | 30.08 | 764.0 | 45 | 7.2 | 84 | SE | 10 | 4.5 | | | 10n | | | 0.03 | 0.8 | Light rain | |
| Yuma, Arizona | | | 29.62 | 752.3 | 60 | 15.6 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I. | | | 30.14 | 765.5 | 80 | 26.7 | 78 | Calm | 0 | 0 | | 2k | 2s | SE | | 0 | 0 | | James Gall. |
| Navassa, W. I. | | | | | 80 | 26.7 | | SE | | | 2 | | | | | 0.04 | 1.0 | | Dr. G. H. Davison |
| Clifton, Ja., W. I. | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A. | | | 29.97 | 761.2 | 81 | 27.2 | 87 | NE | | | 3 | 5ck | 6k | E | | 0.180 | 4.57 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A. | 30.03 | 762.8 | | | 78.8 | 26 | | E | | | | | | | | 2.579 | 65.50 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A. | 25.24 | 641.1 | | | 66.0 | 18.9 | 84 | Calm | | | 0 | | 10n | | | 0.56 | 14.2 | Cloudy | Thomas Herran. |
| York Factory, B. A. | | | 30.38 | 771.6 | 22.0 | — 5.6 | 93 | N | 6 | 2.7 | | 2c | 0 | NE | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I. | | | 30.08 | 764.0 | 71.5 | 21.9 | | NE | | | 5 | | | | | 0 | 0 | Hazy | Daniel Smith. |
| Makawao, Maui, H. I. | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Salt Lake City, 4,342.2 ft., or 1,323.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.97 | 761.2 | 58 | 14.4 | 44 | 6.7 | 60 | NNW | | | 3 | | 9 | | NNW | 0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.97 | 761.2 | 61 | 16.1 | 53 | 11.7 | | W | | | 3 | | 2 | | NE | 0 | 0 | | | Fair | |
| Navy Yard, Norfolk, Va | 30.06† | 763.5† | 45 | 7.2 | 45 | 7.2 | 68 | NW | 6 | 2.7 | | | 5ck | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla | 30.22 | 767.6 | | | 59.5 | 15.3 | 73 | NNE | 4 | 1.8 | | | | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 29.72 | 754.9 | 63 | 17.2 | 43 | 6.1 | 92 | NW | 1 | 0.4 | | | 10 | | | 0.6 | 15. | | | Rainy | |
| Naval Hospital, Yokohama, Japan | 29.94 | 760.5 | 67 | 19.4 | 61.5 | 16.4 | 83 | Calm | | | 0 | | Haze | | | 0 | 0 | | | Clear | |
| Adams, N. 31° 5′ W. 42° 27′ | 29.99 | 761.7 | 68 | 20.0 | 68 | 20.6 | 90 | NW | | | 1 | | 4 | | N&W | | | Light | N | D. clouds | |
| Alert, Yokohama, Japan | 30.74 | 780.8 | 65 | 18.3 | 66 | 18.9 | 84 | NNE | | | 1 | | 1 | | NE | | | Calm | None | D. clouds | |
| Alliance, N 31° 30′ E. 29° 22′ | 29.78 | 756.4 | 70 | 21.1 | 72 | 22.2 | 83 | W | | | 1–2 | | 6 | | E | | | Moderate. | N&W | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.90 | 759.4 | | | 83 | 28.3 | 83 | SSE | | | 2 | | 4 | | SSE | | | Smooth | | Hazy | |
| Canonicus, New Orleans, La | 30.10 | 764.5 | 50 | 10.0 | 64 | 17.8 | 68 | N | | | 2 | | 0 | | | | | | | Clear | |
| Colorado, New York, N. Y | 29.78 | 756.4 | 47 | 8.3 | 48 | 8.9 | 100 | NW | 24 | 10.7 | | | 4 | | N&W | 0.01 | 0.3 | | | D. clouds | |
| Despatch, Hampton Roads, Va | 29.98 | 761.5 | 48 | 8.9 | 46 | 7.8 | 77 | NW | | | 5 | | 7 | | SW | | | Smooth | | | |
| Essex, Vera Cruz, Mexico | 30.03 | 762.7 | 74 | 23.3 | 75 | 23.9 | 100 | WSW | | | 2 | | 10 | | S | Blank | Blank | Smooth | N | Misty | |
| Frolic, Monte Video, Uruguay | 29.76 | 755.9 | | | 71 | 21.7 | 95 | NNW | | | 3 | | 10kn | | | Blank | Blank | Broken | N&W | Misty | |
| ‡ Gettysburg, N. 39° 52′ E. 13° 43′ | 29.87 | 758.7 | | | 61 | 16.1 | 94 | NNW | | | 1 | | 2 | | | Blank | Blank | Light | NW | D. clouds | |
| Hartford, St. Pierre, Martinique, W. I. | 30.10 | 764.5 | 83 | 28.3 | 85 | 29.4 | 68 | E | 4.8 | 2.1 | | | 4 | | | | | | | Pleasant. | |
| Kearsarge, Nagasaki, Japan | 30.09 | 764.3 | 72 | 22.2 | 65 | 18.3 | 89 | N | | | 1 | | 0 | | | 0 | 0 | Calm | None | Pleasant | |
| Lackawana, N. 17° 50′ W. 103° 04′ | 29.97 | 761.2 | | | 79 | 26.1 | 91 | Calm | | | 0 | | 7 | | | | | Smooth | W | D. clouds | |
| Marion, Smyrna, Turkey | 29.60 | 751.8 | 67 | 19.4 | 65 | 18.3 | 94 | S | | | 3 | | 9 | | N | Blank | Blank | Chop'd | S | D. clouds | |
| Michigan, Erie, Pa | 29.47 | 748.5 | 46 | 7.8 | 39 | 3.9 | 64 | NW | | | 2 | | 2 | | NW | | | | | Fair | |
| Monocacy, Shanghai, China | 29.80 | 756.9 | | | 62 | 16.7 | 88 | SE | | | 2 | | 3 | | SE | | | | | D. clouds | |
| Monongahela, Annapolis Roads, Md | 29.91 | 759.7 | 46 | 7.8 | 48 | 8.9 | | NNW | | | 4 | | 4kn | | | Blank | Blank | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.25 | 768.3 | | | 58 | 14.4 | 76 | NE | | | 1 | | | | | 0 | 0 | | | Blue sky | |
| Omaha, Panama | 30.01 | 762.2 | 80 | 26.7 | 80 | 26.7 | 87 | NW | 1 | 0.4 | | | 2 | | N | 0 | 0 | Calm | None | Pleasant | |
| Ossipee, Matanzas, Cuba, W. I. | 30.06 | 763.5 | 76 | 24.4 | 76 | 24.4 | 73 | NNE | | | 3 | | 8 | | ESE | | | Short | N | D. clouds | |
| Palos, Shanghai, China | 29.94 | 760.5 | 64 | 17.8 | 62 | 16.7 | 88 | S&E | | | 1 | | 2 | | S&E | | | | | Clear. | |
| Pensacola, Acapulco, Mexico | 30.05 | 763.3 | | | 82 | 27.8 | 83 | Calm | | | 0 | | 1 | | | 0 | 0 | Calm | None | Pleasant | |
| Plymouth, Natchez, Miss | 30.09 | 764.3 | 68 | 20.0 | 66 | 18.9 | 59 | SSE | | | 3 | | 0 | | | 0 | 0 | | | Hazy | |
| Powhatan, N. 32° 55′ W. 78° 46′ | 30.15 | 765.8 | | | 56 | 13.3 | 100 | NE | | | 3 | | 1 | | N | | | Smooth | | D. clouds | |
| Ranger, N. 36° 33′ W. 46° 58′ | 30.20 | 767.1 | | | 64.5 | 18.1 | ? | NNW | | | 3 | | 7 | | S&E | | | Moderate | N&W | Pleasant | |
| Richmond, S. 35° 16′ W. 54° 5′ | 29.86 | 758.4 | 69.5 | 20.8 | 67.8 | 19.9 | 92 | NE | | | 4 | | 10 | | | 0 | 0 | Very light. | ENE | Lightly overcast. | |
| Rio Bravo, Matamoras, Mexico | 29.94 | 760.5 | | | 64 | 17.8 | 94 | NE | | | 2 | | 6 | | NE | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.98 | 761.5 | 64 | 17.8 | 46 | 7.8 | 62 | NW | | | 5 | | 10 | | | 0 | 0 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.77 | 756.1 | 54 | 12.2 | 46 | 7.8 | 77 | NW | 20 | 8.9 | | | 8 | | NNW | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.02 | 762.5 | 82 | 27.8 | 82 | 27.8 | 83 | NNE | | | 1 | | 5k | | NE | | | Moderate. | NE | Fair | |
| Tennessee, Yokohama, Japan | 30.03 | 752.7 | 70 | 21.1 | 68 | 20.0 | 84 | NNE | | | 1–2 | | | | | | | Smooth | S&E | Hazy | |
| Trenton, Villefranche, France | 30.04† | 763.0† | 67 | 19.4 | 70 | 21.1 | ? | ESE | 12 | 5.4 | | | 1 | | | 0.2 | 5. | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.71 | 754.6 | 63 | 17.2 | 62 | 16.7 | 88 | SW | | | 1 | | 7 | | NW | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.69 | 754.1 | 53 | 11.7 | 43 | 6.1 | ? | NNW | 7 | 3.1 | | | 10 | | NNW | 0.35 | 8.9 | | | Raining | |
| Wyoming, Washington, D.C | 30.33† | 770.4 | 52 | 11.1 | 46 | 7.8 | | WNW | | | 2 | | 10 | | | | | | | Overcast | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; **Williams, Blanchard** & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.84 | 757.9 | 82 | 27.8 | 87 | SSE | | | 2 | | 5ks | | | | | Hazy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 49° 34′, W. 15° 54′ | E ⅝ N | 9.5 | 29.99 | 761.7 | 54.5 | 12.5 | | SSE | | | 5 | | .k | | SSE | Short | | Overcast | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 45° 21′, W. 41° 20′ | WSW ½ W | | 29.44 | 747.8 | 53.4 | 11.9 | | WNW | | | 6 | | .kn | | NNE | Rough | | Overcast | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Providence, R. I. | | | 29.65 | 753.1 | 50 | 10.0 | 100 | NW | | | | | 10n | | | | | Rainy | Capt. James Jorgensen |

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, tracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 3, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.91 | 759.7 | 74.7 | 23.7 | 64 | NW | | | 1 | | 1 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 29.88 | 758.9 | 60.8 | 16.0 | 86 | N | | | 2 | | 10 | | | 0 | 0 | Hidden | Peter. |
| La Calle | | | 29.93 | 760.1 | 64.9 | 18.3 | 84 | ENE | | | 3 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.95 | 760.6 | 69.8 | 21 | | SW | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.98 | 761.5 | 69.8 | 21 | | S | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.92 | 759.9 | 72.5 | 22.5 | | WNW | | | 1 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.91 | 759.6 | 64.9 | 18.3 | | S | | | 3 | | 3 | | | 0 | 0 | Fair | Bourgeois. |
| Geriville | | | 29.99 | 761.7 | 77.4 | 25.2 | 16 | WNW | | | 3 | | 4 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.99 | 761.7 | 79.2 | 26.2 | 14 | W | | | 2 | | 6 | | | Inap. | Inap. | Fair | Guyot. |
| Biskra | | | 30.00 | 761.9 | 77.5 | 25.3 | 27 | SE | | | 2 | | 3 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.98 | 761.5 | 53.1 | 11.7 | 40 | SW | | | 1 | | 1 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.98 | 761.5 | 43.5 | 6.4 | 57 | W | | | 3 | | 6 | | | 0.047 | 1.2 | | Dr. Wierzbicki. |
| Eperies | | | 29.94 | 759.8 | 46.8 | 8.2 | 43 | N | | | 2 | | 3,8 | | S | 0.089 | 2.25 | | Julius Mikolik. |
| Gratz | | | 29.94 | 760.4 | 53.6 | 12.0 | 38 | S | | | 3 | | 2 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.69 | 728.6 | 29.94 | 760.4 | 53.6 | 12.0 | 38 | S | | | 3 | | 2 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.46 | 722.9 | 29.90 | 759.4 | 45.0 | 7.2 | 53 | WNW | | | 4 | | 10 | | | 0.539 | 13.70 | | Prof. C. Wagner. |
| Lemberg | 28.61 | 726.8 | 29.98 | 761.4 | 45.7 | 7.6 | 47 | NW | | | 2 | | 3 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | 29.87 | 758.6 | 44.4 | 6.9 | 49 | NW | | | 2 | | 7 | | | 0 | 0 | | Habzsuda Daniel. |
| Pola | | | | | | | | | | | | | | | | | | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.00 | 761.9 | 56.5 | 13.6 | 42 | SW | | | 1 | | 18 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.96 | 760.9 | 58.8 | 14.9 | 52 | Calm | | | 0 | | 10 | | | 0 | 0 | Cloudy | P. Busin. |
| Vienna | | | 30.03 | 762.8 | 54.1 | 12.3 | 54 | W | | | 1 | | 10 | | | 0 | 0 | | I. R. Central Met. Obs'y. |
| | | | 29.98 | 761.6 | 48.4 | 9.1 | 36 | NW | | | 1 | | 8 | | | 0 | 0 | | |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.54 | 724.9 | 30.02 | 762.6 | 46.4 | 8.0 | 37 | N | | | 1 | | 4 | | | 0 | 0 | | Royal Observatory |
| Brussels | | | 30.07 | 763.7 | 51.1 | 10.6 | 53 | N | | | 1 | | 5k | | N | 0 | 0 | | |
| Furnes | | | 30.08 | 763.9 | 50.7 | 10.4 | 63 | NW | | | 2 | | 2 | | | 0.031 | 0.8 | | |
| Maeseyck | | | 30.00 | 761.9 | 46.0 | 7.8 | 63 | NNW | | | 4 | | 10 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Clouds. Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.23 | 767.8 | 40.0 | 4.4 | | NNW | 15 | 6.7 | | | 6 | | | 0.040 | 1.02 | D. clouds | William Boswell. |
| Ardrossan | | | 30.22 | 767.6 | 45 | 7.2 | | ENE | | | 3 | | 6 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.20 | 767.1 | 46.7 | 8.2 | | NE | 5 | 2.2 | | | 8 | | | | | D. clouds | S. Call, for Dr. Robinson |
| Bidston, (Liverpool Obs.) | | | 30.16 | 766.1 | 47.2 | 8.4 | | E | 5 | 2.2 | | | 9 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.16 | 766.1 | 52.0 | 11.1 | | NNE | | | 1 | | 7 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.18 | 766.6 | 43.5 | 6.4 | | E | | | 1 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.99 | 761.7 | 79.0 | 26.1 | | NE | | | 2 | | 4 | | | | | D. clouds | P'vt. G. W. Roberts, [H. C. |
| Cambridge, Observatory | | | 30.14 | 765.5 | 46.0 | 7.8 | | NNE | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 30.16 | 766.1 | 45.0 | 7.2 | | NE | | | 1 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.11 | 764.8 | 48.0 | 8.9 | | SE | | | 2 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.61 | 726.7 | 30.11 | 764 8 | 46.6 | 8.1 | | SE | | | 2 | | 8 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.22 | 767.6 | 45 | 7.2 | | ESE | | | 4 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.00 | 762.0 | 48 | 8.9 | | E | | | 2 | | 0 | | | | | Hazy | J. Costello. |
| Eccles, (near Manchester) | | | 30.16 | 766.1 | 44.5 | 6.9 | | NE | 0.8 | 0.4 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.10 | 764.5 | 50.5 | 10.3 | | ESE | | | 3 | | 7 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.78 | 705.6 | 30.01 | 762.2 | 72.2 | 22.3 | | E | | | 2 | | 10 | | | | | Overcast | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.97 | 761.2 | 87 | 30.6 | | N | | | 0 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.12 | 765.0 | 53 | 11.7 | | N | | | 1 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.88 | 758.9 | 70.4 | 21.3 | | NE | | | 2 | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.22 | 767.6 | 42.8 | 6.0 | | | | | | | 7 | | | | | D. clouds | Lewis Stuart. |
| Great Yarmouth | | | 30.14 | 765.5 | 45 | 7.2 | | NNE | | | 3 | | 4 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.11 | 764.8 | 44.4 | 6.9 | | NE | | | 2 | | 10 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 30.04 | 763.0 | 50 | 10.0 | | NE | | | 4 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.12 | 765.0 | 53 | 11.7 | | SE | | | 6 | | 2c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.15 | 765 8 | 48 | 8.9 | | NE | | | 4 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.12 | 765.0 | 44.5 | 6.9 | | NE | 19 | 8.5 | | | 10k | | | | | Hazy | The Staff. |
| Kingstown | | | 30.18 | 766.6 | 46 | 7.8 | | NNE | | | 3 | | 2 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.16 | 766.1 | 44.7 | 7.1 | | E | | | 2 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.00 | 762.0 | 68.0 | 20.0 | | NE | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.26 | 768.6 | 40 | 4.4 | | WNW | | | 1 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.04 | 763.0 | 74.2 | 23.4 | | NE | | | 1 | | 3 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.18 | 766.6 | 46.0 | 7.8 | | NE | | | 4 | | 10k | | NNE | 0 | 0 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.15 | 765.8 | 45.2 | 7.3 | | NNE | | | 3 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.13 | 765.3 | 44 | 6.7 | | NE | | | 2 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 30.08 | 764.0 | 53.3 | 11.8 | | E | | | 2 | | 5 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.13 | 765.3 | 53 | 11.7 | | SE | | | 3 | | 10 | | | | | Dull | W. Kennedy. |
| Saint Ann's Head | | | 30.12 | 765.0 | 53 | 11.7 | | Calm | | | 0 | | 6 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.03 | 762.7 | 53.2 | 11.8 | | E | | | 5 | | 0 | | | | | Clear | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.25 | 768.3 | 38 | 3.3 | | NNW | 18 | 8.0 | | | 8 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.83 | 757.7 | 58.2 | 14.6 | | NNE | | | 2 | | 9 | | | | | Showery | Sergt. W. H. Lyne. |
| Sheffield | | | 30.18 | 766.6 | 45.5 | 7.5 | | NE | | | 1 | | 9 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.22 | 767.6 | 48.3 | 9.1 | 51 | S | | | 2 | | 3 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.18 | 766.6 | 46.1 | 7.8 | | NE | | | 1 | | 6 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.26 | 768.6 | 41 | 5.0 | | N | | | 3 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.11 | 764.8 | 52.1 | 11.2 | | NW | | | 1 | | 8 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 30.24 | 768.1 | 41 | 5.0 | | NNE | | | 4 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.09 | 764.3 | 58 | 14.4 | | SE | | | 5 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.12 | 765.0 | 53.9 | 12.2 | | NE | 16 | 7.2 | | | 10 | | | | | Hazy | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 46 | 7.8 | | NE | | | 2 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.00 | 762.0 | 67.0 | 19.4 | 80 | WNW | 11 | 4.9 | | 2 | 6 | | | | | | The Staff, for E. J. Stone |
| Hobart Town, (Tasmania) | | | 30.13 | 765.3 | 65.0 | 18.3 | 94 | Calm | | | 0 | | 10n | | | 0 | 0 | Covered | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.26 | 768.6 | 43.0 | 6.1 | | NE | | | 2 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 29.88 | 758.9 | 76.0 | 24.4 | 63 | SSE | 11.6 | 5.2 | | 0 | 1 | | S | 0 | 0 | Blue sky | C. Meldrum. |
| Melbourne, Observatory | | | 30.05 | 763.3 | 51.6 | 10.9 | 86 | ENE | 4 | 1.8 | | | 0 | | | 0 | 0 | Heavy dew | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.29 | 769.4 | 46 | 7.8 | | NE | | | 3 | 5 | 0 | NE | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.18 | 765.6 | 34 | 1.1 | | N | | | 6 | 4 | 5 | N | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford. St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,460 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | Barometer corrected, Inches | Millimeters | Reduced, Inches | Millimeters | Fahrenheit | Centigrade | Per cent | Wind From— | Miles per hour | Meters per second | Force | Clouds Up'er | Low'r | Upper From— | Lower From— | Sea or swell. Height scale 0–9 | Direction from— | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Monland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorato, N. 25° 25′, W. 22° 55′ | | | 30.06 | 763.5 | 73.2 | 22.9 | | WNW | | | 1 | | 6 | | | 2 | WNW | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have generally been carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 69.8 | 21.0 | 73 | SE | | | 2 | | 1ck | | E | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.97 | 761.3 | 40.1 | 4.5 | 50 | NE | | | 4 | | 4 | | | | | | |
| Fanöe | | | 30.01 | 762.2 | 45.0 | 7.2 | 54 | W | | | 6 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 30.31 | 769.8 | 35.2 | 1.8 | 52 | N | | | 2 | | 8 | | | | | | |
| Vestervig | | | 30.00 | 762.0 | 44.6 | 7.0 | 57 | NW | | | 4 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.01 | 762.2 | 51.8 | 11 | 63 | NE | | | 4 | | 2k | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Amiens | | | 30.04 | 763.1 | 55.4 | 13.0 | | E | | | 3 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Avignon, Normal School | | | 29.92 | 760.0 | 67.1 | 19.5 | 43 | S | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Mr. Giraud. |
| Bar-sur-Seine | | | 29.97 | 761.3 | 55.4 | 13.0 | 28 | NE | | | 2 | | 0 | | | 0 | 0 | Clear | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.07 | 763.6 | 50.0 | 10 | 64 | E | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 30.03 | 762.7 | 57.2 | 14 | 47 | E | | | 6 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg en Bresse | | | 30.02 | 762.4 | 60.8 | 16 | 59 | N | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges | | | 29.93 | 760.3 | 50.5 | 10.3 | 95 | NE | | | 6 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Brest | | | 29.91 | 759.7 | 50.9 | 10.5 | 50 | ENE | | | 5 | | 5 | | ENE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 29.89 | 759.2 | 58.6 | 14.8 | 76 | E | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Caen | | | 30.04 | 763.1 | 52.2 | 11.2 | 39 | E | | | 1 | | | | | 0 | 0 | | Normal School. |
| Chartres | | | 30.04 | 763.0 | 52.7 | 11.5 | 90 | E | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Châlons-sur-Marne | | | 30.03 | 762.7 | 55.4 | 13.0 | 25 | SW | | | 3 | | 2ck | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Clermont | | | 29.85 | 758.2 | 61.3 | 16.3 | 41 | NE | | | 1 | | 1 | | NE | 0 | 0 | Clear | Puy de Dome Obs'y. |
| Commercy | | | 30.01 | 762.2 | 48.6 | 9.2 | 48 | NE | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Commune de Gréasque* | | | 30.02 | 762.5 | 64.2 | 17.9 | 36 | SW | | | 4 | | 8 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.84 | 757.8 | 62.2 | 16.8 | 49 | NW | | | 4 | | 2ks | | NW | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon | | | 29.84 | 758.0 | 58.3 | 14.6 | 52 | E | | | 6 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Le Mans | | | 29.99 | 761.7 | 52.0 | 11.1 | 93 | SE | | | 4 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Lons-Le-Saulnier | | | 29.94 | 760.4 | 55.2 | 12.9 | 50 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Lorient | | | 29.97 | 761.2 | 55.8 | 13.2 | 38 | NE | | | 3 | | 8 | | NE | 0 | 0 | 3/4 covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.97 | 761.2 | 54.1 | 12.3 | 76 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | Mr. Marchal. |
| Metz | | | 30.09 | 764.3 | 47.3 | 8.5 | 53 | NE | | | 3 | | 4k | | NE | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.95 | 760.8 | 48.2 | 9 | 77 | N | | | 4 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes | | | 29.94 | 760.4 | 66.9 | 19.4 | 59 | SE | | | 4 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Orleans | | | 29.99 | 761.8 | 50.7 | 10.4 | 82 | E | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Paris, Observatory | | | 30.04 | 762.9 | 52.0 | 11.1 | 38 | E | | | 2 | | 3ck | | E | 0 | 0 | Slightly cl'dy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.87 | 758.6 | 63.0 | 17.2 | 41 | NE | | | 4 | | 5 | | W | 0 | 0 | 1/2 covered | Naval Observatory. |
| Rouen | | | 30.06 | 763.4 | 55.6 | 13.1 | 39 | E | | | 2 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| Tarbes | 28.83 | 732.2 | 29.89 | 759.2 | 62.6 | 17 | 90 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Villefranche | | | 29.92 | 759.9 | 61.3 | 16.3 | 81 | NNE | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.81 | 757.2 | 77.7 | 25.4 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.92 | 760.0 | 64.9 | 18.3 | 57 | SW | | | 2 | | 8 | | | 0 | 0 | Very cloudy | The Staff. |
| Mont-Louis | 24.73 | 628.2 | 30.05 | 763.2 | 50.2 | 10.1 | 60 | SE | 13.4 | 5.83 | | | 8 | | SW | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.02 | 762.6 | 54.3 | 12.4 | 41 | E | | | 2– | | 1 | | ENE | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 29.90 | 759.4 | 59.0 | 15.0 | 79 | S | 13.4 | 5.83 | | | 10 | | SW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.39 | 568.7 | | | 44.6 | 7.0 | | SW | | | 1 | | 10 | | | 0 | 0 | Cloudy | and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 30.02 | 762.6 | 53.2 | 11.8 | 38 | ENE | | | 2 | | 0 | | | 0 | 0 | Clear | E. Renou. |
| Toulouse, Observatory | | | 29.86 | 758.5 | 63.5 | 17.5 | 47 | SSE | | | 4 | | 5 | | | 0 | 0 | | The Staff. |
| Tours | | | | | | | | ESE | | | 3 | | 3 | | | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.02 | 762.6 | 52.2 | 11.2 | 39 | E | | | 2 | | 3 | | | 0 | 0 | Fair | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.74 | 755.5 | 65.1 | 18.4 | 96 | SE | 5.6 | 2.5 | | | 5k | | | 0 | 0 | Lightning | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,438.6 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont, the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:11, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.06 | 763.5 | 49.3 | 9.6 | 28 | WNW | | | 3 | | 6 | WNW | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.00 | 761.9 | 42.1 | 5.6 | 70 | NW | | | 3 | | 8 | | | 0.024 | 0.6 | | Prof. Arndt. |
| Breslau | | | 30.02 | 762.6 | 37.2 | 2.9 | 96 | W | | | 1 | | 10 | | | 0.106 | 2.7 | Raining | Royal University Obs'y |
| Carlsruhe | | | 30.00 | 762.1 | 50.0 | 10.0 | 38 | NE | | | 3 | | 1 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.07 | 763.8 | 40.6 | 4.8 | 84 | N | | | 7 | | 8 | NW | | Inap. | Inap. | Light snow | Dr. H. Möhl. |
| Crefeld | | | 30.07 | 763.6 | 46.0 | 7.8 | 74 | N | | | 4 | | 9 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.15 | 765.7 | 43.0 | 6.1 | 61 | NNW | | | 4 | | 1 | | | 0.087 | 2.2 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.08 | 764.1 | 52.9 | 11.6 | 31 | NNW | | | 1 | | 3 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 29.01? | 736.8? | 30.00? | 762.0? | 48.4 | 9.1 | 62 | SW | | | 3 | | 1 | W | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.06 | 763.5 | 40.6 | 4.8 | 42 | NNW | | | 2 | | 2k | NNW | | 0.134 | 3.4 | Fine | Captain F. Hegemann. |
| Kiel | | | 30.01 | 762.3 | 43.5 | 6.4 | 90 | NE | | | 2 | | 2 | | | 0.043 | 1.1 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.94 | 760.5 | 43.3 | 6.3 | 42 | N | | | 2 | | 2 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | 29.98 | 761.6 | 38.8 | 3.8 | | SW | | | 2 | | 4 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 30.04 | 763.1 | 42.8 | 6.0 | 65 | NW | | | 4 | | 10 | | | 0.020 | 0.5 | Light rain | Prof. Bruhns. |
| Memel, Naval School | | | 29.97 | 761.3 | 42.1 | 5.6 | 68 | WNW | | | 2 | | Ses | | | Inap. | Inap. | | Reinbrecht & Skalweit. |
| Münster | | | 30.03 | 762.8 | 43.3 | 6.3 | 65 | NW | | | | | 2 | | | 0.008 | 0.2 | Snowing | Prof. E. Heis. |
| Neufahrwasser | | | 29.97 | 761.1 | 37.9 | 3.3 | 85 | NNE | | | 3 | | 6 | SSW | | 0.039 | 1.0 | | A. Lothes. |
| Posen | | | 29.97 | 761.3 | 47.1 | 8.4 | 61 | NW | | | 2 | | 5 | | | 0.031 | 0.8 | Rain & snow | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.03 | 762.7 | 50.5 | 10.3 | 42 | E | | | 1 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.02 | 762.4 | 48.6 | 9.2 | 38 | N | | | 1 | | 4 | E | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.93 | 760.1 | 51.6 | 10.9 | 35 | NE | | | 5 | | 2 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.48 | 723.4 | 30.01 | 762.2 | 45.7 | 7.6 | 43 | W | | | 1 | | 8 | NW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.08 | 764.0 | 41.7 | 5.4 | 58 | NW | | | 2 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.88 | 759.0 | 65.5 | 18.6 | | NW | | | | | 10 | | | | | Sprinkling | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.08 | 560.9 | 29.88 | 759.0 | 30.9 | — 0.6 | 98 | W | | | 2 | | 10 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.01 | 559.0 | 29.86 | 758.4 | 30.7 | - 0.7 | | SSW | | | 1 | | 3 | E | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.98 | 761.5 | 52.3 | 11.3 | 41 | SW | 0.7 | 0.3 | | | 10 | | | 0 | 0 | | Ab. Dem. Morgini. |
| Padua | | | 29.93 | 760.1 | 55.4 | 13.0 | 54 | SE | 9.8 | 4.4 | | | 10 | S | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.96 | 761.0 | 55.6 | 13.1 | 59 | NE | 1.8 | 0.8 | | | 8 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.98 | 761.6 | 59.5 | 15.3 | 55 | E | | | 2 | | 10 | | | 0 | 0 | | Dott. E. Bertoncelli. |
| Bergamo | 28.62 | 727.0 | 29.93 | 760.2 | 59.0 | 15.0 | 42 | S | | | 1 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.86 | 758.5 | 61.7 | 16.5 | 35 | S | | | 6 | | 3 | | | 0.020 | 0.5 | | Prof. Giuseppe Calza. |
| Milan | | | 29.91 | 759.7 | 64.6 | 18.1 | 49 | NW | | | 1 | | 3 | NW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.94 | 760.4 | 61.0 | 16.1 | 46 | NE | | | 2 | | 4 | SW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.90 | 759.4 | 62.4 | 16.9 | 43 | SSE | 2.5 | 1.1 | | | 7 | SE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.00 | 711.3 | 29.89 | 759.1 | 59.0 | 15.0 | 48 | E | | | 4 | | 6 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.017 | 762.32 | 59.4 | 15.2 | 58 | SE | | | 2 | | 7 | WNW | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.787 | 756.52 | 61.9 | 16.6 | 42 | SW | 6.9 | 3.1 | | | 2 | NE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.96 | 760.9 | 60.6 | 15.9 | 40 | N | 4.3 | 1.9 | | | 2 | W | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.93 | 760.1 | 64.0 | 17.8 | 51 | NE | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.99 | 761.7 | 62.6 | 17.0 | 32 | W | | | 2 | | 0 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.97 | 761.2 | 62.2 | 16.8 | 42 | SSW | 15.0 | 6.7 | | | 2 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.76 | 730.4 | 29.95 | 760.7 | 59.2 | 15.1 | 26 | SE | 0 | 0 | | | 1 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.45 | 722.7 | 29.99 | 761.7 | 54.7 | 12.6 | 45 | SE | | | 1 | | 1 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.00 | 762.0 | 57.4 | 14.1 | 47 | ENE | 23.0 | 10.3 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.97 | 761.2 | 57.9 | 14.4 | 35 | NE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.98 | 761.6 | 65.5 | 18.6 | 33 | SSE | | | 2 | | 2 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.98 | 761.5 | 64.4 | 18.0 | 43 | SSE | 9.8 | 4.4 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.00 | 761.9 | 66.4 | 19.1 | 46 | SW | | | 4 | | 5 | WNW | | 0.228 | 5.8 | Raining | Prof. L. Palmieri. |
| Lecce | | | 30.00 | 761.9 | 58.3 | 14.6 | 43 | WSW | 17.4 | 7.8 | | | 5 | WSW | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.00 | 762.1 | 63.0 | 17.2 | 63 | NW | 5.6 | 2.5 | | | 4 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.93 | 760.2 | 63.5 | 17.5 | 57 | SE | | | 2 | | 8 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.98 | 761.6 | 66.0 | 18.9 | 58 | S | | | 4 | | 8 | SE | | 0 | 0 | | Pref. F. Cafiero. |
| Palermo | | | 29.94 | 760.5 | 62.6 | 17.0 | 66 | NE | 5.6 | 2.5 | | | 4 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.07 | 712.9 | 29.97 | 761.2 | 62.2 | 16.8 | 36 | SW | | | 4 | | 3 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.95 | 760.7 | 67.6 | 19.8 | 57 | SE | | | 4 | | 6 | NW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.04 | 763.1 | 62.6 | 17.0 | 50 | WSW | 1.3 | 0.6 | | | 3 | SW | | 0.281 | 7.1 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.06 | 763.5 | 62 | 16.7 | 86 | Calm | 0 | 0 | | 0 | | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.06 | 585.6 | 30.04 | 763.1 | 59.0 | 15.0 | 44 | Calm | 0 | 0 | | 6ck | 2ck | W | W | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.13 | 765.2 | 50.2 | 10.1 | | NE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 30.01 | 763.0 | 42.6 | 5.9 | | N | | | 2 | | | | | 0.051 | 1.3 | | |
| Helder | | | 30.11 | 764.8 | 41.4 | 5.2 | | NNW | | | 2 | | | | | 0.020 | 0.5 | | |
| Utrecht | | | 30.07 | 763.7 | 45.3 | 7.4 | 87 | NNE | | | 3 | | 8 | | | 0.047 | 1.2 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.06 | 763.5 | 38.5 | 3.6 | 51 | NW | 8.5 | 3.8 | | | 10 | | | Inap. | Inap. | Snowing | |
| Brönö | | | 29.87 | 758.8 | 37.4 | 3.0 | 66 | WSW | 9 | 4 | | | 6 | | | 0.244 | 6.2 | | |
| Christiania | | | 29.95 | 760.7 | 43.9 | 6.6 | 26 | S | 4 | 2 | | | 4 | | | 0 | 0 | | |
| Tromsö | | | 29.76 | 755.8 | 35.8 | 2.1 | 71 | NE | 4 | 2 | | | 1 | | | 0.055 | 1.4 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.63 | 752.6 | 58.6 | 14.8 | 82 | W | 6.9 | 3.1 | | | 6 | | | 0.047 | 1.2 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.75 | 755.6 | 75.7 | 24.3 | 46 | SSW | 9.4 | 4.2 | | | 3 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos |
| Funchal, (Madeira) | | | 29.89 | 759.1 | 68.5 | 20.3 | 62 | WSW | 10.5 | 4.7 | | | 2 | | | 0.126 | 3.2 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.78 | 756.3 | 64.8 | 18.2 | 78 | SSW | 18.6 | 8.3 | | | 10 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 29.67 | 753.7 | 63.3 | 17.4 | 70 | W | 4.9 | 2.2 | | | 4 | | | 0.067 | 1.7 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.95 | 760.7 | 40.8 | 4.9 | 76 | NNW | 7 | 3 | | | 9 | | | | | Solar corona | Astronomical Obs. |
| Wilna | | | 29.88 | 758.9 | 45.1 | 7.3 | 51 | NW | 7 | 3 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.91 | 759.8 | 44.8 | 7.1 | 31 | WNW | 4 | 2 | | | 1 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.88 | 758.9 | 37.6 | 3.1 | 70 | WNW | 18 | 8 | | | 9 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.85 | 758.1 | 39.6 | 4.2 | 65 | S | 7 | 3 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 29.67 | 753.7 | 49.1 | 9.5 | 72 | NW | 11 | 5 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.71 | 754.5 | 59.7 | 15.4 | 66 | SW | 13 | 6 | | | 9 | | | | | | Kurdakof |
| Kertch | | | 29.76 | 755.8 | 55.8 | 13.2 | 88 | SE | 7 | 3 | | | 9 | | | | | | Lagorio. |
| Moscow | | | 29.55 | 750.5 | 44.2 | 6.8 | 94 | N | 9 | 4 | | | 10 | | | | | Raining | Meteorological Obs. |
| Lugan | | | 29.57 | 751.1 | 57.2 | 14.0 | 56 | WSW | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Archangel | | | 29.84 | 757.9 | 49.1 | 9.5 | 61 | Calm | 0 | 0 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.42 | 721.8 | 29.80 | 756.9 | 66.2 | 19.0 | 63 | N | 4 | 2 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.69 | 754.2 | 69.3 | 20.7 | 52 | SE | 16 | 7 | | | 6 | | | | | | Sebastianof. |
| Kasan | | | 29.77 | 756.2 | 46.6 | 8.1 | 66 | NE | 20 | 9 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischel. |
| Ekaterinburg | 28.97 | 735.8 | 29.95 | 760.7 | 32.9 | 0.5 | 96 | NNE | 11 | 5 | | | 10 | | | | | Snowing | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.32 | 719.3 | 29.93 | 760.3 | 81.0 | 27.2 | 33 | NW | 11 | 5 | | | 3 | | | | | | Michelson. |
| Barnaul | | | 30.13 | 765.2 | 48.2 | 9.0 | 39 | NE | 2 | 1 | | | 8 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 30.00 | 762.1 | 39.2 | 4.0 | 44 | W | 4 | 2 | | | 8 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | | | | | | | | | | | | | | | Mossin. |
| Peking, (China) | | | 30.10 | 764.4 | 57.4 | 14.1 | 68 | S | 13 | 6 | | | 8 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.09 | 764.2 | 47.7 | 8.7 | 60 | Calm | 0 | 0 | | | 0 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 32.0 | 0.0 | | W | 4 | 2 | | | 10 | | | | | Snowing | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet: Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.83 | 757.7 | 64.0 | 17.8 | 76 | SE | 3.7 | 1.67 | | 0 | 9 | | | 0.213 | 5.4 | Cloudy | Royal Observatory |
| San Fernando | | | 29.88 | 759.0 | 69.4 | 20.8 | 72 | S | 17.4 | 7.8 | | 0 | 10 | | S | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.06 | 763.5 | 72.1 | 22.3 | 66 | ESE | 13.9 | 6.2 | | 10s | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson, Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.84 | 757.8 | 35.6 | 2.0 | 78 | S | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.78 | 756.3 | 42.4 | 5.8 | 76 | NW | | | 2 | | 10 | | | 0.409 | 10.4 | | |
| Hernosand | | | 29.80 | 757.0 | 40.5 | 4.7 | 52 | N | | | 2 | | 9 | | | 0.020 | 0.5 | Snowing | |
| Stockholm | | | 29.88 | 759.0 | 41.7 | 5.4 | 24 | WSW | | | 4 | | 3 | | | 0 | 0 | | |
| Wisby | | | 29.97 | 761.1 | 35.6 | 2.0 | 75 | NW | | | 4 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.87 | 758.8 | 43.3 | 6.3 | 36 | NNW | 6.5 | 2.9 | | | 4 | | W | 0.001 | 0.02 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Upper. 0-10. | Clouds. Amount. Lower. 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.50 | 724.0 | 29.93 | 760.3 | 50.9 | 10.5 | 48 | NNE | | | 2 | | 0 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.32 | 719.4 | 29.97 | 761.1 | 52.5 | 11.4 | 35 | W | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |
| | | | | | | | | | | | | | | | | | | | |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —0.5 mm; Thermometer, —3.1 cent.; Relative Humidity, —10 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Upper. 0-10. | Clouds. Amount. Lower. 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.87 | 758.8 | 54.7 | 12.6 | 79 | N | 10 | 4.5 | | | 10 | | N | 0.453 | 11.5 | | The Observatory |
| Fao, (Persian Gulf) | | | 30.08 | 764.0 | 73.4 | 23.0 | | NW | | | 1 | | 0 | | | | | | |
| Salonica | | | 29.90 | 759.4 | 64.9 | 18.3 | | W | | | 2 | | 0 | | | | | | |
| Valona | | | 29.96 | 761.0 | 63.1 | 17.3 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bahran. |
| Varna | | | 29.88 | 759.0 | 59.0 | 15.0 | | NE | | | 2 | | 2 | | | | | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.86 | 758.5 | 75.0 | 23.9 | 65 | W | | | 1 | | 3s | | SW | 0 | 0 | D. clouds | Pro. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Upper. 0-10. | Clouds. Amount. Lower. 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.32 | 744.7 | 40.8 | 4.9 | 89 | NE | 3 | 1.3 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.91 | 759.7 | 36 | 2.2 | | NW | 4 | 1.8 | | 0 | 5s | | NW | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.34 | 745.2 | 38 | 3.3 | 100 | N | 5 | 2.2 | | | 10n | | N | 0.20 | 5.1 | Light rain | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.27 | 743.4 | 37 | 2.8 | 95 | Calm | 0 | 0 | | | 10n | | | 0.190 | 4.83 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.81 | 757.2 | 32.9 | 0.5 | 64 | SW | | | 1 | | 10s | | | 0 | 0 | Cloudy | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.29 | 744.0 | 40.9 | 4.9 | 91 | W | | | 1 | | | | | 0 | 0 | Threatening | H. A. Johnson. |
| Esquimault, B. C. | | | 30.13 | 765.3 | 48.3 | 9.1 | 85 | W | | | | 2cs | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.45 | 748.0 | 36 | 2.2 | 98 | N | 9 | 4.0 | | | 10n | | | 0.27 | 6.9 | Light rain | J. McWilliams. |
| Fredericton, N. B. | | | 29.37 | 746.0 | 39.5 | 4.2 | 87 | NW | 5 | 2.2 | | | 10 | | | 0.130 | 3.30 | Raining | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.01 | 762.2 | 36 | 2.2 | 90 | N | 4 | 1.8 | | 0 | 2s | | N | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.94 | 760.5 | 42.4 | 5.8 | 73 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | | | 29.94 | 760.5 | 41 | 5.0 | 49 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 28.82 | 732.0 | 29.94 | 760.5 | 41 | 5.0 | 49 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| Hamilton, Ontario | | | 29.28 | 743.7 | 40 | 4.4 | 97 | SE | 3 | 1.3 | | | Fog | | | 0.105 | 2.67 | Foggy | F. Allison, M. A. |
| Heart's Content, N. F. | | | 29.96 | 761.0 | 34.5 | 1.4 | 20 | SW | | | 3 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| *Kingston, Ontario | | | 29.72 | 754.9 | 43 | 6.1 | 92 | SE | | | 4 | | 10 | | | 0.13 | 3.3 | Overcast | E. Weedon. |
| *Montreal, Quebec | | | 29.91 | 759.7 | 36 | 2.2 | 54 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Parry Sound, Ontario | | | 29.74 | 755.4 | 35 | 1.7 | 79 | NW | 25 | 11.2 | | Haze | 5s | | NW | Inap. | Inap | Cloudy | C. H. McLeod, C. E. |
| Port Dover, Ontario | | | 29.92 | 760.0 | 36 | 2.2 | 61 | E | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Hastings, N. S. | | | 29.97 | 761.2 | 40 | 4.4 | 48 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Stanley, Ontario | | | 29.36 | 745.7 | 38.2 | 3.4 | | S | 8 | 3.6 | | | | | | 0 | 0 | Foggy | Peter Grant. |
| *Quebec, Quebec | | | 29.98 | 761.5 | 43 | 6.1 | 65 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Rockliffe, Ontario | | | 29.57 | 751.1 | 36 | 2.2 | 80 | NW | 1 | 0.4 | | | 10n | | NW | 0.13 | 3.3 | Light snow | Capt. Ashe, R. N. |
| St. John, N. B. | | | | | 32 | 0.0 | 66 | NW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | W. H. McIntyre. |
| *Saugeen, Ontario | | | 29.34 | 745.2 | 38 | 3.3 | 90 | NE | 4 | 1.8 | | | 10 | | | 0.14 | 3.6 | Cloudy | G. Murdoch, C. E. |
| Stayner, Ontario | | | 29.89 | 759.2 | 42 | 5.6 | 69 | SW | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stratford, Ontario | | | 29.90 | 759.4 | 38 | 3.3 | 64 | E | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | R. J. Cole. |
| *Sydney, C. B. | 28.64 | 727.4 | 29.95 | 760.7 | 37.5 | 3.1 | 61 | W | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Toronto, Ontario | | | 29.33 | 745.0 | 42 | 5.6 | 100 | NW | 1 | 0.4 | | | Fog | | | 0.10 | 2.5 | Foggy | T. C. Hill. |
| Windsor | | | 29.94 | 760.5 | 39 | 3.9 | 56 | W | 5 | 2.2 | | 2cs | 0 | W | | 0 | 0 | Clear | Magnetic Observatory. |
| Woodstock, Ontario | | | 29.27 | 743.4 | 40.5 | 4.7 | 96 | N | 0 | 0 | | | 10n | | | 0.28 | 7.1 | Fair | Prof. John E. Oram. |
| Sub-Series. | | | 29.94 | 760.5 | 41.1 | 5.1 | 28 | W | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| St. Johns, Newfoundland | | | 29.89 | 759.2 | 37.0 | 2.8 | 100 | SE | | | | | 10n | | | 0.62 | 15.7 | Raining | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Upper. 0—10. | Low'r. 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.79 | 756.7 | 40 | 4.4 | 56 | NW | 20 | 8.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich. | | | 29.88 | 758.9 | 42 | 5.6 | 28 | W | 7 | 3.1 | | 2ck | 0 | W | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 29.92 | 760.0 | 46 | 7.8 | 47 | NW | 12 | 5.4 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.07 | 763.8 | 57 | 13.9 | 52 | SE | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.98 | 761.5 | 46 | 7.8 | 54 | NW | 8 | 3.6 | | 2c | 2s | NW | NW | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 29.89 | 759.2 | 46 | 7.8 | 47 | NW | 23 | 10.3 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.24 | 717.3 | 29.93 | 760.2 | 35 | 1.7 | 100 | S | 1 | 0.4 | | | Fog | | | 0.30 | 7.6 | Foggy | |
| Boston, Mass. | | | 29.63 | 752.6 | 40 | 4.4 | 47 | NW | 24 | 10.7 | | 4ck | 0 | NW | | 0.45 | 11.4 | Fair | |
| Breckenridge, Minn. | | | 29.96 | 761.0 | 43 | 6.1 | 91 | N | 6 | 2.7 | | | 10s | | NE | Inap. | Inap. | Cloudy | |
| Buffalo, N. Y. | | | 29.92 | 760.0 | 38 | 3.3 | 71 | W | 7 | 3.1 | | 1k | 0 | W | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.78 | 756.4 | 36 | 2.2 | 62 | N | 8 | 3.6 | | | 10s | | N | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 29.83 | 757.7 | 55 | 12.8 | 68 | Calm | 0 | 0 | | 8ck | 0 | W | | 0 | 0 | Fair | |
| Campo, Cal. | 27.32 | 693.9 | 29.89 | 759.2 | 37 | 2.8 | 71 | E | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 45 | 7.2 | | N | | | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Cape Hatteras, N. C. | | | 29.98 | 761.5 | 51 | 10.6 | 46 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.02 | 762.5 | 50 | 10.6 | 58 | NW | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.08 | 764.0 | 51 | 10.6 | 59 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 29.95 | 760.7 | 46 | 7.8 | 61 | NW | 24 | 10.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.06 | 763.5 | 59 | 15.0 | 76 | N | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.99 | 609.3 | 29.93 | 760.2 | 33 | 0.6 | 89 | NE | 2 | 0.9 | | 5ck | 5s | NE | | 0 | 0 | Cloudy | |
| Chicago, Ill. | | | 29.94 | 760.5 | 43 | 6.1 | 75 | N | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.97 | 761.2 | 46 | 7.8 | 76 | SE | 6 | 2.7 | | | 10n | | SE | 0.09 | 2.3 | Light rain | |
| Cleveland, Ohio | | | 30.02 | 762.5 | 40 | 4.4 | 64 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 29.80 | 756.9 | 62 | 16.7 | 83 | SE | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.99 | 761.7 | 42 | 5.6 | 74 | NE | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Denison, Tex. | | | 29.84 | 757.9 | 62 | 16.7 | 82 | SE | 7 | 3.1 | | | 10s | | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.77 | 629.2 | 29.99 | 761.7 | 39 | 3.9 | 81 | NW | 4 | 1.8 | | | 8s | | | Inap. | Inap. | Cloudy | |
| Detroit, Mich. | | | 29.95 | 760.7 | 42 | 5.6 | 58 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.19 | 690.6 | 29.48 | 748.8 | 42 | 5.6 | 91 | NE | 20 | 8.9 | | | 10s | | NE | 0.11 | 2.8 | Cloudy | |
| Dubuque, Iowa | | | 29.99 | 761.7 | 39 | 3.9 | 81 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 29.97 | 761.2 | 40 | 4.4 | 82 | E | 6 | 2.7 | | | 10s | | | 0.08 | 2.0 | Cloudy | |
| Eastport, Me. | | | 29.34 | 745.2 | 39 | 3.9 | 91 | NW | 12 | 5.4 | | | 10n | | NW | 1.03 | 26.2 | Light rain | |
| Erie, Pa. | | | 29.95 | 760.7 | 39 | 3.9 | 72 | S | 10 | 4.5 | | 2c | 0 | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 29.89 | 759.2 | 36 | 2.2 | 61 | N | 8 | 3.6 | | | 10s | | N | 0 | 0 | Cloudy | |
| Florence, Arizona | | | | | 60 | 15.6 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.76 | 755.9 | 62 | 16.7 | 77 | SW | 4 | 1.8 | | | 10s | | | 0 | 0 | Threatening | |
| Ft. St. Michael, Alaska | | | 29.71 | 754.6 | 19 | —7.2 | 84 | N | | | 6 | 5ck | 0 | W | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.62 | 726.9 | 29.70 | 754.4 | 56 | 13.3 | 73 | N | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.30 | 718.8 | 30.01 | 762.2 | 35 | 1.7 | 100 | SE | 1 | 0.4 | | | Fog | | SE | 0.40 | 10.2 | Foggy | |
| Galveston, Tex. | | | 29.90 | 759.4 | 70 | 21.1 | 84 | SE | 6 | 2.7 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.94 | 760.5 | 44 | 6.7 | 67 | Calm | 0 | 0 | | 0 | Sm'e | | E | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 29.96 | 761.0 | 44 | 6.7 | 84 | SE | 6 | 2.7 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Indianola, Tex. | | | 29.84 | 757.9 | 72 | 22.2 | 85 | SE | 12 | 5.4 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Jacksonville, Fla. | | | 30.08 | 764.0 | 63 | 17.2 | 67 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.87 | 758.7 | 41 | 5.0 | 100 | NE | 12 | 5.4 | | | 10n | | NE | 1.87 | 47.5 | Light rain | |
| Key West, Fla. | | | 30.05 | 763.3 | 73 | 22.8 | 58 | E | 8 | 3.6 | | 0 | 2ks | | E | 0 | 0 | Clear | |
| Kittyhawk, N. C. | | | 30.04 | 763.0 | 48 | 8.9 | 49 | NW | 15 | 6.7 | | 2cs | 0 | | | Inap. | Inap. | Fair | |
| Knoxville, Tenn. | | | 29.97 | 761.2 | 50 | 10.0 | 58 | N | 4 | 1.8 | | | 9n | | W | 0.01 | 0.3 | Light rain | |
| LaCrosse, Wis. | | | 29.96 | 761.0 | 43 | 6.1 | 75 | SW | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Leavenworth, Kan. | | | 29.98 | 761.5 | 43 | 6.1 | 83 | N | 8 | 3.6 | | | 10s | | | 1.27 | 32.3 | Cloudy | |
| Louisville, Ky. | | | 29.96 | 761.0 | 44 | 6.7 | 91 | E | 10 | 4.5 | | | 10n | | E | 0.56 | 14.2 | Light rain | |
| Lynchburg, Va. | | | 30.05 | 763.3 | 47 | 8.3 | 48 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 63 | 17.2 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.90 | 759.4 | 35 | 1.7 | 52 | W | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 29.92 | 760.0 | 65 | 18.3 | 64 | SW | 4 | 1.8 | | 1c | Haze | SW | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.97 | 761.2 | 37 | 2.8 | 63 | SW | 4 | 1.8 | | 2c | Sm'e | | | 0 | 0 | Fair | |
| Mobile, Ala. | | | 30.06 | 763.5 | 61 | 16.1 | 77 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.06 | 763.5 | 57.5 | 14.2 | 78 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.96 | 735.6 | 30.34 | 763.0 | 39 | 3.9 | 72 | Calm | 0 | 0 | | 10c | Haze | W | | 0 | 0 | Cloudy | |
| Mt. Washington, N. H. | 23.20 | 589.3 | 29.56 | 750.8 | 11 | —11.7 | 100 | NW | 60 | 26.8 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn. | | | 29.87 | 758.7 | 61 | 16.1 | 50 | SW | 5 | 2.2 | | 10k | 0 | W | | Inap. | Inap. | Cloudy | |
| New Haven, Conn. | | | 29.79 | 756.7 | 43 | 6.1 | 35 | NW | 20 | 8.9 | | Haz | 0 | | | Inap. | Inap. | Clear | |
| New London, Conn. | | | 29.74 | 755.4 | 45 | 7.2 | 38 | W | 11 | 4.9 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| New Orleans, La. | | | 30.01 | 762.2 | 61 | 16.1 | 79 | S | 4 | 1.8 | | 1ck | 0 | W | | 0 | 0 | Clear | |
| Newport, R. I. | | | 29.71 | 754.6 | 42 | 5.6 | 48 | W | 17 | 7.6 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| New York, N. Y. | | | 29.88 | 758.9 | 42 | 5.6 | 34 | NW | 25 | 11.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.04 | 763.0 | 49 | 9.4 | 64 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 27.06 | 687.3 | 29.65 | 753.1 | 42 | 5.6 | 91 | NW | | | | 5k | 0 | N | | 0 | 0 | Fair | |
| Omaha, Neb. | 28.85 | 732.8 | 29.94 | 760.5 | 41 | 5.0 | 83 | N | 10 | 4.5 | | | 10s | | | 0.10 | 2.5 | Cloudy | |
| Oswego, N. Y. | | | 29.92 | 760.0 | 37 | 2.8 | 58 | NW | 8 | 3.6 | | 2ck | 0 | NW | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 30.00 | 762.0 | 37 | 2.8 | 71 | NW | 4 | 1.8 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Philadelphia, Pa. | | | 29.95 | 760.7 | 44 | 6.7 | 45 | N | 24 | 10.7 | | 8cs | 0 | NW | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | | | | | | | | | | | | | | | |
| Pike's Peak, Col. | 17.56 | 446.0 | 29.78 | 756.4 | 7 | —13.9 | 100 | N | 10 | 4.5 | | | Fog | | | 0.41 | 10.4 | Light snow | |
| Pittsburg, Pa. | | | 30.01 | 762.2 | 38 | 3.3 | 71 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 29.94 | 760.5 | 40 | 4.4 | 73 | SW | 6 | 2.7 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.53 | 750.0 | 42 | 5.6 | 58 | W | 15 | 6.7 | | 2k | 5ks | | | 0.06 | 1.5 | Clearing | |
| Portland, Oregon | | | 30.23 | 767.8 | 43 | 6.1 | 84 | NE | 1 | 0.4 | | | 1ks | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | | | | | | | | | | | | | | | | | | | |
| Punta Rassa, Fla. | | | 30.09 | 764.3 | 69.0 | 20.6 | 56 | SE | 14 | 6.3 | | 1cs | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.90 | 759.4 | 40 | 4.4 | 56 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.50 | 647.7 | 29.84 | 757.9 | 44 | 6.7 | 60 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.88 | 758.9 | 44 | 6.7 | 44 | NW | 31 | 13.9 | | 2c | 0 | NW | | 0 | 0 | Fair | |
| San Diego, Cal. | | | 29.92 | 760.0 | 58 | 14.4 | 76 | S | 4 | 1.8 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.8[illegible] | 758.2 | 51 | 10.6 | 86 | SW | 4 | 1.8 | | 0 | 5s | | S | 0 | 0 | Fair | |
| Santa Fé, N. M. | 23.10 | 586.7 | 29.64 | 752.8 | 33 | 0.6 | 69 | E | 5 | 2.2 | | 5s | 0 | W | | Inap. | Inap. | Fair | |
| Savannah, Ga. | | | 30.07 | 763.8 | 66 | 18.9 | 45 | W | 2 | 0.9 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Shreveport, La. | | | 30.00 | 762.0 | 62 | 16.7 | 83 | SE | 2 | 0.9 | | 5cs | 0 | S | | 0 | 0 | Fair | |
| Smithville, N. C. | | | 30.08 | 764.0 | 52 | 11.1 | 53 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.75 | 755.6 | 44 | 6.7 | 39 | NW | 17 | 7.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 29.8[illegible] | 757.9 | 45 | 7.2 | 84 | E | 12 | 5.4 | | | 10n | | | 0.20 | 5.1 | Light rain | |
| St. Marks, Fla. | | | 30.06 | 763.5 | 56 | 13.3 | 93 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.92 | 760.0 | 47 | 8.3 | 69 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 59 | 15.0 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 29.61 | 752.1 | 40 | 4.4 | 56 | NW | 24 | 10.7 | | 1k | 0 | NW | | 0.16 | 4.1 | Clear | |
| Toledo, Ohio | | | 29.97 | 761.2 | 46 | 7.8 | 60 | Calm | 0 | 0 | | 2c | Haze | W | | 0 | 0 | Hazy | |
| Tucson, Arizona | 27.40 | 696.0 | 29.95 | 760.7 | 51 | 10.6 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tybee Island, Ga. | | | 30.05 | 763.3 | 60 | 15.6 | 61 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss. | | | 30.01 | 762.2 | 58 | 14.4 | 75 | S | 7 | 3.1 | | 5k | 0 | SW | | 0 | 0 | Fair | |
| Virginia City, M. T. | 24.21 | 614.9 | 29.69 | 754.1 | 35 | 1.7 | 70 | Calm | 0 | 0 | | 8k | 0 | W | | 0 | 0 | Cloudy | |
| Washington, D. C. | | | 30.02 | 762.5 | 45 | 7.2 | 54 | NW | 12 | 5.4 | | 8cs | 2ks | NW | NW | 0 | 0 | Cloudy | |
| Wickenburg, Arizona | | | | | 51 | 10.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C. | | | 30.08 | 764.0 | 50 | 10.0 | 51 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass. | | | 29.69 | 754.1 | 45 | 7.2 | 53 | NW | 19 | 8.5 | | 0 | 0 | | | 0.29 | 7.4 | Clear | |
| Yankton, Dakota | 28.74 | 730.0 | 30.06 | 763.5 | 37 | 2.8 | 85 | NW | 1 | 0.4 | | 5cs | 0 | NW | | 0.06 | 1.5 | Fair | |
| Yuma, Arizona | | | 29.80 | 756.9 | 60 | 15.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I. | | | 30.12 | 765.0 | 79 | 26.1 | 74 | Calm | 0 | 0 | | 2c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I. | | | | | 78 | 25.6 | | NE | | | 4 | | | | | 0.14 | 3.6 | | Dr. G. H. Davison |
| Clifton, Ja., W. I. | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A. | | | 29.98 | 761.5 | 80 | 26.7 | 87 | E | | | 2 | 5k | 7ks | E | | 0.060 | 1.52 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | 30.04 | 763.0 | | | 76.1 | 24.5 | | E | | | | | | | | 0.108 | 2.75 | Showery | Dr. H. Groot. |
| Medellin, Colombia, S. A. | 25.21 | 640.3 | | | 68.5 | 20.3 | 78 | Calm | | | 0 | 1k | 1ks | | | 0.05 | 1.3 | Fair | Thomas Herran. |
| York Factory, B. A. | | | 30.56 | 776.2 | 27.5 | — 2.5 | 94 | NE | 11 | 6.3 | | 3k | 6s | NE | NE | 0 | 0 | Threatening | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I. | | | 30.07 | 763.8 | 71 | 21.7 | | Calm | | | 0 | | | | | 0 | 0 | Hazy | Daniel Smith. |
| Makawao, Maui, H. I. | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,195 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m. Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.4 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,159.7 ft., or 4,313.1 m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.51 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.06 | 763.5 | 63 | 17.2 | 45 | 7.2 | 46 | NW | | | 2 | | 8 | | | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.90 | 759.4 | 58 | 14.4 | 53 | 11.7 | | SSW | | | 2 | | 4 | | NNE | 0 | 0 | | | Pleasant | |
| Navy Yard, Norfolk, Va | 30.14† | 765.5† | 46 | 7.8 | 46 | 7.8 | 69 | NW | 6 | 2.7 | | | 1c | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Pensacola, Fla | 30.15 | 765.8 | | | 66 | 18.9 | 70 | S | 4 | 1.8 | | | | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 29.65 | 753.1 | 60 | 15.6 | 40 | 4.4 | 56 | WNW | 12 | 5.4 | | | | | | 0.15 | 3.8 | | | Rainy | |
| Naval Hospital, Yokohama, Japan | 30.00 | 762.0 | 66 | 18.9 | 62 | 16.7 | 88 | SW | | | 1 | | 0 | | | 0 | 0 | | | Clear | |
| Adams, N. 30° 28′ W. 40° 47′ | 30.01 | 762.2 | 72 | 22.2 | 71 | 21.7 | 95 | NW | | | 1 | | 1 | | | | | Light | NW | D. clouds | |
| Alert, Yokohama, Japan | 29.87 | 758.7 | 67 | 19.4 | 66 | 18.9 | 100 | SSE | | | 1 | | 1 | | SSW | | | Calm | None | D. clouds | |
| Alliance, Alexandria, Egypt | 30.01 | 762.2 | 70 | 21.1 | 68 | 20.0 | 74 | NW | | | 3 | | 4 | | N&W | | | | | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.92 | 760.0 | | | 84 | 28.9 | 79 | SSE | | | 1-4 | | 4 | | SSE | | | Smooth | | Squally | |
| Canonicus, New Orleans, La | 30.00 | 762.0 | 46 | 7.8 | 61 | 16.1 | 82 | SSE | | | 1 | | 2 | | NW | | | | | Fair | |
| Colorado, New York, N. Y | 29.92 | 760.0 | 62 | 16.7 | 46 | 7 8 | ? | NW | 19 | 8.5 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Despatch, N 37° 00′ W. 71° 45′ | 29.99 | 761.7 | 52 | 11.1 | 58 | 14.4 | 76 | NNW | | | 5 | | 3 | | NE | | | Rough | N | | |
| Essex, Vera Cruz, Mexico | 29.84 | 757.9 | 75 | 23.9 | 78 | 25.6 | 100 | SSE | | | 1 | | 5 | | | 0 | 0 | | | Hazy | |
| Frolic, Monte Video, Uruguay | 30.08 | 764.0 | | | 58 | 14.4 | 100 | S | | | 3 | | 9k | | | | | Broken | S&W | Drizzling | |
| ‡Gettysburg, N. 41° 55′ E. 10° 52′ | 29.88 | 758.9 | | | 61 | 16.1 | 94 | N | | | 1 | | 2 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Between Martinique and St. Thomas | 30.13 | 765.3 | 82 | 27.8 | 84 | 28.9 | 83 | ENE | 7.2 | 3.2 | | | 3 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.10 | 764.5 | 75 | 23.9 | 72 | 22.2 | 95 | E | | | 2 | | 10 | | S | ¶0.05 | ¶1.3 | Calm | None | Drizzling | |
| Lackawana, N. 16° 59′ W. 100° 45′ | 29.96 | 761.0 | | | 81 | 27.2 | 91 | NW | | | 0-1 | | 3 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.85 | 758.2 | 70 | 21.1 | 62 | 16.7 | 94 | WNW | | | 1 | | 9 | | SW | Blank | Blank | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.44 | 747.8 | 50 | 10.0 | 40 | 4.4 | 73 | S | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.69 | 754.1 | | | 69 | 20.6 | 90 | SE | | | 2 | | 6 | | SE | Blank | Blank | | | Lightning | |
| Monongahela, Annapolis, Md | 30.07 | 763.8 | 50 | 10.0 | 56 | 13.3 | | WNW | | | 3 | | .s,k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.26 | 768.6 | | | 62 | 16.7 | 72 | Calm | | | 0 | | 9 | | | 0 | 0 | | | D. clouds | |
| Omaha, Panama | 30.00 | 762.0 | 79 | 26.1 | 79 | 26.1 | 86 | NW | 2 | 0.9 | | | 8 | | N | 0.2 | 5. | Calm | None | Pleasant | |
| Ossipee, Matanzas, Cuba, W. I. | 30.10 | 764.5 | 72 | 22.2 | 73 | 22.8 | 63 | E | | | 3 | | 2 | | | | | | | D. clouds | |
| Palos, Shanghai, China | 29.81 | 757.2 | 72 | 22.2 | 67 | 19.4 | 79 | SE | | | 2 | | 4 | | S&W | | | | | Lightning | |
| Pensacola, Acapulco, Mexico | 30.01 | 762.2 | | | 79 | 26.1 | 78 | NW | | | 1 | | 1 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Natchez, Miss | 30.00 | 762.0 | 70 | 21.1 | 61 | 16.1 | 77 | SE | | | 2 | | 9 | | NE | 0 | 0 | | | Cloudy | |
| Powhatan, N. 34° 20′ W. 76° 43′ | 30.16 | 766.1 | | | 54 | 12.2 | 100 | NE | | | 1 | | 1 | | N | | | Smooth | | D. clouds | |
| Ranger, N. 36° 48′ W. 44° 47′ | 30.20 | 767.1 | | | 64 | 17.8 | 89 | Calm | | | 0 | | 7 | | | | | Smooth | | Cloudy | |
| Richmond, S. 35° 23′ W. 51° 47′ | 30.04 | 763 0 | 66.0 | 18.9 | 64.5 | 18.1 | 82 | SW | | | 5 | | 5 | | SW | Blank | Blank | Long, broken | SW | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.72 | 754.9 | | | 70 | 21.1 | 90 | SE | | | 2 | | 10 | | SE | | | | | D clouds | |
| Santee, Annapolis, Md | 30.04 | 763.0 | 59 | 15.0 | 49 | 9.4 | 44 | NW | | | 4 | | 6 | | | 0 | 0 | | | Hazy | |
| St. Louis, League Island, Pa | 29.86 | 758.4 | 53 | 11.7 | 46 | 7.8 | 54 | NW | 15 | 6.7 | | | 5 | | NW | 0 | 0 | | | Fair | |
| Swatara, Aspinwall, Panama | 30.02 | 762.5 | 81 | 27.2 | 82 | 27.8 | 83 | N | | | 1 | | 10n | | NE | Blank | Blank | Smooth | | Overcast | |
| Tennessee, Yokohama, Japan | 30.00 | 762.0 | 72 | 22.2 | 68 | 20.0 | 84 | S | | | 1 | | | | | | | Smooth | | Blue sky | |
| Trenton, Villefranche, France | 30.04† | 763.0† | 68 | 20.0 | 70 | 21.1 | ? | SE | 7 | 3.1 | | | 2 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.91 | 759.7 | 63 | 17.2 | 55 | 12.8 | 93 | N | | | 2 | | 10 | | N | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.64 | 752.8 | 49 | 9.4 | 44 | 6.7 | 92 | WNW | 19 | 8.5 | | | 2 | | N&W | 0.42 | 10.7 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.40† | 772.1† | 52 | 11.1 | 49 | 9.4 | | WNW | | | 2 | | 1 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.82 | 757.4 | 82 | 27.8 | 91 | SE | | | 1 | | 5k8 | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N 49° 46′, W. 11° 15′ | E ¼ N | 7.5 | 30.13 | 765.3 | 56.8 | 13.8 | | E | | | 7 | | 4k | | E | Rough | | D. clouds | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 43° 48′, W. 47° 51′ | WSW ¼W | | 29.96 | 761.0 | 45.5 | 7.5 | | S | | | 2 | | 0 | | | Light | | Clear | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction From— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Providence, R. I. | | | 29.68 | 753.9 | 49 | 9.4 | 57 | NW | | | | 0 | 0 | | | | | Clear | Capt. James Jorgensen. |

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, macto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Maj.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 4, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.83 | 757.7 | 71.6 | 22.0 | 66 | NW | | | 1 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 29.78 | 756.4 | 65.1 | 18.4 | 42 | NW | | | 2 | | 3 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.70 | 754.4 | 63.7 | 17.6 | 80 | ENE | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.78 | 756.4 | 69.8 | 21 | | E | | | 3 | | 3 | | | 0 | 0 | Fair | Jacques. |
| Sfax | | | 29.80 | 757.0 | 68.0 | 20 | | SSE | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 29.84 | 757.9 | 75.9 | 24.4 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.78 | 756.3 | 66.7 | 19.3 | | NNE | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 29.85 | 758.3 | 85.6 | 29.8 | | SSW | | | 3 | | 2 | | | 0.059 | 1.5 | Clear | Lemaillot. |
| Laghouat | | | 29.85 | 758.3 | 86.0 | 30.0 | 19 | W | | | 1 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.78 | 756.5 | 92.3 | 33.5 | 21 | SE | | | 1 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.0? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.83 | 757.7 | 62.2 | 16.8 | 44 | SW | | | 2 | | 4 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.95 | 760.6 | 39.9 | 4.4 | 53 | NE | | | 1 | | 9 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.85 | 758.2 | 47.1 | 8.4 | 65 | S | | | 1 | | 5,8 | | NE | 0.047 | 1.20 | | Julius Mikolik. |
| Gratz | | | 29.82 | 757.4 | 57.6 | 14.2 | 40 | WSW | | | 4 | | 9 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.59 | 726.1 | 29.90 | 759.5 | 51.1 | 10.6 | 41 | NNW | | | 3 | | 2 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.48 | 723.3 | 29.83 | 757.6 | 50.0 | 10.0 | 47 | NE | | | 2 | | 6 | | | 0.236 | 6.0 | | Prof. C. Wagner. |
| Lemberg | 28.48 | 723.5 | 29.84 | 757.8 | 49.1 | 4.5 | 89 | SW | | | 2 | | 6 | | | 0.071 | 1.8 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.89 | 759.2 | 59.7 | 15.4 | 64 | SSE | | | 3 | | 10ks | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.87 | 758.7 | 65.3 | 18.5 | 69 | W | | | 1 | | 3 | | | 0 | 0 | | Karl Stancel. |
| Triests | | | 29.92 | 760.0 | 55.0 | 12.8 | 77 | N | | | 1 | | 10 | | | 0.252 | 6.4 | Raining | P. Busin. |
| Vienna | | | 29.89 | 759.3 | 48.9 | 9.4 | 49 | ENE | | | 1 | | 7 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.39 | 721.3 | 29.88 | 759.0 | 44.4 | 6.9 | 47 | NNW | | | 1 | | 4 | | | 0 | 0 | | Royal Observatory |
| Brussels | | | 29.98 | 761.4 | 46.0 | 7.8 | 47 | E | | | 2 | | 7k | | NE | 0 | 0 | | |
| Farnes | | | 30.00 | 762.0 | 46.6 | 8.1 | 83 | E | | | 2 | | 5 | | | 0 | 0 | | |
| Maeseyck | | | 29.86 | 758.4 | 43.5 | 6.4 | 50 | NE | | | 4 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.05 | 763.3 | 38.0 | 3.3 | | SSE | 12 | 5.4 | | | 9 | | | | | Snowy | William Boswell. |
| Ardrossan | | | 30.10 | 764.5 | 48 | 8.9 | | WNW | | | 4 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.13 | 765.3 | 48.0 | 8.9 | | NE | 8 | 3.6 | | | 5 | | | | | D. clouds | S. Call, for Dr. Robinson |
| Bidston, (Liverpool Obs.) | | | 30.09 | 764.3 | 42.8 | 6.0 | | NW | 16 | 7.2 | | | 4 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | | | | | | | | | | | | | | | | | J. Dreyer. |
| Bradford, Yorkshire | | | 30.06 | 763.5 | 44.1 | 6.7 | | N | | | 2 | | 7 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.98 | 761.5 | 81.5 | 27.5 | | NE | | | 1 | | 7 | | | | | Overcast | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 30.05 | 763.3 | 47.0 | 8.3 | | NE | | | 1 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.06 | 763.5 | 46.0 | 7.8 | | NE | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.04 | 763.0 | 46.2 | 7.9 | | NE | | | 4 | | 8 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.47 | 723.1 | 29.96 | 761.0 | 44.0 | 6.7 | | E | | | 6 | | 6 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.12 | 765.0 | 46 | 7.8 | | NE | | | 3 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 30.01 | 762.2 | 44 | 6.7 | | E | | | 4 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.06 | 763.5 | 48.1 | 8.9 | | NE | 1.0 | 0.4 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.96 | 761.0 | 45.0 | 7.2 | | E | | | 5 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.58 | 700.5 | 29.82 | 757.4 | 77.3 | 25.2 | | E | | | 1 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 760.2 | 88 | 31.1 | | N | | | 0 | | 3 | | | | | D. clouds | |
| Galway, (Queen's College | | | 30.04 | 763.0 | 54 | 12.2 | | E | | | 2 | | 1 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.80 | 756.9 | 75.0 | 23.9 | | W | | | 2 | | 7 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.06 | 763.5 | 48.1 | 8.9 | | W | | | 2 | | 6 | | | | | D. clouds | Lewis Stuart. |
| Great Yarmouth | | | 30.07 | 763.8 | 45 | 7.2 | | NNE | | | 3 | | 3 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.03 | 762.7 | 45.8 | 7.7 | | ENE | | | 2 | | 9 | | | Blank | Blank | D. clouds | The Staff, for G. B. Airy |
| Guernsey | | | 29.89 | 759.2 | 47 | 8.3 | | NE | | | 5 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.97 | 761.2 | 51 | 10.6 | | E | | | 6 | | 2c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.12 | 765.0 | 44 | 6.7 | | NNE | | | 4 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.02 | 762.5 | 44.2 | 6.8 | | NE | 15 | 6.7 | | | 9 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.13 | 765.3 | 45 | 7.2 | | E | | | 4 | | 1 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.06 | 763.5 | 44.4 | 6.9 | | NE | | | 3 | | 9 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.88 | 758.9 | 66.4 | 19.1 | | SE | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.08 | 764.0 | 43 | 6.1 | | NNW | | | 3 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.01 | 763.0 | 74.5 | 23.6 | | NE | | | 1 | | 7 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.08 | 764.0 | 45.0 | 7.2 | | NNE | | | 5 | | 5k, 1c | | NE | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.06 | 763.5 | 44.2 | 6.8 | | ENE | | | 3 | | 8 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.02 | 762.5 | 47 | 8.3 | | NE | | | 2 | | 7 | | | | | D. clouds | J. W. Lucas. |
| Plymouth | | | 29.97 | 761.2 | 46.5 | 8.1 | | E | | | 5 | | 7 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.01 | 763.0 | 47 | 8.3 | | ESE | | | 5 | | 8 | | | | | Dull | W. Kennedy. |
| Saint Ann's Head | | | 30.02 | 762.5 | 48 | 8.0 | | E | | | 4 | | 5 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.87 | 758.7 | 48.8 | 9.3 | | E | | | 6 | | 0 | | | | | Clear | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.10 | 764.5 | 37.1 | 2.8 | | N | 20 | 8.9 | | | 10 | | | | | Snow-showers | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.94 | 760.5 | 59.8 | 15.4 | | SW | | | 1 | | 2 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.08 | 764.0 | 44.0 | 6.7 | | NE | | | 1 | | 6? | | | Inap. | Inap. | Overcast? | W. F. Cooper. |
| Silloth, Rectory | | | 30.08 | 764.0 | 51.3 | 10.7 | 54 | W | | | 2 | | 0 | | | 0 | 0 | Blue sky | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.07 | 763.8 | 46.2 | 7.9 | | SW | | | 0 | | 8 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.13 | 765.3 | 41 | 5.0 | | N | | | 3 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.03 | 762.7 | 46.8 | 8.2 | | NE | | | 2 | | 5 | | | | | Squally | Rev. Charles H. Griffith. |
| Thurso | | | 30.07 | 763.8 | 38 | 3.3 | | NNE | | | 4 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.98 | 761.5 | 52 | 11.1 | | E | | | 6 | | 5 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.02 | 762.5 | 49.9 | 9.9 | | E | 24 | 10.7 | | | 10 | | | | | Hazy | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 47 | 8.3 | | NE | | | 2 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.88 | 758.9 | 64.1 | 17.8 | 74 | NW | 14 | 6.3 | | 7 | 6 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.10 | 764.5 | 63.5 | 17.5 | 88 | Calm | | | 0 | | 4k | | | 0 | 0 | Hazy | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.07 | 763.8 | 45.0 | 7.2 | | W | | | 2 | | 10k | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.04 | 763.0 | 74.1 | 23.4 | 63 | SE | 21.1 | 9.4 | | 0 | 2 | | SE | 0.02 | 0.5 | Blue sky | C. Meldrum. |
| Melbourne, Observatory | | | 30.03 | 762.7 | 49.0 | 9.4 | 91 | NNE | 3 | 1.3 | | | 10 | | | 0 | 0 | Dense fog | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.16 | 766.1 | 45 | 7.2 | | NE | | | 3 | 5 | 5 | NE | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.11 | 764.8 | 35 | 1.7 | | N | | | 4 | 5 | 6 | N | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,460 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. Quang Le | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 23° 47′, W. 23° 59′ | 3 | WNW | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have generally been carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.19 | 665.2 | | | 68.9 | 20.5 | 72 | NE | | | 1 | | | | | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.91 | 759.8 | 40.1 | 4.5 | 66 | WNW | | | 2 | | 5 | | | | | | |
| Fanöe | | | 29.94 | 760.4 | 41.5 | 5.3 | 69 | W | | | 4 | | 4 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 30.19 | 766.8 | 35.2 | 1.8 | 68 | N | | | 2 | | 7 | | | | | | |
| Vestervig | | | 29.87 | 758.8 | 42.8 | 6.0 | 62 | NW | | | 4 | | 2 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co-operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.85 | 758.1 | 51.8 | 11 | 63 | NE | | | 4 | | 5ck | | NE | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 29.93 | 760.3 | 51.4 | 10.8 | | E | | | 3 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Avignon, Normal School | | | 29.79 | 756.7 | 63.5 | 17.5 | 49 | SE | | | 3 | | 10 | | SW | 0 | 0 | Covered | Mr. Giraud. |
| Bar-sur-Seine | | | 29.78 | 756.4 | 57.2 | 14.0 | 28 | NE | | | 4 | 2c | | | | 0 | 0 | Slightly cl'dy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.93 | 760.2 | 47.3 | 8.5 | 52 | ENE | | | 4 | | 2 | | ENE | 0 | 0 | Slightly cl'dy | Normal School. |
| Besançon | | | 29.85 | 758.2 | 60.4 | 15.8 | 55 | E | | | 3 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 29.80 | 757.0 | 66.2 | 19 | 46 | S | | | 6 | | 8n | | N | 0 | 0 | Very cloudy | Normal School. |
| Bourges | | | 29.80 | 757.0 | 57.7 | 14.3 | 89 | NE | | | 3 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Brest | | | 29.71 | 754.6 | 51.6 | 10.9 | 62 | NE | | | 5 | | 6ck | | NE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 29.70 | 754.3 | 59.4 | 15.2 | 78 | E | | | 2 | | 5 | | W | 0 | 0 | Partly cl'dy. | Normal School. |
| Caen | | | 29.88 | 759.0 | 50.5 | 10.3 | 52 | NE | | | 6 | | | | W | 0 | 0 | | Normal School. |
| Chartres | | | 29.81 | 757.8 | 54.0 | 12.2 | 80 | E | | | 2 | | 4 | | W | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 29.85 | 758.2 | 53.4 | 11.9 | 45 | NNE | | | 3 | | 2ck | | SSW | 0 | 0 | Slightly cl'dy | Normal School. |
| Clermont | | | 29.62 | 752.3 | 66.2 | 19.0 | 42 | ESE | | | 1 | | 5 | | SW | 0 | 0 | Cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.83 | 757.6 | 50.4 | 10.2 | 40 | ENE | | | 2 | | 2 | | ENE | 0 | 0 | Slightly cl'dy | Normal School. |
| Commune de Gréasque* | | | 29.87 | 758.6 | 58.1 | 14.5 | 59 | SE | | | 4 | | 10 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.69 | 754.2 | 64.2 | 17.9 | 50 | NW | | | 2 | | 2ks | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon | | | 29.68 | 753.9 | 62.6 | 17 | 49 | E | | | 6 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Le Mans | | | 29.81 | 757.2 | 53.8 | 12.1 | 41 | SE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Lons-Le-Saulnier | | | 29.73 | 755.1 | 61.3 | 16.3 | 61 | NW | | | 2 | | 5 | | | 0 | 0 | Partly cl'dy. | Normal School. |
| Lorient | | | 29.75 | 755.7 | 56.8 | 13.8 | 93 | ENE | | | 6 | | 2 | | E | 0 | 0 | ¼ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.98 | 761.6 | 59.7 | 15.4 | 81 | Calm | | | 0 | | 5 | | NE | 0 | 0 | Cloudy | Mr. Marchal. |
| Metz | | | 29.93 | 760.2 | 49.1 | 9.5 | 61 | NE | | | 3 | | 3k | | NE | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.79 | 756.7 | 51.8 | 11 | 54 | N | | | 4 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes | | | 29.82 | 757.5 | 59.7 | 15.4 | 71 | SE | | | 4 | | 10 | | S | 0.020 | 0.5 | Covered | Normal School. |
| Orleans | | | 29.74 | 755.4 | 56.1 | 13.4 | 55 | E | | | 6 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 29.87 | 758.7 | 51.3 | 10.7 | 40 | NE | | | 3 | | 8 | | | 0 | 0 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.65 | 753.1 | 61.2 | 16.2 | 67 | E | | | 3 | | 10 | | W | 1.06 | 27. | Raining | Naval Observatory. |
| Rouen | | | 29.93 | 760.1 | 51.6 | 10.9 | 63 | NE | | | 3 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| Tarbes | | | 29.65 | 753.0 | 55.4 | 13 | 77 | W | | | 2 | | 10 | | | 0.295 | 7.5 | Raining | Normal School. |
| Vil'efranche | 28.59 | 726.2 | 29.68 | 753.9 | 71.1 | 21.7 | 77 | ESE | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.82 | 757.3 | 81.0 | 27.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.82 | 757.3 | 61.2 | 16.2 | 59 | SE | | | 2 | | 10 | | | 0.085 | 2.1 | Rainy | The Staff. |
| Mont-Louis | 24.59 | 624.6 | 29.91 | 759.6 | 49.6 | 9.8 | 80 | SW | 16.8 | 7.50 | | | 4 | | SSW | 0.185 | 4.7 | | Mr. Fulguère. |
| Montsouris, Paris | | | 29.85 | 758.2 | 54.0 | 12.2 | 37 | ENE | | | 2-3 | | 7 | | NE | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 29.69 | 754.1 | 60.8 | 16.0 | 79 | NE | 7.4 | 3.33 | | | 9 | | SW | 0.020 | 0.5 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | § § Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.24 | 564.8 | | | 37.4 | 3.0 | | WSW | | | 4 | | 8 | | | 0.311 | 7.9 | Snowy | § § and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.85 | 758.3 | 54.1 | 12.3 | 40 | NE | | | 2 | | 3 | | | 0 | 0 | Slightly cl'dy | E. Renou. |
| Toulouse, Observatory | | | 29.68 | 753.8 | 58.8 | 14.9 | 93 | SSE | | | 3 | | 7 | | | 0.047 | 1.2 | | The Staff. |
| Tours | | | 29.75 | 755.7 | 57.2 | 14.0 | 37 | ESE | | | 5 | | 5 | | W | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.86 | 758.5 | 51.8 | 11.0 | 48 | E | | | 6 | | 7 | | | 0 | 0 | Vapory | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.85 | 758.1 | 59.7 | 15.4 | 88 | NW | 12.3 | 5.5 | | | 10n | | | 0.142 | 3.6 | Raining | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Lou's barometric observtions for altitude, the constant 135, milimeters has been added. At Clermont the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.94 | 760.5 | 46.9 | 8.3 | 45 | NW | | | 4 | | 7 | W | | 0 | 0 | | Prof. T. Hoh |
| Berlin | | | 29.97 | 761.2 | 48.9 | 9.4 | 40 | SW | | | 1 | | 4 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.97 | 761.3 | 43.3 | 6.3 | 29 | WNW | | | 3 | | 3 | | | Inap. | Inap. | | Royal University Ob'y |
| Carlsruhe | | | 29.84 | 757.8 | 51.8 | 11.0 | 43 | NE | | | 2 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.97 | 761.2 | 47.3 | 8.5 | 36 | ENE | | | 3 | | 6 | NW | | Inap. | Inap. | Light snow | Dr. H. Möhl. |
| Crefeld | | | 29.96 | 760.9 | 45.7 | 7.6 | 44 | NE | | | 4 | | 5 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.10 | 764.6 | 45.1 | 7.3 | 34 | NNW | | | 1 | | 5 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.96 | 761.0 | 51.4 | 10.8 | 34 | NNE | | | 2 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 29.007 | 736.52 | 29.842 | 758.02 | 50.4 | 10.2 | 66 | SW | | | 2 | | 4 | SW | | 0.154 | 3.9 | Raining | M. Wilhelm |
| Hamburg | | | 29.98 | 761.5 | 42.4 | 5.8 | 50 | NW | | | 1 | | 6k | W | | 0 | 0 | Fine | Captain F. Hegemann |
| Kiel | | | 29.94 | 760.5 | 42.8 | 6.0 | 68 | W | | | 3 | | 5 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.85 | 758.2 | 40.1 | 4.5 | 55 | NE | | | 5 | | 5 | | | 0.098 | 2.5 | Snowing | Prof. E. Luther. |
| Köslin | | | 29.95 | 760.7 | 43.0 | 6.1 | | N | | | 2 | | 1 | | | 0.071 | 1.8 | | H. Müller. |
| Leipsic | | | 29.98 | 761.5 | 47.3 | 8.5 | 25 | E | | | 1 | | 6 | E | | 0.047 | 1.2 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.86 | 758.4 | 39.2 | 4.0 | | NNW | | | 5 | | 10c8 | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.96 | 761.0 | 47.3 | 8.5 | 46 | NE | | | | | 2 | | | 0 | 0 | | Prof. E. Heis |
| Neufahrwasser | | | 29.91 | 759.6 | 39.7 | 4.3 | 63 | NNE | | | 4 | | 2 | | | 0.126 | 3.2 | Snowing | A. Lothes. |
| Posen | | | 29.96 | 761.0 | 39.7 | 4.3 | 73 | NNW | | | 6 | | 10 | | | Inap. | Inap. | Light snow | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.84 | 757.9 | 53.1 | 11.7 | 40 | NE | | | 3 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.83 | 757.7 | 51.8 | 11.0 | 38 | E | | | 1 | | 4 | N | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.79 | 756.6 | 50.2 | 10.1 | 41 | NE | | | 4 | | 1 | | | 0 | 0 | | Prof. Flesch |
| Weissenburg, (Bavaria) | 28.34 | 719.8 | 29.85 | 758.3 | 47.5 | 8.6 | 41 | NNE | | | 2 | | 9 | NE | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.04 | 762.9 | 41.7 | 5.4 | 62 | WNW | | | 2 | | 8 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.97 | 761.2 | 68.4 | 20.2 | | SW | | | | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.00 | 558.8 | 29.80 | 756.9 | 32.0 | 0.0 | 100 | W | | | 1 | | 10 | | | 1.725* | 120.0* | | Prof. Giovanni Clodig. |
| Stelvio | 21.95 | 557.6 | 29.74 | 755.4 | 33.8 | 1.0 | | SSW | | | 4 | | 9 | E | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.88 | 759.0 | 55.2 | 12.9 | 51 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 29.86 | 758.4 | 56.7 | 13.7 | 59 | NE | 9.8 | 4.4 | | | 9 | WSW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.87 | 758.8 | 56.8 | 13.8 | 54 | NE | 2.5 | 1.1 | | | 6 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.83 | 757.7 | 61.5 | 16.4 | 55 | E | | | 2 | | 10 | | | 0.146 | 3.7 | Raining | Dott. E. Bertoncelli. |
| Bergamo | 28.51 | 724.9 | 29.85 | 758.1 | 56.8 | 13.8 | 65 | E | | | 1 | | 10 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.83 | 757.6 | 54.1 | 12.3 | 66 | SW | | | 6 | | 10 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.84 | 757.9 | 61.5 | 16.4 | 77 | E | | | 2 | | 10 | E | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.86 | 758.4 | 57.7 | 14.3 | 59 | E | | | 1 | | 9 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.82 | 757.3 | 57.0 | 13.9 | 68 | NNW | 3.1 | 1.4 | | | 9 | SE | | 0.319 | 8.1 | Raining | Prof. P. F. Denza. |
| Mondovi | 27.91 | 708.9 | 29.79 | 756.7 | 57.4 | 14.1 | 64 | NNW | | | 4 | | 9 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.90 | 759.5 | 64.4 | 18.0 | 64 | SW | | | 2 | | 7 | WSW | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.88 | 759.0 | 62.2 | 16.8 | 62 | SE | 11.2 | 5.0 | | | 10 | S | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.87 | 758.6 | 58.8 | 14.9 | 57 | NE | | | 1 | | 10 | SE | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.84 | 758.0 | 63.5 | 17.5 | 52 | ENE | | | 4 | | 8 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.89 | 759.3 | 67.1 | 19.5 | 46 | NW | | | 2 | | 9 | SSW | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.89 | 759.3 | 63.3 | 17.4 | 66 | S | 12.5 | 5.6 | | | 6 | N | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.67 | 728.3 | 29.87 | 758.6 | 60.3 | 15.7 | 54 | SW | 0 | 0 | | | 10 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.35 | 720.0 | 29.88 | 759.0 | 60.4 | 15.8 | 45 | SW | | | 2 | | 7 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.87 | 758.8 | 61.0 | 16.1 | 53 | E | 19.2 | 8.6 | | | 10 | WSW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.87 | 758.8 | 61.5 | 16.4 | 56 | SE | | | 4 | | 8 | W | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.91 | 759.7 | 67.6 | 19.8 | 50 | SSE | | | 4 | | 5 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.91 | 759.7 | 67.1 | 19.5 | 48 | SSE | 6.9 | 3.1 | | | 1 | SSW | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.94 | 760.4 | 68.4 | 20.2 | 32 | SW | | | 2 | | 6 | W | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.98 | 761.6 | 62.8 | 17.1 | 59 | ENE | 18.6 | 8.3 | | | 10 | S | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.96 | 761.0 | 62.4 | 16.9 | 63 | SE | 3.8 | 1.7 | | | 10 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.80 | 756.9 | 66.6 | 19.2 | 61 | S | | | 2 | | 3 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.89 | 759.2 | 60.8 | 16.0 | 76 | E | | | 2 | | 10 | SE | | 0 | 0 | | Prof. F. Caflero. |
| Palermo | | | 29.85 | 758.3 | 67.5 | 19.7 | 50 | NE | 0.7 | 0.3 | | | 10 | | | 0.024 | 0.6 | Light rain | Prof. G. Cacciatore. |
| Caltanissetta | 27.99 | 710.9 | 29.89 | 759.2 | 60.6 | 15.9 | 60 | SE | | | 4 | | 10 | ENE | | 0.047 | 1.2 | Light rain | Prof. A. Pagani. |
| Syracuse | | | 29.89 | 759.3 | 68.7 | 20.4 | 61 | SSE | | | 4 | | 8 | SW | | 0.012 | 0.3 | Light rain | Prof. V. Giulinno. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.98 | 761.4 | 64.2 | 17.9 | 39 | WNW | 2.5 | 1.1 | | | 5 | W | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.06 | 763.5 | 53 | 11.7 | 93 | N | 7 | 3.1 | | 10 | | | | 0 | 0 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.07 | 586.0 | 30.07 | 763.8 | 57.2 | 14.0 | 42 | Calm | 0 | 0 | | 10c | 10c | SW | SW | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.04 | 762.9 | 48.2 | 9.0 | | NE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.97 | 761.2 | 41.9 | 5.5 | | SE | | | 2 | | | | | 0.059 | 1.5 | | |
| Holder | | | 30.03 | 762.8 | 41.9 | 5.5 | | NNW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.98 | 761.4 | 48.0 | 8.9 | | NNE | | | 3 | | 5 | | | 0.008 | 0.2 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.96 | 761.0 | 41.0 | 5.0 | 48 | NNW | 12.5 | 5.6 | | | 2 | | | 0 | 0 | | |
| Brönö | | | 29.98 | 761.5 | 41.0 | 5.0 | 66 | Calm | 0 | 0 | | | 4 | | | 0 | 0 | | |
| Christiania | | | 29.91 | 759.6 | 42.3 | 5.7 | 47 | SSW | 2 | 1 | | | 4 | | | 0.051 | 1.3 | | |
| Tromsö | | | 30.00 | 762.0 | 35.1 | 1.7 | 94 | SSE | 9 | 4 | | | 0 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.80 | 757.0 | 60.4 | 15.8 | 71 | NNW | 8.7 | 3.9 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.71 | 754.5 | 68.9 | 20.5 | 45 | SSW | 11.9 | 5.3 | | | 7 | SSW | | 0.035 | 0.9 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 29.72 | 754.9 | 66.2 | 19.0 | 72 | WSW | 18.1 | 8.1 | | | 4 | | | 0.622 | 15.8 | Showery | Capt. D. A. de Cunha. |
| Lisbon | | | 29.72 | 754.9 | 63.9 | 17.7 | 68 | SW | 16.1 | 7.2 | | | 7 | SW | | 0.169 | 4.3 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 29.76 | 756.0 | 63.7 | 17.6 | 66 | NNW | 11.9 | 5.3 | | | 4 | | | 0.382 | 9.7 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.86 | 758.4 | 41.0 | 5.0 | 49 | W | 22 | 10 | | | 8 | | | | | | Astronomical Obs. |
| Wilna | | | 29.75 | 755.7 | 48.7 | 9.3 | 37 | SW | 4 | 2 | | | 7 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.69 | 754.1 | 41.9 | 5.5 | 37 | W | 13 | 6 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.46 | 748.2 | 32.9 | 0.5 | 90 | W | 18 | 8 | | | 10 | | | | | Snowing | Central Physical Obs. |
| Kuopio | | | 29.57 | 751.0 | 33.1 | 0.6 | 100 | N | 13 | 6 | | | 10 | | | | | Snowing | Ch. Forsten. |
| Kieff | | | 29.79 | 756.7 | 49.8 | 9.9 | 42 | NNW | 4 | 2 | | | 9 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.93 | 760.1 | 54.0 | 12.2 | 50 | W | 9 | 4 | | | 10 | | | | | | Kurdakof |
| Kertch | | | 29.96 | 761.0 | 57.0 | 13.9 | 85 | S | 7 | 3 | | | 10 | | | | | | Lagorio. |
| Moscow | | | 29.67 | 753.6 | 41.4 | 5.2 | 81 | SSW | 9 | 4 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 29.75 | 755.6 | 58.3 | 14.6 | 69 | SSW | 9 | 4 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.79 | 756.7 | 53.4 | 11.9 | 45 | ESE | 13 | 6 | | | 2 | | | | | | Ogorodnikof. |
| Tiflis | 28.54 | 724.9 | 29.94 | 760.5 | 59.0 | 15.0 | 85 | Calm | 0 | 9 | | | 10 | | | | | Raining | Physical Observatory. |
| Astrakhan | | | 29.90 | 759.4 | 64.4 | 18.0 | 49 | NNW | 9 | 4 | | | 10 | | | | | | Sebastianof. |
| Kasan | | | 29.81 | 757.1 | 41.9 | 5.5 | 86 | E | 11 | 5 | | | 10 | | | | | Light rain | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.13 | 740.0 | 30.11 | 764.7 | 36.7 | 2.6 | 89 | ESE | 2 | 1 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.45 | 722.5 | 30.08 | 763.9 | 78.1 | 25.6 | 28 | NNW | 13 | 6 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.98 | 761.6 | 49.8 | 9.9 | 35 | NNE | 2 | 1 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.89 | 759.2 | 39.0 | 3.9 | 50 | WNW | 2 | 1 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | | | | | | | | | | | | | | | Mossin. |
| Peking, (China) | | | 29.78 | 756.3 | 64.2 | 17.9 | 52 | SW | 13 | 6 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.92 | 759.9 | 47.7 | 8.7 | 61 | SW | 7 | 3 | | | 10 | | | Blank | Blank | | |
| Nikolaievsk, on the Amoor | | | | | 29.3 | — 1.5 | | Calm | 0 | 0 | | | 5 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.68 | 753.9 | 63.1 | 17.3 | 62 | SW | 18.6 | 8.33 | | 2 | 3 | SW | | 0.008 | 0.2 | Cloudy | Royal Observatory. |
| San Fernando | | | 29.83 | 757.7 | 66.6 | 19.2 | 76 | SW | 8.1 | 3.6 | | 0 | 10 | | SW | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.97 | 761.2 | 73.2 | 22.9 | 74 | ESE | 6.3 | 2.8 | | 2c | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson, Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.92 | 760.0 | 38.8 | 3.8 | 51 | N | | | 4 | | 9 | | | 0.079 | 2.0 | | |
| Umea | | | 29.89 | 759.1 | 39.9 | 4.4 | 59 | NE | | | 2 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.87 | 758.7 | 39.0 | 3.9 | 64 | ENE | | | 2 | | 10 | | | 0 | 0 | | |
| Stockholm | | | 29.82 | 757.4 | 36.7 | 2.6 | 77 | Calm | | | 0 | | 8 | | | | | Snowing | |
| Wisby | | | 29.87 | 758.6 | 38.1 | 3.4 | 70 | NW | | | 4 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.81 | 757.1 | 41.4 | 5.2 | 45 | N | 11.9 | 5.3 | | | 7 | ENE | | 0.010 | 0.25 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.33 | 719.6 | 29.76 | 755.8 | 54.9 | 12.7 | 55 | N | | | 2 | | 9 | | | 0 | 0 | Vapory | The Observatory. |
| Zurich | 28.17 | 715.6 | 29.80 | 757.0 | 55.8 | 13.2 | 58 | N | | | 1 | | 5 | | | 0.512 | 13.0 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —5.0 mm; Thermometer, —2.1 cent.; Relative Humidity, —3 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.98 | 761.6 | 61.7 | 16.5 | 66 | ESE | 4 | 2.0 | | | 7 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.98 | 761.5 | 77.0 | 25.0 | | Calm | | | 0 | | 0 | | | | | | |
| Salonica | | | 29.96 | 761.0 | 84.6 | 29.2 | | SW | | | 1 | | 0 | | | | | | |
| Valona | | | 29.99 | 761.8 | 67.1 | 19.5 | | SW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Buhran. |
| Varna | | | 29.88 | 759.0 | 59.0 | 15.0 | | NE | | | 2 | | 2 | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.98 | 761.6 | 72.3 | 22.4 | 61 | SW | | | 3 | | 3ks | | SW | 0.07 | 1.8 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.41 | 747.0 | 41.0 | 5.0 | 92 | SW | 12 | 5.4 | | | 8 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.72 | 754.9 | 40 | 4.4 | | NW | 1 | 0.4 | | | 8s | | NW | 0.10 | 2.5 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.42 | 747.3 | 39 | 3.9 | 90 | SW | 9 | 4.0 | | 2k | 8ks | SW | W | 0.78 | 19.8 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.55 | 750.6 | 42 | 5.6 | 76 | SW | 10 | 4.5 | | | 8ks | | | 0.075 | 1.91 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.64 | 752.8 | 40.3 | 4.6 | 46 | W | | | 1 | | 1s | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.44 | 747.8 | 38.0 | 3.3 | 100 | SW | | | 1 | | | | | 0.17 | 4.3 | Raining | H. A. Johnson. |
| Esquimault, B. C. | | | 30.05 | 763.3 | 50.3 | 10.2 | 86 | SW | | | | 10cs | 0 | | | 0.01 | 0.3 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.34 | 745.2 | 36 | 2.2 | 90 | S | 32 | 14.3 | | | 10n | | | 0.89 | 22.6 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.54 | 750.3 | 41.9 | 5.5 | 70 | W | 8 | 3.6 | | | 9 | | | Inap. | Inap. | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.79 | 756.7 | 39 | 3.9 | 59 | SE | 8 | 3.6 | | 2ck | 5ks | S | S | 0 | 0 | Clearing | James Stewart. |
| Goderich, Ontario | | | 29.92 | 760.0 | 39.3 | 4.1 | 76 | NW | | | 1 | 1k | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | | | 29.90 | 759.4 | 34 | 1.1 | 90 | NW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 28.76 | 730.5 | 29.58 | 751.3 | 44 | 6.7 | 66 | W | 14 | 6.3 | | | 5ks | | W | 0.006 | 0.15 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.89 | 759.2 | 37.6 | 3.1 | 58 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.74 | 755.4 | 43 | 6.1 | 92 | S | | | 1 | | 10 | | | 0.43 | 10.9 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 29.76 | 755.9 | 41 | 5.0 | 88 | NW | 9 | 4.0 | | 2k | 8ks | NW | NW | 0 | 0 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.64 | 752.8 | 42 | 5.6 | 45 | W | 12 | 5.4 | | 0 | 2ks | | | Inap | Inap. | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.83 | 757.7 | 38 | 3.3 | 81 | W | 4 | 1.8 | | 0 | 0 | | | 0.05 | 1.3 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 29.88 | 758.9 | 37 | 2.8 | 71 | NW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 29.60 | 751.8 | 43.1 | 6.2 | | SW | 8 | 3.6 | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 29.91 | 759.7 | 35 | 1.7 | 88 | NW | 4 | 1.8 | | 2k | 0 | W | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.55 | 750.6 | 40 | 4.4 | 65 | SW | 21 | 9.4 | | 0 | 2ks | | SW | 0.18 | 4.6 | Fair | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | | | 35 | 1.7 | 54 | NW | 14 | 6.3 | | 2cs | 0 | NW | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 29.58 | 751.3 | 40 | 4.4 | 82 | SW | 10 | 4.5 | | | 10 | | | 0 | 0 | Cloudy | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.85 | 758.2 | 39 | 3.9 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0.02 | 0.5 | Clear | K. Stewart. |
| Stayner, Ontario | | | 29.82 | 757.4 | 39 | 3.9 | 73 | NW | 3 | 1.3 | | 2k | 0 | NW | | Inap. | Inap. | Fair | R. J. Cole. |
| Stratford, Ontario | 28.59 | 726.2 | 29.91 | 759.7 | 33.0 | 0.6 | 89 | W | 8 | 3.6 | | | 10ks | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.65 | 753.1 | 48 | 8.9 | 70 | SW | 12 | 5.4 | | 0 | 5ks | | SW | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.85 | 758.2 | 40 | 4.4 | 69 | W | 9 | 4.0 | | 0 | 0 | | | Inap. | Inap. | Clear | Magnetic Observatory. |
| Windsor | | | 29.54 | 750.3 | 42.3 | 5.7 | 80 | SW | 12 | 5.4 | | | 10n | | | 0.05 | 1.3 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.87 | 758.7 | 38.8 | 3.8 | 73 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.79 | 756.7 | 47.0 | 8.3 | 100 | S | | | | | 10n | | | 0.05 | 1.3 | Hazy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft. or 360.3 m.

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Lower. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.91 | 759.7 | 45 | 7.2 | 83 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Alpena, Mich. | | | 29.87 | 758.7 | 39 | 3.9 | 63 | NW | 11 | 4.9 | | 0 | 0 | | | 0.07 | 1.8 | Clear | |
| Atlantic City, N. J. | | | 29.84 | 757.9 | 50 | 10.0 | 71 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 29.88 | 758.9 | 62 | 16.7 | 88 | SW | 4 | 1.8 | | Haze | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.85 | 758.2 | 50 | 10.0 | 64 | SW | 9 | 4.0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Barnegat, N. J. | | | 29.81 | 757.2 | 54 | 12.2 | 61 | SW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 27.83 | 706.9 | 29.43 | 747.5 | 47 | 8.3 | 77 | S | 6 | 2.7 | | | 10s | | W | 0.01 | 0.3 | Cloudy | |
| Boston, Mass. | | | 29.70 | 754.4 | 49.5 | 9.7 | 54 | SW | 8 | 3.6 | | 10cs | Haze | W | | 0 | 0 | Cloudy | |
| Breckenridge, Minn. | | | 29.75 | 755.6 | 42 | 5.6 | 74 | SE | 6 | 2.7 | | 8k | 0 | SW | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.83 | 757.7 | 39 | 3.9 | 73 | W | 4 | 1.8 | | 1k | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.67 | 753.6 | 43 | 6.1 | 67 | S | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 29.88 | 758.9 | 46 | 7.8 | 76 | NE | 10 | 4.5 | | | 10s | | NE | 0.26 | 6.6 | Cloudy | |
| Campo, Cal. | 27.35 | 694.7 | 29.92 | 760.0 | 40 | 4.4 | 63 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 49 | 9.4 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.76 | 755.9 | 56 | 13.3 | 74 | NE | 11 | 4.9 | | 8cs | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 29.84 | 757.9 | 49 | 9.4 | 89 | N | 6 | 2.7 | | | 10n | | N | 0.07 | 1.8 | Light rain | |
| Cape Lookout, N. C. | | | 29.85 | 758.2 | 65 | 18.3 | 89 | W | 24 | 10.7 | | 2k | Haze | W | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.84 | 757.9 | 51 | 10.6 | 65 | S | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 29.92 | 760.0 | 66 | 18.9 | 68 | SW | 10 | 4.5 | | 2c | 0 | W | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.80 | 604.5 | 29.74 | 755.4 | 33 | 0.6 | 89 | W | 4 | 1.8 | | 8c | 0 | | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 29.84 | 757.9 | 50 | 10.0 | 58 | N | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.91 | 759.7 | 42 | 5.6 | 83 | SE | 3 | 1.3 | | | 10s | | | 0.40 | 10.2 | Cloudy | |
| Cleveland, Ohio | | | 29.92 | 760.0 | 42 | 5.6 | 57 | N | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 29.86 | 758.4 | 54 | 12.2 | 100 | NW | 8 | 3.6 | | | 10n | | | 1.66 | 42.2 | Light rain | |
| Davenport, Iowa | | | 29.88 | 758.9 | 48 | 8.9 | 62 | W | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 29.87 | 758.7 | 50 | 10.0 | 93 | N | 4 | 1.8 | | | 10s | | | 2.08 | 52.8 | Cloudy | |
| Denver, Col. | 24.59 | 624.6 | 29.81 | 757.2 | 37 | 2.8 | 71 | S | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Detroit, Mich. | | | 29.89 | 759.2 | 41 | 5.0 | 73 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.26 | 692.4 | 29.55 | 750.6 | 43 | 6.1 | 75 | N | 4 | 1.8 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Dubuque, Iowa | | | 29.87 | 758.7 | 48 | 8.9 | 77 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 29.87 | 758.7 | 43 | 6.1 | 59 | NE | 10 | 4.5 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Eastport, Me. | | | 29.56 | 750.8 | 44 | 6.7 | 67 | W | 11 | 4.9 | | 0 | 5s | | W | 0.11 | 2.8 | Fair | |
| Erie, Pa. | | | 29.87 | 758.7 | 40 | 4.4 | 73 | NW | 3 | 1.3 | | 2k | 0 | N | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.85 | 758.2 | 36 | 2.2 | 80 | N | 11 | 6.3 | | 0 | 0 | | | 0.11 | 2.8 | Clear | |
| Florence, Arizona | | | | | 61 | 16.1 | | W | | | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.80 | 756.9 | 48 | 8.9 | 92 | N | 5 | 2.2 | | | 10s | | | 0.16 | 4.1 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.81 | 757.2 | 22 | — 5.6 | 86 | NE | | | 6 | 2ck | 0 | | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.71 | 729.2 | 29.83 | 757.7 | 46 | 7.8 | 67 | N | 7 | 3.1 | | | 10s | | | 1.22 | 31.0 | Cloudy | |
| Fort Sully, Dakota | 27.98 | 710.7 | 29.61 | 752.1 | 44 | 6.7 | 84 | SE | 12 | 5.4 | | 2c | 0 | | | 0 | 0 | Fair | |
| Galveston, Tex. | | | 29.79 | 756.7 | 63 | 17.2 | 88 | N | 14 | 6.3 | | 2ck | 5ks | SW | NE | 0.08 | 2.0 | Cloudy | |
| Grand Haven, Mich. | | | 29.87 | 758.7 | 44 | 6.7 | 75 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 29.93 | 760.2 | 37 | 2.8 | 90 | Calm | 0 | 0 | | 2cs | Fog | | | 0.05 | 1.3 | Foggy | |
| Indianola, Tex. | | | 29.80 | 756.9 | 68 | 20.0 | 84 | N | 2 | 0.9 | | 2k | 0 | W | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.96 | 761.0 | 71 | 21.7 | 62 | S | 12 | 5.4 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 29.85 | 758.2 | 45 | 7.2 | 76 | NW | 2 | 0.9 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Key West, Fla. | | | 29.96 | 761.0 | 76 | 24.4 | 64 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Kittyhawk, N. C. | | | 29.86 | 758.4 | 48 | 8.9 | 92 | NE | 20 | 8.9 | | | 10n | | NW | 0.03 | 0.8 | Light rain | |
| Knoxville, Tenn. | | | 29.85 | 758.2 | 51 | 10.6 | 86 | N | 8 | 3.6 | | | 10ks | | W | 0.11 | 2.8 | Cloudy | |
| LaCrosse, Wis. | | | 29.83 | 757.7 | 49 | 9.4 | 71 | S | 4 | 1.8 | | 2k | 0 | SW | | 0.03 | 0.8 | Fair | |
| Leavenworth, Kan. | | | 29.90 | 759.4 | 43 | 6.1 | 75 | Calm | 0 | 0 | | 2cs | 0 | | | 0 | 0 | Fair | |
| Louisville, Ky. | | | 29.93 | 760.2 | 38 | 3.3 | 90 | NE | 6 | 2.7 | | | 10s | | NE | 1.87 | 47.5 | Cloudy | |
| Lynchburg, Va. | | | 29.89 | 759.2 | 47 | 8.3 | 77 | W | 2 | 0.9 | | 5k | 5ks | SW | E | 0.87 | 22.1 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 67 | 19.4 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.85 | 758.2 | 38 | 3.3 | 71 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 29.83 | 757.7 | 51 | 10.6 | 93 | NE | 8 | 3.6 | | | 10n | | NE | 1.51 | 38.4 | Light rain | |
| Milwaukee, Wis. | | | 29.89 | 759.2 | 43 | 6.1 | 67 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 29.85 | 758.2 | 65 | 18.3 | 83 | S | 3 | 1.3 | | | 10s | | SW | 0.32 | 8.1 | Cloudy | |
| Montgomery, Ala. | | | 29.89 | 759.2 | 61 | 16.1 | 85 | E | 2 | 0.9 | | | 10s | | S | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 28.86 | 733.0 | 29.92 | 760.0 | 42 | 5.6 | 74 | SW | 4 | 1.8 | | 0 | 8s | | SW | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 23.26 | 590.8 | 29.62 | 752.3 | 15 | — 9.4 | 82 | NW | 60 | 26.8 | | 10s | 0 | NW | | 0.06 | 1.5 | Cloudy | |
| Nashville, Tenn. | | | 29.87 | 758.7 | 49 | 9.4 | 85 | N | 7 | 3.1 | | | 10s | | N | 0.27 | 6.9 | Cloudy | |
| New Haven, Conn. | | | 29.74 | 755.4 | 54 | 12.2 | 48 | SW | 2 | 0.9 | | 10ks | Sm'e | SW | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.76 | 755.9 | 53 | 11.7 | 66 | SW | 6 | 2.7 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| New Orleans, La. | | | 29.74 | 754.4 | 64 | 17.8 | 83 | SE | 16 | 7.2 | | 5k | 4s | SW | SW | 0.53 | 13.5 | Cloudy | |
| Newport, R. I. | | | 29.74 | 754.4 | 49 | 9.4 | 71 | SW | 4 | 1.8 | | | 10s | | W | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 29.79 | 756.7 | 48 | 8.9 | 56 | W | 15 | 6.7 | | 5cs | 2ks | W | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 29.87 | 758.7 | 48 | 8.9 | 100 | N | 7 | 3.1 | | | 10n | | | 0.07 | 1.8 | Light rain | |
| North Platte, Neb. | 26.89 | 683.0 | 29.44 | 747.8 | 43 | 6.1 | 75 | S | | | | 2c | 0 | E | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.78 | 731.0 | 29.86 | 758.4 | 42 | 5.6 | 83 | Calm | 0 | 0 | | 5c | 0 | S | | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 29.76 | 755.9 | 40 | 4.4 | 85 | W | 13 | 5.8 | | | 10s | | NW | 0.03 | 0.8 | Cloudy | |
| Pembina, Dakota | | | 29.74 | 754.4 | 44 | 6.7 | 76 | SE | 4 | 1.8 | | 5k | 0 | | | Inap. | Inap. | Fair | |
| Philadelphia, Pa. | | | 29.82 | 757.4 | 49 | 9.4 | 57 | W | 14 | 6.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | | | | | | | | | | | | | | | |
| Pike's Peak, Col. | 17.53 | 445.2 | 29.74 | 755.4 | 7 | —13.9 | 55 | N | 34 | 15.2 | | 0 | 2s | | | 0.24 | 6.1 | Fair | |
| Pittsburg, Pa. | | | 29.86 | 758.4 | 42 | 5.6 | 65 | NW | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 29.87 | 758.7 | 40 | 4.4 | 82 | W | 9 | 4.0 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.64 | 752.8 | 48 | 8.9 | 42 | W | 12 | 5.4 | | 8k | Haze | NW | | Inap. | Inap. | Cloudy | |
| Portland, Oregon | | | 30.23 | 767.8 | 50 | 10.0 | 78 | SE | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | | | | | | | | | | | | | | | | | | | |
| Punta Rassa, Fla. | | | 29.96 | 761.0 | 71.5 | 21.9 | 64 | SE | 16 | 7.2 | | 2cs | Haze | W | | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 29.78 | 756.4 | 40 | 4.4 | 73 | NW | 12 | 5.4 | | 5k | 0 | NW | | 0.10 | 2.5 | Fair | |
| Salt Lake City, Utah | 25.49 | 647.4 | 29.82 | 757.4 | 46 | 7.8 | 54 | E | 4 | 1.8 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Sandy Hook, N. J. | | | 29.79 | 756.7 | 54 | 12.2 | 61 | SW | 29 | 13.0 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| San Diego, Cal. | | | 29.93 | 760.2 | 59 | 15.0 | 76 | NW | 5 | 2.2 | | | 10s | | NW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.89 | 759.2 | 52 | 11.1 | 93 | SW | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.24 | 590.3 | 29.78 | 756.4 | 31 | — 0.6 | 68 | NE | 4 | 1.8 | | 1k | 0 | | | 0.02 | 0.5 | Clear | |
| Savannah, Ga. | | | 29.94 | 760.5 | 69 | 20.6 | 70 | SW | 8 | 3.6 | | 5c | 1s | W | | 0 | 0 | Fair | |
| Shreveport, La. | | | 29.88 | 758.9 | 61 | 16.1 | 88 | NW | 4 | 1.8 | | | 10s | | W | 0.25 | 6.3 | Cloudy | |
| Smithville, N. C. | | | 29.87 | 758.7 | 65 | 18.3 | 78 | W | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.74 | 755.4 | 51 | 10.6 | 51 | S | 4 | 1.8 | | | 10ks | | S | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 29.92 | 760.0 | 42 | 5.6 | 83 | N | 2 | 0.9 | | 0 | Fog | | | 0.34 | 8.6 | Clear | |
| St. Marks, Fla. | | | 29.90 | 759.4 | 68 | 20.0 | 84 | S | 10 | 4.5 | | | 10s | | S | 0 | 0 | Cloudy | |
| St. Paul, Minn. | | | 29.78 | 756.4 | 47 | 8.3 | 69 | Calm | 0 | 0 | | 5c | 0 | W | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 59 | 15.0 | | NW | | | | 0 | 2s | | | 0 | 0 | Fair | |
| Thatcher's Island, Mass. | | | 29.70 | 754.4 | 46 | 7.8 | 61 | SW | 12 | 5.4 | | 10c | 0 | SW | | 0 | 0 | Hazy | |
| Toledo, Ohio | | | 29.89 | 759.2 | 50 | 10.0 | 58 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Tucson, Arizona | 27.43 | 696.7 | 29.98 | 761.5 | 52 | 11.1 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tybee Island, Ga. | | | 29.92 | 760.0 | 67 | 19.4 | 79 | S | 8 | 3.6 | | 5cs | Haze | | | 0 | 0 | Fair | |
| Vicksburg, Miss. | | | 29.81 | 757.2 | 63 | 17.2 | 88 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Virginia City, M. T. | 24.02 | 610.1 | 29.50 | 749.3 | 38 | 3.3 | 67 | SW | 12 | 5.4 | | 10k | 0 | NW | | 0 | 0 | Cloudy | |
| Washington, D. C. | | | 29.88 | 758.9 | 47 | 8.3 | 71 | NW | 6 | 2.7 | | 0 | 0 | | | Inap | Inap. | Clear | |
| Wickenburg, Arizona | | | | | 52 | 11.1 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C. | | | 29.84 | 757.9 | 67 | 19.4 | 64 | SW | 14 | 6.3 | | 1cs | 0 | W | | 0 | 0 | Clear | |
| Wood's Holl, Mass. | | | 29.75 | 755.6 | 51 | 10.6 | 72 | NW | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.58 | 725.9 | 29.88 | 758.9 | 42 | 5.6 | 74 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.83 | 757.7 | 62 | 16.7 | | SW | | | | 0 | 2k | | | 0 | 0 | Fair | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I. | | | 30.13 | 765.3 | 79 | 26.1 | 78 | Calm | 0 | 0 | | 5c | 0 | | | 0.66 | 1.5 | | James Gall. |
| Navassa, W. I. | | | | | 79 | 26.1 | | NNE | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison |
| Clifton, Ja., W. I. | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 29.58 | 761.5 | 80 | 26.7 | 87 | SE | | | 2 | 5k | 7ks | SE | | 0.350 | 8.89 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | 30.03 | 762.7 | | | 80.2 | 26.8 | | E | | | | | | | | 0.059 | 1.50 | Shower | Dr. H. Groot. |
| Medellin, Colombia, S. A. | 25.20 | 640.1 | | | 67.5 | 19.7 | 84 | Calm | | | 0 | 4cs | 6s,ks | | | 0.17 | 4.3 | Cloudy | Thomas Herran. |
| York Factory, B. A. | | | 30.41 | 772.4 | 38.0 | 3.3 | 95 | NE | 21 | 9.4 | | | 10u | | | *0.03 | *0.8 | Snowing | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I. | | | 30.05 | 763.3 | 71 | 21.7 | | Calm | | | 0 | | | | | 0 | 0 | Hazy | Daniel Smith. |
| Makawao, Maui, H. I. | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,978 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. * Precipitation from 4 a. m. until 10 a. m. of the 4th.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.97 | 761.2 | 69 | 20.6 | 47 | 8.3 | 70 | WSW | | | 3 | | 0 | | | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.95 | 760.7 | 58 | 14.4 | 53.5 | 11.9 | | Calm | | | 0 | | 0 | | | 0 | 0 | | | Hazy | |
| Navy Yard, Norfolk, Va. | 30.02† | 762.5† | 48 | 8.9 | 48 | 8.9 | 92 | NNW | 4 | 1.8 | | | 10n | | | 0.09 | 2.3 | | | Overcast | |
| Navy Yard, Pensacola, Fla. | 30.00 | 762.0 | | | 69 | 20.6 | 90 | SSE | 10 | 4.5 | | | 10 | | NNE | 0.01 | 0.3 | | | Raining | |
| Navy Yard, Portsmouth, N.H. | 29.73 | 755.1 | 60 | 15.6 | 47 | 8.3 | 55 | WSW | 6 | 2.7 | | | | | | 0 | 0 | | | Lightly cov. | |
| Naval Hospital, Yokohama, Japan | 29.96 | 761.0 | 59 | 15.0 | 51 | 10.6 | 96 | NNW | | | 5 | | 10n | | NW | 0.25 | 6.3 | | | Light rain | |
| Adams, N. 29° 59′ W. 39° 49′ | 30.02 | 762.5 | 72 | 22.2 | 72 | 22.2 | 90 | N | | | 1–2 | | 5 | | N | | | Smooth | | D. clouds | |
| Alert, Yokohama, Japan | 30.04 | 763.0 | 59 | 15.0 | 59 | 15.0 | 94 | N | | | 3–4 | | 10 | | N | | | Light | S | Raining | |
| Alliance, Alexandria, Egypt | 30.15 | 765.8 | 70 | 21.1 | 67 | 19.4 | 84 | NW | | | 3 | | 3 | | N&W | | | | | Pleasant | |
| Ashuelot, Canton, China | 29.89 | 759.2 | 81 | 27.2 | 81 | 27.2 | 83 | S | | | 2 | | 6 | | S | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 29.74 | 755.4 | 48 | 8.9 | 64 | 17.8 | 83 | SE | | | 3 | | 10 | | SE | | | | | Cloudy | |
| Colorado, New York, N. Y | 29.80 | 756.9 | 58 | 14.4 | 52 | 11.1 | 47 | WNW | 15 | 6.7 | | | 5 | | S&W | 0 | 0 | | | D. clouds | |
| Despatch, N 37° 15′ W. 65° 48′ | 29.98 | 761.5 | 58 | 14.4 | 63 | 17.2 | 67 | SW | | | 4 | | 10 | | SSW | | | Moderate | NW | | |
| Essex, Vera Cruz, Mexico | 29.74 | 755.4 | 75 | 23.9 | 78 | 25.6 | 95 | S | | | 2 | | 2 | | | 0 | 0 | Smooth | | Hazy | |
| Frolic, Monte Video, Uruguay | 30.02 | 762.5 | | | 62 | 16.7 | 88 | NNE | | | 1 | | 10n | | | | | Smooth | | Drizzling | |
| ‡Gettysburg, Genoa, Italy | 29.82 | 757.4 | | | 62 | 16.7 | 94 | ESE | | | 2 | | 10 | | | 0 | 0 | | | D. clouds | |
| Hartford, St. Thomas, W. I | 30.15 | 765.8 | 84 | 28.9 | 85 | 29.4 | 68 | E | 4.8 | 2.1 | | | 9 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 29.89 | 759.2 | 76 | 24.4 | 72 | 22.2 | 100 | SW | | | 4–6 | | 10 | | NE | ¶3.6 | ¶91. | Moderate | SSW | Thunder-storm | |
| Lackawana, Acapulco, Mexico | 29.92 | 760.0 | | | 79 | 26.1 | 86 | Calm | | | 0 | | 2 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.99 | 761.7 | 67 | 19.4 | 66 | 18.9 | 91 | W | | | 3 | | 2 | | E | 0 | 0 | Chop'd | W | D. clouds | |
| Michigan, Erie, Pa | 29.34 | 745.2 | 50 | 10.0 | 41 | 5.0 | 74 | NW | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.71 | 754.6 | | | 62 | 16.7 | 100 | NW | | | 3–4 | | 10 | | NW | Blank | Blank | | | Overcast | |
| Monongahela, N. 38° 43′ W. 76° 25′ | 29.88 | 758.9 | 49 | 9.4 | 49 | 9.4 | | S&W | | | 1 | | ..k | | | Blank | Blank | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.14 | 765.5 | | | 64 | 17.8 | 94 | SW | | | 3 | | 4 | | NE | 0 | 0 | | | D. clouds | |
| Omaha, Panama | 30.00 | 762.0 | 79 | 26.1 | 79 | 26.1 | 86 | NW | 1 | 0.4 | | | 4 | | | 0.17 | 4.3 | Slight | S | Pleasant | |
| Ossipee, Matanzas, Cuba, W. I | 30.03 | 762.7 | 72 | 22.2 | 73 | 22.8 | 67 | ESE | | | 2 | | 2 | | W | | | | | D. clouds | |
| Palos, Shanghai, China | 29.90 | 759.4 | 63 | 18.9 | 62 | 16.7 | 100 | WNW | | | 3 | | 10 | | N&W | | | | | Light rain | |
| Pensacola, Acapulco, Mexico | 29.99 | 761.7 | | | 78 | 25.6 | 91 | NE | | | 1 | | 2 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Natchez, Miss | 29.75 | 755.6 | 71 | 21.7 | 63 | 17.2 | 89 | N | | | 1 | | 10 | | SW | ¶0.4 | ¶10. | | | Threatening | |
| Powhatan, N 35° 51′ W 71° 56′ | 29.95 | 760.7 | | | 56 | 13.3 | 100 | NNE | | | 2 | | 8 | | NE | | | Smooth | | D. clouds | |
| Ranger, N. 36° 54′ W. 44° 08′ | 30.39 | 771.9 | | | 64.5 | 18.1 | 94 | N | | | 2–3 | | 3 | | | | | Smooth | | Clear | |
| Richmond, S. 33° 54′ W. 50° 29′ | 30.00 | 762.0 | 66.0 | 18.9 | 64.0 | 17.8 | 88 | ENE | | | 4 | | 10 | | ENE | Blank | Blank | Long, broken. | ENE | Threatening | |
| Rio Bravo, Matamoras, Mexico | 29.64 | 752.8 | | | 70 | 21.1 | 90 | SE | | | 1 | | 10 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.93 | 760.2 | 61 | 16.1 | 52 | 11.1 | 60 | W | | | 3 | | 9? | | S&E | 0 | 0 | | | Clear ? | |
| St. Louis, League Island, Pa | 29.75 | 755.6 | 52 | 11.1 | 50 | 10.0 | 79 | SW | 17 | 7.6 | | | 0 | | | 0 | 0 | | | Clear | |
| Swatara, Aspinwall, Panama | 30.02 | 762.5 | 81 | 27.2 | 81 | 27.2 | 83 | N | | | 3 | | 4kn | | NE | Blank | Blank | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.96 | 761.0 | 66 | 18.9 | 56 | 13.3 | ? | NNW | | | 4 | | 10 | | | | | Long | NW | Raining | |
| Trenton, Villefranche, France | 29.95† | 760.7† | 68 | 20.0 | 63 | 17.2 | 100 | SW | 3.6 | 1.6 | | | 9 | | S&W | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.07 | 763.8 | 62 | 16.7 | 56 | 13.3 | 94 | ESE | | | 1 | | 4 | | S | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.70 | 754.4 | 49 | 9.4 | 49 | 9.4 | 93 | WSW | 9 | 4.0 | | | 8 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.26† | 768.6† | 55 | 12.8 | 51 | 10.6 | | W | | | 1 | | 0 | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Colb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.86 | 758.4 | 82 | 27.8 | 87 | WNW | | | 1 | | 1s | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 49° 46′, W. 7° 32′ | E | 6.0 | 29.98 | 761.5 | 48.9 | 9.4 | | E | | | 7 | | 8 | | ENE | Rough | | D. clouds | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 42° 58′, W. 54° 23′ | W¼S | | 29.87 | 758.7 | 51.1 | 10.6 | | WNW | | | 4 | | 4u | | NW | Light | | Overcast | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Providence, R. I. | | | 29.65 | 753.1 | 53 | 11.7 | 55 | WNW | | | | 8ck | 0 | | | | | Cloudy | Capt. James Jorgensen |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz., cirrus, cumulus, stratus, nimbus, scud, macto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 5, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.83 | 757.6 | 74.3 | 23.5 | 58 | NNW | | | 1 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 29.77 | 756.1 | 69.1 | 20.6 | 48 | NNW | | | 4 | | 6 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.65 | 753.2 | 68.5 | 20.3 | 63 | NW | | | 3 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.76 | 755.8 | 73.4 | 23.0 | | NW | | | 3 | | 6 | | | 0 | 0 | Fair | Jacques. |
| Sfax | | | 29.77 | 756.2 | 71.6 | 22.0 | | NE | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 29.90 | 759.4 | 67.6 | 19.8 | | WNW | | | 3 | | 2 | | | Inap. | Inap. | Clear | Millot. |
| Tebessa | | | 29.76 | 755.8 | 69.6 | 20.9 | | SW | | | 4 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 29.86 | 758.5 | 70.5 | 21.4 | 44 | NW | | | 2 | | 3 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.83 | 757.7 | 84.2 | 29.0 | 19 | W | | | 4 | | 4 | | | 0 | 0 | Fair | Guyot. |
| Biskra | | | 29.73 | 755.2 | 91.4 | 33.0 | 22 | SE | | | 3 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.76 | 755.8 | 63.7 | 17.6 | 52 | SW | | | 4 | | 9 | | | 0.185 | 4.7 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.84 | 757.9 | 45.3 | 7.4 | 66 | ENE | | | 2 | | 10 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.90 | 759.5 | 46.4 | 8.0 | 78 | Calm | | | 0 | | ..k,s | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.50 | 723.8 | 29.72 | 755.0 | 58.6 | 14.8 | 65 | SW | | | 2 | | 9 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.48 | 723.4 | 29.87 | 758.8 | 63.1 | 17.3 | 35 | SSE | | | 4 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.35 | 720.2 | 29.70 | 754.3 | 47.8 | 8.8 | 76 | ENE | | | 3 | | 10 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.90 | 759.5 | 37.0 | 2.8 | 96 | SW | | | 1 | | 10 | | | 0.437 | 11.1 | | Dr. T. Stanecki. |
| Nylregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.79 | 756.6 | 59.2 | 15.1 | 85 | SSE | | | 4 | | 10s | | | 0.038 | 0.97 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.84 | 757.8 | 61.9 | 16.6 | 69 | W | | | 1 | | 10 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.83 | 757.7 | 58.3 | 14.6 | 89 | Calm | | | 0 | | 10 | | | 0.889 | 22.5 | Raining | P. Busin. |
| Vienna | | | 29.77 | 756.1 | 46.8 | 8.2 | 81 | ENE | | | 1 | | 10 | | | 0.102 | 2.6 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.22 | 716.9 | 29.70 | 754.3 | 49.8 | 9.9 | 38 | NNW | | | 1 | | 3 | | | 0 | 0 | | Royal Observatory. |
| Brussels | | | 29.80 | 757.0 | 47.8 | 8.8 | 47 | ENE | | | 2 | | 4k | | ENE | 0 | 0 | | |
| Furnes | | | 29.86 | 758.5 | 49.6 | 9.8 | 69 | ENE | | | 3 | | 4 | | | 0 | 0 | | |
| Maeseyck | | | 29.68 | 753.9 | 46.6 | 8.1 | 46 | N | | | 4 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected or instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.91 | 759.7 | 42.6 | 5.9 | | NNW | 14 | 6.3 | | | 4 | | | 0.035 | 0.8 | Blue sky | William Boswell. |
| Ardrossan | | | 29.93 | 760.2 | 46 | 7.8 | | NNE | | | 3 | | 3 | | | | | Blue sky | William McNeil. |
| Armagh, Observatory | | | 29.94 | 760.5 | 48.0 | 8.9 | | N | 4 | 1.8 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.91 | 759.7 | 46.9 | 8.3 | | NW | 15 | 6.7 | | | 1 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.92 | 760.0 | 51.3 | 10.7 | | NE | | | 1 | | 5 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 29.90 | 759.4 | 43.9 | 6.6 | | NE | | | 2 | | 5 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.01 | 762.2 | 81.5 | 27.5 | | NE | | | 2 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.87 | 758.7 | 48.0 | 8.9 | | NE | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 29.89 | 759.2 | 48.0 | 8.9 | | N | | | 1 | | 8 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.92 | 760.0 | 48.2 | 9.0 | | NE | | | 2 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.33 | 719.6 | 29.80 | 756.9 | 48.2 | 9.0 | | SE | | | 6 | | 2 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.93 | 760.2 | 48 | 8.9 | | NE | | | 4 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 29.85 | 758.2 | 46 | 7.8 | | ENE | | | 3 | | 2 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.89 | 759.2 | 50.1 | 10.1 | | NE | 3.0 | 1.3 | | | 5 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.84 | 757.9 | 48.0 | 8.9 | | E | | | 4 | | 1 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.40 | 698.2 | 29.72 | 754.9 | 82.0 | 27.8 | | NW | | | 4 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.90 | 759.4 | 89 | 31.7 | | N | | | 1 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.93 | 760.2 | 57 | 13.9 | | SE | | | 1 | | 1 | | | | | D. clouds | G. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.82 | 757.4 | 68.5 | 20.3 | | W | | | 6 | | 7 | | | Blank | Blank | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.91 | 759.7 | 44.5 | 6.9 | | SE | | | 2 | | 2 | | | | | Blue sky | Lewis Stuart. |
| Great Yarmouth | | | 29.90 | 759.4 | 44 | 6.7 | | NE | | | 2 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.86 | 758.4 | 47.8 | 8.8 | | NNE | | | 1 | | 9 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.77 | 756.1 | 47.5 | 8.6 | | NNE | | | 6 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.88 | 758.9 | 52 | 11.1 | | E | | | 6 | | 1 | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.95 | 760.7 | 46 | 7.8 | | N | | | 3 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.86 | 758.4 | 46.6 | 8.1 | | NE | 9 | 4.0 | | | 6 | | | | | D. clouds | The Staff. |
| Kingstown | | | 29.96 | 761.0 | 46 | 7.8 | | E | | | 2 | | 2 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 29.83 | 759.2 | 45.1 | 7.3 | | E | | | 2 | | 4 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.75 | 755.6 | 68.0 | 20.0 | | SE | | | 1 | | 8k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.99 | 759.4 | 45 | 7.2 | | Calm | | | 0 | | 2 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.96 | 761.0 | 79.0 | 26.1 | | SE | | | 1 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.91 | 759.7 | 45.3 | 7.4 | | ENE | | | 3 | | 7c,k | | ENE | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.88 | 758.9 | 47.1 | 8.4 | | NNE | | | 3 | | 5 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.85 | 758.4 | 48 | 8.9 | | NE | | | 2 | | 6 | | | | | D. clouds | J. W. Lucas. |
| Plymouth | | | 29.83 | 757.7 | 50.8 | 10.4 | | ENE | | | 5 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 29.90 | 759.4 | 48 | 8.9 | | ESE | | | 4 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 29.87 | 758.7 | 59 | 10.0 | | SW | | | 1 | | 5 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.74 | 755.4 | 50.0 | 10.0 | | E | | | 6 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.89 | 759.2 | 39 | 3.9 | | NW | 12 | 5.4 | | | 5 | | | | | Snow-showers | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.04 | 763.0 | 63.8 | 17.7 | | SW | | | 1 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.90 | 759.4 | 45.2 | 7.3 | | NE | | | 1 | | 5 | | | 0 | 0 | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 29.92 | 760.0 | 51.3 | 10.7 | 52 | SW | | | 1 | | 2 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.90 | 759.4 | 47.5 | 8.6 | | E | | | 1 | | 8 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.91 | 759.7 | 42 | 5.6 | | N | | | 2 | | 5 | | | | | D. clouds | John Smith. |
| Strathfield Turgiss | | | 29.86 | 758.4 | 51.3 | 10.7 | | E | | | 2 | | 2 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 29.88 | 758.9 | 43 | 6.1 | | NW | | | 3 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.85 | 758.2 | 57 | 13.9 | | E | | | 7 | | 0 | | | | | Blue sky | W. Newcombe. |
| Valencia, Observatory | | | 29.85 | 758.9 | 52.5 | 11.4 | | ESE | 12 | 5.4 | | | 7 | | | | | Hazy | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 46 | 7.8 | | NNE | | | 3 | | 0 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.76 | 755.9 | 54.0 | 12.2 | 84 | WNW | 27 | 12.1 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.74 | 755.4 | 62.0 | 16.7 | 94 | Calm | | | 0 | | 10n | | | | | Raining | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.95 | 760.7 | 45.0 | 7.2 | | E | | | 2 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.12 | 765.0 | 73.4 | 23.0 | 59 | ESE | 19.3 | 8.9 | | 0 | 2 | | ESE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.75 | 760.7 | 53.8 | 12.1 | 88 | S | 14 | 6.3 | | | 10 | | | 0.37 | 9.4 | Drizzling | R. L. J. Ellery. |
| Monach Lighthouse, (Hebrides) | | | 29.92 | 760.0 | 41 | 5.0 | | SW | | | 2 | 3 | 0 | S | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.81 | 757.2 | 35 | 1.7 | | N | | | 4 | 4 | 7 | N | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0-9 | Direction from- | | |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Moulard. |
| Ship Camperdown | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 22° 50′, W. 25° 55′ | 3 | NNE | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have generally been carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.18 | 665.0 | | | 72.5 | 22.5 | 78 | NE | | | 2 | | 1ck | | NE | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.76 | 755.8 | 42.6 | 5.9 | 49 | NE | | | 2 | | 8 | | | | | | |
| Faröe | | | 29.82 | 757.4 | 42.4 | 5.8 | 55 | W | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 29.91 | 759.6 | 35.6 | 2.0 | 73 | N | | | 2 | | 7 | | | | | | |
| Vestervig | | | 29.77 | 756.1 | 42.8 | 6.0 | 70 | NW | | | 4 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.68 | 753.9 | 55.4 | 13 | 54 | NE | | | 4 | 5c | | NE | | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 29.76 | 756.0 | 55.0 | 12.8 | | ENE | | | 3 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Avignon, Normal School | | | 29.65 | 753.2 | 57.6 | 14.2 | 84 | ESE | | | 1 | | 10 | | SE | 0.04 | 1. | Rainy | Mr. Giraud. |
| Bar-sur-Seine | | | 29.67 | 753.5 | 52.3 | 11.3 | 47 | NE | | | 2 | | 10 | | | 0 | 0 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.76 | 756.0 | 50.0 | 10 | 37 | ENE | | | 3 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Besançon | | | 29.70 | 754.4 | 55.0 | 12.8 | 87 | ENE | | | 3 | | 8 | | W | 0.488 | 12.4 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.67 | 753.6 | 64.4 | 18 | 62 | S | | | 4 | | 2cn | | N | 0.366 | 9.3 | Slightly cl'dy | Normal School. |
| Bourges | | | 29.65 | 753.2 | 52.2 | 11.2 | 80 | NE | | | 4 | | 5 | | NE | 0.04 | 1. | Cloudy | Normal School. |
| Brest | | | 29.61 | 752.0 | 52.0 | 11.1 | 63 | NE | | | 6 | | 5cs | | NE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 29.51 | 750.2 | 57.2 | 14 | 95 | E | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Caen | | | 29.77 | 756.1 | 49.6 | 9.8 | 39 | N | | | 8 | | | | | 0 | 0 | | Normal School. |
| Chartres | | | 29.69 | 754.0 | 54.5 | 12.5 | 74 | NE | | | 2 | | 3 | | NW | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 29.68 | 753.8 | 59.0 | 15.0 | 42 | N | | | 3 | 5c | | S | | 0 | 0 | Cloudy | Normal School. |
| Clermont | | | 29.50 | 749.2 | 64.8 | 18.2 | 67 | S | | | 1 | | 8 | | SW | 0.394 | 10.0 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.66 | 753.4 | 51.1 | 10.6 | 54 | ENE | | | 2 | | 5 | | ENE | 0 | 0 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.68 | 753.9 | 63.1 | 17.3 | 56 | SE | | | 2 | | 10 | | SE | 0.100 | 2.7 | | M. Kina. |
| Grenoble | | | 29.65 | 753.0 | 60.1 | 15.6 | 67 | N | | | 2 | | 8ku | | E | 0.24 | 6. | Very cloudy | Normal School. |
| La Roche-sur-Yon | | | 29.56 | 750.9 | 52.0 | 11.1 | 83 | ENE | | | 6 | | 8 | | W | 0.28 | 7. | Very cloudy | Normal School. |
| Le Mans | | | 29.72 | 754.9 | 51.6 | 10.9 | 43 | E | | | 4 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.60 | 751.9 | 65.7 | 18.7 | 60 | S | | | 2 | | 5 | | | 0.136 | 3.30 | Partly cl'dy | Normal School. |
| Lorient | | | 29.64 | 752.8 | 53.2 | 11.8 | 80 | NE | | | 5 | | 8 | | NE | 0 | 0 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.52 | 749.8 | 64.2 | 17.9 | 78 | Calm | | | 0 | | 10 | | | 0.039 | 1.0 | Covered | Mr. Marchal. |
| Metz | | | 29.74 | 755.4 | 52.3 | 11.3 | 67 | NNE | | | 4 | 1c | | N | | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.67 | 753.5 | 50.4 | 10.2 | 79 | N | | | 4 | | 10 | | W | 0 | 0 | Covered | Normal School. |
| Nismes | | | 29.62 | 752.3 | 57.2 | 14 | 80 | SE | | | 1 | | 10 | | S | 0.24 | 6. | Covered | Normal School. |
| Orleans | | | 29.63 | 752.5 | 54.7 | 12.6 | 72 | N | | | 6 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 29.72 | 754.8 | 52.5 | 11.4 | 29 | NE | | | 3 | | 6cs | | | 0 | 0 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.53 | 750.1 | 58.3 | 14.6 | 71 | NE | | | 3 | | 5 | | SW | 0.20 | 5. | ½ covered | Naval Observatory. |
| Rouen | | | 29.75 | 755.7 | 53.8 | 12.1 | 34 | N | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Tarbes | | | 29.67 | 753.5 | 60.8 | 16 | 83 | W | | | 1 | | 10 | | | 0.311 | 7.9 | Covered | Normal School. |
| Villefranche | 28.59 | 726.2 | 29.65 | 753.0 | 65.3 | 18.5 | 80 | SE | | | 4 | | 5 | | SW | 0.417 | 10.6 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.83 | 757.7 | 81.1 | 27.3 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.61 | 752.1 | 62.4 | 16.9 | 56 | E | | | 2 | | 10 | | | 0.161 | 4.10 | Raining | The Staff. |
| Mont-Louis | 24.45 | 620.9 | 29.76 | 755.9 | 48.6 | 9.2 | 75 | SW | 16.8 | 7.50 | | | 10 | | SSW | 0.071 | 1.8 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.71 | 754.5 | 54.3 | 12.4 | 36 | NE | | | 2c | 7c | | W | | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 29.58 | 751.4 | 60.1 | 15.6 | 81 | SE | 22.4 | 10.00 | | | 10 | | SE | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.09 | 561.1 | | | 32.5 | 0.3 | | SW | | | 3 | | 10 | | | 0.433 | 11.0 | Snowy | and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.71 | 754.5 | 55.6 | 13.1 | 31 | NE | | | 3 | | 2 | | | 0 | 0 | Clear | E. Renou. |
| Toulouse, Observatory | | | 29.51 | 749.5 | 62.4 | 16.9 | 80 | SSE | | | 6 | | 8 | | | 0.287 | 7.3 | Rainy | The Staff. |
| Tours | | | 29.65 | 753.1 | 50.5 | 10.3 | 62 | E | | | 4 | | 10 | | SSW | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.72 | 754.9 | 53.2 | 11.8 | 36 | E | | | 4 | | 7 | | | 0 | 0 | Light clouds | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.01 | 762.2 | 54.1 | 12.3 | 96 | Calm | 0 | 0 | | | 4k | | | 0.028 | 0.7 | | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,053.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,201.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0: 1, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.74 | 755.3 | 54.0 | 12.2 | 67 | W | | | 5 | | 8 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.84 | 757.8 | 50.0 | 10.0 | 37 | N | | | 1 | | 6 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.81 | 757.2 | 52.0 | 11.1 | 26 | SSE | | | 2 | | 2 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.67 | 753.7 | 51.8 | 11.0 | 61 | E | | | 1 | | 10 | | | 0.008 | 0.2 | Light rain | Albert Senz. |
| Cassel | | | 29.76 | 755.8 | 50.7 | 10.4 | 33 | N | | | 3 | | 5 | NE | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.78 | 756.4 | 49.6 | 9.8 | 37 | N | | | 3 | | 6 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.91 | 759.6 | 44.8 | 7.1 | 46 | NNW | | | 3 | | 1 | | | 0.008 | 0.2 | Snowing | Prof. Prestel. |
| Frankfort on the Main | | | 29.71 | 754.6 | 55.4 | 13.0 | 25 | E | | | 2 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.0? | 29.69? | 754.0? | 54.0 | 12.2 | 80 | SW | | | 1 | | 10 | W | | 0.126 | 3.2 | Raining | M. Wilhelm. |
| Hamburg | | | 29.84 | 757.8 | 46.9 | 8.3 | 43 | WSW | | | 2 | | 7c,k | S | | 0.004 | 0.1 | Fine | Captain F. Hegemann. |
| Kiel | | | 29.82 | 757.4 | 40.6 | 4.8 | 74 | NW | | | 2 | | 8 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.86 | 758.4 | 47.7 | 8.7 | 39 | SW | | | 5 | | 4 | | | 0.031 | 0.8 | Snowing | Prof. E. Luther. |
| Köslin | | | 29.84 | 758.0 | 42.8 | 6.0 | | NW | | | 4 | | 4 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.77 | 756.2 | 52.3 | 11.3 | 51 | SE | | | 1 | | 3 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.89 | 759.3 | 43.5 | 6.4 | | SW | | | 3 | | 2ck,k | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.80 | 757.0 | 47.3 | 8.5 | 47 | NE | | | 2 | | 0 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.85 | 758.3 | 43.0 | 6.1 | 69 | NE | | | 1 | | 10 | WSW | | 0.008 | 0.2 | | A. Lothes. |
| Posen | | | 29.82 | 757.4 | 54.1 | 12.3 | 28 | S | | | 2 | | 6 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.70 | 754.4 | 48.7 | 9.3 | 66 | N | | | 2 | | 10 | | | 0.012 | 0.3 | | Dr. Schur. |
| Stuttgart | | | 29.69 | 754.2 | 49.6 | 9.8 | 71 | N | | | 1 | | 10 | S | | 0.016 | 0.4 | Light rain | Prof. Schoder |
| Treves, (Trier) | | | 29.58 | 751.3 | 56.3 | 13.5 | 35 | NE | | | 5 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.19 | 716.0 | 29.70 | 754.3 | 46.9 | 8.3 | 84 | S | | | 1 | | 10 | SE | | 0.059 | 1.5 | Light rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.89 | 759.3 | 40.1 | 4.5 | 59 | W | | | 2 | | 8 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.07 | 763.6 | 70.0 | 21.1 | | S | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.93 | 557.0 | 29.73 | 755.1 | 32.2 | 0.1 | 98 | WNW | | | 2 | | 10 | | | 3.938* | 100.0 | | Prof. Giovanni Clodig. |
| Stelvio | 21.88 | 555.7 | 29.65 | 753.1 | 34.3 | 1.3 | | W | | | 6 | | 7 | | | 0.043 | 1.1 | | Signora Ernesta Mantrell. |
| Udine | | | 29.79 | 756.6 | 52.2 | 11.2 | 91 | N | 2.5 | 1.1 | | | 10 | | | 0.626 | 15.9 | Raining | Ab. Dom. Morgini. |
| Padua | | | 29.77 | 756.1 | 54.1 | 12.3 | 89 | NNE | 9.8 | 4.4 | | | 10 | NE | | 0.445 | 11.3 | Raining | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.78 | 756.5 | 54.9 | 12.7 | 82 | NE | 0.7 | 0.3 | | | 10 | E | | 0.256 | 6.5 | Raining | Conte Alm. Da Schio. |
| Verona | | | 29.78 | 756.4 | 58.8 | 14.9 | 76 | E | | | 2 | | 10 | | | 1.264 | 32.1 | Raining | Dott. E. Bertoncelli. |
| Bergamo | 28.44 | 722.3 | 29.74 | 755.5 | 54.3 | 12.4 | 74 | SE | | | 1 | | 10 | | | 0.453 | 11.5 | Raining | Prof. Trionfini Carlo. |
| Domodossola | | | 29.74 | 755.5 | 54.1 | 12.3 | 74 | S | | | 2 | | 10 | | | 0.230 | 6.0 | Raining | Prof. Giuseppe Calza. |
| Milan | | | 29.77 | 756.1 | 57.4 | 14.1 | 83 | E | | | 2 | | 10 | E | | 0.283 | 7.2 | Raining | Ab. Gio. Capelli. |
| Pavia | | | 29.77 | 756.2 | 53.6 | 12.0 | 83 | NE | | | 4 | | 10 | NE | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.74 | 755.3 | 53.6 | 12.0 | 85 | ENE | 3.8 | 1.7 | | | 10 | NW | | 0.228 | 5.8 | Raining | Prof. P. F. Denza. |
| Mondovi | 27.85 | 707.3 | 29.73 | 755.1 | 50.2 | 10.1 | 88 | NNW | | | 4 | | 10 | | | 0.126 | 3.2 | Raining | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.75 | 755.6 | 63.1 | 17.2 | 52 | E | | | 2 | | 10 | | | 0.138 | 3.5 | Raining | Prof. L. Vassallo. |
| Genoa | | | 29.73 | 755.2 | 61.7 | 16.5 | 81 | SE | 9.8 | 4.4 | | | 10 | SE | | 0.481 | 12.2 | Raining | Prof. G. M. Garibaldi. |
| Placenza | | | 29.79 | 756.7 | 52.4 | 11.1 | 89 | E | 7.4 | 3.3 | | | 10 | | | 0.134 | 3.4 | Raining | Dott. G. Manzi. |
| Parma | | | 29.75 | 755.7 | 54.9 | 12.7 | 90 | NE | | | 2 | | 10 | | | 0.087 | 2.2 | Raining | Prof. P. Pigorini. |
| Florence | | | 29.78 | 756.4 | 65.3 | 18.5 | 64 | SW | | | 4 | | 10 | SW | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.78 | 756.3 | 64.9 | 18.3 | 67 | S | 21.7 | 9.7 | | | 10 | SW | | 0.317 | 8.0 | Raining | Prof. P. Monte. |
| Siena | 28.57 | 725.7 | 29.76 | 756.0 | 62.2 | 16.8 | 65 | S | 4.9 | 2.2 | | | 10 | SW | | 0.157 | 4.0 | Raining | Prof. L. Toscani. |
| Urbino | 28.23 | 717.1 | 29.77 | 756.1 | 60.8 | 16.0 | 58 | SW | | | 2 | | 10 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.79 | 756.6 | 62.8 | 17.1 | 63 | E | 26.2 | 11.7 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.77 | 756.1 | 63.3 | 17.4 | 65 | SE | | | 4 | | 10 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.78 | 756.5 | 66.6 | 19.2 | 63 | SSE | | | 4 | | 8 | S | | 0.008 | 0.2 | Light rain | Avv. P. Ponticelli. |
| Rome | | | 29.80 | 757.0 | 68.2 | 20.1 | 61 | S | 4.9 | 2.2 | | | 10 | | | 0.004 | 0.1 | Light rain | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.79 | 756.6 | 76.1 | 24.5 | 49 | S | | | 1 | | 10 | WSW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.98 | 761.4 | 65.3 | 18.7 | 57 | SE | 19.9 | 8.9 | | | 7 | SE | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.85 | 758.3 | 65.5 | 18.6 | 66 | SW | 8.1 | 3.6 | | | 6 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.57 | 751.0 | 72.9 | 22.7 | 54 | SE | | | 2 | | 8 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.89 | 759.3 | 65.7 | 18.7 | 79 | SE | | | 2 | | 10 | NE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.65 | 753.1 | 71.8 | 22.1 | 58 | E | 3.1 | 1.4 | | | 8 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.88 | 708.2 | 29.78 | 756.5 | 63.0 | 17.2 | 71 | E | | | 6 | | 8 | NE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.72 | 754.8 | 69.6 | 20.9 | 76 | ESE | | | 2 | | 10 | SE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.82 | 757.4 | 69.6 | 20.9 | 51 | NE | 0 | 0 | | | 9 | NW | | 0.102 | 2.6 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.4 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.65 | 753.1 | 52 | 11.1 | 100 | NNE | 6 | 2.7 | | | 10 | | | 0.36 | 9.1 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.05 | 585.4 | 30.04 | 763.0 | 55.4 | 13.0 | 53 | W | 0.7 | 0.30 | | 0 | 2c | | SW | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.87 | 758.8 | 50.0 | 10.0 | | NE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.80 | 756.9 | 43.3 | 6.3 | | N | | | 2 | | | | | 0.004 | 0.1 | | |
| Helder | | | 29.87 | 758.6 | 43.2 | 6.2 | | NW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.82 | 757.3 | 46.9 | 8.3 | | N | | | 3 | | 2 | | | 0 | 0 | Light cloudy. | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.75 | 755.6 | 38.1 | 3.4 | 54 | W | 15.9 | 7.1 | | | 2 | | | 0 | 0 | | |
| Brönø | | | 29.54 | 750.2 | 37.0 | 2.8 | 69 | NNW | 25 | 11 | | | 8 | | | 0 | 0 | | |
| Christiania | | | 29.65 | 753.1 | 41.4 | 5.2 | 44 | ENE | 2 | 1 | | | 9 | | | 0 | 0 | | |
| Tromsö | | | 29.67 | 753.5 | 37.0 | 2.8 | 79 | ENE | 13 | 6 | | | 10 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Angra**, (Azores) | | | 29.94 | 760.5 | 59.9 | 15.5 | 75 | NW | 13.0 | 5.8 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| **Campo** Major | | | 29.60 | 751.8 | 60.4 | 15.8 | 73 | SW | 16.1 | 7.2 | | | 9 | SW | | 0.480 | 12.2 | | Dr. A. M. R. dos Santos. |
| **Funchal**, (Madeira) | | | 29.98 | 761.4 | 66.2 | 19.0 | 55 | WSW | 14.3 | 6.4 | | | 5 | | | 0.228 | 5.8 | | Capt. D. A. de Cunha. |
| **Lisbon** | | | 29.64 | 752.8 | 60.4 | 15.8 | 78 | WSW | 26.2 | 11.7 | | | 6 | | | 0.673 | 17.1 | | The Observatory. |
| **Ponta Delgada**, (Azores) | | | 29.95 | 760.8 | 64.4 | 18.0 | 63 | NW | 9.4 | 4.2 | | | 4 | | | 0.028 | 0.7 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.87 | 758.8 | 48.9 | 9.4 | 33 | SSE | 9 | 4 | | | 8 | | | | | | Astronomical Obs. |
| Wilna | | | 29.93 | 760.2 | 43.9 | 6.6 | 41 | NW | 4 | 2 | | | 3 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.79 | 756.7 | 44.4 | 6.9 | 31 | SW | 11 | 5 | | | 8 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.82 | 757.5 | 35.1 | 1.7 | 77 | SSE | 16 | 7 | | | 10 | | | | | Snowing | Central Physical Obs. |
| Kuopio | | | 29.57 | 751.1 | 37.4 | 3.0 | 71 | S | 34 | 15 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.96 | 760.9 | 47.7 | 8.7 | 72 | NNW | 2 | 1 | | | 10 | | | | | Raining | Physical Cabinet. |
| Nikolaiev | | | 30.13 | 765.4 | 59.7 | 15.4 | 51 | SSW | 27 | 12 | | | 0 | | | | | | Kurdakof |
| Kertch | | | 30.21 | 767.3 | 63.1 | 17.3 | 60 | NNW | 7 | 3 | | | 1 | | | | | | Lagorio. |
| Moscow | | | 30.01 | 762.3 | 50.4 | 10.2 | 48 | SSE | 9 | 4 | | | 7 | | | | | | Meteorological Obs. |
| Jugan | | | 30.02 | 762.4 | 59.4 | 15.2 | 44 | W | 9 | 4 | | | 4 | | | | | | Meteorological Obs. |
| Archangel | | | 29.84 | 758.0 | 42.6 | 5.9 | 54 | S | 7 | 3 | | | 4 | | | | | | Ogorodnikof. |
| Tiflis | 28.62 | 726.9 | 30.03 | 762.8 | 57.6 | 14.2 | 59 | N | 9 | 4 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.01 | 762.3 | 66.9 | 19.4 | 43 | NNW | 11 | 5 | | | 10 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 30.07 | 763.7 | 54.3 | 12.4 | 66 | Calm | 0 | 0 | | | 7 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.24 | 742.7 | 30.22 | 767.5 | 37.6 | 3.1 | 96 | ESE | 9 | 4 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.38 | 720.9 | 30.00 | 762.0 | 80.8 | 27.1 | 29 | N | 9 | 4 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.14 | 765.5 | 38.8 | 3.8 | 40 | NW | 9 | 4 | | | 5 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.91 | 759.8 | 40.8 | 4.9 | 53 | NW | 2 | 1 | | | 4 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 48.9 | 8.9 | | NW | 2 | 1 | | | 7 | | | | | | Mossin. |
| Peking, (China) | | | 29.93 | 760.1 | 62.4 | 16.9 | 37 | Calm | 0 | 0 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.92 | 759.9 | 42.6 | 5.9 | 84 | SE | 4 | 2 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | | | | Calm | 0 | 0 | | | | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.59 | 749.4 | 59.7 | 15.4 | 67 | SW | 22.4 | 10.00 | | 0 | 9 | | | 0.526 | 13.2 | Almost cov'd | Royal Observatory. |
| San Fernando | | | 29.81 | 757.2 | 65.8 | 18.8 | 67 | W | 13.2 | 5.9 | | 0 | 6 | | W | 0.374 | 9.5 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.90 | 759.4 | 80.2 | 26.8 | 69 | SSE | 5.6 | 2.5 | | 0 | 7ks | | | 0 | 0 | Cloudy | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.47 | 748.6 | 38.8 | 3.8 | 80 | NE | | | 4 | | 10 | | | | | Raining | |
| Umea | | | 29.30 | 744.2 | 34.9 | 1.6 | 96 | ENE | | | 2 | | 10 | | | 0.276 | 7.0 | Snowing | |
| Hernosand | | | 29.28 | 743.7 | 34.7 | 1.5 | 87 | NW | | | 4 | | 10 | | | 0.028 | 0.7 | Snowing | |
| Stockholm | | | 29.58 | 751.3 | 42.8 | 6.0 | 34 | W | | | 6 | | 7 | | | 0.098 | 2.5 | | |
| Wisby | | | 29.74 | 755.3 | 42.1 | 5.6 | 52 | W | | | 6 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.54 | 750.4 | 44.4 | 6.9 | 30 | SW | 15.7 | 7.0 | | | 8 | | WNW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.20 | 716.3 | 29.61 | 752.2 | 57.7 | 14.3 | 75 | NE | | | 1 | | 9 | | | 0.606 | 15.4 | Cloudy | The Observatory. |
| Zurich | 28.06 | 712.6 | 29.71 | 754.5 | 50.9 | 10.5 | 78 | SE | | | 1 | | 8 | | | 0.079 | 2.0 | Cloudy | The Observatory. |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —8.3 mm; Thermometer, —0.6 cent.; Relative Humidity, +17 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.08 | 764.1 | 67.5 | 19.7 | 41 | SE | 2 | 1.0 | | | 3 | | SW | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 30.08 | 764.0 | 75.2 | 24.0 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 30.07 | 763.6 | 72.1 | 22.3 | | S | | | 1 | | 0 | | | | | | |
| Valona | | | 29.98 | 761.4 | 73.0 | 22.8 | | SW | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bahran. |
| Varna | | | 30.04 | 763.0 | 68.0 | 20.0 | | E | | | 2 | | 2 | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 30.11 | 764.8 | 70.9 | 21.6 | 70 | NW | | | 3 | | 8c,k | | N | 0.03 | 0.8 | D. clouds | Pro . C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second:) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.83 | 757.7 | 45.3 | 7.4 | 74 | NW | 4 | 1.8 | | | 7 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.06 | 763.5 | 47 | 8.3 | | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 29.81 | 757.2 | 43 | 6.1 | 67 | W | 8 | 3.6 | | 0 | 0 | | | 0.02 | 0.5 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.82 | 757.4 | 44 | 6.7 | 81 | Calm | 0 | 0 | | | 5ks | | | 0.015 | 0.38 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.00 | 762.0 | 39.8 | 4.3 | 53 | W | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Smith, M. A. |
| Dalhousie, N. B. | | | | | | | | | | | | | | | | 0.33 | 8.4 | | H. A. Johnson. |
| Esquimault, B. C. | | | 30.08 | 764.0 | 45.8 | 7.7 | 96 | N | | | | 2cs | 0 | | | 0.01 | 0.3 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.87 | 758.7 | 35 | 1.7 | 75 | S | 12 | 5.4 | | 5k | 5s | S | S | 0.05 | 1.3 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.92 | 760.0 | 44.1 | 6.7 | 60 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Fair | Pref. Harrison. |
| *Fort Garry, Manitoba | | | 29.53 | 750.0 | 43 | 6.1 | 96 | SE | 20 | 8.9 | | 5k | 5n | S | S | 0.414 | 10.51 | Heavy rain | James Stewart. |
| Goderich, Ontario | | | 30.00 | 762.0 | 46.3 | 7.9 | 54 | S | | | 2 | 5c | 3s | NE | | 0 | 0 | Cloudy | H. J. Strang, M. A. |
| Granton, Ontario | | | 30.00 | 762.0 | 43 | 6.1 | 43 | E | | | 1 | 1c | 0 | E | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 28.87 | 733.3 | 29.98 | 761.5 | 43 | 6.1 | 83 | SW | 4 | 1.8 | | 5cs | 0 | W | | Inap. | Inap | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.84 | 757.9 | 47 | 8.3 | 41 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.06 | 763.5 | 35.0 | 1.7 | 82 | NW | | | 1 | 0 | 1s | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.93 | 760.2 | 41 | 5.0 | 74 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.06 | 763.5 | 46 | 7.8 | 57 | N | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.01 | 762.2 | 44 | 6.7 | 58 | N | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.06 | 763.5 | 42 | 5.6 | 41 | NE | 6 | 2.7 | | 10ck | 0 | SW | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 30.01 | 762.2 | 41 | 5.0 | | SW | 8 | 3.6 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.86 | 758.4 | 41.6 | 5.3 | 44 | E | 12 | 5.4 | | 5k | 0 | SW | | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | | | 29.98 | 761.5 | 42 | 5.6 | 51 | Calm | 0 | 0 | | 2c | 0 | W | | 0 | 0 | Fair | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.95 | 760.7 | 43 | 6.1 | 52 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | W. H. McIntyre. |
| St. John, N. B. | | | 30.10 | 764.5 | 38 | 3.3 | 68 | N | 6 | 2.7 | | 3 | 0 | | | 0 | 0 | Fair | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.88 | 758.9 | 44 | 6.7 | 84 | E | 7 | 3.1 | | 2cs | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 29.99 | 761.7 | 46 | 7.8 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | R. J. Cole. |
| Stratford, Ontario | | | 30.03 | 762.7 | 40 | 4.4 | 54 | SE | 15 | 6.7 | | 2cs | 3ks | NW | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.70 | 729.0 | 30.00 | 762.0 | 42.4 | 5.8 | 79 | SW | 4 | 1.8 | | 8k | 0 | NW | | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.82 | 757.4 | 46 | 7.8 | 58 | E | 4 | 1.8 | | 2c | 0 | W | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor | | | 30.05 | 763.3 | 44 | 6.7 | 74 | SW | 1 | 0.4 | | 7ck | 0 | W | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.80 | 756.9 | 47.5 | 8.6 | | E | 12 | 5.4 | | 5k | 0 | | | 0 | 0 | Fair | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.03 | 762.7 | 43.0 | 6.1 | 83 | E | | | | 5k | 5s | | | 0.62 | 15.7 | Fair | John Delany. |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.05 | 763.3 | 48 | 8.9 | 54 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Alpena, Mich. | | | 30.02 | 762.5 | 43 | 6.1 | 43 | E | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.03 | 762.7 | 52 | 11.1 | 79 | SE | 10 | 4.5 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 29.76 | 755.9 | 64 | 17.8 | 89 | E | 4 | 1.8 | | | 10s | | E | 0.10 | 2.5 | Cloudy | |
| Baltimore, Md. | | | 29.98 | 761.5 | 51 | 10.6 | 72 | NE | 10 | 4.5 | | 2cs | Sm'e | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 30.02 | 762.5 | 52 | 11.1 | 66 | NE | 11 | 4.9 | | 2c | 0 | W | | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.80 | 706.1 | 29.39 | 746.5 | 47 | 8.3 | 85 | NW | 12 | 5.4 | | | 10s | | NW | 0.12 | 3.0 | Cloudy | |
| Boston, Mass. | | | 30.00 | 762.0 | 46.5 | 8.1 | 51 | W | 4 | 1.8 | | 0 | Haze | | | Inap. | Inap. | Clear | |
| Breckenridge, Minn. | | | 29.54 | 750.3 | 49 | 9.4 | 57 | S | 23 | 10.3 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.99 | 761.7 | 40 | 4.4 | 73 | E | 4 | 1.8 | | 5k | Sm'e | | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 30.01 | 762.2 | 45 | 7.2 | 44 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 29.72 | 754.9 | 50 | 10.0 | 93 | NW | 3 | 1.3 | | | 10n | | NW | 0.52 | 13.2 | Light rain | |
| Campo, Cal. | 27.37 | 695.2 | 29.94 | 760.5 | 45 | 7.2 | 67 | SW | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Camp Verde, Arizona | | | | | 59 | 15.0 | | SE | | | | 5c | 0 | | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.79 | 756.7 | 60 | 15.6 | 88 | E | 10 | 4.5 | | | 10n | | SW | 0.03 | 0.8 | Light rain | |
| Cape Henry, Va. | | | 29.90 | 759.4 | 52 | 11.1 | 77 | E | 10 | 4.5 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Cape Lookout, N. C. | | | 29.86 | 758.4 | 61 | 16.1 | 100 | SE | 9 | 4.0 | | | 10n | | SE | 0.02 | 0.5 | Light rain | |
| Cape May, N. J. | | | 29.98 | 761.5 | 53 | 11.7 | 73 | E | 10 | 4.5 | | 5ck | 2s | W | W | 0 | 0 | Fair | |
| Charleston, S. C. | | | 29.75 | 755.6 | 65 | 18.3 | 94 | N | 6 | 2.7 | | | 10n | | N | 1.70 | 43.2 | Light rain | |
| Cheyenne, Wyoming | 23.75 | 603.2 | 29.99 | 754.1 | 33 | 0.6 | 89 | N | 24 | 10.7 | | 8ck | 2s | W | | 0.24 | 6.1 | Cloudy | |
| Chicago, Ill. | | | 29.78 | 756.4 | 47 | 8.3 | 70 | E | 5 | 2.2 | | 2c | Haze | | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.65 | 753.1 | 53 | 11.7 | 60 | E | 7 | 3.1 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 29.9[illegible] | 760.9 | 49 | 9.4 | 37 | SW | 6 | 2.7 | | 0 | 2s | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 29.76 | 755.9 | 51 | 10.6 | 93 | S | 5 | 2.2 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Davenport, Iowa | | | 29.76 | 755.9 | 53 | 11.7 | 72 | E | 2 | 0.9 | | 4k | 6ks | E | E | 0 | 0 | Cloudy | |
| Denison, Tex. | | | 29.74 | 755.4 | 54 | 12.2 | 86 | S | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.54 | 623.3 | 29.76 | 755.9 | 38 | 3.3 | 80 | W | 5 | 2.2 | | | 10n | | | 0.17 | 4.3 | Light rain | |
| Detroit, Mich. | | | 29.88 | 758.9 | 49 | 9.4 | 50 | E | 8 | 3.6 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Dodge City, Kan. | 26.94 | 684.3 | 29.16 | 740.7 | 46 | 7.8 | 85 | S | 12 | 5.4 | | 2cs | 2s | W | W | 0 | 0 | Fair | |
| Dubuque, Iowa | | | 29.78 | 756.4 | 51 | 10.6 | 59 | SE | 1 | 0.4 | | 10k | 0 | SE | | 0 | 0 | Cloudy | |
| Duluth, Minn. | | | 29.80 | 756.9 | 42 | 5.6 | 66 | E | 14 | 6.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.91 | 759.7 | 47 | 8.3 | 61 | Calm | 0 | 0 | | 2k | Haze | W | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.94 | 760.5 | 46 | 7.8 | 69 | E | 2 | 0.9 | | 5c | Haze | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.91 | 759.7 | 42 | 5.6 | 66 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | | | | | 63 | 17.2 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.76 | 754.4 | 48 | 8.9 | 77 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.71 | 754.6 | 28 | −2.2 | 100 | NE | | | 1 | | 10s | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.41 | 721.6 | 29.48 | 748.8 | 56 | 13.3 | 62 | SE | 16 | 7.2 | | 1k | 0 | S | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 27.95 | 709.4 | 29.55 | 750.6 | 48 | 8.9 | 85 | NW | 9 | 4.0 | | | 10s | | NW | 0.01 | 0.3 | Cloudy | |
| Galveston, Tex. | | | 29.82 | 757.4 | 64 | 17.8 | 89 | NE | 3 | 1.3 | | 1ck | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 29.85 | 758.2 | 45 | 7.2 | 68 | E | 7 | 3.1 | | 4c | Haze | | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.70 | 754.4 | 51 | 10.6 | 52 | NE | 7 | 3.1 | | | 10s | | | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 29.81 | 757.2 | 63 | 17.2 | 88 | NE | 12 | 5.4 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Jacksonville, Fla. | | | 29.79 | 756.7 | 74 | 23.3 | 81 | S | 9 | 4.0 | | 5k | 0 | SW | | 0.15 | 3.8 | Fair | |
| Keokuk, Iowa | | | 29.71 | 754.6 | 52 | 11.1 | 86 | E | 3 | 1.3 | | | 10s | | E | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 29.89 | 759.2 | 80 | 26.7 | 82 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Kittyhawk, N. C. | | | 29.89 | 759.2 | 53 | 11.7 | 93 | E | 18 | 8.0 | | | 10s | | S | 0.07 | 1.8 | Cloudy | |
| Knoxville, Tenn. | | | 29.72 | 754.9 | 55 | 12.8 | 93 | N | 1 | 0.4 | | | 10n | | SW | 0.58 | 14.7 | Light rain | |
| LaCrosse, Wis. | | | 29.76 | 755.9 | 54 | 12.2 | 67 | S | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Leavenworth, Kan. | | | 29.63 | 752.6 | 43 | 6.1 | 91 | SE | 3 | 1.3 | | | Fog | | | 0 | 0 | Foggy | |
| Louisville, Ky. | | | 29.67 | 753.6 | 49 | 9.4 | 92 | E | 6 | 2.7 | | | 10n | | | 0.40 | 10.2 | Light rain | |
| Lynchburg, Va. | | | 29.88 | 758.9 | 54 | 12.2 | 79 | NE | 4 | 1.8 | | | 10s | | NW | 0 | 0 | Threatening | |
| Maricopa Wells, Arizona | | | | | 66 | 18.9 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.81 | 757.2 | 37 | 2.8 | 80 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 29.76 | 755.9 | 55 | 12.8 | 93 | W | 1 | 0.4 | | | 10s | | W | 0.07 | 1.8 | Cloudy | |
| Milwaukee, Wis. | | | 29.87 | 758.7 | 44 | 6.7 | 60 | E | 6 | 2.7 | | 5c | Haze | | | 0 | 0 | Fair | |
| Mobile, Ala. | | | 29.80 | 756.9 | 65 | 18.3 | 94 | Calm | 0 | 0 | | 0 | 5ks | | | 0.55 | 14.0 | Fair | |
| Montgomery, Ala. | | | 29.78 | 756.4 | 65 | 18.3 | 89 | NW | 2 | 0.9 | | | 10ks | | W | 0.27 | 6.9 | Cloudy | |
| Morgantown, W. Va. | 28.86 | 731.5 | 29.83 | 757.7 | 53 | 11.7 | 36 | E | 9 | 4.0 | | 2c | 0 | W | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 23.60 | 599.4 | 29.96 | 761.0 | 17 | −8.3 | 83 | NW | 39 | 13.4 | | 2s | 0 | NW | | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 29.71 | 754.6 | 56 | 13.3 | 93 | W | 4 | 1.8 | | | 10ks | | W | 0.43 | 10.9 | Cloudy | |
| New Haven, Conn. | | | 30.04 | 763.0 | 51 | 10.6 | 40 | N | 5 | 2.2 | | Haze | 0 | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.06 | 763.5 | 54 | 12.2 | 37 | N | 4 | 1.8 | | 1c | 2cs | SE | | Inap. | Inap. | Fair | |
| New Orleans, La. | | | 29.79 | 756.7 | 70 | 21.1 | 79 | N | 3 | 1.3 | | 1cs | 0 | | | 0.01 | 0.3 | Clear | |
| Newport, R. I. | | | 30.04 | 763.0 | 48 | 8.9 | 48 | NW | 4 | 1.8 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| New York, N. Y. | | | 30.06 | 763.5 | 50 | 10.6 | 38 | NE | 11 | 4.9 | | 5cs | Sm'e | NW | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 29.91 | 759.7 | 54 | 12.2 | 68 | E | 7 | 3.1 | | | 10s | | | Inap. | Inap. | Cloudy | |
| North Platte, Neb. | 26.64 | 676.6 | 29.12 | 739.6 | 47 | 8.3 | 88 | NW | | | | | 10n | | NW | Inap. | Inap. | Light rain | |
| Omaha, Neb. | 28.58 | 725.9 | 29.64 | 752.8 | 46 | 7.8 | 76 | SE | 3 | 1.3 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 30.03 | 762.7 | 44 | 6.7 | 63 | W | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.48 | 748.8 | 46 | 7.8 | 96 | SE | 16 | 7.2 | | | 10n | | SE | 0.24 | 6.1 | Light rain | |
| Philadelphia, Pa. | | | 30.03 | 762.7 | 51 | 10.6 | 46 | E | 10 | 4.5 | | 2c | Sm'e | S | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 61 | 16.1 | | NE | | | | 5c | 0 | W | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.42 | 442.5 | 29.63 | 752.6 | 7 | −13.9 | 100 | NW | 12 | 5.4 | | | Fog | | | 0.09 | 2.3 | Light snow | |
| Pittsburg, Pa. | | | 29.88 | 758.9 | 46 | 7.8 | 47 | E | 5 | 2.2 | | 8k | 0 | N | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.92 | 760.0 | 43 | 6.1 | 58 | E | 8 | 3.6 | | 2cs | Sm'e | S | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.98 | 761.5 | 47 | 8.3 | 48 | NW | 6 | 2.7 | | 0 | Haze | | | 0.03 | 0.8 | Clear | |
| Portland, Oregon | | | 30.16 | 766.1 | 54 | 12.2 | 86 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | | | | | | | | | | | | | | | | | | | |
| Punta Rassa, Fla. | | | 29.88 | 758.9 | 76.0 | 24.4 | 84 | S | 14 | 6.3 | | 5cs | 2s | SW | SW | 0 | 0 | Threatening | |
| Rochester, N. Y. | | | 30.00 | 762.0 | 44 | 6.7 | 52 | NE | 2 | 0.9 | | 1c | Haze | NW | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.44 | 646.2 | 29.77 | 756.1 | 49 | 9.4 | 64 | NW | 16 | 7.2 | | 2k | 5s | NW | | Inap. | Inap. | Fair | |
| Sandy Hook, N. J. | | | 30.05 | 763.3 | 50 | 10.0 | 58 | NE | 11 | 4.9 | | 5c | Haze | W | | 0 | 0 | Fair | |
| San Diego, Cal. | | | 29.93 | 760.2 | 57 | 13.9 | 93 | Calm | 0 | 0 | | | 10n | | | 0.01 | 0.3 | Light rain | |
| San Francisco, Cal. | | | 29.85 | 758.2 | 52 | 11.1 | 86 | SW | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.00 | 584.2 | 29.54 | 750.3 | 38 | 3.3 | 46 | E | 3 | 1.3 | | 2cs | 0 | | | Inap. | Inap. | Clear | |
| Savannah, Ga. | | | 29.74 | 755.4 | 69 | 20.6 | 84 | W | 5 | 2.2 | | | 10s | | NW | 0.82 | 20.8 | Clearing | |
| Shreveport, La. | | | 29.90 | 759.4 | 58 | 14.4 | 76 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 29.82 | 757.4 | 61 | 7.8 | 94 | S | 8 | 3.6 | | | 10n | | S | 0.29 | 7.4 | Light rain | |
| Springfield, Mass. | | | 30.06 | 763.5 | 50 | 10.0 | 51 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| St. Louis, Mo. | | | 29.72 | 754.9 | 50 | 10.0 | 86 | NE | 4 | 1.8 | | | 10s | | | 0.07 | 1.8 | Cloudy | |
| St. Marks, Fla. | | | 29.80 | 756.9 | 68 | 20.0 | 90 | W | 6 | 2.7 | | 2c | 8s | | W | 0.32 | 8.1 | Cloudy | |
| St. Paul, Minn. | | | 29.72 | 754.9 | 49 | 9.4 | 63 | E | 2 | 0.9 | | 5c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 64 | 17.8 | | Calm | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Thatcher's Island, Mass. | | | 30.02 | 762.5 | 47 | 8.3 | 48 | NW | 12 | 5.4 | | 0 | 0 | | | 0.04 | 1.0 | Clear | |
| Toledo, Ohio | | | 29.86 | 758.4 | 53 | 11.7 | 48 | NE | 8 | 3.6 | | 2c | 0 | W | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.42 | 696.5 | 29.96 | 761.0 | 54 | 12.2 | | SE | | | | 1k | 0 | | | 0 | 0 | Clear | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tybee Island, Ga | | | 29.72 | 754.9 | 66 | 18.9 | 94 | W | 8 | 3.6 | | | 10s | | | 1.05 | 26.7 | Cloudy | |
| Vicksburg, Miss | | | 29.81 | 757.2 | 63 | 17.2 | 83 | NW | 4 | 1.8 | | | 10ks | | | 0 | 0 | Cloudy | |
| Virginia City, M. T | 24.18 | 614.2 | 29.66 | 753.4 | 33 | 0.6 | 84 | Calm | 0 | 0 | | 5k | 2n | N | N | 0.05 | 1.3 | Light snow | |
| Washington, D. C | | | 29.96 | 761.0 | 51 | 10.6 | 71 | NE | 2 | 0.9 | | 2ck | Haze | SW | | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 52 | 11.1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.81 | 757.2 | 62 | 16.7 | 94 | E | 5 | 2.2 | | | 10n | | | 0.01 | 0.3 | Light rain | |
| Wood's Holl, Mass | | | 30.05 | 763.3 | 53 | 11.7 | 48 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.36 | 720.3 | 29.62 | 752.3 | 47 | 8.3 | 70 | NE | 5 | 2.2 | | 8cs | 5s | SW | SW | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | 29.79 | 756.7 | 65 | 18.3 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.11 | 764.8 | 79 | 26.1 | 74 | Calm | 0 | 0 | | 10c | 5s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 79 | 26.1 | | NE | | | 2 | | | | | Inap. | Inap | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.98 | 761.5 | 81 | 27.2 | 83 | E | | | 3 | 3c | 5k | E | | 0.050 | 1.27 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.03 | 762.8 | | | 78.4 | 25.8 | | E | | | | | | | | | | Showery | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.20 | 640.1 | | | 69.5 | 20.8 | 78 | Calm | | | 0 | 4c,k | 2ks | | | 0.25 | 6.3 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.24 | 768.1 | 36.0 | 2.2 | 95 | NE | 18 | 8.0 | | 5k | 0 | N | | | | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.05 | 763.3 | 71 | 21.7 | | S | | | 2 | | | | | 0 | 0 | Hazy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.4 m.; Salt Lake City, 4,332.2 ft., or 1,320.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.06 | 763.5 | 72 | 22.2 | 52 | 11.1 | 79 | E | | | 2 | | 3 | | W | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.98 | 761.5 | 60 | 15.6 | 54 | 12.2 | | S | | | 3 | | 6 | | N | 0 | 0 | | | Pleasant | |
| Navy Yard, Norfolk, Va | 30.06† | 763.5† | 52 | 11.1 | 51 | 10.6 | 79 | E | 6 | 2.7 | | | 10n | | | 0 | 0 | | | Overcast | |
| Navy Yard, Pensacola, Fla | 29.90 | 759.4 | | | 66 | 18.9 | 89 | W | 4 | 1.8 | | | 7 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.04 | 763.0 | 63 | 17.2 | 45 | 7.2 | 53 | NW | 5 | 2.2 | | | 0 | | | 0 | 0 | | | Fine | |
| Naval Hospital, Yokohama, Japan | 29.52 | 749.8 | 66 | 18.9 | 56 | 13.3 | 94 | N | | | 2 | | 10n | | NE | 0.62 | 15.7 | | | Gloomy | |
| Adams, N. 28° 3′ W. 37° 45′ | 30.30 | 769.6 | 71 | 21.7 | 71 | 21.7 | 85 | E | | | 2 | | 6 | | E | | | Smooth | N | D. clouds | |
| Alert, Yokohama, Japan | 30.27 | 768.8 | 62 | 16.7 | 62 | 16.7 | 100 | NE | | | 2 | | 8 | | NE | | | Calm | None | Raining | |
| Alliance, N. 31° 49′, 46″ E. 30° 51′ 45″ | 30.26 | 768.6 | 70 | 21.1 | 66 | 18.9 | 84 | NNW | | | 2 | | 3 | | | | | Smooth | None | Pleasant | |
| Ashuelot, Canton, China | 29.90 | 759.4 | 82 | 27.8 | 84 | 28.9 | 75 | Calm | | | 0 | | 7 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 29.81 | 757.2 | 50 | 10.0 | 68 | 20.0 | 84 | Calm | | | 0 | | 0 | | | | | | | Clear | |
| Colorado, New York, N. Y | 30.10 | 764.5 | 58 | 14.4 | 54 | 12.2 | 43 | N | 1 | 0.4 | | | 6 | | | 0 | 0 | | | D. clouds | |
| Despatch, N 36° 48′ W. 61° 30′ | 30.16 | 766.1 | 64 | 17.8 | 64 | 17.8 | 83 | SW | | | 4 | | 6 | | SW | | | Moderate. | SW | | |
| Essex, Vera Cruz, Mexico | 29.80 | 756.9 | 80 | 26.7 | 82 | 27.8 | 91 | NNW | | | 2 | | 8 | | NNW | 0 | 0 | Smooth | | Hazy | |
| Frolic, Monte Video, Uruguay | 30.20 | 767.1 | | | 59 | 15.0 | 88 | SW | | | 4 | | 6ck | | | Blank | Blank | Moderate. | S&W | D. clouds | |
| ‡ Gettysburg, Genoa, Italy | 29.78 | 756.4 | | | 64 | 17.8 | 100 | SE | | | 2 | | 10 | | NW | Blank | Blank | | | D. clouds | |
| Hartford, St. Thomas, W. I | 30.17 | 766.3 | 80 | 26.7 | 81 | 27.2 | 83 | E | 4.8 | 2.1 | | | 7 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 29.89 | 759.2 | 67 | 19.4 | 59 | 15.0 | 94 | N | | | 2 | | 10 | | SE | ¶1.45 | ¶36.8 | Calm | None | Misty | |
| Lackawana, | | | | | | | | | | | | | | | | | | | | | |
| Marion, Smyrna, Turkey | 30.09 | 764.3 | 69 | 20.6 | 70 | 21.1 | 90 | WNW | | | 2 | | 3 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.41 | 747.0 | 51 | 10.6 | 45 | 7.2 | 68 | NE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.88 | 758.9 | | | 61 | 16.1 | 94 | NNE | | | 2 | | 1 | | NNE | | | | | D. clouds | |
| Monongahela, N. 37° 42′ W. 76° 09′ | 29.99 | 761.7 | 56 | 13.3 | 56 | 13.3 | | E | | | 2 | | ..n | | | | | | | Drizzling | |
| New Hampshire, Port Royal, S. C | | | | | 65 | 18.3 | 78 | Calm | | | 0 | | 10 | | | 1.1 | 28. | | | Raining | |
| Omaha, Panama | 30.00 | 762.0 | 80 | 26.7 | 80 | 26.7 | 82 | NW | 1 | 0.4 | | | 3 | | N | 0 | 0 | Slight | S | Pleasant | |
| Ossipee, Matanzas, Cuba, W. I | 29.98 | 761.5 | 77 | 25.0 | 76 | 24.4 | 86 | Calm | | | 0 | | 8 | | S | | | | | D. clouds | |
| Palos, Shanghai, China | 30.02 | 762.5 | 62 | 16.7 | 55 | 12.8 | 68 | NNE | | | 1–2 | | 3 | | N | | | | | Clear | |
| Pensacola, Acapulco, Mexico | 29.97 | 761.2 | | | 78 | 25.6 | 86 | Calm | | | 0 | | 4 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Natchez, Miss | 29.80 | 756.9 | 73 | 22.8 | 65 | 18.3 | 78 | W | | | 2 | | 9 | | | 0 | 0 | | | Cloudy | |
| Powhatan, N. 38° 14′ W. 74° 48′ | 30.11 | 764.8 | | | 49 | 9.4 | 100 | E | | | 3 | | 10 | | E | | | Moderate. | SE | Overcast | |
| Ranger, N. 37° 02′ W. 41° 48′ | 30.25 | 768.3 | | | 68 | 20.0 | 87 | S | | | 3 | | 4 | | | | | Smooth | | Partly cl'dy | |
| Richmond, S. 32° 32′ W. 50° 18′ | 30.11 | 764.8 | 69.0 | 20.6 | 69.0 | 20.6 | 89 | SW | | | 4 | | 4 | | | 0 | 0 | Long, regular | ENE | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.64 | 752.8 | | | 69 | 20.6 | 95 | NE | | | 1 | | 10 | | NE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.03 | 762.7 | 63 | 17.2 | 54 | 12.2 | 74 | E | | | 3 | | 6 | | | 0 | 0 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.93 | 760.2 | 55 | 12.8 | 57 | 13.9 | 58 | NE | 8 | 3.6 | | | 2 | | NE | 0 | 0 | | | Fair | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 82 | 27.8 | 82 | 27.8 | 87 | Calm | | | 0 | | 4ck | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.56 | 750.8 | 70 | 21.1 | 62 | 16.7 | 88 | N | | | 3 | | 10 | | | | | Smooth | | Raining | |
| Trenton, Villefranche, France | 29.82† | 757.4† | 66 | 18.9 | 65 | 18.3 | 89 | E | 6.5 | 2.8 | | | 10 | | | 0.7 | 18. | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.13 | 765.3 | 62 | 16.7 | 62 | 16.7 | 94 | WSW | | | 0-1 | | 0 | | | | | | | Blue sky | |
| Wabash, Boston, Mass | 30.01 | 762.2 | 50 | 10.0 | 49 | 9.4 | 85 | NW | 8 | 3.6 | | | 1 | | | 0.02 | 0.5 | | | Hazy | |
| Wyoming, Washington, D.C | 30.30† | 769.6† | 58 | 14.4 | 54 | 12.2 | | NE | | | 2 | | 3 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.88 | 758.9 | 78 | 25.6 | 91 | ESE | | | 4 | | 10m | | | | | Raining | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. Inches. | BAROMETER REDUCED TO SEA-LEVEL. Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | TEMPERATURE OF THE AIR. Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | WIND. Velocity. Miles per hour. | WIND. Velocity. Meters per second. | WIND. Force. 0—10. | CLOUDS. Amount. Up'er 0—10. | CLOUDS. Amount. Low'r 0—10. | CLOUDS. Direction. Upper. From— | CLOUDS. Direction. Lower. From— | SEA-SWELL. CHARACTER. | SEA-SWELL. DIRECTION FROM— | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.88 | 758.9 | 78 | 25.6 | 91 | ESE | | | 4 | | 10m | | | | | Raining | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. Inches. | BAROMETER REDUCED TO SEA-LEVEL. Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | TEMPERATURE OF THE AIR. Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | WIND. Velocity. Miles per hour. | WIND. Velocity. Meters per second. | WIND. Force. 0—10. | CLOUDS. Amount. Up'er 0—10. | CLOUDS. Amount. Low'r 0—10. | CLOUDS. Direction. Upper. From— | CLOUDS. Direction. Lower. From— | SEA-SWELL. CHARACTER. | SEA-SWELL. DIRECTION FROM— | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. Inches. | BAROMETER REDUCED TO SEA-LEVEL. Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | TEMPERATURE OF THE AIR. Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | WIND. Velocity. Miles per hour. | WIND. Velocity. Meters per second. | WIND. Force. 0—10. | CLOUDS. Amount. Up'er 0—10. | CLOUDS. Amount. Low'r 0—10. | CLOUDS. Direction. Upper. From— | CLOUDS. Direction. Lower. From— | SEA-SWELL. CHARACTER. | SEA-SWELL. DIRECTION FROM— | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 42° 18′, W. 60° 30′ | W¾S | | 30.05 | 763.3 | 50.0 | 10.0 | | WSW | | | 4 | | 0 | | | Light | | Clear | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, off Block Island | WSW | 3 | 29.97 | 761.2 | 52 | 11.1 | 60 | NNW | 8 | 3 6 | | 0 | 6 | | | Smooth | | Clear | Capt. James Jorgensen. |

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, nacto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 6, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.93 | 760.3 | 70.3 | 21.3 | 63 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear. | Michel. |
| Algiers | | | 29.87 | 758.6 | 66.6 | 19.2 | 55 | NW | | | 3 | | 1 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.81 | 757.2 | 69.1 | 20.6 | 77 | NNW | | | 2 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.85 | 758.1 | 84.2 | 29 | | SW | | | 5 | | 6 | | | 0 | 0 | Fair | Jacques. |
| Sfax | | | 29.85 | 758.2 | 75.2 | 24 | | W | | | 3 | | 6 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.00 | 761.9 | 70.2 | 21.2 | | NW | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.83 | 757.6 | 68.9 | 20.5 | | WSW | | | 3 | | 3 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 29.98 | 761.5 | 68.7 | 20.4 | 43 | NW | | | 3 | | 1 | | | 0 | 0 | Fair | Lemaillet. |
| Laghouat | | | | | 77 0 | 25.0 | 21 | W | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.87 | 758.8 | 85.1 | 29.5 | 27 | NW | | | 3 | | 7 | | | 0 | 0 | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.55 | 750.6 | 55.9 | 13.3 | 86 | NE | | | 2 | | 10 | | | 0.791 | 20.1 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.77 | 756.1 | 43.5 | 6.4 | 86 | NE | | | 1 | | 10 | | | 0.177 | 4.5 | | Dr. Wierzbiski. |
| Eperies | | | 29.91 | 759.8 | 50.0 | 10.0 | 78 | Calm | | | 0 | | ,k,s | | | 0 | 0 | | Julius Mikolik. |
| Gratz | | | 29.60 | 751.7 | 55.2 | 12.9 | 73 | E | | | 3 | | 10 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.37 | 720 5 | 29.50 | 750.9 | 63.0 | 17.2 | 56 | SSE | | | 4 | | 8 | | | 0.268 | 6.80 | | Prof. Reissenberger. |
| Kremsmünster | 28.19 | 716.1 | 29.56 | 750.9 | 45.0 | 7.2 | 89 | E | | | 1 | | 10 | | | 0.039 | 1.0 | | Prof. C. Wagner. |
| Lemberg | 28.34 | 719.9 | 29.69 | 754.2 | 51.8 | 11.0 | 95 | S | | | 1 | | 10 | | | 0.465 | 11.8 | | Dr. T. Stanecki. |
| Nyiregyhazu | | | 29.60 | 751.9 | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.59 | 751.6 | 57.9 | 14.4 | 87 | WNW | | | 3 | | 10ks | | | 0.653 | 16.58 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.50 | 749.4 | 58.1 | 14.5 | 77 | Calm | | | 0 | | 10 | | | 0.329 | 8.35 | | Karl Stancel. |
| Trieste | | | 29.64 | 752.1 | 53.6 | 12.0 | 71 | Calm | | | 0 | | 10 | | | 0.295 | 7.5 | Raining | P. Busin. |
| Vienna | | | 29.66 | 753.3 | 46.9 | 8.3 | 82 | NW | | | 2 | | 10 | | | 0.016 | 0.4 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.24 | 717.2 | 29.71 | 754.5 | 51.8 | 11.0 | 60 | N | | | 2 | | 1 | | | 0 | 0 | | Royal Observatory. |
| Brussels | | | 29.79 | 756.7 | 50.7 | 10.4 | 41 | ENE | | | 4 | 1c | | WSW | | 0 | 0 | | |
| Furnes | | | 29.84 | 757.8 | 54.5 | 12.5 | 71 | NE | | | 2 | | 2 | | | 0 | 0 | | |
| Maeseyck | | | 29.69 | 754.2 | 48.7 | 9.3 | 34 | NE | | | 6 | | | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.74 | 755.4 | 47.6 | 8.7 | | SSE | 25 | 11.2 | | | 4 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 29.74 | 755.4 | 49.7 | 9.8 | | SSW | 19 | 8.5 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.82 | 757.4 | 50.1 | 10.1 | | SSE | 14 | 6.3 | | | 7 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.77 | 756.1 | 51.4 | 10.8 | | SW | | | 1 | | 10 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0 | 0 | | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.01 | 762.2 | 83.0 | 28.3 | | NE | | | 1 | | 7 | | | | | D. clouds | Pvt. G. W. Roberts, A. H.C. |
| Cambridge, Observatory | | | 29.86 | 758.4 | 57.6 | 13.9 | | SE | | | 1 | | 2 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.90 | 759.4 | 54.0 | 12.2 | | SE | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 29.96 | 761.0 | 47.2 | 8.4 | | NE | | | 3 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.31 | 719.1 | 29.78 | 756.4 | 46.0 | 7.8 | | E | | | 5 | | 1 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.74 | 755.4 | 47 | 8.3 | | E | | | 2 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 29.82 | 757.4 | 47 | 8.3 | | ENE | | | 4 | | 2 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.82 | 757.4 | 53.2 | 11.8 | | SW | 1.4 | 0.6 | | | 5 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.79 | 756.7 | 48.3 | 9.1 | | E | | | 4 | | 6? | | | | | Overcast? | The Staff. |
| Fort Napier, (Natal) | 27.48 | 698.0 | 29.72 | 754.9 | 69.7 | 20.9 | | E | | | 3 | | 2 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.98 | 761.5 | 87 | 30.6 | | NW | | | 3 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.72 | 754.9 | 47 | 8.3 | | SW | | | 1 | | 4 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.87 | 758.7 | 66.0 | 18.9 | | SW | | | 5 | | 6 | | | Blank | Blank | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.72 | 754.9 | 48.1 | 8.9 | | S | | | 4 | | 10 | | | | | Gloomy | Lewis Stuart. |
| Great Yarmouth | | | 29.89 | 759.2 | 46 | 7.8 | | E | | | 3 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.84 | 757.9 | 49.8 | 9.9 | | ESE | | | 4 | | 3 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.70 | 754.4 | 50 | 10.0 | | NE | | | 6 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.81 | 757.2 | 53 | 11.7 | | NE | | | 6 | | 2ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.83 | 757.7 | 50 | 10.0 | | SW | | | 4 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.83 | 757.7 | 51.0 | 10.6 | | E | 20 | 8.9 | | | 0 | | | | | Light haze | The Staff. |
| Kingstown | | | 29.78 | 756.4 | 51 | 10.6 | | S | | | 4 | | 8 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.84 | 757.9 | 50.3 | 10.2 | | E | | | 1 | | 1 | | | | | Blue sky | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.83 | 757.7 | 71.0 | 21.7 | | NW | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.62 | 752.3 | 47 | 8.3 | | WSW | | | 1 | | 5 | | | | | ½ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.96 | 761.0 | 80.0 | 26.7 | | SE | | | 1 | | 8 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 29.86 | 758.4 | 53.7 | 12.1 | | SSE | | | 3 | | 2k | | S | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.82 | 757.4 | 52.1 | 11.2 | | SSE | | | 3 | | 2 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.82 | 757.4 | 51 | 10.6 | | E | | | 1 | | 1 | | | | | Blue sky | J. W. Lucas. |
| Plymouth | | | 29.78 | 756.4 | 50.0 | 10.0 | | E | | | 4 | | 5 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.89 | 756.9 | 54 | 12.2 | | S | | | 3 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.69 | 754.1 | 52.8 | 11.6 | | ENE | | | 6 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.69 | 754.1 | 43 | 6.1 | | SE | 26 | 11.6 | | | 10 | | | | | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.90 | 759.4 | 60.8 | 16.0 | | S | | | 1 | | 10 | | | Blank | Blank | Gloomy | Sergt. W. H. Lyne. |
| Sheffield | | | 29.85 | 758.2 | 51.4 | 10.8 | | SW | | | 3 | | 3 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 29.78 | 756.4 | 57.8 | 14.3 | 67 | NE | | | 3 | | 0 | | | 0 | 0 | Blue sky | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.82 | 757.4 | 49.2 | 9.6 | | S | | | 1 | | 3 | | | | | Blue sky | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.46 | 748.3 | 47 | 8.3 | | SSW | | | 7 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 29.80 | 756.9 | 53.6 | 12.0 | | E | | | 2 | | 2 | | | | | Blue sky | Rev. Charles H. Griffith. |
| Thurso | | | 29.63 | 752.6 | 44 | 6.7 | | SSE | | | 4 | | 9 | | | | | Gloomy | John Trotter. |
| Truro, Royal Institution | | | 29.83 | 757.7 | 55 | 12.8 | | E | | | 4 | | 3 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.79 | 756.7 | 52.7 | 11.5 | | SW | 16 | 7.2 | | | 8 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 47 | 8.3 | | SE | | | 4 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.02 | 762.5 | 63.4 | 17.4 | 72 | NNW | 8 | 3.6 | | 2 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.35 | 745.5 | 61.0 | 16.1 | 88 | NW | | | 1 | | 10kn | | | 0.29 | 7.4 | Raining | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.77 | 756.1 | 49.9 | 9.9 | | SW | | | 2 | | 10k | | | 0 | 0 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.10 | 764.5 | 73.0 | 22.8 | 63 | ESE | 19.0 | 8.5 | | 0 | 6 | | ESE | 0.08 | 2.0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.93 | 760.2 | 52.0 | 11.1 | 86 | W | 9 | 4.0 | | | 8 | | | 0.13 | 3.3 | Threatening | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.52 | 749.8 | 45 | 7.2 | | SW | | | 4 | 5 | 5 | W | | 1.1 | 28. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.80 | 756.9 | 39 | 3.9 | | N | | | 3 | 5 | 6 | N | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, Queenstown | | | 29.77 | 756.1 | 49.0 | 9.4 | | S | | | 3 | | 6 | | | | Smooth | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Soratta, N. 21° 55′, W. 28° 20′ | | | 30.33 | 770.4 | 72.7 | 22.6 | | ENE | | | 4 | | 7 | | | 4 | ENE | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have generally been carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the Minister of Foreign Affairs.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 74.3 | 23.5 | 83 | SE | | | 3 | | 2cs | | E | 0 | 0 | | Federico Maison. |

Note.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.83 | 757.6 | 42.3 | 5.7 | 52 | NW | | | 2 | | 8 | | | | | | |
| Fanöe | | | 29.87 | 758.8 | 41.6 | 7.0 | 59 | W | | | 4 | | 7 | | | | | Hailing | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 29.80 | 756.8 | 40.3 | 4.6 | 59 | ENE | | | 2 | | 3 | | | | | | |
| Vestervig | | | 29.83 | 757.6 | 43.2 | 6.2 | 67 | WNW | | | 6 | | 4 | | | | | | |

Note.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.65 | 753.0 | 51.8 | 11 | 89 | NE | | | 4 | | 5ks | | NE | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 29.72 | 754.9 | 57.2 | 14.0 | | E | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Avignon, Normal School | | | 29.52 | 749.7 | 63.3 | 17.4 | 80 | SW | | | 2 | | 5 | | SW | 0.736 | 18.7 | Raining | Mr. Giraud. |
| Bar-sur-Seine | | | 29.58 | 751.4 | 60.4 | 15.8 | 38 | ENE | | | 3 | | 8 | | E | 0 | 0 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.72 | 754.8 | 55.2 | 12.9 | 64 | E | | | 4 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Besançon | | | 29.64 | 752.8 | 53.0 | 15 | 68 | E | | | 4 | | 8 | | W | 0.134 | 3.4 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.56 | 750.8 | 66.7 | 19.3 | 90 | S | | | 2 | | 10m | | N | 0.307 | 7.8 | Covered | Normal School. |
| Bourges | | | 29.58 | 751.3 | 57.6 | 14.2 | 88 | NE | | | 6 | | 10 | | W | 0.04 | 1. | Covered | Normal School. |
| Brest | | | 29.60 | 751.7 | 58.5 | 14.7 | 55 | NE | | | 4 | | 6k | | NE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 29.54 | 750.3 | 64.0 | 17.8 | 67 | N | | | 2 | | 5 | | S | 0.453 | 11.5 | Partly cl'dy. | Normal School. |
| Caen | | | 29.71 | 754.5 | 54.7 | 12.6 | 40 | NE | | | 6 | | | | N | 0 | 0 | | Normal School. |
| Chartres | | | 29.63 | 752.6 | 58.8 | 14.9 | 58 | NE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Châlons-sur-Marne | | | 29.65 | 753.0 | 62.8 | 17.1 | 43 | N | | | 2 | 2c | | S | | 0 | 0 | Slightly cl'dy | Normal School. |
| Clermont | | | 29.45 | 747.9 | 59.5 | 15.3 | 93 | NE | | | 1 | | 10 | | | 0.760 | 19.3 | Covered | Puy de Dome Obs'y. |
| Commercy | | | 29.63 | 752.7 | 55.6 | 13.1 | 45 | ENE | | | 4 | | 5 | | ENE | 0 | 0 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.57 | 751.1 | 62.8 | 17.1 | 67 | SE | | | 2 | | 10 | | SE | 0.480 | 12.2 | | M. Kina. |
| Grenoble | | | 29.50 | 749.3 | 62.2 | 16.8 | 68 | SE | | | 2 | | 10m,s | | N | 0.492 | 12.50 | Covered | Normal School. |
| La Roche-sur-Yon | | | 29.51 | 749.5 | 58.3 | 14.6 | 70 | E | | | 4 | | 8 | | W | | | Very cloudy | Normal School. |
| Le Mans | | | 29.61 | 752.1 | 57.6 | 14.2 | 40 | SE | | | 4 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Lons-Le-Saulnier | | | 29.52 | 749.8 | 62.1 | 16.7 | 87 | NNE | | | 2 | | 5 | | | 0.20 | 5. | Cloudy | Normal School. |
| Lorient | | | 29.63 | 752.6 | 58.6 | 14.8 | 86 | NE | | | 4 | | 2 | | NE | 0 | 0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.57 | 751.0 | 54.7 | 12.6 | 88 | Calm | | | 0 | | 10 | | | 0.150 | 3.8 | Covered | Mr. Marchal. |
| Metz | | | 29.76 | 755.8 | 54.5 | 12.5 | 53 | NE | | | 4 | 1c | | NE | | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.62 | 752.4 | 55.8 | 13.2 | 77 | NE | | | 4 | | 8 | | W | 0 | 0 | Very cloudy | Normal School. |
| Nismes | | | 29.51 | 749.6 | 62.6 | 17 | 78 | S | | | 1 | | 5 | | N | 1.437 | 36.5 | Cloudy | Normal School. |
| Orleans | | | 29.57 | 751.0 | 61.5 | 16.4 | 61 | E | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 29.65 | 753.1 | 58.5 | 14.7 | 29 | E | | | 4 | | 3cs | | | 0 | 0 | Slightly cl'dy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.48 | 748.9 | 54.3 | 12.4 | 74 | NE | | | 4 | | 10 | | SW | 0.08 | 2. | Raining | Naval Observatory. |
| Rouen | | | 29.68 | 753.9 | 59.2 | 15.1 | 25 | NE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Tarbes | 28.55 | 725.2 | 29.61 | 752.0 | 59.0 | 15 | 46 | W | | | 1 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Villefranche | | | 29.54 | 750.2 | 58.3 | 14.6 | 82 | NNE | | | 3 | | 10 | | N | 0.063 | 1.6 | Covered | Normal School. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.81 | 757.8 | 81.3 | 27.4 | | | | | | | | | | | | | |
| Marseilles, Observatory | | | 29.54 | 750.2 | 68.0 | 20.0 | 47 | SSW | | | 1 | | 3 | | | 0.150 | 3.80 | Rainy | L'Abbé Marchési. |
| Mont-Louis | 24.45 | 621.1 | 29.77 | 756.1 | 49.5 | 9.7 | 65 | SSW | 22.4 | 10.00 | | | 8 | | SSW | 0.250 | 6.5 | | The Staff. |
| Montsouris, Paris | | | 29.64 | 752.8 | 60.4 | 15.8 | 28 | NE | | | 2-3 | 3c | | WSW | | 0 | 0 | | Mr. Falguère. |
| Perpignan | | | 29.93 | 760.3 | 66.7 | 19.3 | 57 | NE | 7.4 | 3.33 | | | 1 | | NW | 0.154 | 3.9 | | Montsouris Observatory |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Dr. Fines. |
| Pic du Midi, (Plantade,) H. P. | 22.10 | 561.3 | | | 34.7 | 1.5 | | W | | | 2 | | 8 | | | 0.244 | 6.2 | Snowy | Gen'l de Nansouty and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.65 | 753.0 | 59.5 | 15.3 | 27 | ENE | | | 2 | | 0 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 29.59 | 751.5 | 60.4 | 15.8 | 69 | NW | | | 1 | | 9 | | | 0.146 | 3.7 | | The Staff. |
| Tours | | | 29.56 | 750.7 | 61.2 | 16.2 | 50 | E | | | 4 | | 10 | | ESE | 0.047 | 1.2 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.66 | 753.3 | 59.0 | 15.0 | 75 | E | | | 4 | | 5 | | | 0 | 0 | Light clouds | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.07 | 763.6 | 55.4 | 13.0 | 91 | ESE | 6.3 | 2.8 | | | 1k | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

Note.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 848 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135, millimeters has been added. At Clermont the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:11, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.78 | 756.3 | 58.1 | 14.5 | 48 | E | | | 6 | | 2 | E | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.87 | 758.6 | 49.8 | 9.9 | 32 | E | | | 1 | | 2 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.80 | 756.8 | 52.7 | 11.5 | 40 | NE | | | 2 | | 9 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.66 | 753.3 | 58.6 | 14.8 | 42 | NE | | | 3 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.85 | 758.2 | 52.3 | 11.3 | 33 | NE | | | 4 | | 2 | NNE | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.80 | 756.9 | 52.7 | 11.5 | 29 | E | | | 4 | | 0 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.97 | 761.2 | 48.9 | 9.4 | 43 | NE | | | 3 | | 2 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.79 | 756.6 | 57.2 | 14.0 | 25 | NNE | | | 4 | | 1 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.02 | 29.622 | 752.42 | 53.6 | 12.0 | 66 | NE | | | 6 | | 10 | NNE | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 29.91 | 759.7 | 46.6 | 8.1 | 43 | Calm | | | 0 | | 7k | WNW | | 0 | 0 | Fine | Captain F. Hegemann. |
| Kiel | | | 29.88 | 759.0 | 46.8 | 8.2 | 72 | NW | | | 2 | | 7 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.82 | 757.5 | 44.2 | 6.8 | 47 | NW | | | 2 | | 2 | | | 0.016 | 0.4 | | Prof. E. Luther. |
| Köslin | | | 29.89 | 759.1 | 43.3 | 6.3 | | NW | | | 4 | | 0 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.84 | 758.0 | 51.6 | 10.9 | 31 | NNE | | | 2 | | 3 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.84 | 757.8 | 41.0 | 5.0 | | WNW | | | 4 | | 3ks | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.86 | 758.5 | 53.6 | 12.0 | 39 | NE | | | | | 1 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.83 | 758.4 | 42.3 | 5.7 | 61 | NE | | | 2 | | 5 | W | | Inap. | Inap. | | A. Lothes. |
| Posen | | | 29.83 | 757.6 | 51.8 | 11.0 | 94 | NW | | | 3 | | 3 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.65 | 753.2 | 58.1 | 14.5 | 48 | NE | | | 3 | | 7 | NE | | 0.020 | 0.5 | | Dr. Schur. |
| Stuttgart | | | 29.64 | 752.8 | 57.6 | 14.2 | 43 | NE | | | 2 | | 8 | S | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.60 | 751.9 | 56.5 | 13.6 | 32 | NE | | | 5 | | 0 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.18 | 715.7 | 29.66 | 753.4 | 53.8 | 12.1 | 49 | E | | | 4 | | 10 | E | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.96 | 760.9 | 42.4 | 5.8 | 61 | W | | | 3 | | 9 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.93 | 760.2 | 72.7 | 22.6 | | SW | | | | | | | | | | Smoky | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.83 | 554.4 | 29.63 | 752.5 | 32.4 | 0.2 | 100 | NE | | | 1 | | 10 | | | 3.938* | 100.0* | | Prof. Giovanni Clodig. |
| Stelvio | 21.79 | 553.4 | 29.56 | 750.8 | 37.9 | 3.3 | | W | | | 1 | | 10 | | | 0.071 | 1.8 | Rain & snow | Signora Ernesta Manfredi. |
| Udine | | | 29.56 | 750.8 | 59.5 | 15.3 | 71 | SW | 3.1 | 1.4 | | | 10 | | | 0.413 | 10.5 | Raining | Ab. Dom. Morgini. |
| Padua | | | 29.57 | 751.1 | 59.7 | 15.4 | 79 | SW | 1.3 | 0.6 | | | 10 | SW | | 0.993 | 25.2 | Raining | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.59 | 751.6 | 59.9 | 15.5 | 80 | S | 0.7 | 0.3 | | | 10 | W | | 1.567 | 39.8 | Raining | Conte Alm. Da Schio. |
| Verona | | | 29.60 | 751.7 | 60.1 | 15.6 | 88 | E | | | 2 | | 10 | | | 0.296 | 7.6 | Raining | Dott. B. Bertoncelli. |
| Bergamo | 28.30 | 718.7 | 29.60 | 751.9 | 56.3 | 13.5 | 75 | N | | | 1 | | 10 | | | 0.571 | 14.5 | Raining | Prof. Trionfini Carlo. |
| Domodossola | | | 29.56 | 750.8 | 57.0 | 13.9 | 70 | SW | | | 4 | | 10 | | | 0.264 | 6.7 | Raining | Prof. Giuseppe Calza. |
| Milan | | | 29.59 | 751.6 | 62.6 | 17.0 | 80 | ENE | | | 2 | | 8 | ENE | | 0.720 | 18.3 | Raining | Ab. Gio. Capelli. |
| Pavia | | | 29.60 | 751.8 | 59.2 | 15.1 | 75 | W | | | 1 | | 9 | SW | | 0.374 | 9.5 | Raining | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.57 | 751.1 | 60.1 | 15.6 | 68 | ESE | 4.9 | 2.2 | | | 9 | N | | 0.063 | 1.6 | Raining | Prof. P. F. Denza. |
| Mondovi | 27.69 | 703.3 | 29.57 | 751.1 | 54.5 | 12.5 | 75 | E | | | 2 | | 10 | | | 0.634 | 16.1 | Raining | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.64 | 752.9 | 59.0 | 15.0 | 75 | Calm | | | 0 | | 10 | | | 0.646 | 16.4 | Raining | Prof. L. Vassallo. |
| Genoa | | | 29.60 | 751.8 | 59.7 | 15.4 | 83 | SE | 8.1 | 3.6 | | | 10 | S | | 3.669 | 93.2 | Heavy rain | Prof. G. M. Garibaldi. |
| Placenza | | | 29.60 | 751.8 | 57.6 | 14.2 | 77 | N | 7.4 | 3.3 | | | 10 | | | 0.697 | 17.7 | Raining | Dott. G. Manzi. |
| Parma | | | 29.59 | 751.5 | 60.8 | 16.0 | 77 | NNW | | | 4 | | 9 | | | 0.650 | 16.5 | Raining | Prof. P. Pigorini. |
| Florence | | | 29.65 | 753.2 | 64.9 | 18.3 | 81 | NW | | | 2 | | 8 | SW | | 1.136 | 28.7 | Raining | Cav. F. Meucci. |
| Leghorn | | | 29.72 | 755.0 | 65.7 | 18.7 | 74 | SSE | 16.8 | 7.5 | | | 4 | SSE | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.43 | 722.0 | 29.62 | 752.3 | 63.9 | 17.7 | 72 | SW | 6.9 | 3.1 | | | 8 | SW | | 0.976 | 24.8 | Raining | Prof. L. Toscani. |
| Urbino | 28.08 | 713.3 | 29.62 | 752.3 | 60.1 | 15.6 | 79 | SW | | | 2 | | 10 | | | 0.709 | 18.0 | Raining | Prof. P. Serpieri. |
| Pesaro | | | 29.66 | 753.4 | 59.2 | 15.1 | 82 | NW | 23.0 | 10.3 | | | 10 | SW | | 0.402 | 10.2 | Raining | Prof. Luigi Guidi. |
| Ancona | | | 29.65 | 753.2 | 59.4 | 15.2 | 83 | SW | | | 4 | | 10 | S | | 0.327 | 8.3 | Raining | Prof. F. DeBosis. |
| Grosseto | | | 29.67 | 753.5 | 68.4 | 20.2 | 69 | SSE | | | 4 | | 6 | S | | 0.248 | 6.3 | | Avv. P. Ponticelli. |
| Rome | | | 29.73 | 755.1 | 71.1 | 21.7 | 56 | S | 13.0 | 5.8 | | | 2 | | | 0.004 | 0.1 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.76 | 756.0 | 68.7 | 20.4 | 76 | SSW | | | 4 | | 10 | S | | 0.087 | 2.2 | Raining | Prof. L. Palmieri. |
| Lecce | | | 29.78 | 756.3 | 67.3 | 19.6 | 64 | SSW | 25.5 | 11.4 | | | 9 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.79 | 756.6 | 67.8 | 19.9 | 66 | SW | 9.4 | 4.2 | | | 5 | | | 0.322 | 8.2 | | Prof. F. D. Conti. |
| Cagliari | | | | | | | | | | | | | | | | | | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.73 | 755.1 | 72.7 | 22.6 | 62 | S | | | 2 | | 2 | E | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.71 | 754.6 | 74.5 | 23.6 | 41 | NE | 6.3 | 2.8 | | | 8 | | | 0.012 | 0.3 | Light rain | Prof. G. Cacciatore. |
| Caltanissetta | 27.85 | 707.4 | 29.75 | 755.7 | 70.7 | 21.5 | 32 | NW | | | 2 | | 5 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.73 | 755.1 | 69.8 | 21.0 | 65 | NW | | | 4 | | 9 | SW | | 0.012 | 0.3 | Light rain | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.80 | 756.8 | 63.0 | 17.2 | 81 | SW | 0 | 0 | | | 10 | W | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.19 | 766.8 | 51.5 | 10.8 | 76 | E | 2 | 0.9 | | | 10 | | | 0.45 | 11.4 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.02 | 584.8 | 30.01 | 762.2 | 60.1 | 15.6 | 60 | Calm | 0 | 0 | | 8c | 6c | | | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.86 | 758.4 | 50.0 | 10.0 | | ENE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | | | 46.9 | 8.3 | | NE | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.91 | 760.6 | 44.8 | 7.1 | | NE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.82 | 757.3 | 49.3 | 9.6 | | NE | | | 4 | | 0 | | | 0 | 0 | Clear | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.78 | 756.5 | 40.3 | 4.6 | 56 | WSW | 11.0 | 4.9 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 29.46 | 748.2 | 39.2 | 4.0 | 52 | SSE | 7 | 3 | | | 5 | | | 0 | 0 | | |
| Christiania | | | 29.63 | 752.6 | 44.2 | 6.8 | 24 | SW | 11 | 5 | | | 1 | | | 0 | 0 | | |
| Tromsö | | | 29.56 | 750.8 | 38.1 | 3.4 | 60 | SE | 11 | 5 | | | 0 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instru'tal error and temperature. Inches. | Barometer. Corrected for instru'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.17 | 766.2 | 60.4 | 15.8 | 72 | NW | 5.6 | 2.5 | | | 4 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.76 | 755.8 | 55.9 | 13.3 | 80 | WSW | 11.0 | 5.3 | | | 9 | WSW | | 0.402 | 10.2 | Raining | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.09 | 764.2 | 67.5 | 19.7 | 55 | W | 14.3 | 6.4 | | | 3 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.79 | 756.6 | 60.8 | 16.0 | 66 | W | 21.0 | 9.4 | | | 9 | | | 0.398 | 10.1 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.15 | 765.9 | 65.8 | 18.8 | 64 | NW | 6.9 | 3.1 | | | 3 | | | 0 | 0 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instru'tal error and temperature. Inches. | Barometer. Corrected for instru'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.75 | 755.6 | 52.3 | 11.3 | 39 | NNW | 7 | 3 | | | 8 | | | | | | Astronomical Obs. |
| Wilna | | | 29.76 | 756.0 | 47.1 | 8.4 | 60 | SE | 2 | 1 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.74 | 755.3 | 46.9 | 8.3 | 51 | W | 7 | 3 | | | 7 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.79 | 756.6 | 45.9 | 7.7 | 50 | S | 18 | 8 | | | 7 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.68 | 753.9 | 38.8 | 3.8 | 70 | S | 27 | 12 | | | 5 | | | | | | Ch. Forsten. |
| Kieff | | | 29.76 | 755.8 | 62.8 | 17.1 | 56 | S | 22 | 10 | | | 10 | | | | | Solar corona | Physical Cabinet. |
| Nikolaiev | | | 29.94 | 760.4 | 64.0 | 17.8 | 48 | S | 18 | 8 | | | 10 | | | | | | Kurdakof |
| Kertch | | | 30.11 | 764.8 | 62.6 | 17.0 | 72 | SSE | 9 | 4 | | | 1 | | | | | | Lagorio. |
| Moscow | | | 29.92 | 760.0 | 46.0 | 7.8 | 94 | S | 7 | 3 | | | 10 | | | | | Raining | Meteorological Obs. |
| Lugan | | | 30.07 | 763.8 | 64.6 | 18.1 | 41 | SSW | 18 | 8 | | | 7 | | | | | | Meteorological Obs. |
| Archangel | | | 29.82 | 757.5 | 49.8 | 9.9 | 56 | E | 13 | 6 | | | 4 | | | | | | Ogorodnikof. |
| Tiflis | 28.70 | 728.9 | 30.07 | 763.8 | 72.7 | 22.6 | 41 | SE | 9 | 4 | | | 4 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.16 | 766.1 | 68.5 | 20.3 | 30 | N | 9 | 4 | | | 1 | | | | | | Sebastianof. |
| Kasan | | | 30.02 | 762.4 | 55.2 | 12.9 | 38 | WSW | 11 | 5 | | | 1 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.05 | 737.9 | 30.01 | 762.3 | 41.0 | 5.0 | 90 | ESE | 22 | 10 | | | 10 | | | | | Raining | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.28 | 718.4 | 29.90 | 759.4 | 80.2 | 26.8 | 49 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.28 | 769.2 | 45.9 | 7.7 | 40 | NW | 7 | 3 | | | 8 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 30.12 | 765.1 | 48.7 | 9.3 | 38 | NNW | 4 | 2 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 36.1 | 2.3 | | Calm | 0 | 0 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.83 | 757.7 | 59.5 | 15.3 | 64 | NE | 13 | 6 | | | 8 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.13 | 765.4 | 46.8 | 8.2 | 70 | SW | 9 | 4 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 26.2 | — 3.2 | | Calm | 0 | 0 | | | 0 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instru'tal error and temperature. Inches. | Barometer. Corrected for instru'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.65 | 753.0 | 57.0 | 13.9 | 67 | SW | 24.6 | 11.00 | | 0 | 9 | | | 0.043 | 1.1 | Almost cov'd | Royal Observatory |
| San Fernando | | | 29.90 | 759.4 | 65.7 | 18.7 | 71 | WSW | 20.4 | 9.1 | | 0 | 7 | | SW | 0.205 | 5.2 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.92 | 760.0 | 81.3 | 27.4 | 84 | SSE | 4.5 | 2.0 | | 0 | 5k8 | | | 0 | 0 | Cloudy | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instru'tal error and temperature. Inches. | Barometer. Corrected for instru'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.64 | 752.9 | 38.8 | 3.8 | 54 | SE | | | 6 | | 7 | | | 0.118 | 3.0 | | |
| Umea | | | 29.33 | 744.9 | 34.2 | 1.2 | 94 | S | | | 2 | | 10 | | | 0.091 | 2.3 | Snowing | |
| Hernosand | | | 29.45 | 747.9 | 40.3 | 4.6 | 53 | WNW | | | 2 | | 8 | | | 0.264 | 6.7 | | |
| Stockholm | | | 29.59 | 751.5 | 44.6 | 7.0 | 74 | WSW | | | 4 | | 6 | | | 0 | 0 | | |
| Wisby | | | 29.73 | 755.1 | 41.0 | 5.0 | 60 | WSW | | | 6 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.58 | 751.3 | 42.1 | 5.6 | 51 | W | 9.8 | 4.4 | | | 10 | | W | 0 | 0 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.15 | 715.0 | 29.58 | 751.3 | 53.6 | 12.0 | 77 | N | ..... | ..... | 2 | ..... | 10 | ..... | ..... | 0.185 | 4.7 | Raining | The Observatory. |
| Zurich | 28.00 | 711.2 | 29.65 | 753.0 | 51.4 | 10.8 | 77 | NE | ..... | ..... | 1 | ..... | 10 | ..... | ..... | 0.008 | 0.2 | Raining | The Observatory. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —9.6 mm; Thermometer, —3.1 cent.; Relative Humidity, +19 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | ..... | ..... | 29.93 | 760.3 | 68.2 | 20.1 | 57 | W | 4 | 2.0 | ..... | ..... | 10 | ..... | SW | 0 | 0 | ..... | The Observatory. |
| Fao, (Persian Gulf) | ..... | ..... | 30.02 | 762.4 | 75.2 | 24.0 | ..... | NW | ..... | ..... | 3 | ..... | 10 | ..... | ..... | ..... | ..... | ..... | |
| Salonica | ..... | ..... | 30.02 | 762.5 | 66.7 | 19.3 | ..... | SE | ..... | ..... | 1 | ..... | 8 | ..... | ..... | ..... | ..... | ..... | |
| Valona | ..... | ..... | 29.79 | 756.7 | 70.3 | 21.3 | ..... | S | ..... | ..... | 3 | ..... | 10 | ..... | ..... | 0 | 0 | Covered | A. Bukran. |
| Varna | ..... | ..... | 29.88 | 759.0 | 59.0 | 15.0 | ..... | SE | ..... | ..... | 2 | ..... | 10 | ..... | ..... | ..... | ..... | Raining | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | ..... | ..... | 30.08 | 764.0 | 70.0 | 21.1 | 69 | N | ..... | ..... | 2 | ..... | 0 | ..... | ..... | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Hon. J. Ferguson. |
| Brockville, Ontario | ..... | ..... | 30.08 | 764.0 | 50 | 10.0 | ..... | NE | 10 | 4.5 | ..... | 2c | 0 | NE | ..... | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | ..... | ..... | 30.01 | 762.2 | 44 | 6.7 | 69 | SW | 2 | 0.9 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island. | ..... | ..... | 30.06 | 763.5 | 45 | 7.2 | 66 | W | 3 | 1.3 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | ..... | ..... | 30.06 | 763.5 | 43.9 | 6.6 | 62 | SW | ..... | ..... | 1 | 1cs | 0 | ..... | ..... | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | ..... | ..... | 29.92 | 760.0 | 41.9 | 5.5 | 84 | NW | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 0 | 0 | Overcast | H. A. Johnson. |
| Esquimault, B. C. | ..... | ..... | 29.83 | 757.7 | 47.3 | 8.5 | 85 | W | ..... | ..... | ..... | 5cs | 0 | ..... | ..... | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | ..... | ..... | 30.04 | 763.0 | 35 | 1.7 | 90 | S | 14 | 6.3 | ..... | ..... | 10n | ..... | ..... | 0.01 | 0.3 | Sleeting | J. McWilliams. |
| Fredericton, N. B. | ..... | ..... | 30.08 | 764.0 | 44.1 | 6.7 | 53 | NW | 6 | 2.7 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | ..... | ..... | 29.90 | 759.4 | 35 | 1.7 | 95 | W | 10 | 4.5 | ..... | ..... | 10n | ..... | ..... | 0.110 | 2.79 | Cloudy | James Stewart. |
| Goderich, Ontario | ..... | ..... | 30.07 | 763.8 | 52.3 | 11.3 | 61 | NE | ..... | ..... | 3 | 3ck | 0 | ..... | ..... | 0 | 0 | Fair | H. J. Strang, M. A. |
| Granton, Ontario | 28.92 | 734.6 | 30.03 | 762.7 | 46 | 7.8 | 40 | SE | ..... | ..... | 1 | 1?ck | 0 | SW | ..... | 0 | 0 | Cloudy ? | James Grant. |
| *Halifax, N. S. | ..... | ..... | 30.04 | 763.0 | 49 | 9.4 | 62 | SE | 2 | 0.9 | ..... | 2c | 0 | ..... | ..... | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | ..... | ..... | 30.11 | 764.8 | 51.7 | 10.9 | 75 | NW | ..... | ..... | 1 | 2c | 0 | SW | ..... | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | ..... | ..... | 29.97 | 761.2 | 42 | 5.6 | 83 | SW | ..... | ..... | 3 | 10 | 3ks | ..... | W | 0.76 | 19.3 | Cloudy | E. Weedon. |
| *Kingston, Ontario | ..... | ..... | 30.08 | 764.0 | 49 | 9.4 | 54 | NE | 10 | 4.5 | ..... | 5k | 0 | NE | ..... | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | ..... | ..... | 30.06 | 763.5 | 45 | 7.2 | 61 | NE | 8 | 3.6 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | ..... | ..... | 30.13 | 765.3 | 46 | 7.8 | 40 | N | 6 | 2.7 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | ..... | ..... | 30.02 | 762.5 | 47 | 8.3 | 34 | NE | 10 | 4.5 | ..... | 8c | 0 | NE | ..... | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Peter Grant |
| Port Stanley, Ontario | ..... | ..... | 30.00 | 762.0 | 48 | 8.9 | 43 | E | 16 | 7.2 | ..... | 5ck | 0 | ..... | ..... | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | ..... | ..... | 30.08 | 764.0 | 48 | 8.9 | 56 | Calm | 0 | 0 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | ..... | ..... | 30.12 | 765.0 | 45 | 7.2 | 47 | NW | 2 | 0.9 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | W. H. McIntyre. |
| St. John, N. B. | ..... | ..... | 30.08 | 764.0 | 46 | 7.8 | 62 | N | 2 | 0.9 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Fair | G. Murdoch, C. E. |
| *Saugeen, Ontario | ..... | ..... | 30.06 | 763.5 | 48 | 8.9 | 45 | E | 6 | 2.7 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | R. J. Cole. |
| Stratford, Ontario | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| *Sydney, C. B. | 28.75 | 730.2 | 30.04 | 763.0 | 42.7 | 5.9 | 54 | SE | 15 | 6.7 | ..... | 3cs | 0 | ..... | ..... | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Toronto, Ontario | ..... | ..... | 30.05 | 763.3 | 55 | 12.8 | 64 | W | 6 | 2.7 | ..... | 2ck | 0 | ..... | ..... | Inap | Inap. | Clear | T. C. Hill. |
| Windsor, N. S. | ..... | ..... | 30.08 | 764.0 | 49 | 9.4 | 47 | NE | 8 | 3.6 | ..... | 8cs | 0 | W | ..... | 0 | 0 | Fair | Magnetic Observatory. |
| Woodstock, Ontario | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Prof. John E. Oram. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | ..... | ..... | 30.03 | 762.7 | 47.5 | 8.6 | 99 | W | 1 | 0.4 | ..... | 0 | 4s | ..... | ..... | 0 | 0 | Fair | J. Montgomery. |
| ..... | ..... | ..... | 30.03 | 762.7 | 47.0 | 8.3 | 85 | W | ..... | ..... | ..... | 5k | 5s | ..... | ..... | 0 | 0 | Fair | John Delany. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.99 | 761.7 | 47 | 8.3 | 77 | Calm | 0 | 0 | | 5c | 0 | | | 0 | 0 | Fair | |
| Alpena, Mich. | | | 30.13 | 765.3 | 44 | 6.7 | 59 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.90 | 759.4 | 47 | 8.3 | 88 | NE | 36 | 16.1 | | | 10s | | NE | 0.04 | 1.0 | Cloudy | |
| Augusta, Ga. | | | 29.89 | 759.2 | 61 | 16.1 | 94 | E | 4 | 1.8 | | | 10s | | E | 0.04 | 1.0 | Cloudy | |
| Baltimore, Md. | | | 29.95 | 760.7 | 49 | 9.4 | 93 | NE | 4 | 1.8 | | | 10n | | | 0.14 | 3.6 | Light rain | |
| Barnegat, N. J. | | | 29.90 | 759.4 | 46 | 7.8 | 85 | NE | 31 | 13.9 | | | 10s | | NE | 0.20 | 5.1 | Cloudy | |
| Bismarck, Dakota | 28.20 | 716.3 | 29.87 | 758.7 | 37 | 2.8 | 90 | NW | 4 | 1.8 | | | 10s | | NW | 0.07 | 1.8 | Cloudy | |
| Boston, Mass. | | | 30.00 | 762.0 | 45 | 7.2 | 60 | E | 9 | 4.0 | | 10c | Haze | | | 0 | 0 | Cloudy | |
| Breckenridge, Minn. | | | 29.88 | 758.9 | 40 | 4.4 | 91 | NW | 8 | 3.6 | | | 10n | | | 0.20 | 5.1 | Light rain | |
| Buffalo, N. Y. | | | 30.00 | 762.0 | 47 | 8.3 | 41 | E | 10 | 4.5 | | 5c | 0 | | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 30.05 | 763.3 | 44 | 6.7 | 48 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 29.92 | 760.0 | 50 | 10.0 | 86 | SE | 3 | 1.3 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Campo, Cal. | 27.37 | 695.2 | 29.94 | 760.5 | 50 | 10.0 | 59 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 56 | 13.3 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.76 | 755.9 | 55 | 12.8 | 93 | N | 14 | 6.3 | | | 10s | | | 0.06 | 1.5 | Cloudy | |
| Cape Henry, Va. | | | 29.84 | 757.9 | 50 | 10.0 | 96 | NE | 14 | 6.3 | | | 10n | | NE | 0.47 | 11.9 | Light rain | |
| Cape Lookout, N. C. | | | 29.86 | 758.4 | 56 | 13.3 | 87 | N | 13 | 5.8 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Cape May, N. J. | | | 29.88 | 758.9 | 47 | 8.3 | 85 | NE | 29 | 8.9 | | | 10s | | NE | 0.86 | 21.8 | Cloudy | |
| Charleston, S. C. | | | 29.88 | 758.9 | 64 | 17.8 | 89 | N | 8 | 3.6 | | | 10s | | N | 0.07 | 1.8 | Cloudy | |
| Cheyenne, Wyoming | 24.00 | 609.6 | 29.94 | 760.5 | 29 | −1.7 | 77 | NW | 16 | 7.2 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Chicago, Ill. | | | 29.92 | 760.0 | 45 | 7.2 | 60 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.80 | 756.9 | 47 | 8.3 | 92 | NW | 5 | 2.2 | | | 10s | | N | 0.38 | 9.7 | Cloudy | |
| Cleveland, Ohio | | | 29.95 | 760.7 | 52 | 11.1 | 59 | E | 11 | 4.9 | | 0 | 5s | | | 0.03 | 0.8 | Fair | |
| Corsicana, Tex. | | | 29.73 | 755.1 | 63 | 17.2 | 94 | W | 12 | 5.4 | | | 10s | | NW | 0.44 | 11.2 | Cloudy | |
| Davenport, Iowa | | | 29.90 | 759.4 | 49 | 9.4 | 71 | E | 19 | 4.5 | | 1c | 0 | SW | | 0 | 0 | Clear | |
| Denison, Tex. | | | 29.72 | 754.9 | 59 | 15.0 | 87 | N | 8 | 3.6 | | | 10s | | N | Inap. | Inap. | Cloudy | |
| Denver, Col. | 24.81 | 630.2 | 30.03 | 762.7 | 34 | 1.1 | 79 | SW | 2 | 0.9 | | 0 | 5s | | SW | 0.75 | 19.1 | Fair | |
| Detroit, Mich. | | | 29.97 | 761.2 | 45 | 7.2 | 45 | E | 6 | 2.7 | | Haze | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.29 | 693.2 | 29.60 | 751.8 | 41 | 5.0 | 73 | N | 16 | 7.2 | | 0 | 5s | | W | Inap. | Inap. | Fair | |
| Dubuque, Iowa | | | 29.90 | 759.4 | 50 | 10.0 | 64 | SE | 7 | 3.1 | | 5cs | 0 | SE | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.97 | 761.2 | 43 | 6.1 | 75 | N | 1 | 0.4 | | 5c | Haze | W | | 0 | 0 | Fair | |
| Eastport, Me. | | | 30.05 | 763.3 | 45 | 7.2 | 60 | N | 4 | 1.8 | | 2c | Haze | | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.95 | 760.7 | 44 | 6.7 | 84 | NE | 4 | 1.8 | | 5cs | Sm'e | E | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.08 | 764.0 | 44 | 6.7 | 52 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | | | | | 62 | 16.7 | | SW | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.68 | 753.9 | 56 | 13.3 | 93 | SW | 2 | 0.9 | | | 10n | | SW | 1.17 | 29.7 | Light rain | |
| Ft. St. Michael, Alaska | | | 29.39 | 746.5 | 34 | 1.1 | 79 | SE | | | 7 | 2c | 5ks | S | | 0.06 | 1.5 | Cloudy | |
| Fort Sill, Indian Ter. | 28.65 | 727.7 | 29.75 | 755.6 | 55 | 12.8 | 62 | NE | 16 | 7.2 | | 2k | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 27.27 | 718.0 | 29.96 | 761.0 | 38 | 3.3 | 81 | NW | 10 | 4.5 | | 5k | 0 | NW | | Inap. | Inap. | Fair | |
| Galveston, Tex. | | | 29.74 | 755.4 | 71 | 21.7 | 95 | S | 7 | 3.1 | | | Fog | | | 0.05 | 1.3 | Foggy | |
| Grand Haven, Mich. | | | 29.96 | 761.0 | 49 | 9.4 | 43 | E | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 29.86 | 758.4 | 49 | 9.4 | 64 | NE | 2 | 0.9 | | | 10s | | NE | 0.30 | 7.6 | Cloudy | |
| Indianola, Tex. | | | 29.72 | 754.9 | 71 | 21.7 | 95 | SE | 6 | 2.7 | | 0 | 5s | | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 29.90 | 759.4 | 71 | 21.7 | 80 | SW | 5 | 2.2 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Keokuk, Iowa | | | 29.76 | 755.9 | 53 | 11.7 | 60 | SE | 14 | 6.3 | | 10k | 0 | SE | | 0 | 0 | Fair | |
| Key West, Fla. | | | 29.93 | 760.2 | 80 | 26.7 | 86 | Calm | 0 | 0 | | 0 | 0 | | | 0.52 | 13.2 | Clear | |
| Kittyhawk, N. C. | | | 29.85 | 758.2 | 51 | 10.6 | 100 | N | 16 | 7.2 | | | 10n | | NW | 0.13 | 3.3 | Light rain | |
| Knoxville, Tenn. | | | 29.85 | 758.2 | 53 | 11.7 | 93 | Calm | 0 | 0 | | 3cs | 0 | W | | 0.46 | 11.7 | Fair | |
| LaCrosse, Wis. | | | 29.92 | 760.0 | 52 | 11.1 | 53 | SE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.64 | 752.8 | 51 | 10.6 | 93 | Calm | 0 | 0 | | | 10n | | | 0.30 | 7.6 | Light rain | |
| Louisville, Ky. | | | 29.87 | 758.7 | 49 | 9.4 | 85 | NE | 4 | 1.8 | | | 10s | | NE | 0.03 | 0.8 | Cloudy | |
| Lynchburg, Va. | | | 29.90 | 750.4 | 51 | 10.6 | 79 | NE | 2 | 0.9 | | | 10s | | E | 0.11 | 2.8 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 67 | 19.4 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.05 | 763.3 | 40 | 4.4 | 56 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 29.86 | 758.4 | 57 | 13.9 | 81 | SW | 1 | 0.4 | | | 10n | | SW | 0.03 | 0.8 | Light rain | |
| Milwaukee, Wis. | | | 30.01 | 762.2 | 45 | 7.2 | 47 | E | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 29.83 | 757.7 | 70 | 21.1 | 90 | S | 4 | 1.8 | | 5k | 2ks | NW | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 29.84 | 757.9 | 67 | 19.4 | 90 | SW | 1 | 0.4 | | 8cs | Haze | SW | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 28.84 | 732.5 | 29.89 | 759.2 | 49 | 9.4 | 77 | E | 9 | 4.0 | | | 10s | | SE | 0.44 | 11.2 | Cloudy | |
| Mt. Washington, N. H. | 23.71 | 602.2 | 30.07 | 763.8 | 23 | −5.0 | 60 | NW | 12 | 5.4 | | 8c | Haze | W | | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 29.90 | 759.4 | 50 | 10.0 | 93 | Calm | 0 | 0 | | | 10s, fg | | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 29.97 | 761.2 | 49 | 9.4 | 50 | NE | 10 | 4.5 | | Haze | Sm'e | | | 0 | 0 | Fair | |
| New London, Conn. | | | 29.99 | 761.7 | 49 | 9.4 | 57 | Calm | 0 | 0 | | 0 | 10s | | NE | 0 | 0 | Cloudy | |
| New Orleans, La. | | | 29.78 | 756.4 | 71 | 21.7 | 90 | Calm | 0 | 0 | | | 10s | | S | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 29.98 | 761.5 | 49 | 9.4 | 71 | E | 4 | 1.8 | | | 10s | | NE | 0 | 0 | Threatening | |
| New York, N. Y. | | | 29.97 | 761.2 | 48 | 8.9 | 63 | NE | 14 | 6.3 | | | 10s | | NE | Inap. | Inap. | Cloudy | |
| Norfolk, Va. | | | 29.86 | 758.4 | 51 | 10.6 | 93 | N | 16 | 7.2 | | | 10s | | N | 0.02 | 0.5 | Cloudy | |
| North Platte, Neb. | 27.03 | 686.6 | 29.62 | 752.3 | 40 | 4.4 | 73 | NW | | | | | 10s | | NW | Inap. | Inap. | Cloudy | |
| Omaha, Neb. | 28.64 | 727.4 | 29.70 | 754.4 | 48 | 8.9 | 93 | N | 8 | 3.6 | | | 10n | | N | 0.97 | 24.6 | Light rain | |
| Oswego, N. Y. | | | 30.03 | 762.7 | 46 | 7.8 | 50 | N | 6 | 2.7 | | 5c | Haze | W | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 29.91 | 759.7 | 37 | 2.8 | 95 | NW | 10 | 4.5 | | | 10s | | | 0.26 | 6.6 | Cloudy | |
| Philadelphia, Pa. | | | 29.95 | 760.7 | 47 | 8.3 | 77 | E | 16 | 7.2 | | | 10s | | NE | 0.10 | 2.5 | Cloudy | |
| Phœnix, Arizona | 28.81 | 731.8 | | | 69 | 20.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.57 | 446.3 | 29.78 | 756.4 | 4 | −15.6 | 87 | NE | 11 | 4.9 | | 5cs | 0 | | | 0.17 | 4.3 | Fair | |
| Pittsburg, Pa. | | | 29.92 | 760.0 | 46 | 7.8 | 92 | E | 8 | 3.6 | | | 10n | | E | 0.61 | 15.5 | Light rain | |
| Port Huron, Mich. | | | 29.99 | 761.7 | 36 | 2.2 | 80 | NE | 10 | 4.5 | | 2cs | Sm'e | W | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.03 | 762.7 | 47 | 8.3 | 62 | NE | 10 | 4.5 | | 5c, hz | Haze | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 29.94 | 760.5 | 52 | 11.1 | 66 | N | 4 | 1.8 | | | 10s | | N | 0.04 | 1.0 | Cloudy | |
| Prescott, Arizona | | | | | | | | | | | | | | | | | | | |
| Punta Rassa, Fla. | | | 29.92 | 760.0 | 74 | 23.3 | 81 | SE | 8 | 3.6 | | 0 | 2ks | | | 0.30 | 7.6 | Clear | |
| Rochester, N. Y. | | | 30.02 | 762.5 | 44 | 6.7 | 59 | NE | 8 | 3.6 | | 8c | 0 | N | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.55 | 649.0 | 29.88 | 758.9 | 44 | 6.7 | 51 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.94 | 760.5 | 48 | 8.9 | 77 | NE | 16 | 7.2 | | | 10s | | NE | 0.23 | 5.8 | Cloudy | |
| San Antonio, Texas | | | 29.62 | 752.3 | 70 | 21.1 | 90 | NE | 12 | 5.4 | | | 10cs | | N | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.97 | 761.2 | 57 | 13.9 | 81 | SW | 4 | 1.8 | | | 10s | | SW | 0.02 | 0.5 | Cloudy | |
| San Francisco, Cal. | | | 29.84 | 757.9 | 52 | 11.1 | 86 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.17 | 588.5 | 29.71 | 754.6 | 34 | 1.1 | 70 | NE | 2 | 0.9 | | 5cs | 0 | W | | 0.06 | 1.5 | Fair | |
| Savannah, Ga. | | | 29.88 | 758.9 | 73 | 22.8 | 76 | SW | 4 | 1.8 | | 2c | 0 | W | | Inap. | Inap. | Fair | |
| Shreveport, La. | | | 29.83 | 757.7 | 63 | 17.2 | 94 | E | 2 | 0.9 | | | 10n | | | 0.34 | 8.6 | Light rain | |
| Smithville, N. C. | | | 29.91 | 759.7 | 58 | 14.4 | 93 | N | 6 | 2.7 | | | 10s | | N | 0.10 | 2.5 | Cloudy | |
| Springfield, Mass. | | | 30.00 | 762.0 | 50 | 10.0 | 54 | NE | 5 | 2.2 | | 10c | 0 | | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.85 | 758.2 | 48 | 8.9 | 78 | E | 12 | 5.4 | | 0 | 5s | | | 0.03 | 0.8 | Fair | |
| St. Marks, Fla. | | | 29.87 | 758.7 | 68 | 20.0 | 90 | NW | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| St. Paul, Minn. | | | 29.87 | 758.7 | 52 | 11.1 | 72 | SE | 4 | 1.8 | | | 10s | | SE | Inap. | Inap. | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 67 | 19.4 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 30.01 | 762.2 | 45 | 7.2 | 76 | N | 4 | 1.8 | | 5c | 5s | | | 0 | 0 | Cloudy | |
| Toledo, Ohio | | | 29.93 | 760.2 | 49 | 9.4 | 63 | NE | 19 | 8.5 | | 2cs | 0 | NE | | Inap. | Inap. | Clear | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Lower. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.42 | 696.5 | 29.97 | 761.2 | 58 | 14.4 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.86 | 758.4 | 67 | 19.4 | 90 | W | 4 | 1.8 | | 2ck | Fog | W | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 29.80 | 756.9 | 61.5 | 16.4 | 94 | SE | 9 | 4.0 | | 2k | 2ks | | E | 0.27 | 6.9 | Fair | |
| Virginia City, M. T | 24.16 | 613.6 | 29.64 | 752.8 | 29 | — 1.7 | 46 | Calm | 0 | 0 | | 4e | 0 | NW | | 0.04 | 1.0 | Clear | |
| Washington, D. C | | | 29.95 | 760.7 | 47 | 8.3 | 92 | NE | 9 | 4.0 | | | 10n | | NE | 0.09 | 2.3 | Light rain | |
| Wickenburg, Arizona | | | | | 54 | 12.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.90 | 759.4 | 57 | 13.9 | 81 | NW | 6 | 2.7 | | | 10s | | NW | 0.03 | 0.8 | Cloudy | |
| Wood's Holl, Mass | | | 30.02 | 762.5 | 48 | 8.9 | 56 | SE | 9 | 4.0 | | | 10s | | NE | 0 | 0 | Threatening | |
| Yankton, Dakota | 28.57 | 725.7 | 29.85 | 758.2 | 45 | 7.2 | 92 | NW | 6 | 2.7 | | | 10n | | | 0.65 | 16.5 | Light rain | |
| Yuma, Arizona | | | 29.85 | 758.2 | 67 | 19.4 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.12 | 765.0 | 79 | 26.1 | 82 | Calm | 0 | 0 | | 2c | 2s | SE | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 80 | 26.7 | | ESE | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.96 | 761.0 | 82 | 27.8 | 83 | E | | | 3 | | 10n | | | 0.685 | 17.43 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | 80.6 | 27.0 | | E | | | | | | | | 0.453 | 11.50 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 30.07 | 763.7 | | | 67.0 | 19.4 | 82 | SW | | | 1 | 7es,k | 2s | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | 25.11 | 637.8 | | | 31.0 | — 0.6 | 95 | N | 10 | 4.5 | | | 9s | | | 0 | 0 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.08 | 764.0 | 71 | 21.7 | | S | | | 2 | | | | | 0 | 0 | Hazy | Daniel Smith. |
| Makawao, Maui, H. I | | | 29.98 | 761.5 | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m. Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,097.0 ft., or 334.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Salt Lake City, 4,332.2 ft., or 1,320.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.04 | 763.0 | 70 | 21.1 | 48 | 8.9 | 92 | NNE | | | 3 | | 10 | | NNE | 0.17 | 4.3 | | | Rainy | |
| Navy Yard, Mare Island, Cal. | 29.90 | 759.4 | 58 | 14.4 | 55 | 12.8 | | SW | | | 4 | | 5 | | SW | 0 | 0 | | | Fair | |
| Navy Yard, Norfolk, Va. | 30.02 | 762.5‡ | 51 | 10.6 | 52 | 11.1 | 86 | N | 6 | 2.7 | | | 10n | | | 0 | 0 | | | Overcast | |
| Navy Yard, Pensacola, Fla. | 29.94 | 760.5 | | | 70 | 21.1 | 90 | SE | 15 | 6.7 | | | 9 | | NW | 0.45 | 11.4 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.06 | 763.5 | 62 | 16.7 | 47 | 8.3 | 62 | NE | 12 | 5.4 | | | | | NE | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 30.03 | 762.7 | 61 | 16.1 | 53 | 11.7 | 80 | E | | | 2 | | 10ks | | ENE | 0.20 | 5.1 | | | Cloudy | |
| Adams, N. 25° 40′ W. 37° 0′ | 30.33 | 770.4 | 74 | 23.3 | 76 | 24.4 | 91 | ESE | | | 4 | | 7 | | E | | | Moderate. | E | D. clouds | |
| Alert, Yokohama, Japan | 30.29 | 769.4 | 57 | 13.9 | 56 | 13.3 | 100 | ENE | | | 2 | | 10 | | NE | | | Calm | None | D. clouds | |
| Alliance, N. 32° 30′, 40″ E. 33° 00′ 45″ | 30.33 | 770.4 | 70 | 21.1 | 68 | 20.0 | 95 | NNW | | | 3 | | 2 | | S | | | Smooth | N | Pleasant. | |
| Ashuelot, Canton, China | 29.90 | 759.4 | 79 | 26.1 | 78 | 25.6 | 82 | SW | | | 0–1 | | 10 | | | | | Smooth | | Showery | |
| Canonicus, New Orleans, La. | 29.79 | 756.7 | 51 | 10.6 | 69 | 20.6 | 85 | NE | | | 2 | | 10 | | | | | | | Cloudy | |
| Colorado, New York, N. Y. | 30.02 | 762.5 | 67 | 19.4 | 49 | 9.4 | 71 | NE | 4 | 1.8 | | | 9 | | | 0 | 0 | | | D. clouds | |
| Despatch, N 36° 59′ W. 56° 27′ | 30.23 | 767.8 | 66 | 18.9 | 65 | 18.3 | 94 | SSW | | | 3 | | 8 | | SW | | | Smooth | SSW | | |
| Essex, Vera Cruz, Mexico | 29.77 | 756.1 | 80 | 26.7 | 82 | 27.8 | 91 | SW | | | 2 | | 3 | | SE | 0 | 0 | | | Hazy | |
| Frolic, Monte Video, Uruguay | 30.18 | 766.6 | | | 60 | 15.6 | 94 | SE | | | 3 | | 5cs | | | 0 | 0 | Moderate | SE | D. clouds | |
| ‡ Gettysburg, Genoa, Italy | 29.76 | 755.9 | | | 62 | 16.7 | 100 | ESE | | | 4 | | 10 | | SE | | | | | Drizzling | |
| Hartford, St. Thomas, W. I. | 30.16 | 766.1 | 81 | 27.2 | 81 | 27.2 | 74 | ESE | 2.4 | 1.1 | | | 6 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.15 | 765.8 | 67 | 19.4 | 60 | 15.6 | 88 | N | | | 2–3 | | 0 | | | 0 | 0 | Calm | None | Pleasant | |
| Lackawana, Acapulco, Mexico | 29.85 | 758.2 | | | 80 | 26.7 | 96 | Calm | | | 0 | | 1 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 30.01 | 762.2 | 68 | 20.0 | 68 | 20.0 | 95 | SE | | | 2 | | 10 | | E | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa. | 29.46 | 748.3 | 56 | 13.3 | 44 | 6.7 | 76 | NE | | | 1 | | 10 | | NE | | | | | Cloudy | |
| Monocacy, Shanghai, China | 29.98 | 761.5 | 63 | 17.2 | 56 | 13.3 | 94 | SSE | | | 2 | | 1 | | SSE | | | | | D. clouds | |
| Monongahela, N. 37° 14′ W. 76° 08′ | 29.90 | 759.4 | 55 | 12.8 | 52 | 11.1 | | NE | | | 4 | | .n | | | Blank | Blank | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.08 | 764.0 | | | 70 | 21.1 | 95 | Calm | | | 0 | | 7 | | NE | 0.05 | 1.3 | | | D. clouds | |
| Omaha, N. 8° W. 79° 26′ | 29.98 | 761.5 | 82 | 27.8 | 82 | 27.8 | 83 | NNW | 4 | 1.8 | | | 4 | | N | 0 | 0 | Slight | N | Pleasant | |
| Ossipee, Matanzas, Cuba, W. I. | 29.98 | 761.5 | 79 | 26.1 | 79 | 26.1 | 86 | S | | | 2 | | 5 | | S | | | | | D. clouds | |
| Pa'os, Shanghai, China | 30.08 | 764.0 | 61 | 16.1 | 57 | 13.9 | 94 | SE | | | 2 | | 2 | | NE | | | | | Clear | |
| Pensacola, Acapulco, Mexico | 29.94 | 760.5 | | | 80 | 26.7 | 87 | NE | | | 1 | | 3 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Baton Rouge, La. | 29.82 | 757.4 | 76 | 24.4 | 69 | 20.6 | 90 | E | | | 2 | | 10 | | | ¶0.1 | ¶3. | | | Overcast | |
| Powhatan, Cross Ledge Light, Del. Bay | 30.03 | 762.7 | | | 48 | 8.9 | 100 | NE | | | 3–6 | | 10 | | NE | | | Calm | None | Overcast | |
| Ranger, N. 36° 54′ W. 41° 05′ | 30.49 | 774.4 | | | 64 | 17.8 | ? | SW | | | 1 | | 4 | | N&W | | | Smooth | | Partly cl'dy. | |
| Richmond, S. 31° 8′ W. 49° 35′ | 30.16 | 766.1 | 69.0 | 20.6 | 67.5 | 19.7 | 86 | E | | | 4 | | 10 | | | 0 | 0 | Long, regular | SSE | Overcast | |
| Rio Bravo, Matamoras, Mexico | 29.59 | 751.6 | | | 70 | 21.1 | 90 | SE | | | 1 | | 9 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md. | 29.96 | 761.0 | 49 | 9.4 | 47 | 8.3 | 92 | NE | | | 3 | | 10 | | | 0.16 | 4.1 | | | Drizzling | |
| St. Louis, League Island, Pa | 29.83 | 757.7 | 49 | 9.4 | 50 | 10.0 | 93 | NE | 9 | 4.0 | | | 10 | | NE | 0.11 | 2.8 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 81 | 27.2 | 81 | 27.2 | 91 | NNE | | | 1 | | 5k | | NE | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 30.09 | 764.3 | 65 | 18.3 | 59 | 15.0 | 76 | ENE | | | 2 | | 9 | | N&E | | | Smooth | | Hazy | |
| Trenton, Villefranche, France | 29.80 | 759.9† | 66 | 18.9 | 61 | 16.1 | 100 | ESE | 7 | 3.1 | | | 10 | | | 1.7 | 43. | | S | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.00 | 762.0 | 64 | 17.8 | 63 | 17.2 | 89 | SSW | | | 1 | | 10 | | | | | | | Drizzling | |
| Wabash, Boston, Mass. | 29.99 | 761.7 | 52 | 11.1 | 54 | 12.2 | 61 | NE | 2 | 0.9 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C. | 30.28 | 769.1† | 57 | 13.9 | 50 | 10.0 | | NE | | | 2 | | 10 | | | | | | | Drizzling | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.89 | 759.2 | 75 | 23.9 | 90 | E | | | 5 | | 10n | | | | | Raining | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 40° 28′, W. 66° 8′ | W | | 29.94 | 760.5 | 46.6 | 8.1 | | W | | | 2 | | n | | ENE | Light | | Overcast | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, N. 39° 24′, W. 73° 06′ | SSW | 9.5 | 29.74 | 755.4 | 45 | 7.2 | 100 | E | 23 | 10.3 | | | 10n | | E | Rough | | Rainy | Capt. James Jorgensen. |

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, macro, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 7, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | | | | | | | | | | | | | | | | | |
| Algiers | | | 30.21 | 767.3 | 73.0 | 22.8 | 54 | NW | | | 3 | | 7 | | | 0 | 0 | Cloudy | Michel. |
| La Calle | | | 29.96 | 760.9 | 66.2 | 19.0 | 57 | NW | | | 3 | | 6 | | | 0 | 0 | Fair | Peter. |
| Tunis | | | 29.87 | 758.7 | 67.1 | 19.5 | 89 | NW | | | 3 | | 7 | | | 0.197 | 5.0 | Cloudy | Fleury. |
| Sfax | | | 29.88 | 759.0 | 80.6 | 27 | | NW | | | 4 | | 3 | | | 0 | 0 | Fair | Jacques. |
| Saida | | | 29.89 | 759.1 | 73.4 | 23 | | E | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Tebessa | | | 30.07 | 763.8 | 60.3 | 15.7 | | WNW | | | 2 | | 2 | | | 0.024 | 0.6 | Clear | Millot. |
| Geriville | | | 29.86 | 758.5 | 65.7 | 18.7 | | N | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois |
| Laghouat | | | 30.01 | 762.2 | 58.6 | 14.8 | 47 | NW | | | 3 | | 4 | | | 0.079 | 2.0 | Fair | Lemaillot. |
| Biskra | | | | | 65.3 | 18.5 | 16 | W | | | 4 | | 6 | | | 0 | 0 | Fair | Guyot. |
| | | | 29.96 | 760.9 | 77.2 | 25.1 | 49 | NW | | | 3 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.76 | 755.8 | 59.7 | 15.4 | 69 | NE | | | 3 | | 9 | | | 0.335 | 8.5 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.89 | 759.1 | 52.2 | 11.2 | 50 | NE | | | 3 | | 4 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.85 | 758.2 | 59.7 | 15.4 | 57 | N | | | 1 | | ..cks | | | 0.130 | 3.30 | | Julius Mikolik. |
| Gratz | | | 29.78 | 756.4 | 54.3 | 12.4 | 66 | SW | | | 1 | | 10 | | | 0.118 | 3.0 | | Andreas Rospini. |
| Hermannstadt | 28.54 | 724.8 | 29.72 | 755.0 | 56.8 | 13.8 | 72 | NW | | | 3 | | 7 | | | 0.354 | 0.90 | | Prof. Reissenberger. |
| Kremsmünster | 28.33 | 719.5 | 29.66 | 753.3 | 53.2 | 11.8 | 72 | ENE | | | 3 | | 8 | | | 0.177 | 4.5 | | Prof. C. Wagner. |
| Lemberg | 28.33 | 719.6 | 29.84 | 757.8 | 51.3 | 10.7 | 48 | NE | | | 1 | | 5 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nylregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.72 | 754.8 | 64.0 | 17.8 | 78 | SE | | | 4 | | 6ks | | | 0.055 | 1.40 | | I.R. Hydrographic Of'ce |
| Szegedin | | | 29.76 | 755.8 | 68.7 | 20.4 | 59 | NE | | | 1 | | 6 | | | 0.102 | 2.60 | | Karl Stancel. |
| Trieste | | | 29.74 | 755.5 | 63.7 | 17.6 | 82 | SW | | | 1 | | 8 | | | 0.024 | 0.6 | Raining | P. Busin. |
| Vienna | | | 29.78 | 756.3 | 46.9 | 8.3 | 91 | SE | | | 2 | | 10 | | | 0.031 | 0.8 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.24 | 717.2 | 29.69 | 754.2 | 55.0 | 12.8 | 83 | NE | | | 1 | | 10 | | | 0 | 0 | | |
| Brussels | | | 29.72 | 754.9 | 60.4 | 15.8 | 34 | E | | | 2 | 1c | 1k | WSW | WSW | 0 | 0 | | Royal Observatory. |
| Furnes | | | 29.77 | 756.1 | 59.2 | 15.1 | 56 | NNE | | | 3 | | 3 | | | 0 | 0 | | |
| Mueseyck | | | 29.63 | 752.5 | 61.3 | 16.3 | 35 | ESE | | | 4 | | | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.77 | 756.1 | 50.4 | 10.2 | | W | 11 | 4.9 | | | 4 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 29.84 | 757.9 | 47 | 8.3 | | WNW | | | 2 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.87 | 758.7 | 49.2 | 9.6 | | W | 5 | 2.2 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.84 | 757.9 | 50.6 | 10.3 | | NW | 12 | 5.4 | | | 7 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.84 | 757.9 | 54.0 | 12.2 | | NE | | | 1 | | 7 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 29.79 | 756.7 | 50.7 | 10.4 | | E | | | 0 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.03 | 762.7 | 82.5 | 28.1 | | NE | | | 2 | | 5? | | | | | Overcast? | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 29.80 | 756.9 | 62.0 | 16.7 | | E | | | 1 | | 1 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.82 | 757.4 | 60.0 | 15.6 | | NE | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 29.91 | 759.7 | 54.2 | 12.3 | | NE | | | 2 | | 8 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.36 | 720.3 | 29.81 | 757.2 | 55.4 | 13.0 | | NE | | | 1 | | 0 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.86 | 758.4 | 50 | 10.0 | | E | | | 2 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 29.76 | 755.9 | 55 | 12.8 | | NE | | | 3 | | 2 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.81 | 757.2 | 55.5 | 13.1 | | NW | 3.6 | 1.6 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.82 | 757.4 | 53.6 | 12.0 | | SSE | | | 1 | | 4 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.58 | 700.5 | 29.81 | 757.2 | 68.3 | 20.2 | | NE | | | 1 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.88 | 758.9 | 87 | 30.6 | | W | | | 2 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.80 | 756.9 | 56 | 13.3 | | E | | | 1 | | 0 | | | | | Blue sky | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.99 | 761.7 | 67.2 | 19.6 | | W | | | 3 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.82 | 757.4 | 47.4 | 8.6 | | W | | | 1 | | 10 | | | | | Overcast | Lewis Stuart. |
| Great Yarmouth | | | 29.83 | 757.7 | 51 | 10.6 | | ENE | | | 2 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.79 | 756.7 | 62.1 | 16.7 | | ENE | | | 1 | | 2 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.76 | 755.9 | 54 | 12.2 | | NNE | | | 2 | | 5 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.87 | 758.7 | 58 | 14.4 | | N | | | 4 | | 1c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.86 | 758.4 | 47 | 8.3 | | NNE | | | 2 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 29.79 | 756.7 | 59.5 | 15.3 | | ESE | 14 | 6.3 | | | | | | | | Light haze | The Staff. |
| Kingstown | | | 29.88 | 758.9 | 50 | 10.0 | | E | | | 3 | | 5 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.81 | 757.2 | 54.9 | 12.7 | | E | | | 1 | | 3 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.80 | 756.9 | 68.0 | 20.0 | | NE | | | 1 | | 8k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.75 | 755.6 | 52 | 11.1 | | WSW | | | 4 | | 2 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.91 | 759.7 | 83.0 | 28.3 | | SE | | | 1 | | 7 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.83 | 757.7 | 61.8 | 16.6 | | SE | | | 2 | | 5c | | WSW | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.81 | 757.2 | 56.0 | 13.3 | | NE | | | 2 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.80 | 756.9 | 57 | 13.9 | | Calm | | | 0 | | 6c | | | | | Solar halo | J. W. Lucas. |
| Plymouth | | | 29.80 | 756.9 | 57.0 | 13.9 | | SE | | | 2 | | 2 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.85 | 758.2 | 55 | 12.8 | | S | | | 3 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 29.83 | 757.7 | 53 | 11.7 | | NW | | | 1 | | 3 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.73 | 755.1 | 60.5 | 15.8 | | NNE | | | 4 | | 2 | | | | | ¼ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.65 | 753.1 | 45.2 | 7.3 | | W | 34 | 14.8 | | | 5 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.76 | 755.9 | 67.8 | 19.9 | | S | | | 1 | | 5 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.80 | 756.9 | 58.9 | 14.9 | | SSW | | | 1 | | 5 | | | 0 | 0 | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 29.81 | 757.9 | 51.5 | 12.5 | 59 | W | | | 2 | | 0 | | | 0 | 0 | Blue sky | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.82 | 757.4 | 53.1 | 11.7 | | W | | | 1 | | 6 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.71 | 754.6 | 46 | 7.8 | | WNW | | | 3 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 29.79 | 756.7 | 60.7 | 15.9 | | E | | | 2 | | 0 | | | | | Foggy | Rev. Charles H. Griffith. |
| Thurso | | | 29.68 | 753.9 | 46 | 7.8 | | WNW | | | 6 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.83 | 757.7 | 59 | 15.0 | | N | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.84 | 757.9 | 54.0 | 12.2 | | SW | 6 | 2.7 | | | 4 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 48 | 8.9 | | N | | | 3 | | 0 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.04 | 763.0 | 62.3 | 16.8 | 88 | NW | 6 | 2.7 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.61 | 752.1 | 55.5 | 13.1 | 93 | W | | | 5 | | 7kn | | | 0.12 | 3.0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.86 | 758.4 | 47.9 | 8.8 | | W | | | 2 | | 10k | | | 0 | 0 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.07 | 763.8 | 73.9 | 23.3 | 70 | ESE | 15.1 | 6.8 | | 0 | 4 | | ESE | 0.06 | 1.5 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.02 | 762.5 | 51.2 | 10.7 | 92 | W | 11 | 4.9 | | | 5 | | | 0.02 | 0.5 | Drizzling | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.78 | 756.4 | 44 | 6.7 | | W | | | 4 | 3 | 0 | W | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.64 | 752.8 | 46 | 7.8 | | S | | | 4 | 4 | 7 | SE | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,460 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.02 m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Direction from— | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 51° 15′ W. 15° 15′ | | | 29.70 | 754.4 | 52.5 | 11.4 | | SSW | | | 4 | | 5 | W | SW | 5* | NNE | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 20° 50′, W. 30° 50′ | | | 30.19 | 766.8 | 73.5 | 23.1 | | ENE | | | 5 | | 2 | | | 5 | ENE | Blue sky | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 73.0 | 22.8 | 81 | NE | | | 1 | | 1c8 | | E | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.91 | 759.8 | 48.4 | 9.1 | 47 | SW | | | 2 | | 1 | | | | | | |
| Fanöe | | | 29.90 | 759.4 | 47.3 | 8.5 | 48 | W | | | 2 | | 0 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Styrkkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 29.72 | 755.0 | 43.2 | 6.2 | 66 | NE | | | 2 | | 10 | | | | | | |
| Vestervig | | | 29.87 | 758.7 | 44.2 | 6.8 | 74 | SW | | | 4 | | 3 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co-operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.67 | 753.7 | 51.8 | 11 | 50 | NE | | | 4 | | 5kn | | NE | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 29.69 | 754.0 | 66.9 | 19.4 | | E | | | 3 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Avignon, Normal School | | | 29.69 | 754.0 | 66.2 | 19 | 57 | W | | | 1 | | 0 | | | 0.138 | 3.5 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.65 | 753.2 | 53.2 | 11.8 | 87 | S | | | 1 | | 10 | | S | 0.031 | 0.8 | Light rain | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.70 | 754.4 | 60.8 | 16 | 41 | E | | | 3 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Besançon | | | 29.84 | 757.8 | 58.6 | 14.8 | 74 | SSW | | | 2 | | 8 | | SW | 0.110 | 2.8 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.75 | 755.7 | 61.7 | 16.5 | 72 | SE | | | 2 | | 10n | | N | 0.858 | 21.8 | Covered | Normal School. |
| Bourges | | | 29.67 | 753.7 | 59.2 | 15.1 | 60 | SW | | | 2 | | 10 | | NE | 0.24 | 6. | Covered | Normal School. |
| Brest | | | 29.72 | 754.9 | 54.1 | 12.3 | 63 | NNE | | | 4 | | 1k | | NNE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 29.74 | 755.3 | 66.2 | 19 | 56 | W | | | 2 | | 5 | | E | 0.04 | 1. | Partly cl'dy | Normal School. |
| Caen | | | 29.72 | 754.9 | 55.0 | 12.8 | 66 | N | | | 4 | | | | | 0 | 0 | | Normal School. |
| Chartres | | | 29.64 | 752.9 | 62.6 | 17 | 64 | NNE | | | 2 | | 8 | | E | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 29.65 | 753.2 | 60.4 | 15.8 | 58 | SE | | | 3 | | 10ck | | NW | 0 | 0 | Covered | Normal School. |
| Clermont | | | 29.59 | 751.5 | 62.6 | 17.0 | 50 | SE | | | 2 | | 10 | | SW | 0.591 | 15.0 | Covered | Puy de Dome Obs'y. |
| Commercy | | | 29.65 | 753.0 | 56.3 | 13.5 | 62 | ENE | | | 2 | | 8 | | ENE | 0 | 0 | Very cloudy | Normal School. |
| Commune de Gréasque* | | | 29.71 | 754.6 | 62.8 | 17.1 | 61 | W | | | 2 | | 8 | | SW | 0.16 | 4. | Thunder | M. Kina. |
| Grenoble | | | 29.67 | 753.5 | 61.0 | 16.1 | 67 | NW | | | 2 | | 8ks | | N | 0.324 | 8.25 | Very cloudy | Normal School. |
| La Roche-sur-Yon | | | 29.67 | 753.6 | 52.5 | 11.4 | 83 | N | | | 2 | | 2 | | W | 0.094 | 2.4 | Slightly cl'dy | Normal School. |
| Le Mans | | | 29.67 | 753.7 | 61.2 | 16.2 | 71 | NE | | | 3 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Lons-Le-Saunier | | | 29.67 | 753.7 | 61.7 | 16.5 | 64 | SE | | | 1 | | 5 | | | 0.524 | 13.30 | Cloudy | Normal School. |
| Lorient | | | 29.73 | 755.2 | 62.6 | 17.0 | 31 | NE | | | 3 | | 2 | | NE | 0 | 0 | ¼ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.67 | 753.7 | 60.1 | 15.6 | 85 | Calm | | | 0 | | 10 | | | 0.260 | 6.6 | Covered | Mr. Marchal. |
| Metz | | | 29.78 | 756.4 | 55.8 | 13.2 | 75 | ENE | | | 2 | | 10 | | | 0 | 0 | Covered | M. A. Schuster. |
| Mirecourt | | | 29.67 | 753.5 | 56.1 | 13.4 | 79 | E | | | 2 | | 10 | | SW | 0 | 0 | Covered | Normal School. |
| Nismes | | | 29.69 | 754.2 | 66.6 | 19.2 | 56 | W | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Orleans | | | 29.502 | 749.32 | 57.2 | 14 | 76 | E | | | 2 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Paris, Observatory | | | 29.66 | 753.4 | 61.3 | 16.3 | 43 | E | | | 2 | | 10ck | | E | 0 | 0 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.78 | 756.3 | 58.3 | 14.6 | 82 | NNE | | | 3 | | 10 | | SW | 0 | 0 | Covered | Naval Observatory. |
| Rouen | | | 29.67 | 753.7 | 66.7 | 19.3 | 36 | N | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Tarbes | 28.66 | 727.9 | 29.72 | 754.8 | 56.8 | 13.8 | 69 | W | | | 4 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Villefranche | | | 29.73 | 755.2 | 63.5 | 17.5 | 80 | N | | | 1 | | 8 | | S | 0.256 | 6.5 | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.65 | 753.2 | 64.6 | 18.1 | 69 | W | | | 2–3 | | 4 | | | 0.236 | 6.00 | | The Staff. |
| Mont-Louis | 24.56 | 623.9 | 29.88 | 758.9 | 43.7 | 6.5 | 82 | SE | 16.8 | 7.50 | | | 8 | | SSW | 0.063 | 1.6 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.66 | 753.3 | 61.5 | 16.4 | 43 | E | | | 2–3 | | 10 | | E | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 29.91 | 759.7 | 61.3 | 16.3 | 66 | S | 1.9 | 0.83 | | | 9 | | W | 0.012 | 0.3 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P | | | | | | | | | | | | | | | | | | | { Gen'l de Nansouty |
| Pic du Midi, (Plaitude,) H. P | 22.21 | 561.1 | | | 30.9 | — 0.6 | | W | | | 3 | | 10 | | | 0.563 | 14.3 | Snowy | { and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.66 | 753.4 | 61.0 | 16.1 | 47 | NE | | | 1 | | 10 | | | 0 | 0 | Covered | E. Renou. |
| Toulouse, Observatory | | | 29.74 | 755.3 | 60.6 | 15.9 | 52 | WNW | | | 4 | | 8 | | | 0.055 | 1.4 | | The Staff. |
| Tours | | | 29.65 | 753.0 | 60.6 | 15.9 | 61 | SE | | | 1 | | 10 | | E | 0.016 | 0.4 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.67 | 753.6 | 61.2 | 16.2 | 42 | SE | | | 2 | | 9 | | | 0 | 0 | Light clouds | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.02 | 762.5 | 64.0 | 17.8 | 92 | SE | 15.7 | 7.0 | | | 10kn | | | 0 | 0 | Dark sky | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plaitude,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135, millimeters has been added. At Clermont the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:71, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.80 | 756.8 | 54.3 | 12.4 | 54 | SE | | | 7 | | 9 | SE | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.91 | 759.8 | 55.4 | 13.0 | 33 | E | | | 1 | | 2 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.90 | 759.5 | 55.2 | 12.9 | 25 | E | | | 2 | | 6 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.72 | 754.9 | 50.4 | 10.2 | 85 | NE | | | 1 | | 10 | | | 0.177 | 4.5 | Raining | Albert Senz. |
| Cassel | | | 29.86 | 758.4 | 54.9 | 12.7 | 32 | E | | | 3 | | 2 | NE | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.69 | 754.2 | 62.2 | 16.8 | 26 | E | | | 3 | | 2 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.96 | 761.0 | 59.4 | 15.2 | 26 | SE | | | 3 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.78 | 756.3 | 63.1 | 17.3 | 30 | ENE | | | 2 | | 8 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.97? | 735.8? | 29.69? | 754.1? | 57.9 | 14.4 | 73 | SW | | | 2 | | 9 | W | | 0.035 | 0.9 | | M. Wilhelm. |
| Hamburg | | | 29.90 | 759.5 | 53.2 | 11.8 | 34 | SE | | | 2 | | 0 | | | 0 | 0 | Clear | Captain F. Hegemann. |
| Kiel | | | 29.89 | 759.3 | 50.4 | 10.2 | 78 | NNE | | | 4 | | 0 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.97 | 761.1 | 49.3 | 9.6 | 39 | W | | | 2 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 29.98 | 761.5 | 48.4 | 9.1 | | Calm | | | 0 | | 0 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.85 | 758.1 | 56.1 | 13.4 | 23 | E | | | 4 | | 7 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.96 | 761.0 | 44.4 | 6.9 | | WSW | | | 4 | | lck | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.79 | 756.6 | 59.7 | 15.4 | 31 | E | | | | | 1 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.95 | 760.8 | 47.1 | 8.4 | 56 | ENE | | | 3 | | 4 | WSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.95 | 760.7 | 52.3 | 11.3 | 37 | S | | | 3 | | 0 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.72 | 754.8 | 50.2 | 10.1 | 93 | NE | | | 2 | | 10 | | | 0.012 | 0.3 | Raining | Dr. Schur. |
| Stuttgart | | | 29.72 | 754.9 | 49.6 | 9.8 | 69 | NE | | | 1 | | 10 | N | | 0.024 | 0.6 | | Prof. Schoder |
| Treves, (Trier) | | | 29.69 | 754.0 | 59.5 | 15.3 | 34 | E | | | 4 | | 9 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.22 | 716.7 | 29.72 | 755.0 | 47.5 | 8.6 | 75 | E | | | 4 | | 10 | E | | 0.035 | 0.9 | Light rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.01 | 762.2 | 45.3 | 7.4 | 51 | NNE | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.80 | 757.0 | 75.9 | 24.4 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.89 | 556.1 | 29.69 | 754.2 | 32.4 | 0.2 | 98 | W | | | 4 | | 10 | | | 2.362* | 60.0* | | Prof. Giovanni Clodig. |
| Stelvio | 21.88 | 555.7 | 29.65 | 753.1 | 36.1 | 2.3 | | W | | | 1 | | 10 | | | 0.769 | 18.0 | Rain & snow | Signora Ernesta Manfredi. |
| Udine | | | 29.72 | 754.8 | 57.4 | 14.1 | 76 | N | 1.3 | 0.6 | | | 9 | | | 0.339 | 8.6 | Raining | Ab. Dem. Morgini. |
| Padua | | | 29.67 | 753.7 | 63.7 | 17.6 | 67 | NNW | 4.3 | 1.9 | | | 8 | NE | | 0.114 | 2.9 | Raining | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.68 | 753.9 | 63.3 | 17.4 | 68 | SE | 1.3 | 0.6 | | | 6 | W | | 0.504 | 12.8 | Raining | Conte Alm. Da Schio. |
| Verona | | | 29.72 | 754.9 | 65.1 | 18.4 | 77 | E | | | 2 | | 10 | | | 0.118 | 3.0 | Raining | Dott. B. Bertoncelli. |
| Bergamo | 28.39 | 721.0 | 29.69 | 754.2 | 51.8 | 11.0 | 77 | NNE | | | 4 | | 10 | | | 2.185 | 55.5 | Raining | Prof. Trionfini Carlo. |
| Domodossola | | | 29.68 | 753.9 | 56.1 | 13.4 | 79 | N | | | 2 | | 10 | | | 0.382 | 9.7 | Raining | Prof. Giuseppe Calza. |
| Milan | | | 29.67 | 753.7 | 58.8 | 14.9 | 77 | ENE | | | 2 | | 10 | ENE | | 0.657 | 16.7 | Raining | Ab. Gio. Capelli. |
| Pavia | | | 29.68 | 753.8 | 57.4 | 14.1 | 93 | SE | | | 2 | | 10 | | | 0.941 | 23.9 | Thunder-storm | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.65 | 753.0 | 59.4 | 15.2 | 76 | NNW | 2.5 | 1.1 | | | 9 | SE | | 0.181 | 4.6 | Raining | Prof. P. F. Denza. |
| Mondovi | 28.76 | 705.0 | 29.63 | 752.7 | 59.9 | 15.5 | 64 | NW | | | 4 | | 9 | | | 0.224 | 5.7 | Thunder-storm | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.72 | 755.0 | 63.3 | 17.4 | 81 | SW | | | 4 | | 4 | SW | | 0.201 | 5.1 | | Prof. L. Vassallo. |
| Genoa | | | 29.70 | 754.3 | 60.8 | 16.0 | 83 | SW | 4.9 | 2.2 | | | 10 | S | | 0.047 | 1.2 | Raining | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.68 | 753.9 | 58.8 | 14.9 | 81 | SE | 0.7 | 0.3 | | | 10 | | | 0.106 | 2.7 | Raining | Dott. G. Manzi. |
| Parma | | | 29.69 | 754.2 | 61.9 | 16.6 | 88 | SW | | | 2 | | 10 | | | 0.126 | 3.2 | Raining | Prof. P. Pigorini. |
| Florence | | | 29.75 | 755.7 | 65.3 | 18.5 | 66 | NW | | | 2 | | 9 | SW | | 0.055 | 1.4 | Thunder-storm | Cav. F. Meucci. |
| Leghorn | | | 29.72 | 755.0 | 65.7 | 18.7 | 74 | SSE | 16.1 | 7.2 | | | 4 | SSE | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.54 | 724.9 | 29.73 | 755.2 | 65.5 | 18.6 | 50 | SW | 4.9 | 2.2 | | | 4 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.20 | 716.2 | 29.73 | 755.2 | 61.5 | 16.4 | 67 | SW | | | 4 | | 8 | | | 1.528 | 38.8 | | Prof. P. Serpieri. |
| Pesaro | | | 29.76 | 755.8 | 66.0 | 18.9 | 73 | E | 13.0 | 5.8 | | | 8 | SW | | 0.315 | 8.0 | Raining | Prof. Luigi Guidi. |
| Ancona | | | 29.74 | 755.4 | 64.8 | 18.2 | 73 | SE | | | 4 | | 8 | | | 0.020 | 0.5 | Light rain | Prof. F. DeRosis. |
| Grosseto | | | 29.77 | 756.1 | 70.2 | 21.2 | 54 | SSE | | | 4 | | 4 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.80 | 757.0 | 70.9 | 21.6 | 42 | S | 8.7 | 3.9 | | | 3 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.85 | 758.3 | 70.2 | 21.2 | 63 | S | | | 2 | | 2 | SSE | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.85 | 758.1 | 70.9 | 21.6 | 49 | WSW | 3.8 | 1.7 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.86 | 758.5 | 68.9 | 20.5 | 69 | SE | 6.9 | 3.1 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.80 | 756.8 | 68.0 | 20.0 | 57 | S | | | 4 | | 10 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.79 | 756.6 | 65.1 | 18.4 | 71 | E | | | 2 | | 3 | E | | 0.016 | 0.4 | Light rain | Prof. F. Cafiero. |
| Palermo | | | 29.81 | 757.2 | 70.2 | 21.2 | 42 | E | 3.1 | 1.4 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.87 | 707.8 | 29.77 | 756.1 | 69.3 | 20.7 | 33 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Paguni. |
| Syracuse | | | 29.79 | 756.6 | 70.5 | 21.4 | 54 | NE | | | 2 | | 7 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.89 | 759.2 | 65.8 | 18.8 | 70 | NE | 1.8 | 0.8 | | | 3 | N | | 0.071 | 1.8 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.39 | 771.9 | 52.5 | 11.4 | 83 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Señor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.3 | 30.08 | 764.1 | 61.7 | 16.5 | 50 | E | 0.2 | 0.10 | | 9k | 9k | | | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.78 | 756.4 | 58.3 | 14.6 | | ENE | | | 3 | | | | | 0 | 0 | | |
| Groningen | | | 29.78 | 756.5 | 56.3 | 13.5 | | ESE | | | 2 | | | | | 0 | 0 | | |
| Hedder | | | 29.80 | 757.0 | 51.3 | 10.7 | | ENE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.74 | 755.4 | 61.7 | 16.5 | | ESE | | | 3 | | 0 | | | 0 | 0 | Clear | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.76 | 756.0 | 47.1 | 8.4 | 60 | SSE | 18.8 | 8.4 | | | 1 | | | 0.252 | 6.4 | | |
| Brönö | | | 29.56 | 750.9 | 42.8 | 6.0 | 42 | N | 9 | 4 | | | 1 | | | 0 | 0 | | |
| Christiania | | | 29.69 | 754.0 | 50.7 | 10.4 | 26 | SW | 4 | 2 | | | 5 | | | 0 | 0 | | |
| Tromsö | | | 29.61 | 752.0 | 38.3 | 3.5 | 63 | NE | 4 | 2 | | | 0 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.26 | 768.6 | 61.5 | 16.4 | 77 | W | 6.9 | 3.1 | | | 3 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.97 | 761.3 | 59.4 | 15.2 | 60 | WNW | 16.1 | 7.2 | | | 9 | WNW | | 0.130 | 3.3 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.29 | 769.3 | 65.5 | 18.6 | 57 | S | 2.5 | 1.1 | | | 4 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.06 | 763.4 | 60.8 | 16.0 | 55 | NNW | 17.4 | 7.8 | | | 6 | | | 0.031 | 0.8 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.29 | 769.3 | 65.5 | 18.6 | 67 | W | 7.4 | 3.3 | | | 3 | | | 0 | 0 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.95 | 760.8 | 48.6 | 9.2 | 38 | N | 4 | 2 | | | 1 | | | | | | Astronomical Obs. |
| Wilna | | | 29.93 | 760.3 | 46.4 | 8.0 | 43 | WNW | 4 | 2 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.82 | 757.4 | 48.4 | 9.1 | 35 | WNW | 11 | 5 | | | 6 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.78 | 756.4 | 42.8 | 6.0 | 52 | WNW | 13 | 6 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.60 | 751.7 | 41.0 | 5.6 | 74 | S | 27 | 12 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.71 | 754.7 | 46.6 | 8.1 | 81 | NNW | 16 | 7 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.65 | 753.1 | 60.8 | 16.0 | 85 | N | 13 | 6 | | | 10 | | | | | | Kurdakof |
| Kertch | | | 29.76 | 756.0 | 59.0 | 15.0 | 86 | S | 7 | 3 | | | 9 | | | | | | Lagorio. |
| Moscow | | | 29.74 | 755.4 | 50.4 | 10.2 | 95 | S | 9 | 4 | | | 10 | | | | | Raining | Meteorological Obs. |
| Lugan | | | 29.69 | 754.2 | 62.2 | 16.8 | 71 | SSE | 13 | 6 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.69 | 754.0 | 49.8 | 9.9 | 50 | Calm | 0 | 0 | | | 0 | | | | | | Ogorodnikof. |
| Tiflis | 28.55 | 725.1 | 29.93 | 760.1 | 70.2 | 21.2 | 49 | E | 4 | 2 | | | 4 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.99 | 761.7 | 68.5 | 20.3 | 33 | ENE | 16 | 7 | | | 4 | | | | | | Sebastianof. |
| Kasan | | | 30.03 | 762.7 | 65.8 | 18.8 | 37 | S | 9 | 4 | | | 2 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischel. |
| Ekaterinburg | 29.12 | 739.7 | 30.07 | 763.7 | 51.4 | 10.8 | 57 | N | 4 | 2 | | | 1 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.21 | 716.4 | 29.84 | 757.9 | 74.1 | 23.4 | 64 | Calm | 0 | 0 | | | 3 | | | | | | Michelson. |
| Barnaul | | | 30.35 | 770.9 | 53.1 | 11.7 | 16 | N | 13 | 6 | | | 0 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 30.23 | 767.8 | 48.7 | 9.3 | 39 | NNW | 4 | 2 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 37.0 | 2.8 | | W | 4 | 2 | | | 8 | | | | | | Mossin. |
| Peking, (China) | | | 29.91 | 759.8 | 62.8 | 17.1 | 74 | Calm | 0 | 0 | | | 9 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.15 | 765.7 | 43.0 | 6.1 | 99 | SE | 13 | 6 | | | 10 | | | | | Raining | |
| Nikolaievsk, on the Amoor | | | | | 25.7 | — 3.5 | | Calm | 0 | 0 | | | 5 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.83 | 757.6 | 57.0 | 13.9 | 63 | SW | 14.2 | 6.33 | | 0 | 7 | | | 0.043 | 1.1 | Cloudy | Royal Observatory. |
| San Fernando | | | 30.07 | 763.7 | 64.4 | 18.0 | 67 | W | 17.0 | 7.6 | | 0 | 6 | | W | Inap. | Inap. | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.89 | 759.1 | 81.1 | 27.3 | 81 | S | 9.8 | 4.4 | | 1c | 2ks | | | 0 | 0 | Clear | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.54 | 750.2 | 38.1 | 3.4 | 76 | E | | | 2 | | 8 | | | 0.079 | 2.0 | | |
| Umea | | | 29.48 | 748.9 | 40.6 | 4.8 | 70 | SW | | | 2 | | 9 | | | 0.087 | 2.2 | | |
| Hernosand | | | 29.50 | 749.2 | 38.1 | 3.4 | 88 | N | | | 2 | | 10 | | | 0 | 0 | | |
| Stockholm | | | 29.66 | 753.3 | 47.5 | 8.6 | 84 | WSW | | | 4 | | 2 | | | 0 | 0 | | |
| Wisby | | | 29.75 | 755.7 | 45.6 | 7.2 | 50 | W | | | 6 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.64 | 752.8 | 48.6 | 8.9 | 39 | WSW | 13.2 | 5.9 | | | 3 | WNW | W | 0 | 0 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low'r 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.25 | 717.6 | 29.65 | 753.1 | 63.7 | 17.6 | 54 | WSW | | | 3 | | 9 | | | 0.417 | 10.6 | Cloudy | The Observatory. |
| Zurich | 28.08 | 713.1 | 29.71 | 754.6 | 55.2 | 12.9 | 83 | S | | | 1 | | 8 | | | 0.374 | 9.5 | Raining | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —7.1 mm; Thermometer, +2.4 cent.; Relative Humidity, —4 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low'r 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.80 | 756.9 | 74.7 | 23.7 | 54 | SSW | 3 | 1.5 | | | 4 | | SW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.02 | 762.4 | 75.2 | 24.0 | | NW | | | 2 | | 8 | | | | | | |
| Salonica | | | 29.83 | 757.7 | 74.1 | 23.4 | | S | | | 1 | | 0 | | | | | | |
| Valona | | | 29.91 | 759.7 | 66.7 | 19.3 | | W | | | 1 | | 0 | | | 0.31 | 8. | Clear | A. Bahran. |
| Varna | | | 29.88 | 759.0 | 61.4 | 18.6 | | S | | | 2 | | 0 | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 30.01 | 762.2 | 77.7 | 25.4 | 62 | W | | | 1 | | 9cs | | | 0 | 0 | Overcast | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low'r 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.01 | 762.2 | 35.4 | 1.9 | 90 | NE | 17 | 7.6 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.04 | 763.0 | 50 | 10.0 | | NE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 29.98 | 761.5 | 36 | 2.2 | 90 | NE | 13 | 5.8 | | | 10s | | NE | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.89 | 759.2 | 35 | 1.7 | 98 | NE | 10 | 4.5 | | | 10n | | | 0.220 | 5.59 | Light rain | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.00 | 762.0 | 44.7 | 7.1 | 64 | SW | | | 1 | | 10s | | | Inap. | Inap | Cloudy | James Smith, M. A. |
| Dalhousie, N. B. | | | | | 42.5 | 5.8 | 94 | W | | | 1 | | | | | 0.02 | 0.5 | Clearing | H. A. Johnson. |
| Esquimault, B. C. | | | 29.81 | 757.2 | 48.3 | 9.1 | 93 | SW | | | | 9cs | 0 | | | 0.07 | 1.8 | Light rain | W. H. Bevis. |
| *Father Point, Quebec | | | 30.06 | 763.5 | 35 | 1.7 | 95 | NE | 12 | 5.4 | | | Fog | | | 0 | 0 | Foggy | J. McWilliams. |
| Fredericton, N. B. | | | 29.98 | 761.5 | 37.9 | 3.3 | 73 | N | 10 | 4.5 | | | 10 | | | 0 | 0 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.25 | 768.3 | 34 | 1.1 | 96 | N | 6 | 2.7 | | 0 | 2ks | | N | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.00 | 762.0 | 52.4 | 11.3 | 54 | NE | | | 1 | 6c | 2s | NW | | 0 | 0 | Cloudy | H. J. Strang, M. A. |
| Granton, Ontario | | | 30.00 | 762.0 | 52.4 | 11.3 | 54 | NE | | | 1 | 1?cs | 0 | E | | 0 | 0 | Cloudy? | James Grant. |
| *Halifax, N. S. | 28.86 | 733.0 | 29.97 | 761.2 | 47 | 8.3 | 55 | E | | | 1 | | 10n | | NE | 0.773 | 19.61 | Heavy rain | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.65 | 753.1 | 37 | 2.8 | 95 | NE | 14 | 6.3 | | | 10n | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Hearr's Content, N. F. | | | 30.04 | 763.0 | 48.0 | 8.9 | 49 | NW | | | 2 | 2ck | 0 | SW | | 0 | 0 | Cloudy | E. Weedon. |
| *Kingston, Ontario | | | 30.10 | 764.5 | 40 | 4.4 | 86 | NE | | | 1 | 3k | 4ks | | | 0.01 | 0.3 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.04 | 763.0 | 48 | 8.9 | 76 | NE | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Fair | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 30.01 | 762.2 | 45 | 7.2 | 76 | NE | 12 | 5.4 | | 0 | 5ks | | N | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.07 | 763.8 | 48 | 8.9 | 47 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 30.01 | 762.2 | 42 | 5.6 | 58 | NE | 9 | 4.0 | | 5c | 0 | NW | | 1.80 | 45.7 | Raining | Peter Grant. |
| Port Stanley, Ontario | | | 29.76 | 755.9 | 40.3 | 4.6 | | E | 8 | 3.6 | | | | | | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | | | 29.98 | 761.5 | 50 | 10.0 | 41 | E | 7 | 3.1 | | 5ck | 0 | | | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.04 | 763.0 | 41 | 5.0 | 82 | NE | 3 | 1.3 | | | 10n | | NE | 0 | 0 | Clear | W. H. McIntyre. |
| St. John, N. B. | | | 30.09 | 764.3 | 45 | 7.2 | 57 | NW | 6 | 2.7 | | 0 | 0 | | | 0.13 | 3.3 | Cloudy | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.91 | 759.7 | 39 | 3.9 | 77 | N | 13 | 5.8 | | | 10 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 30.00 | 762.0 | 52 | 11.1 | 35 | E | 3 | 1.3 | | 2cs | 0 | | | 0 | 0 | Clear | R. J. Cole. |
| Stratford, Ontario | | | 30.04 | 762.2 | 45 | 7.2 | 32 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.70 | 729.0 | 29.99 | 761.7 | 45.1 | 7.3 | 59 | SE | 6 | 2.7 | | 3cs | 0 | SE | | 0 | 0 | Light rain | T. C. Hill. |
| *Toronto, Ontario | | | 29.88 | 758.9 | 43 | 6.1 | 81 | NE | 10 | 4.5 | | | 10n | | E | Inap. | Inap. | Fair | Magnetic Observatory. |
| Windsor, N. S. | | | 30.04 | 763.0 | 50 | 10.0 | 42 | E | 5 | 2.2 | | 2cs | Haze | | | 0 | 0 | | Prof. John E. Oram. |
| Woodstock, Ontario | | | | | | | | | | | | | | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.00 | 762.0 | 46.2 | 7.9 | 56 | E | 9 | 4.0 | | 0 | 2s | | | 0 | 0 | Fair | J. Montgomery. |
| | | | 30.18 | 766.6 | 46.0 | 7.8 | 77 | E | | | | 5k | 10s | | | Inap. | Inap. | Fair | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.94 | 760.5 | 50 | 10.0 | 64 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich. | | | 30.07 | 763.8 | 42 | 5.6 | 74 | E | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.96 | 761.0 | 54 | 12.2 | 67 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 29.82 | 757.4 | 61 | 16.1 | 94 | NE | 3 | 1.3 | | | 10n | | NE | 0.47 | 11.9 | Light rain | |
| Baltimore, Md. | | | 29.98 | 761.5 | 52 | 11.1 | 79 | Calm | 0 | 0 | | Haze | Sm'e | | | 0.02 | 0.5 | Smoky | |
| Barnegat, N. J. | | | 29.94 | 760.5 | 55 | 12.8 | 68 | SW | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Bismarck, Dakota | 28.36 | 720.3 | 30.05 | 763.3 | 41 | 5.0 | 83 | E | 3 | 1.3 | | Haze | 1s | | | 0 | 0 | Clear | |
| Boston, Mass. | | | 29.91 | 759.7 | 57 | 13.9 | 52 | N | 6 | 2.7 | | 0 | 1s,hz. | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 30.11 | 764.8 | 40 | 4.4 | 100 | N | 4 | 1.8 | | | Fog | | | 0.45 | 11.4 | Foggy | |
| Buffalo, N. Y. | | | 29.98 | 761.5 | 47 | 8.3 | 41 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.98 | 761.5 | 44 | 6.7 | 60 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 29.76 | 755.9 | 55 | 12.8 | 87 | NW | 7 | 3.1 | | | 10s | | NW | 0.17 | 4.3 | Cloudy | |
| Campo, Cal. | 27.38 | 695.4 | 29.95 | 760.7 | 51 | 10.6 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 61 | 16.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.90 | 759.4 | 51 | 10.6 | 72 | NE | 15 | 6.7 | | 2k | 0 | W | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 29.98 | 761.5 | 54 | 12.2 | 80 | NE | 2 | 0.9 | | 2c | 0 | | | Inap. | Inap. | Clear | |
| Cape Lookout, N. C. | | | 29.94 | 760.5 | 56 | 13.3 | 74 | NE | 25 | 11.2 | | 2ck | 5s | NE | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.98 | 761.5 | 49 | 9.4 | 85 | SW | 16 | 7.2 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Charleston, S. C. | | | 29.85 | 758.2 | 65 | 18.3 | 89 | NE | 9 | 4.0 | | | 10s | | S | 0.39 | 9.9 | Cloudy | |
| Cheyenne, Wyoming | 23.96 | 608.6 | 29.90 | 759.4 | 35 | 1.7 | 80 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.78 | 756.4 | 44 | 6.7 | 76 | NE | 15 | 6.7 | | | 10n | | | 0.19 | 4.8 | Light rain | |
| Cincinnati, Ohio | | | 29.63 | 752.6 | 52 | 11.1 | 86 | E | 5 | 2.2 | | | 10n | | SW | 0.19 | 4.8 | Light rain | |
| Cleveland, Ohio | | | 29.87 | 758.7 | 53 | 11.7 | 53 | NE | 4 | 1.8 | | 0 | 5s | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 30.04 | 763.0 | 52 | 11.1 | 79 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 29.74 | 755.4 | 47 | 8.3 | 85 | NE | 22 | 9.8 | | | 10n | | | 0.78 | 19.8 | Light rain | |
| Denison, Tex. | | | 30.01 | 763.0 | 55 | 12.8 | 73 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.75 | 628.6 | 29.97 | 761.2 | 37 | 2.8 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.88 | 758.9 | 48 | 8.9 | 42 | NE | 12 | 5.4 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Dodge City, Kan. | 27.44 | 697.0 | 29.80 | 756.9 | 27 | − 2.8 | 62 | N | 4 | 1.8 | | 0 | 2s | | N | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.83 | 757.7 | 47 | 8.3 | 69 | E | 16 | 7.2 | | | 10n | | E | 0.52 | 13.2 | Heavy rain | |
| Duluth, Minn. | | | 30.11 | 764.8 | 43 | 6.1 | 66 | NE | 4 | 1.8 | | Haze | 5s | | | 0 | 0 | Fair | |
| Eastport, Me. | | | 29.86 | 758.4 | 43 | 6.1 | 67 | N | 17 | 7.6 | | 8k | 0 | NE | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.92 | 760.0 | 50 | 10.0 | 45 | N | 6 | 2.7 | | 2c | Haze | NW | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.05 | 763.3 | 44 | 6.7 | 60 | N | 8 | 3.6 | | 2c | 0 | N | | 0 | 0 | Clear | |
| Florence, Arizona | | | | | 64 | 17.8 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.9 | 761.7 | 51 | 10.6 | 65 | NW | 9 | 4.0 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Ft. St. Michael, Alaska | | | 29.45 | 748.0 | 33 | 0.6 | 89 | S | | | 8 | | 10ks | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.86 | 733.0 | 29.97 | 761.2 | 52 | 11.1 | 48 | NW | 8 | 3.6 | | 1k | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.42 | 721.9 | 30.13 | 765.3 | 37 | 2.8 | 90 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.01 | 762.2 | 64 | 17.8 | 67 | N | 19 | 8.5 | | 0 | 0 | | | 0.14 | 3.6 | Clear | |
| Grand Haven, Mich. | | | 29.85 | 758.2 | 49 | 9.4 | 43 | E | 12 | 5.4 | | | 10s | | E | 0 | 0 | Cloudy | |
| Indianapolis, Ind. | | | 29.66 | 753.4 | 51 | 10.6 | 93 | NE | 2 | 0.9 | | | 10n | | E | 0.56 | 14.2 | Light rain | |
| Indianola, Tex. | | | 30.04 | 763.0 | 64 | 17.8 | 62 | N | 12 | 5.4 | | 0. | 0 | | | 0.86 | 21.8 | Clear | |
| Jacksonville, Fla. | | | 29.82 | 757.4 | 69 | 20.6 | 84 | S | 6 | 2.7 | | | 10n | | SW | 0.44 | 11.2 | Light rain | |
| Keokuk, Iowa | | | 29.66 | 753.4 | 49 | 9.4 | 85 | W | 8 | 3.6 | | | 10s | | W | 1.00 | 25.4 | Cloudy | |
| Key West, Fla. | | | 29.86 | 758.4 | 79 | 26.1 | 86 | S | 6 | 2.7 | | 0 | 8ks | | | 0 | 0 | Cloudy | |
| Kittyhawk, N. C. | | | 30.00 | 762.0 | 50 | 10.0 | 85 | NE | 15 | 6.7 | | 1cs | 0 | W | | 0.01 | 0.3 | Clear | |
| Knoxville, Tenn. | | | 29.74 | 755.4 | 57 | 13.9 | 75 | N | 4 | 1.8 | | | 10n | | S | 0.01 | 0.3 | Light rain | |
| LaCrosse, Wis. | | | 29.92 | 760.0 | 48 | 8.9 | 56 | NE | 12 | 5.4 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Leavenworth, Kan. | | | 29.90 | 759.4 | 48 | 8.9 | 77 | NW | 14 | 6.3 | | | 10s | | | 0.08 | 2.0 | Cloudy | |
| Louisville, Ky. | | | 29.63 | 752.6 | 53 | 11.7 | 93 | N | 4 | 1.8 | | | 10s | | N | 0.08 | 2.0 | Cloudy | |
| Lynchburg, Va. | | | 29.97 | 761.2 | 50 | 10.0 | 78 | E | 1 | 0.4 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 67 | 19.4 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.07 | 763.8 | 42 | 5.6 | 49 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 29.86 | 758.4 | 56 | 13.3 | 81 | N | 7 | 3.1 | | 0 | 2ks | | W | 0.11 | 2.8 | Clear | |
| Milwaukee, Wis. | | | 29.88 | 758.9 | 43 | 6.1 | 58 | NE | 21 | 9.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Mobile, Ala. | | | 29.82 | 757.4 | 68 | 20.0 | 84 | N | 7 | 3.1 | | 0 | 5ks | | N | 0.81 | 20.6 | Fair | |
| Montgomery, Ala. | | | 29.82 | 757.4 | 64.5 | 18.1 | 94 | SW | 6 | 2.7 | | | 10n | | W | 0.54 | 13.7 | Light rain | |
| Morgantown, W. Va. | 28.78 | 731.0 | 29.82 | 757.4 | 51 | 10.6 | 65 | NW | 2 | 0.9 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 23.62 | 599.9 | 29.98 | 761.5 | 26 | − 3.3 | 76 | N | 2 | 0.9 | | 8k | 0 | N | | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 29.72 | 754.9 | 60 | 15.6 | 82 | W | 7 | 3.1 | | | 10ks | | W | 0.31 | 7.9 | Cloudy | |
| New Haven, Conn. | | | 29.93 | 760.2 | 55 | 12.8 | 55 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Clear | |
| New London, Conn. | | | 29.92 | 760.0 | 53 | 11.7 | 54 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Orleans, La. | | | 29.85 | 758.2 | 70 | 21.1 | 75 | N | 14 | 6.3 | | 5k | 1s | N | | 0.15 | 3.8 | Fair | |
| Newport, R. I. | | | 29.92 | 760.0 | 51 | 10.6 | 48 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| New York, N. Y. | | | 29.95 | 760.7 | 50 | 10.0 | 64 | NW | 5 | 2.2 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.00 | 762.0 | 53 | 11.7 | 86 | NE | 4 | 1.8 | | 5k | Fog | NE | | 0 | 0 | Fair | |
| North Platte, Neb. | 27.14 | 689.3 | 29.76 | 755.9 | 39 | 3.9 | 71 | Calm | 0 | 0 | | 2ck | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.85 | 732.8 | 29.93 | 760.2 | 46 | 7.8 | 85 | N | 10 | 4.5 | | | 10s | | N | 0.06 | 1.5 | Cloudy | |
| Oswego, N. Y. | | | 30.02 | 762.5 | 43 | 6.1 | 71 | N | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 30.22 | 767.6 | 35 | 1.7 | 90 | N | 2 | 0.9 | | | Fog | | | 0 | 0 | Foggy | |
| Philadelphia, Pa. | | | 29.96 | 761.0 | 52 | 11.1 | 47 | N | 10 | 4.5 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Phœnix, Arizona | 28.79 | 731.3 | | | 75 | 23.9 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.69 | 449.3 | 29.90 | 759.4 | 11 | −11.7 | 79 | W | 15 | 6.7 | | 0 | 5s | | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 29.86 | 758.4 | 50 | 10.0 | 64 | SE | 8 | 3.6 | | 1c | 0 | W | | 0.06 | 1.5 | Clear | |
| Port Huron, Mich. | | | 29.95 | 760.7 | 37 | 2.8 | 80 | NE | 8 | 3.6 | | 5c | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.91 | 759.7 | 49 | 9.4 | 57 | N | 10 | 4.5 | | 1k | Haze | | | 0 | 0 | Clear | |
| Portland, Oregon | | | 29.87 | 758.7 | 48 | 8.9 | 92 | Calm | 0 | 0 | | | 1s | | | 0.27 | 6.9 | Cloudy | |
| Prescott, Arizona | | | | | | | | | | | | | | | | | | | |
| Punta Rassa, Fla. | | | 29.86 | 758.4 | 78 | 25.6 | 86 | SE | 8 | 3.6 | | | 10ks | | | 0 | 0 | Cloudy | |
| Rochester, N. Y. | | | 30.00 | 762.0 | 46 | 7.8 | 61 | W | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.38 | 644.6 | 29.71 | 754.6 | 55 | 12.8 | 50 | SE | 22 | 9.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Sandy Hook, N. J. | | | 29.94 | 760.5 | 48 | 8.9 | 77 | NW | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| San Antonio, Texas | | | 29.84 | 757.9 | 64 | 17.8 | 57 | N | 1 | 0.4 | | 0 | 0 | | | 0.14 | 3.6 | Clear | |
| San Diego, Cal. | | | 29.99 | 761.7 | 59 | 15.0 | 76 | SW | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.91 | 759.7 | 52 | 11.1 | 72 | W | 10 | 4.5 | | | 10s | | W | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.27 | 591.0 | 29.81 | 757.2 | 44 | 6.7 | 72 | SE | 6 | 2.7 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Savannah, Ga. | | | 29.82 | 757.4 | 70 | 21.1 | 90 | S | 4 | 1.8 | | | 10s | | S | 0 | 0 | Cloudy | |
| Shreveport, La. | | | 30.06 | 763.5 | 61 | 16.1 | 61 | NW | 4 | 1.8 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Smithville, N. C. | | | 29.92 | 760.0 | 58 | 14.4 | 76 | NE | 16 | 7.2 | | | 10ks | | NE | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 29.94 | 760.5 | 51 | 10.6 | 55 | N | 2 | 0.9 | | 8ck | 0 | W | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.74 | 755.4 | 51 | 10.6 | 93 | W | 8 | 3.6 | | | 10s | | | 0.24 | 6.1 | Cloudy | |
| St. Marks, Fla. | | | 29.76 | 755.9 | 68 | 20.0 | 94 | SW | 4 | 1.8 | | | 10s | | SW | 2.54 | 64.5 | Cloudy | |
| St. Paul, Minn. | | | 29.97 | 761.2 | 43 | 6.1 | 59 | N | 12 | 5.4 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 61 | 16.1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 29.92 | 760.0 | 46 | 7.8 | 69 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Toledo, Ohio | | | 29.85 | 758.2 | 49 | 9.4 | 63 | NE | 17 | 7.6 | | 5ck | 2s | SW | NE | 0 | 0 | Fair | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.49 | 698.2 | 30.04 | 763.0 | 64 | 17.8 | | S | | | | 2ck | 0 | SW | | 0 | 0 | Fair | |
| Tybee Island, Ga | | | 29.79 | 756.7 | 68 | 20.0 | 94 | S | 4 | 1.8 | | | 10s | | | 0 | 0 | Threatening | |
| Vicksburg, Miss | | | 29.91 | 760.5 | 63 | 17.2 | 71 | N | 9 | 4.0 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Virginia City, M. T | 24.06 | 611.1 | 29.54 | 750.3 | 36 | 2.2 | 80 | NE | 7 | 3.1 | | | 10n | | N | 0.03 | 0.8 | Light rain | |
| Washington, D. C | | | 30.00 | 762.0 | 50 | 10.0 | 86 | S | 2 | 0.9 | | 0 | Fog | | | 0.01 | 0.3 | Clear | |
| Wickenburg, Arizona | | | | | 55 | 12.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.92 | 760.0 | 55 | 12.8 | 73 | NE | 11 | 4.9 | | | 10s | | W | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 29.91 | 759.7 | 53 | 11.7 | 54 | N | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.78 | 731.0 | 30.09 | 764.3 | 42 | 5.6 | 91 | N | 8 | 3.6 | | | Fog | | | 0.01 | 0.3 | Cloudy | |
| Yuma, Arizona | | | 29.84 | 757.9 | 65 | 18.3 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.12 | 765.0 | 80 | 26.7 | 78 | Calm | 0 | 0 | | 2k | 0 | SE | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 80 | 26.7 | | NE | | | 2 | | | | | 0.18 | 4.6 | | Dr. G. H. Davison |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.96 | 761.0 | 82 | 27.8 | 87 | E | | | 3 | 4e | 5k | E | | 0 | 0 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A. | 30.05 | 763.3 | | | 81.7 | 27.5 | | E | | | | | | | | 0.049 | 1.25 | Showery | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.20 | 640.1 | | | 68.4 | 20.2 | 80 | SW | | | 1 | 0 | 1s | | | 0.02 | 0.5 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.32 | 770.1 | 32.0 | 0.0 | 95 | E | 10 | 4.5 | | 3e | 0 | SW | | Inap. | Inap | Fair | J. Fortescue, W. Wood . |
| Honolulu, Oahu, H. I | | | 30.00 | 762.0 | 71 | 21.7 | | S | | | 1 | | | | | 0 | 0 | Hazy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,235 ft., or 1,915.6 m.; North Platte, 2,846 (?) ft., or 2,031.6 (?) m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,151.7 ft., or 4,313.1 m.; Salt Lake City, 4,312.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.02 | 762.5 | 69 | 20.6 | 48 | 8.9 | 85 | WSW | | | 3 | | 1 | | W | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.95 | 760.7 | 60 | 15.6 | 53.5 | 11.9 | | WSW | | | 4 | | | | | 0 | 0 | | | Pleasant | |
| Navy Yard, Norfolk, Va. | 30.12† | 765.0† | 52 | 11.1 | 52 | 11.1 | 86 | Calm | 0 | 0 | | | 5cs | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Pensacola, Fla. | 29.91 | 759.7 | | | 71 | 21.7 | 90 | NNW | 7 | 3.1 | | | 7 | | SSE | 0.12 | 3.0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 29.95 | 760.7 | 64 | 17.8 | 50 | 10.0 | 45 | NNE | 5 | 2.2 | | | | | NE | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 30.25 | 768.3 | 60 | 15.6 | 53 | 11.7 | 80 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Clear | |
| Adams, N. 23° 30′ W. 36° 37′ | 30.28 | 769.1 | 76 | 24.4 | 77 | 25.0 | 86 | SE | | | 3 | | 5 | | SE | | | Moderate. | E | D. clouds | |
| Alert, Yokohama, Japan | 30.50 | 774.7 | 61 | 16.1 | 61 | 16.1 | 88 | SSW | | | 2 | | 1 | | SW | | | Calm | None | D. clouds | |
| Alliance, Haifa, Syria | 30.14 | 765.5 | 74 | 23.3 | 71 | 21.7 | 85 | NW | | | 2–3 | | 6 | | N&W | | | Calm | None | Hazy | |
| Ashuelot, Canton, China | 29.96 | 761.0 | 77 | 25.0 | 75 | 23.9 | 81 | ESE | | | 2 | | 9 | | ESE | | | Smooth | | Lightning | |
| Canonicus, New Orleans, La | 29.86 | 758.4 | 51 | 10.6 | 67 | 19.4 | 79 | NNW | | | 2 | | 8 | | N | | | | | Fair | |
| Colorado, New York, N. Y | 30.00 | 762 0 | 70 | 21.1 | 52 | 11.1 | 86 | NNE | 3 | 1.3 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Despatch, N 37° 22′ W. 52° 10′ | 30.11 | 764 8 | 65 | 18.3 | 65 | 18.3 | 89 | SSE | | | 2 | | 8 | | S | | | Smooth | S | Damp | |
| Essex, Vera Cruz, Mexico | 29.90 | 759.4 | 90 | 32.2 | 85 | 29.4 | 87 | NNW | | | 3 | | 8 | | SSE | 0 | 0 | Smooth | | Hazy | |
| Frolic, Monte Video, Uruguay | 30.17 | 766.3 | | | 59 | 15.0 | 76 | SE | | | 3 | | 2k | | | 0 | 0 | Moderate. | SE | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.76 | 755.9 | | | 68 | 20.0 | 90 | SE | | | 1 | | 10 | | | Blank | Blank | | | D. clouds | |
| Hartford, St. Thomas, W. I. | 30.20 | 767.1 | 81 | 27.2 | 82 | 27.8 | 79 | ESE | 2.4 | 1.1 | | | 6 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.22 | 767.6 | 70 | 21.1 | 65 | 18.3 | 94 | ENE | | | 1 | | 0 | | | 0 | 0 | Calm | None | Hazy | |
| Lackawana, Acapulco, Mexico | 29.85 | 758.2 | | | 82 | 27.8 | 96 | Calm | | | 0 | | 7 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.84 | 757.9 | 75 | 23.9 | 80 | 26.7 | 87 | NW | | | 2 | | 6 | | E | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.42 | 747.3 | 54 | 12.2 | 49 | 9.4 | 62 | NE | | | 2 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.92 | 760.0 | 67 | 19.4 | 66 | 18.9 | 84 | ESE | | | 1 | | 10 | | ESE | | | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.02 | 762.5 | 57 | 13.9 | 60 | 15.6 | | NE | | | 2 | | ..ck | | | 0 | 0 | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.03 | 762.7 | | | 69 | 20.6 | 95 | E | | | 1 | | 10 | | | 0 | 0 | | | D. clouds | |
| Omaha, N. 7° 15′ W. 79° 30′ | 29.96 | 761.0 | 82.5 | 28.1 | 82 | 27.8 | 87 | N | 3 | 1.3 | | | 7 | | N | 0.04 | 1.0 | Slight | N | Pleasant | |
| Ossipee, Matanzas, Cuba, W. I. | 29.95 | 760.7 | 78 | 25.6 | 78 | 25.6 | 86 | S | | | 2 | | 2 | | S | | | | | D. clouds | |
| Palos, Shanghai, China | 30.06 | 763.5 | 66 | 18.9 | 66 | 18.9 | 84 | ESE | | | 4–5 | | 10 | | ENE | | | | | Cloudy | |
| Pensacola, Acapulco, Mexico | 29.96 | 761.0 | | | 81 | 27.2 | 91 | Calm | | | 0 | | 6 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Baton Rouge, La | 29.93 | 760.2 | 73 | 22.8 | 62 | 16.7 | 72 | NNW | | | 5 | | 0 | | | 0 | 0 | | | Clear | |
| Ranger, N. 37° 10′ W. 40° 41′ | 30.42 | 772.7 | | | 69 | 20.6 | 95 | S | | | 1–2 | | 3 | | | | | Smooth | | Clear | |
| Richmond, S. 31° 57′ W. 50° 10′ | 29.88 | 758.9 | 68.8 | 20.4 | 66.0 | 18.9 | 91 | E | | | 2 | | 10 | | | Blank | Blank | Long, heavy | ESE | Overcast | |
| Rio Bravo, Matamoras, Mexico | 29.92 | 760.0 | | | 57 | 13.9 | 94 | NW | | | 1 | | 0 | | | | | | | Blue sky | |
| Santee, Annapolis, Md | 30.05 | 763.3 | 65 | 18.3 | 56 | 13.3 | 69 | N | | | 0–1 | | 2 | | | 0.01 | 0.3 | | | Hazy | |
| St. Louis, Lengue Island, Pa | 29.88 | 758.9 | 53 | 11.7 | 50 | 10.0 | 72 | SW | 2 | 0.9 | | | 0 | | | 0.03 | 0.8 | | | Hazy | |
| Swatara, Aspinwall, Panama | 29.96 | 761.0 | 83 | 28 3 | 83 | 28.3 | 87 | NNE | | | 1 | | 5kn | | NE | Blank | Blank | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 30.34 | 770.6 | 67 | 19.4 | 60 | 15.6 | 82 | W | | | 1 | | 9 | | | 0 | 0 | Smooth | | D. clouds | |
| Trenton, Villefranche, France | 29.80 | 756.9 | 66 | 18.9 | 64 | 17.8 | 100 | S | 3.6 | 1.6 | | | 9 | | | | | | S | Raining | |
| Vandalia, Constantinople, Turkey | 29.84 | 757.9 | 66 | 18.9 | 71 | 21.7 | 90 | SSW | | | 1 | | 2 | | SW | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.92 | 760.0 | 52 | 11.1 | 52 | 11.1 | 60 | NNW | 6 | 2.7 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C. | 30.36 | 771.1† | 55 | 12.8 | 50 | 10.0 | | Calm | | | 0 | | | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.88 | 758.9 | 77 | 25.0 | 91 | ESE | | | 1 | | 5ks | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 38° 36′, W. 71° 55′ | WSW | | 29.99 | 761.7 | 55.6 | 13.1 | | N | | | 5 | | 0 | | | Light | | Clear | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 37° 44′, W. 73° 46′ | SW | 1.5 | 29.92 | 760.0 | 55 | 12.8 | 74 | NW | 5 | 2.2 | | 2c | 0 | W | | Swell | NE | Clear | Capt. James Jorgensen. |

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 8, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.15 | 765.8 | 71.6 | 22.0 | 54 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear. | Michel. |
| Algiers | | | 30.01 | 762.2 | 62.2 | 16.8 | 67 | W | | | 3 | | 2 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.95 | 760.6 | 65.1 | 18.4 | 76 | NW | | | 3 | | 6 | | | 0.079 | 2.0 | Fair | Fleury. |
| Tunis | | | 29.95 | 760.7 | 71.6 | 22 | | NE | | | 3 | | 3 | | | 0 | 0 | Fair | Jacques. |
| Sfax | | | 29.98 | 761.6 | 71.6 | 22 | | W | | | 3 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.15 | 765.8 | 60.1 | 15.6 | | WNW | | | 4 | | 2 | | | 0.303 | 7.7 | Clear | Millot. |
| Tebessa | | | 29.94 | 760.5 | 52.7 | 11.5 | | WNW | | | 4 | | 10 | | | 0.276 | 7.0 | Hidden | Bourgeois |
| Geriville | | | 30.13 | 765.2 | 57.7 | 14.3 | 55 | NW | | | 4 | | 3 | | | 0 | 0 | Fair | Lemaillot |
| Laghouat | | | 29.97 | 761.1 | 68 0 | 20.0 | 14 | W | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.03 | 762.7 | 77.0 | 25.0 | 46 | NW | | | 3 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.72 | 754.8 | 62.8 | 17.1 | 76 | NE | | | 1 | | 10 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.78 | 756.5 | 61.4 | 18.0 | 49 | NE | | | 2 | | 3 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.80 | 756.8 | 64.9 | 18.3 | 54 | S | | | 1 | | 8,8 | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.49 | 723 7 | 29.74 | 754.7 | 63.0 | 17.2 | 62 | ESE | | | 2 | | 8 | | | | | Thunder-storm | Andreas Rospini. |
| Hermannstadt | 28.42 | 721.8 | 29.79 | 756.7 | 65.8 | 18.8 | 48 | SE | | | 4 | | 2 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.31 | 719.7 | 29.65 | 753.2 | 55.4 | 13 0 | 77 | Calm | | | 0 | | 5 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.89 | 759.3 | 56.7 | 13.7 | 50 | SE | | | 3 | | 7 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.72 | 751.8 | 65.5 | 18.6 | 72 | SSW | | | 2 | | 9cks | | | 0.427 | 10.85 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.79 | 756.7 | 67.6 | 19 8 | 61 | Calm | | | 0 | | 7 | | | 0.124 | 3.15 | | Karl Stancel. |
| Trieste | | | 29.74 | 755.3 | 61.2 | 16.2 | 84 | E | | | 1 | | 10 | | | 0.157 | 4.0 | Raining | P. Busin. |
| Vienna | | | 29.69 | 754.1 | 62.2 | 16.8 | 66 | SSE | | | 2 | | 6 | | | 0.008 | 0.2 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 348.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.21 | 716.6 | 29.66 | 753.4 | 57.7 | 14.3 | 90 | SW | | | 1 | | 10 | | | 0.228 | 5.8 | | |
| Brussels | | | 29.66 | 753.3 | 63.7 | 17.6 | 40 | ESE | | | 1 | ck | 8k | | SSE | 0.016 | 0.40 | | Royal Observatory. |
| Furnes | | | 29.71 | 754.5 | 61.5 | 16.4 | 59 | NNW | | | 2 | | 6 | | | 0 | 0 | | |
| Mueseyck | | | 29.56 | 750.9 | 60.6 | 15.9 | 40 | NE | | | 2 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.87 | 758.7 | 44.7 | 7.1 | | ESE | 14 | 6.3 | | | 2 | | | 0.010 | 0.25 | Blue sky | William Boswell. |
| Ardrossan | | | 29.73 | 755.1 | 60 | 15.6 | | NE | | | 4 | | 2 | | | | | Blue sky | William McNeil. |
| Armagh, Observatory | | | 29.68 | 753.9 | 53.3 | 11.8 | | E | 14 | 6.3 | | | 4 | | | | | Squally | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.69 | 754.1 | 59.9 | 15.5 | | ESE | 20 | 8.9 | | | 3 | | | | | Hazy | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.57 | 751.1 | 58.3 | 14.6 | | SE | | | 3 | | 9 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 29.76 | 755.9 | 54.7 | 12.6 | | E | | | 0 | | 0 | | | 0 | 0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.02 | 762.5 | 81.8 | 27.7 | | NE | | | 2 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.68 | 753.9 | 65.0 | 18.3 | | E | | | 1 | | 1 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.61 | 752.1 | 62.0 | 16.7 | | NE | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 29.76 | 755.9 | 57.2 | 14.0 | | NE | | | 3 | | 10 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.23 | 717.0 | 29.69 | 754.1 | 53.0 | 11.7 | | S | | | 4 | | 8 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.71 | 754.6 | 48 | 8.9 | | ESE | | | 3 | | 3 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.68 | 753.9 | 57 | 13.9 | | NNE | | | 3 | | 1 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.70 | 754.4 | 62.0 | 16.7 | | SE | 8.8 | 3.9 | | | | | | | | Blue sky | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.64 | 752.8 | 52.9 | 11.6 | | SSE | | | 4 | | 6? | | | | | Overcast? | The Staff. |
| Fort Napier, (Natal) | 27.72 | 704.1 | 29.96 | 761.0 | 69.7 | 20.9 | | NE | | | 2 | | 8 | | | | | D. clouds | Pvt. G. Sabnon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.00 | 762.0 | 87 | 30.6 | | NW | | | 4 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.50 | 749.3 | 59 | 15.0 | | ESE | | | 2 | | 5 | | | | | D. clouds | G. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.14 | 765.5 | 67.0 | 19.4 | | W | | | 3 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.74 | 755.4 | 53.0 | 11.7 | | ENE | | | 3 | | 1 | | | | | Blue sky | Lewis Stuart. |
| Great Yarmouth | | | 29.74 | 755.4 | 52 | 11.1 | | NE | | | 2 | | 1 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.68 | 753.9 | 63.0 | 17.2 | | E | | | 1 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 29.65 | 753.1 | 55.5 | 13.1 | | ESE | | | 1 | | 6 | | | | | D. clouds | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 29.65 | 753.1 | 57 | 13.9 | | SE | | | 4 | | 2k | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.66 | 753.4 | 59 | 15.0 | | NNE | | | 2 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.68 | 753.9 | 62.4 | 16.9 | | SE | 6 | 2.7 | | | 0 | | | | | Light haze | The Staff. |
| Kingstown | | | 29.67 | 753.6 | 51 | 10.6 | | E | | | 4 | | 5 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.72 | 754.9 | 58.0 | 14.4 | | E | | | 2 | | | | | | | Blue sky | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 29.86 | 758.4 | 70.0 | 21.1 | | N | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.81 | 757.2 | 51 | 10.6 | | ENE | | | 2 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.88 | 758.9 | 74.0 | 23.3 | | W | | | 6 | | 10 | | | | | Raining | J. Belgrave. |
| Nottingham, Observatory | | | 29.74 | 755.4 | 61.0 | 16.1 | | SE | | | 3 | | 2c | | SSW | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.70 | 754.4 | 59.0 | 15.0 | | E | | | 3-4 | | 1 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.68 | 753.9 | 60 | 15.6 | | E | | | 2 | | 0 | | | | | Blue sky | J. W. Lucas. |
| Plymouth | | | 29.65 | 753.1 | 58.0 | 14.4 | | SE | | | 2 | | 7 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.56 | 750.8 | 56 | 13.3 | | SSE | | | 5 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.61 | 752.1 | 55 | 12.8 | | SE | | | 2 | | 0 | | | | | Hazy | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.66 | 753.4 | 56.5 | 13.6 | | S | | | 2 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.86 | 758.4 | 44.2 | 6.8 | | W | 14 | 6.3 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.88 | 758.9 | 66.0 | 18.9 | | NNE | | | 2 | | 10 | | | | | Gloomy | Sergt. W. H. Lyne. |
| Sheffield | | | 29.75 | 755.6 | 57.9 | 14.4 | | E | | | 2 | | 1 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Stilton, Rectory | | | 29.72 | 754.9 | 60.6 | 15.9 | 49 | Calm | | | 0 | | 2 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.70 | 754.1 | 56.9 | 13.8 | | SE | | | 3 | | | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.80 | 756.9 | 46 | 7.8 | | NE | | | 1 | | 0 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 29.70 | 754.4 | 61.5 | 16.4 | | NE | | | 1 | | 3 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 29.82 | 757.4 | 50 | 10.0 | | NNW | | | 2 | | 4 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.63 | 752.6 | 59 | 15.0 | | S | | | 6 | | 8 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.47 | 748.5 | 49.6 | 9.8 | | SE | 33 | 14.8 | | | 10 | | | | | Drizzling | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 44 | 6.7 | | E | | | 3 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.89 | 759.2 | 61.5 | 16.4 | 84 | NW | 18 | 8.0 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.72 | 754.9 | 60.0 | 15.6 | 71 | NW | | | 3 | | 4k | | | 0.05 | 1.3 | | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 29.81 | 757.2 | 48.0 | 8.9 | | NE | | | 3 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.14 | 765.5 | 71.7 | 22.1 | 79 | E | 11.2 | 5.0 | | 10 | 3 | | ESE | 0.03 | 0.8 | Overcast | C. Meldrum. |
| Melbourne, Observatory | | | 30.17 | 766.3 | 54.0 | 12.2 | 85 | W | 3 | 1.3 | | | 10 | | | 0 | 0 | Threatening | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.77 | 756.1 | 46 | 7.8 | | SE | | | 4 | 3 | 0 | E | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.76 | 755.9 | 50 | 10.0 | | NW | | | 2 | 4 | 6 | N | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,460 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.02 m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 50° 15′ W. 22° 40′ | | | 29.44 | 747.8 | 47.0 | 8.3 | | NNE | | | 6 | | 10 | | | 20* | NNW | Raining | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 20° 10′ W. 33° 30′ | | | 30.16 | 766.1 | 76.0 | 24.4 | | ENE | | | 4 | | 9 | | | 4 | ENE | Overcast | Capt. Jas. J. Price. |

NOTE.—The origina's give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the Minister of Foreign Affairs.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.17 | 664.7 | | | 68.9 | 20.5 | 82 | SE | | | 1 | | 1cs | | | 0 | 0 | | Federico Maison. |

Note.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| Stations. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.91 | 759.8 | 54.9 | 12.7 | 35 | SSE | | | 2 | | 0 | | | | | | |
| Fanöe | | | 29.83 | 757.6 | 57.7 | 14.3 | 41 | WSW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 29.86 | 758.4 | 46.2 | 7.9 | 67 | SE | | | 2 | | 10 | | | | | | |
| Vestervig | | | 29.87 | 758.6 | 51.1 | 10.6 | 68 | N | | | 4 | | 0 | | | | | | |

Note.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| Stations. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.69 | 754.1 | 55.4 | 13 | 56 | SW | | | 2 | | 5kn | | SW | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 29.65 | 753.1 | 69.4 | 20.8 | | E | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Avignon, Normal School | | | 29.73 | 755.1 | 65.5 | 18.6 | 60 | SSE | | | 1 | | | | W | 0 | 0 | Threatening | Mr. Giraud. |
| Bar-sur-Seine | | | 29.66 | 753.3 | 61.7 | 16.5 | 66 | NNE | | | 2 | | 10n | | SW | 0.126 | 3.2 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.69 | 754.1 | 61.9 | 16.6 | 44 | ESE | | | 1 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Besançon | | | 29.77 | 756.1 | 64.4 | 18 | 62 | S | | | 2 | | 5 | | S | 0.47 | 12. | Cloudy | Normal School. |
| Bourg en Bresse | | | 29.80 | 756.8 | 60.1 | 15.6 | 75 | SW | | | 2 | | 5kn | | NE | 0 | 0 | Cloudy | Normal School. |
| Bourges | | | 29.77 | 756.2 | 55.9 | 13.3 | 98 | SSW | | | 3 | | 5 | | NE | 0.12 | 3. | Partly cl'dy. | Normal School. |
| Brest | | | 29.59 | 751.5 | 57.4 | 14.1 | 52 | SSW | | | 4 | | 10 | | SW | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 29.83 | 757.6 | 60.1 | 15.6 | 61 | W | | | 2 | | 5 | | E | 0.28 | 7. | Partly cl'dy | Normal School. |
| Caen | | | 29.62 | 752.4 | 61.7 | 16.5 | 61 | NNE | | | 1 | | | | | 0.12 | 3. | | Normal School. |
| Chartres | | | 29.68 | 753.8 | 63.0 | 17.2 | 92 | N | | | 2 | | 5 | | NW | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 29.66 | 753.4 | 58.3 | 14.6 | 72 | SE | | | 2 | | 8kn | | NW | 0.067 | 1.7 | Very cloudy | Normal School. |
| Clermont | | | 29.69 | 754.1 | 56.3 | 13.5 | 69 | NW | | | 1 | | 10 | | NW | 0.079 | 2.0 | Covered | Puy de Dome Obs'y. |
| Commercy | | | 29.65 | 753.1 | 54.3 | 12.4 | 74 | SE | | | 2 | | 10 | | SE | 0 | 0 | Covered | Normal School. |
| Commune de Gréasque* | | | 29.78 | 756.3 | 63.5 | 17.5 | 66 | W | | | 2 | | 8 | | W | 0.340 | 8.8 | | M. Kina. |
| Grenoble | | | 29.69 | 754.1 | 57.7 | 14.3 | 73 | NW | | | 6 | | 2ck | | NE | 0.544 | 13.75 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon | | | 29.79 | 756.6 | 57.9 | 14.4 | 57 | SW | | | 2 | | 5 | | NW | 0 | 0 | Cloudy | Normal School. |
| Le Mans | | | 29.67 | 753.6 | 63.1 | 17.3 | 53 | W | | | 4 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.70 | 754.4 | 59.2 | 15.1 | 86 | SSE | | | 1 | | 5 | | E | 0.08 | 2.10 | Cloudy | Normal School. |
| Lorient | | | 29.70 | 754.3 | 59.4 | 15.2 | 87 | SSW | | | 3 | | 8 | | SW | 0.130 | 3.3 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.84 | 757.9 | 57.7 | 14.3 | 89 | Calm | | | 0 | | 10 | | | 0.110 | 2.8 | Covered | Mr. Marchal. |
| Metz | | | 29.74 | 755.5 | 58.3 | 14.6 | 57 | NE | | | 2 | | 5k | | SW | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.66 | 753.3 | 59.2 | 15.1 | 61 | E | | | 2 | | 8 | | W | 0.12 | 3. | Very cloudy | Normal School. |
| Nismes | | | 29.72 | 754.9 | 63.2 | 19 | 56 | N | | | 4 | | 5 | | N | 0 | 0 | Cloudy | Normal School. |
| Orleans | | | 29.702 | 749.32 | 62.2 | 16.8 | 55 | N | | | 4 | | 5 | | NNW | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 29.67 | 753.6 | 57.6 | 14.2 | 54 | NW | | | 2 | | 10ck | | NW | 0.01 | 0.36 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.78 | 756.3 | 59.0 | 15.0 | 59 | SW | | | 4 | | 10 | | NE | 0.12 | 3. | Covered | Naval Observatory. |
| Rouen | | | 29.64 | 752.8 | 67.3 | 19.6 | 34 | WNW | | | 1 | | 5 | | SW | 0 | 0 | Cloudy | Normal School. |
| Tarbes | 28.83 | 732.2 | 29.89 | 759.2 | 55.4 | 13 | 90 | NW | | | 2 | | 5 | | E | 0.217 | 5.5 | Cloudy | Normal School. |
| Villefranche | | | 29.74 | 755.5 | 59.9 | 15.5 | 84 | W | | | 2 | | 5 | | W | 0.35 | 9. | Cloudy | Normal School. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique. | | | 29.89 | 759.1 | 81.0 | 27.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.73 | 755.2 | 61.2 | 16.2 | 73 | W | | | 3-4 | | 8 | | | 0.01 | 0.40 | Very cloudy | The Staff. |
| Mont-Louis | 24.64 | 625.9 | 29.96 | 760.9 | 44.8 | 7.1 | 75 | NE | 9.2 | 4.17 | | | 8 | | SW | 0.54 | 13.8 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.65 | 753.2 | 57.7 | 14.3 | 55 | NNE | | | 2 | | 10 | | NNE | 0.02 | 0.6 | | Montsouris Observatory |
| Perpignan | | | 29.82 | 757.3 | 61.5 | 16.4 | 45 | N | 9.3 | 4.17 | | | 7 | | SW | 0.03 | 0.9 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | ( ) Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.28 | 565.8 | | | 35.2 | 1.8 | | WSW | | | 1 | | 8 | | | 0.30 | 7.7 | Snowy | ( ) and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.67 | 753.5 | 57.2 | 14.0 | 67 | ENE | | | 1 | | 10 | | | 0.04 | 1.1 | Covered | E. Renou. |
| Toulouse, Observatory | | | 29.86 | 758.4 | 59.2 | 15.1 | 49 | WNW | | | 3 | | 6 | | | 0.067 | 1.7 | | The Staff. |
| Tours | | | 29.70 | 754.3 | 61.5 | 16.4 | 59 | W | | | 2 | | 8 | | W | 0.01 | 0.3 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.68 | 753.8 | 59.4 | 15.2 | 50 | E | | | 1 | | 10 | | | 0.048 | 1.22 | Covered | Dr. A. Béringy. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.91 | 759.6 | 66.4 | 19.1 | 94 | SE | 17.1 | 7.8 | | | 10n | | | 0 | 0 | Covered | Marc Dechevrens, S. J |

Note.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont is 8·8 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2.877 m., or 9,439.1 ft.; Pic du Midi, Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis's barometric observations for altitude, the constant 135. millimeters has been added. At Clermont the observations have been taken at 0:50 instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:71, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.74 | 755.5 | 59.7 | 15.4 | 62 | Calm | | | 0 | | 10 | | | 0.079 | 2.0 | Raining | Prof. T. Hoh |
| Berlin | | | 29.82 | 757.5 | 55.2 | 12.9 | 50 | SE | | | 3 | | 10 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.84 | 758.0 | 59.5 | 10.3 | 89 | E-E | | | 1 | | 10 | | | 0.150 | 3.8 | Raining | Royal University Obs'y. |
| Carlsruhe | | | 29.67 | 753.5 | 59.0 | 15.0 | 64 | NE | | | 2 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.76 | 755.9 | 57.0 | 13.9 | 59 | ESE | | | 1 | | 10 | SE | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.67 | 753.5 | 63.5 | 17.5 | 42 | E | | | 3 | | 8 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.79 | 756.6 | 63.7 | 17.6 | 33 | E | | | 3 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.76 | 756.0 | 56.1 | 13.4 | 62 | E | | | 2 | | 9 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.97? | 735.87 | 29.68? | 753.92 | 58.3 | 14.6 | 76 | WSW | | | 3 | | 6 | WNW | | 0.689 | 17.5 | Thunder-storm | M. Wilhelm |
| Hamburg | | | 29.80 | 756.8 | 60.3 | 15.7 | 33 | E | | | 3 | | 1c | | | 0 | 0 | Fine | Captain F. Hegemann. |
| Kiel | | | 29.82 | 757.4 | 57.4 | 14.1 | 69 | ENE | | | 3 | | 0 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.99 | 761.8 | 63.7 | 17.6 | 44 | SE | | | 2 | | 4 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 29.92 | 759.9 | 60.6 | 15.9 | | SW | | | 2 | | 1 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.76 | 755.9 | 58.1 | 14.5 | 57 | ENE | | | 2 | | 9 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.10 | 764.4 | 51.4 | 10.8 | | WSW | | | 1 | | 1es | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.71 | 754.6 | 59.9 | 15.5 | 53 | E | | | | | 1 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.98 | 761.6 | 52.5 | 11.4 | 60 | ENE | | | 3 | | 7 | WSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.89 | 759.2 | 53.4 | 11.9 | 54 | SE | | | 8 | | 10 | | | 0.031 | 0.8 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.68 | 753.9 | 59.7 | 15.4 | 71 | NE | | | 1 | | 10 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.66 | 753.3 | 61.2 | 16.2 | 55 | N | | | 1 | | 5 | W | | 0.094 | 2.4 | Light rain | Prof. Schoder |
| Treves, (Trier) | | | 29.56 | 750.9 | 60.6 | 15.9 | 50 | NW | | | 3 | | 5 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.17 | 715.5 | 29.63 | 752.7 | 60.1 | 15.6 | 53 | SW | | | 4 | | 9 | SW | | 0.008 | 0.2 | Rain & fog | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.94 | 760.5 | 59.7 | 15.4 | 36 | E | | | 1 | | 6 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.86 | 758.5 | 71.6 | 22.0 | | SW | | | | | | | | | | Sirocco | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.93 | 557.1 | 29.73 | 755.2 | 29.1 | — 1.6 | 100 | NE | | | 2 | | 10 | | | 5.511* | 140.0* | | Prof. Giovanni Clodig. |
| Stelvio | 21.90 | 556.2 | 29.67 | 753.6 | 36.3 | 2.4 | | W | | | 1 | | 8 | | | 0.228 | 5.8 | | Signora Ernesta Manfredi. |
| Udine | | | 29.68 | 753.9 | 66.4 | 19.1 | 56 | E | 1.3 | 0.6 | | | 5 | | | 0.915 | 23.2 | | Ab. Dom. Morgini. |
| Padua | | | 29.70 | 754.4 | 56.7 | 13.7 | 87 | N | 6.3 | 2.8 | | | 10 | S | | 0.228 | 5.8 | Thunder-storm | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.71 | 754.7 | 57.0 | 13.9 | 85 | NE | 1.8 | 0.8 | | | 10 | E | | 0.709 | 18.0 | Raining | Conte Alm. Da Schio. |
| Verona | | | 29.71 | 754.5 | 61.0 | 17.8 | 71 | W | | | 1 | | 10 | | | 0.154 | 3.9 | Raining | Dott. B. Bertoncelli. |
| Bergamo | 28.39 | 721.2 | 29.70 | 754.4 | 57.6 | 14.2 | 78 | E | | | 1 | | 10 | | | 0.709 | 18.0 | Raining | Prof. Trionfini Carlo. |
| Domodossola | | | 29.73 | 755.1 | 53.6 | 12.0 | 80 | Calm | | | 0 | | 10 | | | 0.461 | 11.7 | Raining | Prof. Giuseppe Calza. |
| Milan | | | 29.70 | 754.4 | 57.9 | 14.4 | 88 | ESE | | | 4 | | 10 | S | | 1.223 | 31.0 | Raining | Ab. Gio. Capelli. |
| Pavia | | | 29.71 | 754.5 | 56.1 | 13.4 | 88 | SW | | | 2 | | 9 | | | 0.667 | 16.9 | Raining | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.68 | 753.9 | 57.2 | 14.0 | 78 | SE | 6.9 | 3.1 | | | 9 | N | | 0.638 | 16.2 | Raining | Prof. P. F. Denza. |
| Mondovi | 27.80 | 706.2 | 29.69 | 754.0 | 56.1 | 13.4 | 71 | NNE | | | 4 | | 6 | | | 0.110 | 2.8 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.77 | 756.2 | 57.6 | 14.2 | 78 | ENE | | | 2 | | 7 | | | 0.020 | 0.5 | Light rain | Prof. L. Vassallo. |
| Genoa | | | 29.73 | 755.1 | 58.8 | 14.9 | 75 | Calm | 0 | 0 | | | 10 | | | 0.394 | 10.0 | Thunder-storm | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.71 | 754.6 | 57.7 | 14.3 | 79 | S | 8.7 | 3.9 | | | 10 | | | 0.094 | 2.4 | Thunder-storm. | Dott. G. Manzi. |
| Parma | | | 29.69 | 754.2 | 61.0 | 16.1 | 72 | SW | | | 4 | | 10 | | | 0.031 | 0.8 | Light rain | Prof. P. Pigorini. |
| Florence | | | 29.76 | 755.8 | 64.4 | 18.0 | 77 | NW | | | 2 | | 10 | SW | | 0.898 | 22.8 | Raining | Cav. F. Meucci. |
| Leghorn | | | 29.74 | 755.3 | 63.1 | 17.3 | 79 | W | 2.5 | 1.1 | | | 9 | W | | 0.539 | 13.7 | Raining | Prof. P. Monte. |
| Siena | 28.54 | 724.9 | 29.73 | 755.2 | 59.4 | 15.2 | 73 | S | | | | | 5 | SW | | 0.620 | 15.9 | | Prof. L. Toscani. |
| Urbino | 28.18 | 715.8 | 29.72 | 754.8 | 57.2 | 14.0 | 67 | SE | | | 2 | | 8 | | | 0.098 | 2.5 | | Prof. P. Serpieri. |
| Pesaro | | | 29.75 | 755.7 | 61.0 | 16.1 | 71 | E | 16.1 | 7.2 | | | 9 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.73 | 755.2 | 63.0 | 17.2 | 65 | N | | | 4 | | 6 | SW | | 0.059 | 1.5 | | Prof. F. DeBosis. |
| Grosseto | | | 29.76 | 755.8 | 66.6 | 19.2 | 55 | NNW | | | 4 | | 8 | NE | | 0.055 | 1.4 | | Avv. P. Ponticelli. |
| Rome | | | 29.78 | 756.3 | 67.3 | 19.6 | 58 | SSW | 9.8 | 4.4 | | | 5 | SSW | | 0.272 | 6.9 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.80 | 756.8 | 69.1 | 20.6 | 56 | SSW | | | 2 | | 7 | SW | | 0.157 | 4.0 | | Prof. L. Palmieri. |
| Lecce | | | 29.76 | 755.8 | 69.6 | 20.9 | 48 | ENE | 3.1 | 1.4 | | | 9 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.79 | 756.7 | 68.5 | 20.3 | 70 | SW | 7.4 | 3.3 | | | 6 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.78 | 756.3 | 70.2 | 21.2 | 44 | NW | | | 4 | | 6 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.69 | 754.1 | 72.3 | 22.4 | 49 | N | | | 4 | | 3 | | | 0 | 0 | | Pref. F. Cafiero. |
| Palermo | | | 29.79 | 756.6 | 65.8 | 18.8 | 59 | WNW | 15.4 | 6.9 | | | 6 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.83 | 706.8 | 29.73 | 755.1 | 68.5 | 20.3 | 37 | WNW | | | 4 | | 4 | NE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.70 | 754.4 | 68.0 | 20.0 | 71 | NE | | | 4 | | 9 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.82 | 757.4 | 65.5 | 18.6 | 60 | WSW | 1.8 | 0.8 | | | 5 | SW | | 0.244 | 6.2 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.23 | 767.8 | 58 | 14.4 | 84 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.3 | 30.08 | 764.1 | 55.4 | 13.0 | 85 | S | 0.2 | 0.10 | | 10k | 10k | | | 0 | 0 | Covered | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.70 | 754.4 | 61.9 | 16.6 | | ENE | | | 2 | | | | | 0 | 0 | | |
| Groningen | | | 29.70 | 754.4 | 60.4 | 15.8 | | E | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.72 | 755.0 | 54.7 | 12.6 | | NE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.66 | 753.3 | 61.2 | 17.9 | 14 | ESE | | | 3 | | 2 | | | 0 | 0 | Light cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.82 | 757.5 | 43.2 | 6.2 | 88 | SSW | 21.3 | 9.5 | | | 10 | | | 0.374 | 9.5 | Raining | |
| Brönö | | | 29.84 | 757.9 | 41.0 | 5.0 | 61 | N | 7 | 3 | | | 4 | | | 0 | 0 | | |
| Christiania | | | 29.81 | 757.1 | 52.2 | 11.2 | 34 | SW | 9 | 4 | | | 1 | | | 0 | 0 | | |
| Tromsö | | | 29.72 | 754.8 | 36.3 | 2.4 | 82 | Calm | 0 | 0 | | | 10 | | | 0.276 | 7.0 | Rain & snow | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Clouds. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.63 | 752.6 | 61.2 | 16.2 | 85 | W | 4.3 | 1.9 | | | 7 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 30.04 | 763.0 | 56.3 | 13.5 | 77 | SW | 11.2 | 5.0 | | | 10 | SW | | | | Light rain | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.30 | 769.7 | 66.0 | 18.9 | 55 | S | 3.1 | 1.4 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.07 | 763.8 | 60.8 | 16.0 | 72 | WSW | 29.8 | 13.3 | | | 9 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.24 | 768.2 | 66.6 | 19.2 | 68 | W | 4.9 | 2.2 | | | 3 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Clouds. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.93 | 760.3 | 58.1 | 14.5 | 35 | ESE | 20 | 9 | | | 9 | | | | | | Astronomical Obs. |
| Wilna | | | 30.07 | 763.7 | 55.8 | 13.2 | 36 | S | 2 | 1 | | | 1 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.03 | 762.7 | 50.4 | 10.2 | 38 | WSW | 11 | 5 | | | 5 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.96 | 761.0 | 47.3 | 8.5 | 52 | WNW | 7 | 3 | | | 9 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.77 | 756.1 | 41.5 | 5.3 | 65 | WSW | 13 | 6 | | | 5 | | | | | | Ch. Forsten. |
| Kieff | | | 30.03 | 762.7 | 51.3 | 10.7 | 42 | NNE | 13 | 6 | | | 3 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.99 | 761.7 | 59.7 | 15.4 | 70 | NW | 13 | 6 | | | 10 | | | | | | Kurdakof. |
| Kertch | | | 29.93 | 760.3 | 63.3 | 17.4 | 74 | WNW | 11 | 5 | | | 3 | | | | | | Lagorio. |
| Moscow | | | 30.13 | 765.4 | 52.3 | 11.3 | 53 | SW | 7 | 3 | | | 7 | | | | | | Meteorological Obs. |
| Lugan | | | 29.74 | 755.4 | 66.6 | 19.2 | 74 | ESE | 4 | 2 | | | 8 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.73 | 755.2 | 46.2 | 7.9 | 59 | SW | 9 | 4 | | | 2 | | | | | | Ogorodnikof. |
| Tiflis | 28.40 | 721.3 | 29.74 | 755.5 | 76.6 | 24.8 | 27 | N | 18 | 8 | | | 6 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.88 | 758.9 | 72.7 | 22.6 | 29 | ESE | 11 | 5 | | | 8 | | | | | | Sebastianof. |
| Kasan | | | 29.95 | 760.7 | 63.7 | 17.6 | 52 | W | 2 | 1 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.16 | 740.6 | 30.09 | 764.2 | 61.2 | 16.2 | 49 | SE | 4 | 2 | | | 3 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.15 | 714.9 | 29.74 | 755.5 | 82.2 | 27.9 | 46 | Calm | 0 | 0 | | | 4 | | | | | | Michelson. |
| Barnaul | | | 30.25 | 768.3 | 55.9 | 13.3 | 29 | NE | 4 | 2 | | | 0 | | | | | Foggy | Meteorological Obs. |
| Yeniseisk | | | 30.10 | 764.5 | 52.3 | 11.3 | 40 | NNW | 2 | 1 | | | 4 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usozef. |
| Oorga | | | | | 39.7 | 4.3 | | Calm | 0 | 0 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 30.09 | 764.3 | 59.4 | 15.2 | 89 | Calm | 0 | 0 | | | 9 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.02 | 762.4 | 44.1 | 6.7 | 94 | Calm | 0 | 0 | | | 10 | | | | | Misty | |
| Nikolaievsk, on the Amoor | | | | | 32.9 | 0.5 | | E | 18 | 8 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Clouds. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.95 | 760.6 | 55.9 | 13.3 | 66 | SW | 14.2 | 6.33 | | 0 | 9 | | | 0.094 | 2.4 | Almost cov'd | Royal Observatory. |
| San Fernando | | | 30.19 | 766.9 | 65.7 | 18.7 | 63 | SW | 11.2 | 5.0 | | 0 | 9 | | SW | 0 | 0 | | Naval Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.89 | 759.3 | 81.9 | 27.7 | 81 | WSW | 7.2 | 3.2 | | 10pc | 0 | | | 0 | 0 | Covered | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson, Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Clouds. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.71 | 754.7 | 41.0 | 5.0 | 48 | NW | | | 4 | | 2 | | | 0 | 0 | | |
| Umea | | | 29.80 | 756.9 | 42.1 | 5.6 | 61 | SW | | | 2 | | 4 | | | 0 | 0 | | |
| Hernosand | | | 29.83 | 757.6 | 44.6 | 7.0 | 61 | S | | | 2 | | 5 | | | 0.020 | 0.6 | | |
| Stockholm | | | 29.87 | 758.7 | 47.5 | 8.6 | 63 | SW | | | 4 | | 10 | | | 0 | 0 | | |
| Wisby | | | 29.94 | 760.4 | 51.4 | 10.8 | 49 | WSW | | | 6 | | 3 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.85 | 758.3 | 49.3 | 9.6 | 49 | WNW | 15.9 | 7.1 | | | 4 | WSW | WSW | 0.001 | 0.02 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.28 | 718.2 | 29.69 | 754.2 | 56.5 | 13.6 | 73 | WSW | | | 3 | | 10 | | | 0.110 | 2.8 | Raining | The Observatory. |
| Zurich | 28.07 | 713.0 | 29.69 | 754.1 | 60.1 | 15.6 | 70 | SE | | | 1 | | 8 | | | 0 | 0 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —0.5 mm; Thermometer, —1.8 cent.; Relative Humidity, +15 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.93 | 760.2 | 64.9 | 18.3 | 70 | NNE | 20 | 9.0 | | | 10 | | SW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.01 | 762.3 | 77.0 | 25.0 | | SE | | | 3 | | 10 | | | | | | |
| Salonica | | | 29.90 | 759.4 | 73.0 | 22.8 | | S | | | 1 | | 2 | | | | | | |
| Valona | | | 29.75 | 755.7 | 69.4 | 20.8 | | N | | | 1 | | 5 | | | 0 | 0 | Cloudy | A. Bakran. |
| Varna | | | 29.92 | 760.0 | 57.2 | 14.0 | | SW | | | 2 | | 10 | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.94 | 760.4 | 78.4 | 25.8 | 54 | N | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.81 | 757.9 | 34.7 | 1.5 | 95 | NE | 8 | 3.6 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.95 | 760.7 | 45 | 7.2 | | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 29.75 | 755.6 | 35 | 1.7 | 98 | N | 18 | 8.0 | | | 10n | | N | 1.03 | 26.2 | Light rain | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.57 | 751.1 | 37 | 2.8 | 96 | NE | 11 | 4.9 | | | 10n | | | 1.478 | 37.54 | Light rain | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.91 | 759.7 | 43.5 | 6.4 | 80 | E | | | 2 | | 7cs | | | 0.03 | 0.8 | Cloudy | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.89 | 759.2 | 38.5 | 3.6 | 100 | N | | | 2 | | | | | 0.20 | 5.1 | Threatening | H. A. Johnson. |
| Father Point, Quebec | | | 29.91 | 759.7 | 45.3 | 7.4 | 100 | Calm | | | | 4cs | 0 | | | 0 | 0 | Hazy | W. H. Bevis. |
| *Fredericton, N. B. | | | 29.97 | 761.2 | 37 | 2.8 | 92 | E | 23 | 10.3 | | 5k | 5s | E | E | 0.13 | 3.3 | Cloudy | J. McWilliams. |
| Fort Garry, Manitoba | | | 29.82 | 757.4 | 38.8 | 3.8 | 78 | NE | 7 | 3.1 | | | 10 | | | 0.51 | 13.0 | Raining | Prof. Harrison. |
| Goderich, Ontario | | | 30.24 | 768.1 | 37 | 2.8 | 95 | N | 5 | 2.2 | | Haze | Haze | N | N | 0 | 0 | Hazy | James Stewart. |
| Granton, Ontario | | | 29.95 | 760.7 | 49.1 | 9.5 | 64 | E | | | 2 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| *Halifax, N. S. | 28.79 | 731.3 | 29.90 | 759.4 | 45 | 7.2 | 61 | E | | | 1 | 1cs | 0 | W | | 0 | 0 | Clear | James Grant. |
| Hamilton, Ontario | | | 29.54 | 750.3 | 40 | 4.4 | 80 | NW | 6 | 2.7 | | | 10ks | | | 0.664 | 16.8 | Cloudy | F. Allison, M. A. |
| Hearn's Content, N. F. | | | 29.95 | 760.7 | 48.7 | 9.3 | 73 | W | | | 1 | 2c | 0 | W | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| *Kingston, Ontario | | | 29.66 | 753.4 | 40 | 4.4 | 91 | SE | | | 8 | | 10 | | | 1.16 | 29.5 | Raining | E. Weedon. |
| *Montreal, Quebec | | | 29.93 | 760.2 | 46 | 7.8 | 82 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Parry Sound, Ontario | | | 29.95 | 760.7 | 42 | 5.6 | 82 | N | 9 | 4.0 | | Haze | 2ks | | | 0.04 | 1.0 | Cloudy | C. H. McLeod, C. |
| Port Dover, Ontario | | | 29.98 | 761.5 | 45 | 7.2 | 62 | NE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Hastings, N. S. | | | 29.88 | 758.9 | 43 | 6.1 | 67 | NE | 16 | 7.2 | | 10c | 0 | NW | | 0 | 0 | Fair | H. Morgan. |
| Port Stanley, Ontario | | | 29.0 | 749.3 | 41.7 | 5.4 | | NW | 18 | 8.0 | | | | | | 0.15 | 3.8 | Snowing | Peter Grant |
| *Quebec, Quebec | | | 29.87 | 758.7 | 46 | 7.8 | 60 | NE | 8 | 3.6 | | 2ck | 0 | W | | 0 | 0 | Clear | M. Payne. |
| *Rockliffe, Ontario | | | 29.96 | 761.0 | 40 | 4.4 | 82 | NE | 11 | 4.9 | | | 10n | | NE | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| St. John, N. B. | | | 29.93 | 761.7 | 47 | 8.3 | 61 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | W. H. McIntyre. |
| *Saugeen, Ontario | | | 29.75 | 755.6 | 37 | 2.8 | 85 | NW | 11 | 4.9 | | | 10 | | | 0.29 | 7.4 | Showery | G. Murdoch, C. E. |
| Stayner, Ontario | | | 29.93 | 760.2 | 49 | 9.4 | 57 | Calm | 0 | 0 | | 2ck | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stratford, Ontario | | | 29.94 | 760.5 | 45 | 7.2 | 61 | NW | 1 | 0.4 | | 2c | 0 | | | 0 | 0 | Fair | R. J. Cole. |
| *Sydney, C. B. | 28.62 | 726.9 | 29.90 | 759.4 | 43.6 | 6.4 | 72 | E | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Toronto, Ontario | | | 29.12 | 747.3 | 38 | 3.3 | 97 | N | 8 | 3.6 | | | 10n | | | 2.66 | 67.6 | Light rain | T. C. Hill. |
| Windsor, N. S. | | | 29.93 | 760.2 | 48 | 8.9 | 63 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Woodstock, Ontario | | | | | | | | | | | | | | | | | | | Prof. John E. Oram. |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.91 | 759.7 | 45.7 | 7.6 | 62 | E | 9 | 4.0 | | 0 | 2s | | | 0.01 | 0.3 | Clear | J. Montgomery. |
| | | | 29.80 | 756.9 | 37.5 | 3.1 | 100 | SE | | | | Fog | Fog | | | 0.69 | 17.5 | Raining | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.86 | 758.4 | 47 | 8.3 | 77 | Calm | 0 | 0 | | 0 | 2ks | | | 0 | 0 | Fair | |
| Alpena, Mich. | | | 30.04 | 763.0 | 45 | 7.2 | 53 | N | 12 | 5.4 | | 0 | 8ks | | N | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 29.74 | 755.4 | 50 | 10.0 | 93 | NE | 20 | 8.9 | | | 10n | | NE | 0.22 | 5.6 | Light rain | |
| Augusta, Ga. | | | 29.71 | 754.6 | 60 | 15.6 | 82 | NW | 7 | 3.1 | | 0 | 8ks | | NW | 0.42 | 10.7 | Fair | |
| Baltimore, Md. | | | 29.74 | 755.4 | 50 | 10.0 | 86 | NE | 12 | 5.4 | | | 10n | | E | 0.34 | 8.6 | Light rain | |
| Barnegat, N. J. | | | 29.77 | 756.1 | 49 | 9.4 | 80 | E | 13 | 5.8 | | | 10n | | SE | 0.06 | 1.5 | Light rain | |
| Bismarck, Dakota | 28.28 | 718.3 | 29.93 | 760.2 | 46 | 7.8 | 100 | SE | 8 | 3.6 | | | 10n | | SE | 0.02 | 0.5 | Light rain | |
| Boston, Mass. | | | 29.84 | 757.9 | 49.5 | 9.7 | 68 | NE | 11 | 4.9 | | 5ck,cs | Haze | NW,W | | 0 | 0 | Fair | |
| Breckenridge, Minn. | | | 30.13 | 765.3 | 42 | 5.6 | 83 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Fair | |
| Buffalo, N. Y. | | | 29.83 | 757.7 | 46 | 7.8 | 62 | E | 12 | 5.4 | | 5c | 0 | | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 29.92 | 760.0 | 44 | 6.7 | 76 | N | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 29.90 | 759.4 | 49 | 9.4 | 85 | NW | 22 | 9.8 | | | 10s | | NW | 0.08 | 2.0 | Cloudy | |
| Campo, Cal. | 27.36 | 694.9 | 29.93 | 760.2 | 51 | 10.6 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 60 | 15.6 | | Calm | | | | 8c | Haze | | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.45 | 748.0 | 57 | 13.9 | 100 | NE | 18 | 8.0 | | | 10n | | | 2.60 | 50.8 | Heavy rain | |
| Cape Henry, Va. | | | 29.58 | 751.3 | 51 | 10.6 | 96 | NE | 20 | 8.9 | | | 10n | | | 0.72 | 18.3 | Light rain | |
| Cape Lookout, N. C. | | | 29.55 | 750.6 | 62 | 16.7 | 94 | NW | 18 | 8.0 | | | 10n | | | 3.60 | 91.4 | Light rain | |
| Cape May, N. J. | | | 29.71 | 754.6 | 50 | 10.0 | 93 | NE | 17 | 7.6 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Charleston, S. C. | | | 29.71 | 754.6 | 59 | 15.0 | 81 | W | 9 | 4.0 | | 0 | 8s | | W | 0.30 | 7.6 | Clearing | |
| Cheyenne, Wyoming | 23.90 | 607.0 | 29.84 | 757.9 | 38 | 3.3 | 90 | S | 3 | 3.1 | | 5ck | 0 | S | | Inap. | Inap | Fair | |
| Chicago, Ill. | | | 29.96 | 761.0 | 43 | 6.1 | 75 | NE | 10 | 4.5 | | 0 | 0 | | | 0.54 | 13.7 | Clear | |
| Cincinnati, Ohio | | | 29.67 | 753.6 | 48 | 8.9 | 77 | N | 10 | 4.5 | | | 10n | | NE | 0.25 | 6.3 | Light rain | |
| Cleveland, Ohio | | | 29.81 | 757.7 | 45 | 7.2 | 60 | NE | 10 | 4.5 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Corsicana, Tex. | | | 30.07 | 763.8 | 55 | 12.8 | 68 | NE | 6 | 2.7 | | 2cs | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 30.06 | 763.5 | 44 | 6.7 | 52 | NE | 10 | 4.5 | | Haze | 0 | | | 0.39 | 9.9 | Fair | |
| Denison, Tex. | | | 30.11 | 764.8 | 54 | 12.2 | 67 | NE | 6 | 2.7 | | 5k | 1s | | | 0 | 0 | Fair | |
| Denver, Col. | 24.67 | 626.6 | 29.89 | 759.2 | 44 | 6.7 | 75 | NW | 2 | 0.9 | | 8c | 0 | | | 0 | 0 | Fair | |
| Detroit, Mich. | | | 29.86 | 758.4 | 47 | 8.3 | 48 | NE | 12 | 5.4 | | Haze | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.44 | 697.0 | 29.75 | 755.6 | 45 | 7.2 | 76 | SE | 16 | 7.2 | | 2k | Haze | SW | | 0 | 0 | Fair | |
| Dubuque, Iowa | | | 30.08 | 764.0 | 46 | 7.8 | 39 | N | 3 | 1.3 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Duluth, Minn. | | | 30.20 | 767.1 | 45 | 7.2 | 60 | NE | 4 | 1.8 | | 5c | 0 | | | 0 | 0 | Fair | |
| Eastport, Me. | | | 29.80 | 756.9 | 41 | 5.0 | 73 | N | 16 | 7.2 | | 8k | 5s | N | N | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 29.80 | 756.9 | 41 | 5.0 | 83 | NE | 20 | 8.9 | | 8cs | Haze | | | 0 | 0 | Cloudy | |
| Escanaba, Mich. | | | 30.10 | 764.5 | 41 | 5.0 | 65 | N | 12 | 5.4 | | 5k | 5s | N | N | 0 | 0 | Cloudy | |
| Florence, Arizona | | | | | 63 | 17.2 | | SW | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 30.09 | 764.3 | 48 | 8.9 | 77 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.72 | 754.9 | 31 | — 0.6 | 80 | SE | | | 7 | | 10s | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.91 | 734.3 | 30.03 | 762.7 | 54 | 12.2 | 53 | E | 16 | 7.2 | | 2k | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.31 | 719.1 | 29.96 | 761.0 | 49 | 9.4 | 85 | SE | 14 | 6.3 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 30.06 | 763.5 | 65 | 18.3 | 58 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 29.96 | 761.0 | 49 | 9.4 | 50 | NE | 13 | 5.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 29.79 | 756.7 | 47 | 8.3 | 69 | N | 9 | 4.0 | | | 10s | | | 0.40 | 10.2 | Cloudy | |
| Indianola, Tex. | | | 30.06 | 763.5 | 68 | 20.0 | 64 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.76 | 755.9 | 70 | 21.1 | 57 | W | 8 | 3.6 | | 0 | 0 | | | 0.34 | 8.6 | Clear | |
| Keokuk, Iowa | | | 29.98 | 761.5 | 46 | 7.8 | 69 | N | 8 | 3.6 | | 0 | 0 | | | 0.18 | 4.6 | Clear | |
| Key West, Fla. | | | 29.88 | 758.9 | 76 | 24.4 | 90 | NW | 8 | 3.6 | | | 10ks | | NW | 0.07 | 1.8 | Cloudy | |
| Kittyhawk, N. C. | | | 29.55 | 750.6 | 52 | 11.1 | 100 | NE | 15 | 6.7 | | | 10n | | | 0.69 | 17.5 | Light rain | |
| Knoxville, Tenn. | | | 29.70 | 754.4 | 51 | 10.6 | 72 | S | 8 | 3.6 | | | 10ks | | NW | 0.11 | 2.8 | Cloudy | |
| LaCrosse, Wis. | | | 30.10 | 764.5 | 46 | 7.8 | 39 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.05 | 763.3 | 48 | 8.9 | 77 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 29.73 | 755.1 | 50 | 10.0 | 85 | N | 13 | 5.8 | | | 10s | | N | 0.15 | 3.8 | Cloudy | |
| Lynchburg, Va. | | | 29.64 | 752.8 | 51 | 10.6 | 93 | N | 4 | 1.8 | | | 10n | | NW | 0.75 | 19.1 | Light rain | |
| Maricopa Wells, Arizona | | | | | 67 | 19.4 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.19 | 765.0 | 43 | 6.1 | 56 | NW | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 29.94 | 760.5 | 52 | 11.1 | 64 | NW | 18 | 8.0 | | | 10s | | NW | Inap. | Inap. | Cloudy | |
| Milwaukee, Wis. | | | 30.05 | 763.3 | 46 | 7.8 | 54 | NE | 16 | 7.2 | | 2c | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 29.92 | 760.0 | 61 | 16.1 | 60 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 29.84 | 757.9 | 57.5 | 14.2 | 69 | W | 11 | 4.9 | | 0 | Haze | | | 0.01 | 0.3 | Clear | |
| Morgantown, W. Va. | 28.60 | 726.4 | 29.62 | 752.3 | 49 | 9.4 | 85 | E | 4 | 1.8 | | | 10s | | NE | 0.31 | 7.9 | Threatening | |
| Mt. Washington, N. H. | 23.52 | 597.4 | 29.88 | 758.9 | 22 | — 5.6 | 74 | NW | 16 | 7.2 | | 0 | 2s | | NW | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 29.78 | 756.4 | 52 | 11.1 | 86 | W | 8 | 3.6 | | | 10ks | | NW | 0.19 | 4.8 | Cloudy | |
| New Haven, Conn. | | | 29.81 | 757.2 | 48 | 8.9 | 63 | NE | 12 | 5.4 | | | 10s | | NE | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.82 | 757.4 | 52 | 11.1 | 66 | N | 6 | 2.7 | | 5s | Haze | | | 0 | 0 | Fair | |
| New Orleans, La. | | | 29.96 | 761.0 | 67 | 19.4 | 54 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Newport, R. I. | | | 29.82 | 757.4 | 48 | 8.9 | 77 | N | 7 | 3.1 | | 10cs | 0 | NE | | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 29.82 | 757.4 | 49 | 9.4 | 85 | NE | 12 | 5.4 | | | 10n | | NE | Inap. | Inap. | Light rain | |
| Norfolk, Va. | | | 29.60 | 751.8 | 52 | 11.1 | 100 | E | 8 | 3.6 | | | 10n | | | 0.56 | 14.2 | Light rain | |
| North Platte, Neb. | 27.11 | 688.6 | 29.69 | 754.1 | 44 | 6.7 | 60 | SE | | | | 10k | 0 | SE | | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.98 | 736.1 | 30.07 | 763.8 | 46 | 7.8 | 76 | W | 3 | 1.3 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Oswego, N. Y. | | | 29.89 | 759.2 | 44 | 6.7 | 75 | N | 10 | 4.5 | | 1c | Haze | W | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 30.21 | 767.3 | 39 | 3.9 | 82 | N | 2 | 0.9 | | 2c | 5s | | | 0 | 0 | Fair | |
| Philadelphia, Pa. | | | 29.76 | 755.9 | 50 | 10.0 | 78 | E | 13 | 5.8 | | | 10n | | | 0.01 | 0.3 | Light rain | |
| Phœnix, Arizona | 8.72 | 729.9 | | | 70 | 21.1 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.69 | 449.3 | 29.90 | 759.4 | 18 | — 7.8 | 75 | SW | 26 | 11.6 | | 10cs | 0 | | | 0.08 | 2.0 | Cloudy | |
| Pittsburg, Pa. | | | 29.68 | 753.9 | 47 | 8.3 | 85 | E | 12 | 5.4 | | | 10n | | E | 0.34 | 8.6 | Light rain | |
| Port Huron, Mich. | | | 29.89 | 759.2 | 38 | 3.3 | 80 | N | 12 | 5.4 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.86 | 758.4 | 48 | 8.9 | 63 | NE | 8 | 3.6 | | 1k | Haze | | | 0.01 | 0.3 | Clear | |
| Portland, Oregon | | | 29.93 | 760.2 | 50 | 10.0 | 86 | S | 2 | 0.9 | | | 10s | | | 0.24 | 6.1 | Cloudy | |
| Prescott, Arizona | | | | | | | | | | | | | | | | | | | |
| Punta Rassa, Fla. | | | 29.86 | 758.4 | 73 | 22.8 | 71 | NW | 16 | 7.2 | | 5cs | 0 | | | 0.20 | 5.1 | Fair | |
| Rochester, N. Y. | | | 29.85 | 758.2 | 46 | 7.8 | 69 | NE | 10 | 4.5 | | 1c | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.34 | 643.6 | 29.67 | 753.6 | 47 | 8.3 | 77 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.80 | 756.9 | 51 | 10.6 | 86 | NE | 12 | 5.4 | | | 10s | | NE | 0.01 | 0.3 | Threatening | |
| San Antonio, Texas | | | 29.94 | 760.5 | 72 | 22.2 | 49 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Diego, Cal. | | | 29.95 | 760.7 | 58 | 14.4 | 76 | W | 8 | 3.6 | | 0 | 8s | | W | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.95 | 760.7 | 49 | 9.4 | 77 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.22 | 589.8 | 29.76 | 755.9 | 47 | 8.3 | 48 | E | 10 | 4.5 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Savannah, Ga. | | | 29.73 | 755.1 | 63 | 17.2 | 83 | N | 10 | 4.5 | | 2k | 0 | NW | | 0.66 | 16.8 | Fair | |
| Shreveport, La. | | | 30.12 | 765.0 | 60 | 15.6 | 60 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 29.64 | 752.8 | 56 | 13.3 | 93 | NW | 8 | 3.6 | | | 10s | | NW | 1.35 | 34.3 | Cloudy | |
| Springfield, Mass. | | | 29.85 | 758.2 | 51 | 10.6 | 48 | N | 7 | 3.1 | | | 10ks | | N | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 29.99 | 761.7 | 47 | 8.3 | 77 | N | 14 | 6.3 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| St. Marks, Fla. | | | 29.84 | 757.9 | 63 | 17.2 | 57 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.10 | 764.5 | 48 | 8.9 | 36 | N | 2 | 0.9 | | | Sm'e | | | 0 | 0 | Smoky | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 55 | 12.8 | | Calm | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Thatcher's Island, Mass. | | | 29.84 | 757.9 | 45 | 7.2 | 84 | NE | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Toledo, Ohio | | | 29.84 | 757.9 | 49 | 9.4 | 57 | NE | 22 | 9.8 | | 2ck | Haze | N | NE | 0.01 | 0.3 | Hazy | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.43 | 696.7 | 29.98 | 761.5 | 60 | 15.6 | | S | | | | 5c | 0 | W | | 0 | 0 | Fair | |
| Tybee Island, Ga | | | 29.71 | 754.6 | 62 | 16.7 | 83 | NW | 12 | 5.4 | | 5k | 0 | NW | | 0.33 | 8.4 | Fair | |
| Vicksburg, Miss | | | 29.98 | 761.5 | 61 | 16.1 | 59 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.05 | 610.9 | 29.53 | 750.0 | 32 | 0.0 | 89 | NW | 13 | 5.8 | | | 10n | | NW | 0.09 | 2.3 | Light snow | |
| Washington, D. C | | | 29.71 | 754.6 | 49 | 9.4 | 93 | NE | 9 | 4.0 | | | 10n | | NE | 0.53 | 13.5 | Light rain | |
| Wickenburg, Arizona | | | | | 49 | 9.4 | | SW | | | | 5c | 0 | | | 0 | 0 | Fair | |
| Wilmington, N. C | | | 29.62 | 752.3 | 55 | 12.8 | 87 | NW | 12 | 5.4 | | | 10s | | NW | 1.23 | 31.2 | Cloudy | |
| Wood's Holl, Mass | | | 29.83 | 757.7 | 50 | 10.0 | 71 | N | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.82 | 732.0 | 30.13 | 765.3 | 44 | 6.7 | 84 | Calm | 0 | 0 | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Yuma, Arizona | | | 29.79 | 756.7 | 65 | 18.3 | | NW | | | | 2cs | 0 | SE | | 0 | 0 | Fair | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.11 | 764.8 | 81 | 27.2 | 78 | Calm | 0 | 0 | | 10c | 0 | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 80 | 26.7 | | E | | | 4 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.97 | 761.2 | 81 | 27.2 | 87 | E | | | 2 | 5k | 7ks | E | | 0.080 | 2.03 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.03 | 762.7 | | | 89.6 | 27.0 | | E | | | | | | | | 0.030 | 0.75 | Showery | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.16 | 639.0 | | | 71.2 | 21.8 | 72 | Calm | | | 0 | 8cs,k | 1s | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.37 | 771.4 | 36.0 | 2.2 | 95 | E | 10 | 4.5 | | 3c | 0 | E | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.02 | 762.5 | 71 | 21.7 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67[illegible] feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Weatherford, 1,097.0 ft., or 334.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,110.7 ft., or 4,302.1 m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.91 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.80 | 756.9 | 70 | 21.1 | 51 | 10.6 | 86 | NNE | | | 3 | | 10 | | E | 0.28 | 7.1 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.99 | 761.7 | 54.5 | 12.5 | 47.5 | 8.6 | | NW | | | 1 | | | | | 0 | 0 | | | Fair | |
| Navy Yard, Norfolk, Va | 29.80† | 756.9† | 52 | 11.1 | 52 | 11.1 | 100 | NE | 7 | 3.1 | | | 10n | | | 0.70 | 17.8 | | | Raining | |
| Navy Yard, Pensacola, Fla. | 29.98 | 761.5 | | | 63 | 17.2 | 62 | NW | 7 | 3.1 | | | | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 29.91 | 759.7 | 64 | 17.8 | 47.5 | 8.6 | 59 | NE | 12 | 5.4 | | | | | NE | 0 | 0 | | | Threatening | |
| Naval Hospital, Yokohama, Japan | 30.17 | 766.3 | 63 | 17.2 | 59 | 15.0 | 82 | SW | | | 1 | | 0 | | | 0 | 0 | | | Clear | |
| Adams, N. 24° 40′ W. 36° 02′ | 30.28 | 769.1 | 76 | 24.4 | 76 | 24.4 | 91 | ESE | | | 2 | | 10 | | SE | | | Moderate. | E | D. clouds | |
| Alert, Yokohama, Japan | 30.41 | 772.4 | 68 | 20.0 | 65 | 18.3 | 94 | Calm | | | 0 | | 1 | | | | | Calm | None | Blue sky | |
| Alliance, N. 33° 58′ E. 35° 26′ | 30.07 | 763.8 | 74 | 23.3 | 73 | 22.8 | 90 | NNE | | | 3 | | 1 | | | | | Smooth | None | Pleasant. | |
| Ashuelot, Canton, China | 29.91 | 759.7 | 77 | 25.0 | 76 | 24.4 | 86 | SE | | | 2 | | 10 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 29.99 | 761.7 | 49 | 9.4 | 65 | 18.3 | 63 | NNW | | | 3 | | 0 | | | | | | | Clear | |
| Colorado, New York, N. Y | 29.86 | 758.4 | 68 | 20.0 | 53 | 11.7 | 100 | NNE | 2 | 0.9 | | | 10 | | N&E | 0.03 | 0.8 | | | Raining | |
| Despatch, N 37° 38′ W. 47° 42′ | 30.08 | 764.0 | 67 | 19.4 | 67 | 19.4 | 84 | NNW | | | 2 | | 4 | | SW | | | Long | SE | | |
| Essex, Vera Cruz, Mexico | 30.03 | 762.7 | | | 79 | 26.1 | 91 | NNW | | | 3 | | 5 | | | 0 | 0 | Smooth | | D. clouds | |
| Frolic, Monte Video, Uruguay | 30.26 | 768.6 | | | 55 | 12.8 | 87 | NW | | | 3 | | 2k | | | 0 | 0 | Broken | N&W | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.80 | 756.9 | | | 66 | 18.9 | 100 | NW | | | 1 | | 10 | | | Blank | Blank | | | D. clouds | |
| Hartford, St. Thomas, W. I. | 30.17 | 766.3 | 83 | 28.3 | 83 | 28.3 | 71 | ESE | 3.6 | 1.6 | | | 7 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.14 | 765.5 | 74 | 23.3 | 71 | 21.7 | 85 | Calm | | | 0 | | 2 | | SE | 0 | 0 | Calm | None | Pleasant | |
| Lackawana, Acapulco, Mexico | 29.93 | 760.2 | | | 82 | 27.8 | 91 | Calm | | | 0 | | 9 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.86 | 758.4 | 75 | 23.9 | 73 | 22.8 | 100 | W | | | 2 | | 6 | | E | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.30 | 744.2 | 57 | 13.9 | 44 | 6.7 | 76 | NE | | | 3 | | Haze | | NE | | | | | Hazy | |
| Monocacy, Shanghai, China | 29.73 | 755.1 | 68 | 20.0 | 68 | 20.0 | 95 | SSE | | | 3 | | 10 | | SSE | | | | | D. clouds | |
| Monongahela, Norfolk, Va | 29.63 | 752.6 | 58 | 14.4 | 54 | 12.2 | | ENE | | | 3 | | n | | | | | | | Raining | |
| New Hampshire, Port Royal, S. C | 29.90 | 759.4 | | | 61 | 16.1 | 94 | E | | | 2 | | 3 | | S | 0.52 | 13.2 | | | D. clouds | |
| Omaha, N. 4° 43′ W. 80° 03′ | 29.93 | 760.2 | 83 | 28.3 | 83 | 28.3 | 79 | N | 1 | 0.4 | | | 9 | | N | 0.32 | 8.1 | Smooth | | Cloudy | |
| Ossipee, Matanzas, Cuba, W. I. | 29.95 | 760.7 | 79 | 26.1 | 79 | 26.1 | 91 | W | | | 1 | | 8 | | W | | | | | D. clouds | |
| Palos, Shanghai, China | 29.97 | 761.2 | 68 | 20.0 | 67 | 19.4 | 84 | SE | | | 4–5 | | 10 | | S&E | | | | | Overcast | |
| Pensacola, Acapulco, Mexico | 29.96 | 761.0 | | | 80 | 26.7 | 91 | Calm | | | 0 | | 2 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Baton Rouge, La | 29.99 | 761.7 | 70 | 21.1 | 58 | 14.4 | 76 | NNE | | | 3 | | 0 | | | 0 | 0 | | | Clear | |
| Ranger, N. 37° 10′ W. 37° 16′ | 30.14 | 765.5 | | | 65 | 18.3 | 100 | S | | | 4 | | 10 | | | | | Moderate | N&E | Rain and fog | |
| Richmond, S. 31° 1′ W. 49° 10′ | | | | | | | | S | | | 2 | | | | | | | | | Clear | |
| Rio Bravo, Matamoras, Mexico | 29.93 | 760.2 | | | 54 | 12.2 | 93 | Calm | | | 0 | | 1 | | N&W | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.76 | 755.9 | 58 | 14.4 | 50 | 10.0 | 86 | ENE | | | 4 | | 10 | | | 0.29 | 7.4 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.71 | 754.6 | 56 | 13.3 | 52 | 11.1 | 79 | NNE | 8 | 3.6 | | | 10 | | E | 0.03 | 0.8 | | | Overcast | |
| Swatara, Aspinwall, Panama | 29.95 | 760.7 | 83 | 28.3 | 82 | 27.8 | 87 | NNE | | | 3 | | 5k | | NE | | | Moderate. | NNE | Fair | |
| Tennessee, Yokohama, Japan | 30.20 | 767.1 | 71 | 21.7 | 66 | 18.9 | 89 | WSW | | | 1 | | | | | | | Smooth | | Blue sky | |
| Trenton, Villefranche, France | 29.79 | 756.7 | 69 | 20.6 | 68 | 20.0 | 79 | SSE | 4.8 | 2.1 | | | 5 | | S&E | 0.2 | 5. | | S&E | Hazy | |
| Vandalia, Constantinople, Turkey | 29.99 | 761.7 | 67 | 19.4 | 66 | 18.9 | 94 | N | | | 2 | | 7 | | N | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.83 | 757.7 | 51 | 10.6 | 49 | 9.4 | 78 | NE | 8 | 3.6 | | | 3 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C. | 30.10† | 764.5† | | | 52 | 11.1 | | NE | | | 3 | | 10 | | NE | | | | | Showery | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.82 | 757.4 | 79 | 26.1 | 91 | SSE | | | 2 | | 5ks | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 36° 27′, W. 74° 38′ | SSW | 3 | 29.47 | 748.5 | 59 | 15.0 | 100 | E | 10 | 4.5 | | | 10n | | | Confused. | | Rainy | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 9, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.8 | 74.1 | 23.4 | 49 | WNW | | | 2 | | 1 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | | | 64.4 | 18.0 | 48 | W | | | 2 | | 2 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.04 | 763.0 | 69.3 | 20.7 | 74 | NNW | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.08 | 764.0 | 71.6 | 22 | | NW | | | 5 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.09 | 764.2 | 73.4 | 23 | | E | | | 3 | | 2 | | | 0.067 | 1.7 | Clear | Husson. |
| Saida | | | 30.16 | 766.0 | 69.3 | 20.7 | | NW | | | 4 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.01 | 762.3 | 60.3 | 15.7 | | NW | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.15 | 765.8 | 68.7 | 20.4 | 61 | SSW | | | 2 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.10 | 764.5 | 75.6 | 24.2 | 12 | W | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.09 | 764.3 | 80.8 | 27.1 | 18 | NW | | | 2 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arram | | | 29.62 | 752.4 | 62.6 | 17.0 | 55 | SW | | | 6 | | 9 | | | 0.047 | 1.2 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.57 | 751.0 | 56.8 | 13.8 | 90 | NE | | | 1 | | 10 | | | 0.165 | 4.2 | | Dr. Wierzbiski. |
| Eperies | | | 29.59 | 751.6 | 57.4 | 14.1 | 93 | Calm | | | 0 | | n,k,s | | | 0.301 | 7.65 | | Julius Mikolik. |
| Gratz | 28.39 | 721.2 | 29.63 | 752.5 | 54.3 | 12.4 | 86 | NW | | | 2 | | 10 | | | 0.512 | 13.0 | Thunder-storm. | Andreas Rospini. |
| Hermannstadt | 28.25 | 717.6 | 29.63 | 752.6 | 61.2 | 16.2 | 70 | SE | | | 1 | | 10 | | | 0.311 | 7.90 | | Prof. Reissenberger. |
| Kremsmünster | 28.30 | 718.7 | 29.61 | 752.1 | 56.5 | 13.6 | 73 | W | | | 3 | | 8 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.64 | 752.9 | 51.4 | 10.8 | 90 | S | | | 2 | | 10 | | | 0.138 | 3.5 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsada Daniel. |
| Pola | | | 29.72 | 754.8 | 61.7 | 16.5 | 69 | WSW | | | 2 | | 10ks | | | 0.003 | 0.07 | | I.R.Hydrographic Office |
| Szegedin | | | 29.59 | 751.6 | 68.0 | 20.0 | 66 | S | | | 1 | | 4 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.72 | 755.0 | 64.0 | 17.8 | 75 | W | | | 1 | | 10 | | | 0.472 | 12.0 | Raining | P. Busin. |
| Vienna | | | 29.57 | 751.0 | 60.6 | 15.9 | 63 | W | | | 3 | | 9 | | | 0.059 | 1.5 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.19 | 716.1 | 29.65 | 753.0 | 56.8 | 13.8 | 84 | SW | | | 1 | | 8 | | | 0.059 | 1.5 | | Royal Observatory. |
| Brussels | | | 29.58 | 751.4 | 62.2 | 16.8 | 65 | SSW | | | 2 | ..ck | 9k | SW | SW | 0.067 | 1.65 | | |
| Furnes | | | 29.64 | 752.8 | 61.0 | 16.1 | 94 | S | | | 1 | | 10 | | | 0.687 | 2.2 | | |
| Maeseyck | | | 29.49 | 749.0 | 61.0 | 16.1 | 64 | SW | | | 2 | | 7 | | | 0.024 | 0.6 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er Low'r 0—10. | Clouds. Amount. Up'er Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.85 | 758.2 | 45.5 | 7.5 | | E | 25 | 11.2 | | | 2 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 29.63 | 752.6 | 52 | 11.1 | | ENE | | | 6 | | 8 | | | | | Overcast | William McNeil. |
| Armagh, Observatory | | | 29.51 | 749.5 | 49.0 | 9.[illegible] | | ENE | 16 | 7.2 | | | 10 | | | | | Squally | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.49 | 749.0 | 53.0 | 11.7 | | E | 24 | 10.7 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.38 | 746.2 | 56.5 | 13.6 | | ESE | | | 1 | | 8 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.56 | 750.8 | 52.1 | 11.2 | | E | | | 1 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.04 | 763.0 | 82.5 | 28.1 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.52 | 749.8 | 61.0 | 16.1 | | SSE | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 29.51 | 749.5 | 63.0 | 17.2 | | S | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.57 | 750.6 | 61.2 | 17.9 | | SW | | | 1 | | 8 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 28.00 | 711.2 | 29.48 | 748.8 | 42.0 | 5.6 | | SW | | | 3 | | 8 | | | | | Raining | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.54 | 750.3 | 49 | 9.4 | | ESE | | | 6 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 29.55 | 750.6 | 56 | 13.3 | | S | | | 1 | | 2 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.51 | 749.5 | 55.4 | 13.0 | | SE | 4.8 | 2.1 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.37 | 746.0 | 49.7 | 9.8 | | SE | | | 3 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.59 | 700.8 | 29.83 | 757.7 | 80.4 | 26.9 | | NW | | | 4 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.98 | 761.5 | 86 | 30.0 | | W | | | 3 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.27 | 743.4 | 55 | 12.8 | | ESE | | | 3 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.13 | 765.3 | 71.0 | 21.7 | | NW | | | 1 | | 2 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.68 | 753.9 | 49.0 | 9.4 | | NE | | | 6 | | 8 | | | | | Squally | Lewis Stuart. |
| Great Yarmouth | | | 29.57 | 751.1 | 49 | 9.4 | | E | | | 3 | | 4 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.51 | 749.5 | 61.6 | 16.4 | | S | | | 1 | | 7 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.42 | 747.3 | 59 | 10.0 | | SE | | | 2 | | 10 | | | | | Raining | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 29.38 | 746.2 | 53 | 11.7 | | SW | | | 3 | | 3k | | | 0.10 | 2.5 | Fair | M. P. Moyle. |
| Holyhead | | | 29.45 | 748.0 | 55 | 13.3 | | ENE | | | 5 | | 4 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 29.59 | 749.3 | 61.9 | 16.6 | | S | 18 | 8.0 | | | 5 | | | | | D. clouds | The Staff. |
| Kingstown | | | 29.45 | 748.0 | 53 | 11.7 | | E | | | 5 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.59 | 749.3 | 56.7 | 13.7 | | NE | | | 2 | | 6 | | | | | D. clouds | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.05 | 763.3 | 68.8 | 20.4 | | W | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.81 | 757.2 | 53 | 11.7 | | ENE | | | 2 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.92 | 760.0 | 74.0 | 23.3 | | NW | | | 2 | | 6? | | | | | Overcast? | J. Belgrave. |
| Nottingham, Observatory | | | 29.52 | 749.8 | 54.4 | 13.6 | | ESE | | | 3 | | 10k,d | | ESE | 0.110 | 2.79 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.48 | 748.8 | 55.0 | 12.8 | | ENE | | | 3 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliff Obs'y | | | 29.48 | 748.8 | 60 | 15.6 | | SE | | | 1 | | 8 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 29.41 | 747.0 | 49.6 | 9.8 | | SE | | | 3 | | 10 | | | | | Raining | John Merrifield. |
| Roche's Point | | | 29.32 | 744.7 | 55 | 12.8 | | SSE | | | 5 | | 8 | | | Blank | Blank | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.37 | 746.0 | 55 | 12.8 | | ESE | | | 5 | | 6 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.44 | 747.8 | 53.0 | 11.7 | | S | | | 4 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.97 | 760.0 | 47.1 | 8.4 | | E | 24 | 10.3 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.73 | 755.1 | 70.6 | 21.4 | | S | | | 1 | | 7 | | | Blank | Blank | Hazy | Sergt. W. H. Lyne. |
| Sheffield | | | 29.52 | 749.8 | 57.1 | 13.9 | | S | | | 1 | | 10 | | | 0.244 | 6.20 | Overcast | W. F. Cooper. |
| Siloth, Rectory | | | 29.58 | 751.3 | 53.1 | 11.7 | 66 | SE | | | 6 | | 6 | | | 0.110 | 2.79 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.53 | 750.0 | 51.1 | 10.6 | | E | | | 3 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.78 | 756.4 | 49 | 9.4 | | E | | | 6 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 29.51 | 749.5 | 57.7 | 14.3 | | SE | | | 1 | | 5 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 29.87 | 758.7 | 59 | 10.0 | | ESE | | | 4 | | 3 | | | | | Hazy | John Trotter. |
| Truro, Royal Institution | | | 29.41 | 747.0 | 55 | 12.8 | | S | | | 6 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.26 | 743.2 | 54.7 | 12.6 | | SE | 22 | 9.8 | | | 7 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 42 | 5.6 | | E | | | 4 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.87 | 758.7 | 56.2 | 13.4 | 96 | NW | 16 | 7.2 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.82 | 757.4 | 63.0 | 17.2 | 82 | NW | | | 3 | | 10n | | | 0 | 0 | Cloudy | Francis Abbott, F. R. A. S. |
| Leith, Restaurig Park | | | 29.77 | 756.1 | 45.9 | 7.7 | | E | | | 5 | | 10s | | | 0 | 0 | Hazy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.16 | 766.1 | 73.3 | 22.9 | 75 | SE | 12.4 | 5.5 | | 0 | 9 | | ESE | 0.02 | 0.5 | Showery | C. Meldrum. |
| Melbourne, Observatory | | | 30.06 | 763.5 | 51.6 | 10.9 | 91 | SSE | 3 | 1.3 | | | 6 | | | 0 | 0 | Hazy | R. L. J. Ellery. |
| Monach Lt-house, (Hebrides) | | | 29.72 | 754.9 | 47 | 8.3 | | E | | | 4 | 3 | 0 | E | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.33 | 745.2 | 43 | 6.1 | | N | | | 2 | 2 | 4 | NNE | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,460 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.6? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Inches. | Barometer. Millimeters. | Reduced to sea-level. Inches. | Reduced to sea-level. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. | Wind. Force. | Clouds. Amount. | Clouds. Direction. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 48° 30′ W. 23° 55′ | | | 29.91 | 759.7 | 48.0 | 8.9 | | N | | 2 | 3 | | 10* | N | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 19° 49′ W. 36° 25′ | | | 30.19 | 766.8 | 76.3 | 24.6 | | NNE | | | 7 | | 4 | ENE | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.19 | 665.2 | | | 70.7 | 21.5 | 82 | NE | | | 3 | | 8ks | | E | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.76 | 755.8 | 46.6 | 8.1 | 82 | E | | | 4 | | 10 | | | | | | |
| Fanöe | | | 29.70 | 754.4 | 58.1 | 14.5 | 63 | E | | | 4 | | 3 | | | | | | |
| Godthaab, (Greenland) | | | | | | | | | | | | | | | | | | | |
| Stykkisholm, (Iceland) | | | | | | | | | | | | | | | | | | | |
| Thorshavn, (Faröe) | | | 30.04 | 762.9 | 45.0 | 7.2 | 64 | E | | | 2 | | 0 | | | | | | |
| Vestervig | | | 29.76 | 755.9 | 59.0 | 15.0 | 45 | NE | | | 6 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alengon | | | 29.54 | 750.2 | 57.2 | 14 | 76 | SSW | | | 4 | | 8kn | | SSW | 0 | 0 | Very cloudy | Normal School. |
| Amiens | | | 29.52 | 749.7 | 68.0 | 20.0 | | SSW | | | 3 | | 5 | | SSW | 0.055 | 1.4 | Cloudy | Normal School. |
| Avignon, Normal School | | | 29.76 | 755.9 | 69.1 | 20.6 | 33 | W | | | 2 | | 2 | | W | 0 | 0 | Partly cl'dy | Mr. Giraud. |
| Bar-sur-Seine | | | 29.66 | 753.4 | 59.0 | 15.0 | 57 | SW | | | 1 | | 8k | | SW | 0.024 | 0.6 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.60 | 751.7 | 63.9 | 17.7 | 46 | S | | | 2 | | 8 | | SSW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 29.81 | 757.2 | 60.3 | 15.7 | 63 | SSW | | | 3 | | 5 | | SW | 0.67 | 17. | Cloudy | Normal School. |
| Bourg en Bresse | | | 29.81 | 757.1 | 61.3 | 16.3 | 63 | S | | | 2 | | 2kn | | N | 0.08 | 2. | Slightly cl'dy | Normal School. |
| Bourges | | | 29.69 | 754.2 | 53.6 | 12.0 | 95 | SSW | | | 6 | | 5 | | NE | 0.051 | 1.3 | Partly cl'dy. | Normal School. |
| Brest | | | 29.7 | 746.1 | 56.3 | 13.5 | 66 | WSW | | | 5 | | 5 | | WSW | 0.148 | 3.75 | Squally | Naval Observatory. |
| Carcassonne | | | 29.74 | 755.3 | 70.9 | 21.6 | 46 | W | | | 1 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Caen | | | 29.49 | 749.1 | 55.2 | 12.9 | 77 | S | | | 4 | | 10 | | NNE | 0.083 | 2.1 | Raining | Normal School. |
| Chartres | | | 29.67 | 753.7 | 58.1 | 14.5 | 98 | WSW | | | 4 | | 2 | | NW | 0.126 | 3.2 | | Normal School. |
| Châlons-sur-Marne | | | 29.65 | 753.1 | 61.0 | 16.1 | 59 | SW | | | 3 | | 8kn | | NE | 0.299 | 7.6 | Very cloudy | Normal School. |
| Clermont-Ferrand | | | 29.67 | 753.6 | 59.0 | 15.0 | 50 | SW | | | 3 | | 8 | | SW | 0 | 0 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.67 | 753.6 | 53.8 | 12.1 | 74 | WSW | | | 2 | | 10 | | WSW | 0.31 | 8. | Covered | Normal School. |
| Commune de Gréasque* | | | 29.83 | 757.6 | 63.5 | 17.5 | 46 | W | | | 2 | | 8 | | W | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.71 | 754.6 | 60.3 | 15.7 | 65 | NE | | | 4 | | 5ks | | N | 0.256 | 6.50 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 29.59 | 751.6 | 54.3 | 12.4 | 76 | S | | | 8 | | 8 | | N | 0.091 | 2.3 | Very cloudy | Normal School. |
| Le Mans | | | 29.56 | 750.9 | 56.1 | 13.4 | 75 | SW | | | 6 | | 8 | | SW | 0.059 | 1.5 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.73 | 755.1 | 60.6 | 15.9 | 62 | SE | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Lorient | | | 29.45 | 748.0 | 56.1 | 13.4 | 58 | WSW | | | 5 | | 8 | | W | 0.425 | 10.8 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.74 | 755.4 | 60.4 | 15.8 | 86 | E | | | 2 | | 5 | | E | 0.177 | 4.5 | Cloudy | Mr. Marchal. |
| Metz | | | 29.75 | 755.7 | 60.1 | 15.6 | 33 | SSW | | | 3 | | 9k | | SW | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.72 | 754.9 | 56.7 | 13.6 | 61 | W | | | 2 | | 10 | | E | 0 | 0 | Covered | Normal School. |
| Nismes | | | 29.76 | 755.8 | 68.0 | 20 | 53 | S | | | 4 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Orleans | | | 29.57 | 751.1 | 60.4 | 15.8 | 85 | SSW | | | 6 | | 5 | | SW | 0.12 | 3. | Cloudy | Normal School. |
| Paris, Observatory | | | 29.59 | 751.5 | 61.3 | 16.3 | 58 | SSW | | | 3 | | 5k | | SW | 0.018 | 0.46 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.64 | 752.9 | 55.8 | 13.2 | 73 | SW | | | 6 | | 10 | | NE | 0.20 | 5. | Raining | Naval Observatory. |
| Rouen | | | 29.53 | 750.1 | 60.4 | 15.8 | 55 | SSE | | | 2 | | 10 | | S | 0.189 | 4.8 | Covered | Normal School. |
| Tarbes | 28.76 | 730.4 | 29.82 | 757.5 | 59.0 | 15 | 82 | W | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Villefranche | | | 29.84 | 757.8 | 66.6 | 19.2 | 88 | SE | | | 2 | | 8 | | NW | 0.12 | 3. | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.88 | 759.0 | 79.2 | 26.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.78 | 756.4 | 63.3 | 17.4 | 55 | WSW | | | 1–2 | | 4 | | | 0 | 0 | Partly cl'dy | The Staff. |
| Mont-Louis | 24.63 | 625.7 | 29.95 | 760.7 | 46.4 | 8.0 | 55 | SSW | 31.7 | 14.17 | | | 4 | | SW | 0.075 | 1.9 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.59 | 751.5 | 60.3 | 15.7 | 60 | S | | | 2 | | 6 | | SSW | 0.028 | 0.7 | | Montsouris Observatory |
| Perpignan | | | 29.78 | 756.3 | 61.7 | 16.5 | 54 | SE | 13.0 | 5.83 | | | 5 | | W | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | § § Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.27 | 565.7 | | | 30.2 | — 1.0 | | SW | | | 3 | | 10 | | | 0.354 | 9.0 | Snowy | § § and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.60 | 751.8 | 63.3 | 17.4 | 59 | SW | | | 2 | | 2 | | | 0.004 | 0.1 | | E. Renou. |
| Toulouse, Observatory | | | 29.78 | 756.5 | 66.6 | 19.2 | 50 | SSW | | | 1 | | 3 | | | 0.177 | 4.5 | | The Staff. |
| Tours | | | 29.61 | 752.0 | 59.4 | 15.2 | 89 | SW | | | 4 | | 10 | | W | 0.012 | 0.3 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.60 | 751.7 | 62.6 | 17.0 | 49 | SW | | | 2 | | 8 | | | 0.096 | 2.44 | Showery | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.83 | 757.6 | 67.6 | 19.8 | 92 | ESE | 18.6 | 8.3 | | | 10kn | | | 0 | 0 | Covered | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi. (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observtions for altitude, the constant 135. milimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.67 | 753.7 | 62.6 | 17.0 | 58 | W | | | 4 | | 7 | S | | 0 | 0 | | Prof. T. Hoh |
| Berlin | | | 29.62 | 752.3 | 63.5 | 17.5 | 57 | E | | | 1 | | 6 | | | 0.012 | 0.3 | | Prof. Arndt. |
| Breslau | | | 29.63 | 752.6 | 61.5 | 16.4 | 72 | ENE | | | 2 | | 10 | | | 0.083 | 2.1 | | Royal University Obs'y. |
| Carlsruhe | | | 29.65 | 753.2 | 61.9 | 16.6 | 57 | SW | | | 2 | | 10 | | | 0.008 | 0.2 | | Albert Senz. |
| Cassel | | | 29.66 | 753.4 | 66.9 | 19.4 | 46 | SSW | | | 2 | | 5 | SSW | | Inap. | Inap. | | Dr. H. Möhl. |
| Crefeld | | | 29.60 | 751.7 | 57.4 | 14.1 | 79 | SE | | | 2 | | 9 | | | | | Light rain | Director Lose. |
| Emden | | | 29.65 | 753.2 | 59.4 | 15.2 | 62 | E | | | 3 | | 10 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.67 | 753.6 | 63.1 | 17.3 | 54 | SW | | | 1 | | 6 | | | 0.016 | 0.4 | | Physical Society. |
| Friedrichshafen | 28.96? | 735.6? | 29.70? | 754.3? | 60.4 | 15.8 | 67 | SW | | | 4 | | 6 | SW | | 0.091 | 2.3 | Raining | M. Wilhelm. |
| Hamburg | | | 29.65 | 753.2 | 59.4 | 15.2 | 68 | ENE | | | 4 | | 7k | | | 0 | 0 | | Captain F. Hegemann. |
| Kiel | | | 29.69 | 754.1 | 52.0 | 11.1 | 92 | ENE | | | 4 | | 2 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.78 | 756.5 | 62.6 | 17.0 | 52 | SE | | | 5 | | 5 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 29.69 | 754.2 | 66.2 | 19.0 | | E | | | 4 | | 1 | | | 0.028 | 0.7 | | H. Müller. |
| Leipsic | | | 29.61 | 752.1 | 64.0 | 17.8 | 57 | NNE | | | 1 | | 5 | NE | | 0 | 0 | Lt. smoke-haze | Prof. Bruhns. |
| Memel, Naval School | | | 29.87 | 758.8 | 62.2 | 16.8 | | SE | | | 5 | | 6c,es | SSW | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.57 | 751.0 | 61.3 | 16.3 | 62 | SE | | | | | 1 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.74 | 755.5 | 55.4 | 13.0 | 67 | NE | | | 3 | | 8 | W | | 0.059 | 1.5 | | A. Lothes. |
| Posen | | | 29.67 | 753.5 | 63.1 | 17.3 | 87 | SE | | | 5 | | 8 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.69 | 754.1 | 62.8 | 17.1 | 49 | SW | | | 1 | | 8 | SW | | 0.165 | 4.2 | | Dr. Sebur. |
| Stuttgart | | | 29.66 | 753.3 | 61.2 | 16.2 | 58 | NW | | | 3 | | 8 | W | | 0.339 | 8.6 | Thunder, lightn'g | Prof. Schoder |
| Treves, (Trier) | | | 29.56 | 750.8 | 60.4 | 15.8 | 54 | W | | | 5 | | 3 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.16 | 715.2 | 29.63 | 752.7 | 56.7 | 13.7 | 69 | NW | | | 1 | | 10 | NW | | 0.307 | 7.8 | Heavy rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.77 | 756.1 | 47.8 | 8.8 | 92 | NE | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.82 | 757.4 | 74.8 | 23.8 | | W | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | |
| Roorkee | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.91 | 556.5 | 29.71 | 754.6 | 31.8 | — 0.1 | 99 | WNW | | | 2 | | 10 | | | Inap. | Inap. | | Prof. Giovanni Clodig. |
| Stelvio | 21.88 | 555.7 | 29.65 | 753.1 | 37.8 | 3.2 | | WSW | | | 1 | | 10 | | | 0.035 | 0.9 | | Signora Ernesta Manfredi. |
| Udine | | | 29.68 | 753.8 | 58.1 | 14.5 | 86 | SE | 1.3 | 0.6 | | | 10 | | | 0.661 | 16.8 | | Ab. Dem. Morgini. |
| Padua | | | 29.65 | 753.2 | 62.1 | 16.7 | 71 | SW | 9.4 | 4.2 | | | 8 | W | | 0.067 | 1.7 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.65 | 753.1 | 63.9 | 17.7 | 60 | SW | 9.4 | 4.2 | | | 8 | W | | 0.457 | 11.6 | | Conte Alm. Da Schio. |
| Verona | | | 29.66 | 753.3 | 63.1 | 17.3 | 82 | E | | | 2 | | 10 | | | 1.063 | 27.0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.37 | 720.5 | 29.67 | 753.7 | 60.1 | 15.6 | 58 | SE | | | 2 | | 9 | | | 0.276 | 7.0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.65 | 753.2 | 57.7 | 14.3 | 68 | S | | | 6 | | 10 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.65 | 753.2 | 63.9 | 17.7 | 74 | NE | | | 2 | | 8 | NE | | 0.469 | 11.9 | | Ab. Gio. Capelli. |
| Pavia | | | 29.68 | 753.8 | 60.8 | 16.0 | 72 | S | | | 4 | | 9 | SW | | 0.449 | 11.4 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.65 | 753.0 | 62.8 | 17.1 | 58 | WSW | 2.5 | 1.1 | | | 8 | NW | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 27.76 | 705.0 | 29.64 | 752.8 | 61.2 | 16.2 | 55 | SE | | | 4 | | 4 | WNW | | 0.421 | 10.7 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.75 | 755.6 | 63.1 | 17.3 | 72 | SW | | | 4 | | 1 | SW | | 0.043 | 1.1 | | Prof. L. Vassallo. |
| Genoa | | | 29.72 | 755.0 | 61.5 | 16.4 | 70 | SW | 4.9 | 2.2 | | | 8 | S | | 0.043 | 1.1 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.70 | 754.4 | 59.2 | 15.1 | 85 | SSW | 2.5 | 1.1 | | | 10 | | | 0.421 | 10.7 | | Dott. G. Manzi. |
| Parma | | | 29.67 | 753.6 | 61.9 | 16.6 | 59 | WSW | | | 6 | | 9 | | | 0.020 | 0.5 | | Prof. P. Pigorini. |
| Florence | | | 29.80 | 756.8 | 62.2 | 16.8 | 84 | SW | | | 2 | | 8 | | | 0.437 | 11.1 | | Cav. F. Meucci. |
| Leghorn | | | 29.78 | 756.3 | 64.0 | 17.8 | 72 | W | 16.8 | 7.5 | | | 8 | SW | | 0.118 | 3.0 | | Prof. P. Monte. |
| Siena | 28.58 | 725.8 | 29.77 | 756.1 | 59.0 | 15.0 | 67 | NW | 4.3 | 1.9 | | | 8 | SW | | 1.193 | 30.3 | | Prof. L. Toscani. |
| Urbino | 28.23 | 717.0 | 29.76 | 755.9 | 59.9 | 15.5 | 58 | SW | | | 4 | | 8 | | | 0.059 | 1.5 | | Prof. P. Serpieri. |
| Pesaro | | | 29.70 | 754.3 | 65.3 | 18.5 | 60 | SW | 26.2 | 11.7 | | | 10 | SW | | 0.157 | 4.0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.75 | 755.6 | 68.0 | 20.0 | 48 | S | | | 4 | | 7 | S | | 0.087 | 2.2 | | Prof. F. DeBosis. |
| Grosseto | | | 29.81 | 757.2 | 68.0 | 20.0 | 59 | SSE | | | 4 | | 4 | NW | | 0.083 | 2.1 | | Avv. P. Ponticelli. |
| Rome | | | 29.87 | 758.7 | 66.4 | 19.1 | 57 | SSW | 10.5 | 4.7 | | | 4 | SW | | 0.035 | 0.9 | | Prof's P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.91 | 759.7 | 61.5 | 16.4 | 75 | SW | | | 1 | | 9 | SSW | | 0.272 | 6.9 | | Prof. L. Palmieri. |
| Lecce | | | 29.88 | 758.9 | 69.1 | 20.6 | 41 | SSW | 9.8 | 4.4 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.95 | 760.6 | 66.6 | 19.2 | 67 | W | 9.4 | 4.2 | | | 10 | | | 0.236 | 6.0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.88 | 758.9 | 69.3 | 20.7 | 52 | NW | | | 2 | | 4 | | | 0.169 | 4.3 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.91 | 759.7 | 63.7 | 17.6 | 57 | E | | | 2 | | 8 | E | | 0 | 0 | | Pref. F. Cafiero. |
| Palermo | | | 29.92 | 759.9 | 68.2 | 20.1 | 48 | WNW | 8.7 | 3.9 | | | 6 | | | 0.031 | 0.8 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.04 | 712.2 | 29.94 | 760.5 | 57.6 | 14.2 | 78 | WNW | | | 6 | | 10 | SE | | 0.272 | 6.9 | | Prof. A. Pagani. |
| Syracuse | | | 29.87 | 758.6 | 69.8 | 21.0 | 46 | WNW | | | 6 | | 9 | W | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.65 | 750.6 | 59.5 | 15.3 | 82 | SW | 0 | 0 | | | 6 | SW | | 0.142 | 3.6 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.98 | 761.5 | 66.5 | 19.2 | 87 | S | 9 | 4.0 | | 5c | | W | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.4 | 30.09 | 761.2 | 58.1 | 14.5 | 67 | SW | 0.1 | 0.05 | | 6ck | 4ck | SW | SE | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.60 | 751.9 | 57.7 | 14.3 | | E | | | 1 | | | | | 0 | 0 | | |
| Groningen | | | 29.57 | 751.1 | 59.0 | 15.0 | | E | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.60 | 751.7 | 54.0 | 12.2 | | ENE | | | 2 | | | | | 0.059 | 1.5 | | |
| Utrecht | | | 29.55 | 750.5 | 61.0 | 16.1 | 48 | SSW | | | 3 | | 10 | | | 0.008 | 0.2 | Dull | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.91 | 759.7 | 48.2 | 9.0 | 48 | NNW | 7.8 | 3.5 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.02 | 762.4 | 44.6 | 7.0 | 44 | E | 7 | 3 | | | 0 | | | 0 | 0 | | |
| Christiania | | | 29.91 | 759.7 | 54.1 | 12.3 | 35 | W | 0 | 0 | | | 7 | | | 0 | 0 | | |
| Tromsö | | | 30.05 | 763.3 | 37.8 | 3.2 | 76 | Calm | 0 | 0 | | | 4 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Lower 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | ..... | ..... | 29.76 | 756.0 | 63.7 | 17.6 | 92 | SW | 18.6 | 8.3 | ..... | ..... | 10 | ..... | ..... | 0.008 | 0.2 | Raining | Dr. J. A. Sampaio. |
| Campo Major | ..... | ..... | 30.05 | 763.3 | 62.1 | 16.7 | 59 | SW | 11.2 | 5.0 | ..... | ..... | 9 | SW | ..... | 0.138 | 3.5 | ..... | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | ..... | ..... | 30.25 | 768.4 | 67.1 | 19.5 | 46 | SW | 3.8 | 1.7 | ..... | ..... | 9 | ..... | ..... | 0 | 0 | ..... | Capt. D. A. de Cunha. |
| Lisbon | ..... | ..... | 30.10 | 764.5 | 61.7 | 16.5 | 66 | WSW | 22.4 | 10.0 | ..... | ..... | 5 | ..... | ..... | 0.020 | 0.5 | ..... | The Observatory. |
| Ponta Delgada, (Azores) | ..... | ..... | 29.93 | 760.3 | 62.2 | 16.8 | 92 | SSW | 25.5 | 11.4 | ..... | ..... | 10 | ..... | ..... | 0 | 0 | ..... | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from | Observer. |
|---|---|---|---|
| S. S. India | ..... | ..... | § A. D. Pedroso, Com'd't. ‡ Lt. S. A. P. de Miranda. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Lower 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | ..... | ..... | 29.67 | 753.6 | 57.4 | 14.1 | 67 | ESE | 20 | 9 | ..... | ..... | 10 | ..... | ..... | ..... | ..... | Raining | Astronomical Obs. |
| Wilna | ..... | ..... | 29.93 | 760.1 | 60.8 | 16.0 | 44 | SSE | 7 | 3 | ..... | ..... | 7 | ..... | ..... | ..... | ..... | ..... | Astronomical Obs. |
| Dorpat | ..... | ..... | 30.11 | 764.7 | 61.5 | 16.4 | 29 | ESE | 9 | 4 | ..... | ..... | 4 | ..... | ..... | ..... | ..... | ..... | Physical Cabinet. |
| St. Petersburg | ..... | ..... | 30.15 | 765.7 | 54.3 | 12.4 | 46 | NW | 9 | 4 | ..... | ..... | 5 | ..... | ..... | ..... | ..... | ..... | Central Physical Obs. |
| Kuopio | ..... | ..... | 30.12 | 765.1 | 45.0 | 7.2 | 63 | S | 7 | 3 | ..... | ..... | 0 | ..... | ..... | ..... | ..... | ..... | Ch. Forsten. |
| Kieff | ..... | ..... | 29.89 | 759.3 | 62.1 | 16.7 | 55 | ESE | 9 | 4 | ..... | ..... | 9 | ..... | ..... | ..... | ..... | ..... | Physical Cabinet. |
| Nikolaiev | ..... | ..... | 29.91 | 759.6 | 69.4 | 20.8 | 55 | SE | 29 | 13 | ..... | ..... | 8 | ..... | ..... | ..... | ..... | ..... | Kurdakof. |
| Kertch | ..... | ..... | 30.03 | 762.7 | 61.7 | 16.5 | 77 | SSE | 9 | 4 | ..... | ..... | 0 | ..... | ..... | ..... | ..... | ..... | Lagorio. |
| Moscow | ..... | ..... | 30.29 | 769.4 | 55.4 | 13.0 | 64 | S | 9 | 4 | ..... | ..... | 4 | ..... | ..... | ..... | ..... | ..... | Meteorological Obs. |
| Lugan | ..... | ..... | 29.90 | 759.5 | 73.8 | 23.2 | 47 | ESE | 9 | 4 | ..... | ..... | 4 | ..... | ..... | ..... | ..... | ..... | Meteorological Obs. |
| Archangel | ..... | ..... | 30.05 | 763.3 | 40.8 | 4.9 | 67 | WNW | 18 | 8 | ..... | ..... | 8 | ..... | ..... | ..... | ..... | ..... | Ogorodnikof. |
| Tiflis | 28.60 | 726.5 | 29.96 | 761.0 | 76.6 | 24.8 | 26 | N | 18 | 8 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | Physical Observatory. |
| Astrakhan | ..... | ..... | 30.02 | 762.4 | 76.8 | 24.9 | 27 | SW | 11 | 5 | ..... | ..... | 7 | ..... | ..... | ..... | ..... | ..... | Sebastianof. |
| Kasan | ..... | ..... | 30.18 | 766.6 | 61.0 | 16.1 | 40 | N | 7 | 3 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | Physical Cabinet. |
| Orenburg | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Tschernischet. |
| Ekaterinburg | 29.10 | 739.0 | 30.01 | 762.3 | 68.4 | 20.2 | 31 | SW | 13 | 6 | ..... | ..... | 10 | ..... | ..... | ..... | ..... | ..... | Meteorological Obs. |
| Nukuss | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| Kasaly | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Bobrof. |
| Tashkend | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Michelson. |
| Barnaul | ..... | ..... | 30.19 | 766.9 | 54.9 | 12.7 | 36 | Calm | 0 | 0 | ..... | ..... | 0 | ..... | ..... | ..... | ..... | ..... | Meteorological Obs. |
| Yeniseisk | ..... | ..... | 30.04 | 763.0 | 53.4 | 11.9 | 58 | NNW | 2 | 1 | ..... | ..... | 0 | ..... | ..... | ..... | ..... | ..... | Marks. |
| Irkutsk | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Usolzef. |
| Oorga | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Mossin. |
| Peking, (China) | ..... | ..... | 30.05 | 763.3 | 64.6 | 18.1 | 78 | SW | 18 | 8 | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | Physical Observatory. |
| Nertchinsk | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Meteorological Obs. |
| Vladivostock | ..... | ..... | 30.04 | 763.0 | 48.2 | 9.0 | 67 | SW | 2 | 1 | ..... | ..... | 0 | ..... | ..... | ..... | ..... | ..... | |
| Nikolaievsk, on the Amoor | ..... | ..... | ..... | ..... | 32.9 | 0.5 | ..... | Calm | 0 | 0 | ..... | ..... | 10 | ..... | ..... | ..... | ..... | ..... | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Lower 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | ..... | ..... | 29.95 | 760.7 | 59.0 | 15.0 | 62 | SW | 29.8 | 13.33 | ..... | 0 | 6 | ..... | ..... | 0.122 | 3.1 | Cloudy | Royal Observatory. |
| San Fernando | ..... | ..... | 30.19 | 766.9 | 66.0 | 18.9 | 73 | WSW | 14.5 | 6.5 | ..... | 0 | 9 | ..... | SW | 0.008 | 0.2 | ..... | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | ..... | ..... | 29.98 | 761.6 | 75.7 | 24.3 | 61 | N | 7.6 | 3.4 | ..... | 9c | 1ks | ..... | ..... | 0 | 0 | ..... | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson, Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Lower 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | ..... | ..... | 30.11 | 764.7 | 40.3 | 4.6 | 74 | Calm | ..... | ..... | 0 | ..... | 0 | ..... | ..... | 0 | 0 | ..... | |
| Umea | ..... | ..... | 30.15 | 765.7 | 43.5 | 6.4 | 45 | SW | ..... | ..... | 2 | ..... | 1 | ..... | ..... | 0 | 0 | ..... | |
| Hernosand | ..... | ..... | 30.08 | 764.1 | 42.3 | 5.7 | 36 | SE | ..... | ..... | 2 | ..... | 1 | ..... | ..... | 0 | 0 | ..... | |
| Stockholm | ..... | ..... | 29.98 | 761.5 | 55.4 | 13.0 | 55 | SE | ..... | ..... | 4 | ..... | 3 | ..... | ..... | 0 | 0 | ..... | |
| Wisby | ..... | ..... | 29.95 | 760.7 | 56.8 | 13.8 | 43 | SE | ..... | ..... | 6 | ..... | 7 | ..... | ..... | 0 | 0 | ..... | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | ..... | ..... | 29.96 | 761.0 | 60.6 | 15.9 | 30 | SE | 10.7 | 4.8 | ..... | ..... | 1 | SW | SW | 0.001 | 0.02 | ..... | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.32 | 719.3 | 29.74 | 755.4 | 55.8 | 13.2 | 71 | E | | | 1 | | 9 | | | 0.169 | 4.3 | Cloudy | The Observatory. |
| Zurich | 28.13 | 714.4 | 29.76 | 755.8 | 56.1 | 13.4 | 67 | W | | | 1 | | 9 | | | 0.071 | 1.8 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —5.5 mm; Thermometer, —2.3 cent.; Relative Humidity, +13 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.78 | 756.3 | 70.0 | 21.1 | 66 | S | 6 | 2.5 | | | 7 | | SW | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 30.02 | 762.5 | 73.4 | 23.0 | | NW | | | 1 | | 0 | | | | | | |
| Salonica | | | 29.78 | 756.4 | 70.3 | 21.3 | | S | | | 1 | | 2 | | | | | | |
| Valona | | | 29.90 | 759.5 | 70.2 | 21.2 | | W | | | 1 | | 2 | | | 0.24 | 6. | Slightly cl'dy | A. Bahran. |
| Varna | | | 29.80 | 757.0 | 66.2 | 19.0 | | N | | | 2 | | 10 | | | | | Raining | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 30.03 | 762.7 | 79.0 | 26.1 | 62 | NE | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.99 | 761.7 | 34.7 | 1.5 | 95 | NE | 16 | 7.2 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.97 | 761.2 | 40 | 4.4 | | NE | 5 | 2.2 | | | 10s | | NE | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.89 | 759.2 | 35 | 1.7 | 96 | N | 13 | 5.8 | | | 10n | | N | 0.30 | 7.6 | Light rain | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.80 | 756.9 | 38 | 3.3 | 96 | NE | 10 | 4.5 | | | 10n | | | 0.050 | 1.27 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.92 | 760.0 | 46.6 | 4.8 | 71 | E | | | 4 | | 10s | | | 0 | 0 | Cloudy | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.03 | 762.7 | 38.5 | 3.6 | 100 | E | | | 2 | | | | | 0.29 | 7.4 | Raining | H. A. Johnson. |
| Esquimault, B. C. | | | 29.90 | 759.4 | 51.3 | 10.7 | 86 | SW | | | | 4cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.04 | 763.0 | 36 | 2.2 | 88 | E | 42 | 18.8 | | 5k | 5n | E | E | 0.17 | 4.3 | Light rain | J. McWilliams. |
| Fredericton, N. B. | | | 29.88 | 758.9 | 36.6 | 2.6 | 84 | NE | 15 | 6.7 | | | 10 | | | 0.07 | 1.8 | Raining | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.14 | 765.3 | 44 | 6.7 | 63 | E | 8 | 3.6 | | 0 | 2ks | | | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.97 | 761.2 | 47.0 | 8.3 | 79 | NE | | | 1 | 0 | 1s | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | 28.82 | 732.0 | 29.93 | 760.2 | 45 | 7.2 | 76 | N | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.73 | 755.1 | 42 | 5.6 | 87 | NE | 4 | 1.8 | | | 10n | | | Inap. | Inap. | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.7 | 761.2 | 48.5 | 9.2 | 46 | S | | | 2 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.77 | 756.1 | 40 | 4.4 | 91 | NE | | | 1 | | 10 | | | 0.23 | 5.8 | Rain and fog | E. Weedon. |
| *Kingston, Ontario | | | 29.95 | 760.7 | 42 | 5.6 | 85 | NE | 15 | 6.7 | | 2k | 0 | NE | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.93 | 760.2 | 43 | 6.1 | 68 | NE | 15 | 6.7 | | 0 | 8ks | | NE | Inap. | Inap. | Fair | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 29.98 | 761.5 | 44 | 6.7 | 76 | NE | 11 | 4.9 | | 5k | 2k8 | NE | NE | 0 | 0 | Fair | Rev. R. Mosley. |
| Port Dover, Ontario | | | 29.92 | 760.0 | 45 | 7.2 | 68 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 29.72 | 754.9 | 40.2 | 4.6 | | NE | 6 | 2.7 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.93 | 760.2 | 43 | 6.1 | 92 | NW | 6 | 2.7 | | 2k | 0 | NW | | 0.05 | 1.3 | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.95 | 760.7 | 40 | 4.4 | 73 | NE | 26 | 11.6 | | | 10n | | NE | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.99 | 761.7 | 43 | 6.1 | 83 | NE | 10 | 4.5 | | | 8s | | E | 0.06 | 1.5 | Light rain | W. H. McIntyre. |
| St. John, N. B. | | | 29.83 | 757.7 | 37 | 2.8 | 85 | N | 9 | 4.0 | | | 10 | | | 0 | 0 | Cloudy | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.95 | 760.7 | 45 | 7.2 | 68 | N | 4 | 1.8 | | 2cs | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 29.95 | 760.7 | 44 | 6.7 | 76 | N | 1 | 0.4 | | 2ck | 0 | | | 0 | 0 | Fair | R. J. Cole. |
| Stratford, Ontario | 28.63 | 727.2 | 29.92 | 760.0 | 43.2 | 6.2 | 74 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.77 | 756.1 | 38 | 3.3 | 96 | NE | 12 | 5.4 | | | 10n | | | 0.07 | 1.8 | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 29.94 | 760.5 | 47 | 8.3 | 68 | N | 5 | 2.2 | | 2k | 8ks | N | N | 0 | 0 | Cloudy | Magnetic Observatory. |
| Windsor, N. S. | | | | | | | | | | | | | | | | | | | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.93 | 760.2 | 47.0 | 8.3 | 73 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.89 | 759.0 | 40.0 | 4.4 | 100 | NE | | | | 10ks | 10n | N | | 0.18 | 4.6 | Cloudy | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.82 | 757.4 | 43 | 6.1 | 75 | NW | 9 | 4.0 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Alpena, Mich. | | | 30.04 | 763.0 | 47 | 8.3 | 62 | NW | 11 | 4.9 | | 0 | 1s | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.77 | 756.1 | 47 | 8.3 | 77 | NE | 25 | 11.2 | | | 10s | | NE | 0.10 | 2.5 | Cloudy | |
| Augusta, Ga. | | | 29.93 | 760.2 | 60 | 15.4 | 65 | NW | 7 | 3.1 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Baltimore, Md. | | | 29.79 | 756.7 | 50 | 10.0 | 78 | N | 6 | 2.7 | | | 10s | | | 0.28 | 7.1 | Cloudy | |
| Barnegat, N. J. | | | 29.76 | 755.9 | 46 | 7.8 | 80 | NE | 23 | 10.3 | | | 10ks | | NE | 0.03 | 0.8 | Cloudy | |
| Bismarck, Dakota | 28.13 | 714.5 | 29.74 | 755.4 | 52 | 11.1 | 53 | E | 4 | 1.8 | | | 10s | | SE | 0.14 | 3.6 | Cloudy | |
| Boston, Mass. | | | 29.80 | 756.9 | 41 | 5.0 | 78 | NE | 16 | 7.2 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Breckenridge, Minn. | | | 30.05 | 763.3 | 49 | 9.4 | 57 | SE | 12 | 5.4 | | | 10ks | | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.88 | 758.9 | 46 | 7.8 | 62 | E | 9 | 4.0 | | 1k | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.87 | 758.7 | 41 | 5.0 | 64 | N | 6 | 2.7 | | 8k | 0 | NW | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.10 | 764.5 | 51 | 10.0 | 72 | NW | 4 | 1.8 | | 2c | Haze | | | 0 | 0 | Fair | |
| Campo, Cal. | 27.40 | 696.0 | 29.96 | 761.0 | 55 | 12.8 | 48 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 54 | 12.2 | | S | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.66 | 753.4 | 50 | 10.0 | 71 | NE | 28 | 12.5 | | 10k | 0 | N | | 0.63 | 16.0 | Cloudy | |
| Cape Henry, Va. | | | 29.72 | 754.9 | 51 | 10.6 | 86 | NW | 20 | 8.9 | | 8k | 0 | NW | | 1.35 | 34.3 | Fair | |
| Cape Lookout, N. C. | | | 29.78 | 756.4 | 51 | 10.6 | 86 | N | 18 | 8.0 | | 2k | 5ks | N | N | 0.31 | 7.9 | Fair | |
| Cape May, N. J. | | | 29.75 | 755.6 | 46 | 7.8 | 85 | NE | 17 | 7.6 | | | 10n | | | 0.61 | 15.5 | Light rain | |
| Charleston, S. C. | | | 29.89 | 759.2 | 56 | 13.3 | 80 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.84 | 605.5 | 29.78 | 756.4 | 47 | 8.3 | 54 | W | 4 | 1.8 | | 8c | 0 | W | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 30.06 | 763.5 | 44 | 6.7 | 73 | NE | 8 | 3.6 | | 2ck | 0 | N | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.94 | 760.5 | 50 | 10.0 | 58 | N | 6 | 2.7 | | Haz | Sm'e | | | Inap. | Inap. | Clear | |
| Cleveland, Ohio | | | 29.97 | 761.2 | 43 | 6.1 | 75 | NW | 7 | 3.1 | | | 10s | | N | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 30.02 | 762.5 | 56 | 13.3 | 74 | E | 2 | 0.9 | | 2cs | Haz. | | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 30.09 | 764.3 | 50 | 10.0 | 70 | SE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.02 | 762.5 | 59 | 15.0 | 55 | S | 8 | 3.6 | | 1c | 1ck | S | | 0 | 0 | Clear | |
| Denver, Col. | 24.58 | 624.3 | 29.80 | 756.9 | 48 | 8.9 | 49 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | 27.25 | 692.1 | 29.95 | 760.7 | 44 | 6.7 | 75 | N | 4 | 1.8 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Dodge City, Kan. | | | 29.55 | 750.6 | 52 | 11.1 | 79 | S | 20 | 8.9 | | | 10s | | SW | 0.03 | 0.8 | Cloudy | |
| Dubuque, Iowa | | | 30.08 | 764.0 | 48 | 8.9 | 62 | SE | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 30.18 | 766.6 | 43 | 6.1 | 75 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.80 | 756.9 | 39 | 3.9 | 72 | NE | 14 | 6.3 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 29.88 | 758.9 | 45 | 7.2 | 76 | N | 1 | 0.4 | | 2ck | Sm'e | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.10 | 764.5 | 44 | 6.7 | 60 | N | 10 | 4.5 | | 5c | 0 | N | | 0 | 0 | Fair | |
| Florence, Arizona | | | | | 64 | 17.8 | | SW | | | | 0 | 0 | | | | | Clear | |
| Fort Gibson, Indian Ter. | | | 30.03 | 762.7 | 55 | 12.8 | 80 | Calm | 0 | 0 | | 2ck | 2s | W | W | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.23 | 742.4 | 37 | 2.8 | 81 | SE | | | 7 | | 10ks | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.74 | 730.0 | 29.83 | 757.7 | 60 | 15.6 | 66 | SE | 12 | 5.4 | | 8c | 0 | E | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.20 | 716.3 | 29.83 | 757.7 | 51 | 10.6 | 72 | SE | 18 | 8.0 | | 10c | 0 | | | 0.01 | 0.3 | Cloudy | |
| Galveston, Tex. | | | 30.06 | 763.5 | 68 | 20.0 | 60 | E | 10 | 4.5 | | 1c | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 30.03 | 762.7 | 47 | 8.3 | 77 | NW | 4 | 1.8 | | 4c | Haz | NW | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.03 | 762.7 | 45 | 7.2 | 68 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.14 | 763.6 | 69 | 20.6 | 84 | E | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.93 | 760.2 | 62 | 16.7 | 56 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.01 | 762.2 | 52 | 11.1 | 72 | E | 3 | 1.3 | | 5k | 0 | E | | 0 | 0 | Fair | |
| Key West, Fla. | | | 29.97 | 761.2 | 73.0 | 22.8 | 63 | N | 7 | 3.1 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 29.75 | 755.6 | 49 | 9.4 | 77 | N | 28 | 12.5 | | | 10s | | N | 0.62 | 15.7 | Cloudy | |
| Knoxville, Tenn. | | | 30.00 | 762.0 | 43 | 6.1 | 91 | SW | 1 | 0.4 | | | Fog | | | 0.02 | 0.5 | Dense fog | |
| LaCrosse, Wis. | | | 30.06 | 763.5 | 51 | 10.6 | 45 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.02 | 762.5 | 55 | 12.8 | 86 | S | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Louisville, Ky. | | | 30.00 | 762.0 | 48 | 8.9 | 69 | N | 7 | 3.1 | | 0 | Haz. | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 29.80 | 756.9 | 48 | 8.9 | 85 | N | 2 | 0.9 | | | 10n | | NW | 0.14 | 3.6 | Light rain | |
| Maricopa Wells, Arizona | | | | | 64 | 17.8 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.12 | 765.0 | 44 | 6.7 | 59 | NW | 12 | 5.4 | | 2k | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.11 | 764.8 | 55 | 12.8 | 68 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 30.10 | 764.5 | 45 | 7.2 | 54 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.09 | 764.3 | 54 | 12.2 | 73 | N | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.07 | 763.8 | 54 | 12.2 | 76 | NW | 5 | 2.2 | | 0 | Haz. | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.81 | 731.8 | 29.88 | 758.9 | 38 | 3.3 | 90 | N | 11 | 4.9 | | | 10n | | N | 0.53 | 13.5 | Light rain | |
| Mt. Washington, N. H. | 23.48 | 596.4 | 29.84 | 757.9 | 19 | — 7.2 | 84 | N | 18 | 8.0 | | 5c | 10s | | N | 0.05 | 1.3 | Fair | |
| Nashville, Tenn. | | | 30.04 | 763.0 | 54 | 12.2 | 61 | N | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.79 | 756.7 | 46 | 7.8 | 60 | NE | 15 | 6.7 | | | 10s | | NE | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.80 | 756.9 | 46 | 7.8 | 69 | N | 9 | 4.0 | | 8s | 2ks | | N | 0 | 0 | Cloudy | |
| New Orleans, La. | | | 30.09 | 764.3 | 60 | 15.6 | 59 | NE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Newport, R. I. | | | 29.79 | 756.7 | 44 | 6.7 | 75 | N | 8 | 3.6 | | | 10ks | | NE | 0 | 0 | Threatening | |
| New York, N. Y. | | | 29.79 | 756.7 | 48 | 8.9 | 56 | NE | 12 | 5.4 | | | 10s | | N | Inap. | Inap. | Cloudy | |
| Norfolk, Va. | | | 29.76 | 755.9 | 50 | 10.0 | 86 | N | 12 | 5.4 | | 8k | 0 | NW | | 0.84 | 21.3 | Fair | |
| North Platte, Neb. | 26.92 | 683.8 | 29.45 | 748.0 | 47 | 8.3 | 69 | SE | 20 | 8.9 | | 2k | Sm'e | SE | SE | 0 | 0 | Fair | |
| Omaha, Neb. | 28.91 | 734.5 | 29.98 | 761.5 | 53 | 11.7 | 61 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Oswego, N. Y. | | | 29.89 | 759.2 | 40 | 4.4 | 82 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 30.07 | 763.8 | 48 | 8.9 | 62 | SE | 6 | 2.7 | | 10k | 0 | SE | | 0 | 0 | Cloudy | |
| Philadelphia, Pa. | | | 29.79 | 756.7 | 48 | 8.9 | 70 | E | 11 | 4.9 | | | 10s | | E | 0.04 | 1.0 | Cloudy | |
| Phœnix, Arizona | 28.72 | 729.9 | | | 45 | 7.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.69 | 449.3 | 29.90 | 759.4 | 16 | — 8.8 | 67 | W | 20 | 8.9 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 29.84 | 757.9 | 45 | 7.2 | 76 | NW | 8 | 3.6 | | | 10s | | W | 0.48 | 12.2 | Cloudy | |
| Port Huron, Mich. | | | 29.95 | 760.7 | 41 | 5.0 | 82 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Portland, Me. | | | 29.80 | 756.9 | 43 | 6.1 | 67 | NE | 18 | 8.0 | | 2k | 8ks | | N | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.05 | 763.3 | 52 | 11.1 | 86 | Calm | 0 | 0 | | | 10s | | | 0.17 | 4.3 | Cloudy | |
| Prescott, Arizona | | | | | 48 | 8.9 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.96 | 761.0 | 69 | 20.6 | 65 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.87 | 758.7 | 44 | 6.7 | 67 | NE | 11 | 4.9 | | 5ck | 0 | E | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.51 | 647.9 | 29.84 | 757.9 | 44 | 6.7 | 67 | N | 4 | 1.8 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Sandy Hook, N. J. | | | 29.78 | 756.4 | 48 | 8.9 | 62 | NE | 19 | 8.5 | | Haz. | 5ks | | NE | 0 | 0 | Cloudy | |
| San Antonio, Texas | | | 29.85 | 758.2 | 65 | 18.3 | 67 | Calm | 0 | 0 | | 2c | 0 | | | 0 | 0 | Clear | |
| San Diego, Cal. | | | 29.96 | 761.0 | 58 | 14.4 | 70 | W | 8 | 3.6 | | 0 | 8s | | W | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.94 | 760.5 | 59 | 10.0 | 86 | W | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.16 | 588.2 | 29.70 | 754.4 | 45 | 7.2 | 53 | E | 2 | 0.9 | | 1cs | 5s | | | 0.01 | 0.3 | Fair | |
| Savannah, Ga. | | | 29.92 | 760.0 | 58 | 14.4 | 64 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.16 | 766.1 | 59 | 15.0 | 70 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 29.84 | 757.9 | 53 | 11.7 | 86 | NW | 5 | 2.2 | | | 10s | | NW | 0.27 | 6.9 | Cloudy | |
| Springfield, Mass. | | | 29.82 | 757.4 | 46 | 7.8 | 60 | NE | 8 | 3.6 | | | 10ks | | NE | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 30.08 | 764.0 | 50 | 10.0 | 72 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| St. Marks, Fla. | | | 29.99 | 761.7 | 55 | 12.8 | 73 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.08 | 764.0 | 48 | 8.9 | 42 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 62 | 16.7 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 29.82 | 757.4 | 41 | 5.0 | 73 | NE | 24 | 10.7 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Toledo, Ohio | | | 29.96 | 761.0 | 48 | 8.9 | 70 | N | 10 | 4.5 | | 5cs | 0 | N | | 0 | 0 | Fair | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.39 | 695.7 | 29.94 | 760.5 | 52 | 11.1 | | S | | | | 1c | 0 | SW | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.88 | 758.9 | 57 | 13.9 | 68 | NW | 18 | 8.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.12 | 765.0 | 54 | 12.2 | 79 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.05 | 610.9 | 29.53 | 750.0 | 34 | 1.1 | 95 | Calm | 0 | 0 | | | 10s | | S | 0.20 | 5.1 | Threatening | |
| Washington, D. C | | | 29.80 | 756.9 | 48 | 8.9 | 92 | NW | 7 | 3.1 | | | 10n | | N | 0.48 | 12.2 | Light rain | |
| Wickenburg, Arizona | | | | | 48 | 8.9 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.82 | 757.4 | 53 | 11.7 | 79 | NW | 10 | 4.5 | | | 10ks | | NW | 0.05 | 1.3 | Cloudy | |
| Wood's Holl, Mass | | | 29.80 | 756.9 | 44 | 6.7 | 67 | NE | 8 | 3.6 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.72 | 729.5 | 30.00 | 762.0 | 52 | 11.1 | 66 | SE | 10 | 4.5 | | 10cs | 0 | W | | Inap. | Inap. | Cloudy | |
| Yuma, Arizona | | | 29.80 | 756.9 | 62 | 16.7 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.12 | 765.0 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 2ck | 0 | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | 29.97 | 761.2 | 80 | 26.7 | 87 | E | | | 3 | | 10n | | E | 0.310 | 7.87 | Cloudy | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | | | 80.6 | 27.0 | | E | | | | | | | | 0 | 0 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.07 | 763.7 | | | 69.8 | 21.0 | 80 | Calm | | | 0 | 5cs,ck | 0 | | | Inap. | Inap | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.17 | 639.3 | 30.25 | 768.3 | 38.5 | 3.6 | 91 | E | 21 | 9.4 | | 3k | 4s | E | E | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.05 | 763.3 | 71 | 21.7 | | NE | | | 4 | | | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | | | | | | | | | | | | | | | | | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.0 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 (?) ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3,488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.51 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.90 | 759.4 | 72 | 22.2 | 50 | 10.0 | 79 | NNE | | | 2 | | 3 | | NNE | 0.40 | 10.2 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.00 | 762.0 | 57 | 13.9 | 53.5 | 11.9 | | NW | | | 2 | | 3 | | E | 0 | 0 | | | Pleasant | |
| Navy Yard, Norfolk, Va. | 29.92† | 760.0† | 49 | 9.4 | 48 | 8.9 | 100 | NW | 5 | 2.2 | | | 10kn | | | 0.70 | 17.8 | | | D. clouds | |
| Navy Yard, Pensacola, Fla. | 30.07 | 763.8 | | | 57 | 13.9 | 69 | N | 10 | 4.5 | | | | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.87 | 758.7 | 61 | 16.1 | 43 | 6.1 | 67 | NE | 8 | 3.6 | | | | | SW | 0 | 0 | | | Threatening | |
| Naval Hospital, Yokohama, Japan | 29.95 | 760.7 | 69 | 20.6 | 66.5 | 19.2 | 87 | SW | | | 5 | | 8kd | | SW | 0.03 | 0.8 | | | Clearing | |
| Adams, N. 23° 18′ W. 36° | 30.28 | 769.1 | 76 | 24.4 | 76 | 24.4 | 91 | ENE | | | 2 | | 8 | | E | | | Smooth | | D. clouds | |
| Alert, Yokohama, Japan | 30.15 | 765.8 | 70 | 21.1 | 69 | 20.6 | 95 | S | | | 4 | | 10 | | S | | | Chop'd | S&E | D. clouds | |
| Alliance, Beirut, Syria | 30.13 | 765.3 | 78 | 25.6 | 77 | 25.0 | 91 | N&E | | | 0–1 | | 0 | | | | | | | Hazy | |
| Ashuelot, Canton, China | 29.85 | 758.2 | 80 | 26.7 | 78 | 25.6 | 86 | SE | | | 2 | | 10 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La. | 30.03 | 762.7 | 45 | 7.2 | 57 | 13.9 | 69 | ENE | | | 2 | | 0 | | | | | | | Clear | |
| Colorado, New York, N. Y. | 29.85 | 758.2 | 62 | 16.7 | 47 | 8.3 | 70 | NE | 4 | 1.8 | | | 10 | | NE | 0 | 0 | | | D. clouds | |
| Despatch, N 37° 50′ W. 43° 09′ | 30.04 | 763.0 | 66 | 18.9 | 65 | 18.3 | 89 | SSW | | | 3 | | 9 | | N | | | Long | SW | Damp | |
| Essex, N. 21° 00′ W. 94° 20′ | 30.00 | 762.0 | 78 | 25.6 | 80 | 26.7 | 87 | NE | | | 3 | | 8 | | SW | 0 | 0 | Moderate. | NNE | D. clouds | |
| Frolic, Monte Video, Uruguay | 30.29 | 769.4 | | | 57 | 13.9 | 87 | Var. | | | 1 | | 2k | | | 0 | 0 | Smooth | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.80 | 756.9 | | | 64 | 17.8 | 100 | SE | | | 1 | | 8 | | | Blank | Blank | | | D. clouds | |
| Hartford, Santa Cruz, W. I. | 30.15 | 765.8 | 80 | 26.7 | 83 | 28.3 | 71 | ESE | 6.0 | 2.7 | | | 9 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.02 | 762.5 | 76 | 24.4 | 73 | 22.8 | 90 | NE | | | 1 | | 10 | | ENE | 0 | 0 | Calm | None | Pleasant | |
| Lackawana, Acapulco, Mexico | 29.84 | 757.9 | | | 82 | 27.8 | 91 | Calm | | | 0 | | 5 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.80 | 759.2 | 76 | 24.4 | 76 | 24.4 | 95 | SSE | | | 3 | | 10 | | NNW | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa. | 29.46 | 748.3 | 55 | 12.8 | 46 | 7.8 | 62 | E | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Shanghai, China | 29.84 | 757.9 | 68 | 20.0 | 65 | 18.3 | 94 | SSE | | | 3 | | 10 | | SSE | | | | | | |
| Monongahela, Norfolk, Va. | 29.78 | 756.4 | 53 | 11.7 | 53 | 11.7 | | NW | | | 4–6 | | ..k | | | Blank | Blank | | | D. clouds | |
| New Hampshire, Port Royal, S. C. | 30.08 | 764.0 | | | 60 | 15.6 | 88 | NW | | | 2 | | 0 | | | 0 | 0 | | | Blue sky | |
| Omaha, N. 2° 09′ W. 80° 15′ | 29.96 | 761.0 | 82 | 27.8 | 82 | 27.8 | 91 | S | 4 | 1.8 | | | 10 | | S | 0.5 | 12.7 | Moderate. | S | Rainy | |
| Ossipee, Matanzas, Cuba, W. I. | 30.00 | 762.0 | 74 | 23.3 | 73 | 22.8 | 67 | NNE | | | 1 | | 10 | | N | | | | | D. clouds | |
| Palos, Shanghai, China | 29.87 | 758.7 | 70 | 21.1 | 66 | 18.9 | 89 | SE | | | 5 | | 10 | | S&E | | | | | Overcast | |
| Pensacola, Acapulco, Mexico | 29.96 | 761.0 | | | 79 | 26.1 | 91 | Calm | | | 0 | | 3 | | | 0 | 0 | | | Pleasant | |
| Plymouth, New Orleans, La. | 30.12 | 765.0 | 69 | 20.6 | 58 | 14.4 | 76 | NNE | | | 3 | | 0 | | | 0 | 0 | | | Smoky, hazy | |
| Ranger, N. 37° 37′ W. 35° 15′ | 30.22 | 767.6 | | | 64 | 17.8 | 100 | NNE | | | 3 | | 2 | | N&E | | | Rough | N&E | Clear | |
| Richmond, S. 30° 19′ W. 48° 24′ | 30.28 | 769.1 | 69.0 | 20.6 | 69.0 | 20.6 | 89 | SSW | | | 2 | | 2 | | SSW | 0 | 0 | Moderate | SE | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.86 | 758.4 | | | 60 | 15.6 | 94 | NE | | | 1 | | 4 | | Var. | | | | | D. clouds | |
| Santee, Annapolis, Md. | 29.86 | 758.4 | 62 | 16.7 | 50 | 10.0 | 79 | NNE | | | 4 | | 10 | | | 0.4 | 10.2 | | | Cloudy | |
| St. Louis, League Island, Pa. | 29.70 | 754.4 | 50 | 10.0 | 51 | 10.6 | 72 | ENE | 9 | 4.0 | | | 8 | | ENE | 0.02 | 0.5 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 29.96 | 761.0 | 83 | 28.3 | 83 | 28.3 | 87 | NNE | | | 1 | | 7n | | NE | Blank | Blank | Moderate. | NNE | Threatening | |
| Tennessee, Yokohama, Japan | 29.90 | 759.4 | 72 | 22.2 | 71 | 21.7 | 95 | SSW | | | 3 | | 8 | | N&E | | | Smooth | | D. clouds | |
| Trenton, N. 43° 30′ E. 7° 37′ | 29.80† | 756.9† | 66 | 18.9 | 61 | 16.1 | 94 | SSW | 28.5 | 12.7 | | | 2 | | S&W | 0.5 | 12.7 | | S&W | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.82 | 757.4 | 67 | 19.4 | 67 | 19.4 | 95 | S | | | 1 | | 9 | | SW | | | | | D. clouds | |
| Wabash, Boston, Mass. | 29.81 | 757.2 | 47 | 8.3 | 44 | 6.7 | 84 | NE | 11 | 4.9 | | | 10 | | | 0 | 0 | | | Overcast | |
| Wyoming, Washington, D.C. | 30.19† | 766.8† | 56 | 13.3 | 51 | 10.6 | | N | | | 1 | | 10 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | CHARACTER. | DIRECTION FROM— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
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| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.81 | 757.2 | 84 | 28.9 | 91 | SW | | | 2 | | 5ks | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
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| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
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| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
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| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 34° 57′, W. 75° 25′ | SW | 8 | 29.62 | 752.3 | 56 | 13.3 | 81 | N | 30 | 13.4 | | | 10d | | N | Heavy | N | Stormy | Capt. James Jorgenser. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 10, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.01 | 762.3 | 72.3 | 22.4 | 56 | N | | | 1 | | 1 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | | | 65.8 | 18.8 | 59 | NE | | | 1 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.98 | 761.6 | 69.8 | 21.0 | 69 | NNE | | | 3 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.05 | 763.2 | 69.8 | 21 | | NW | | | 4 | | 8 | | | 0 | 0 | Cloudy | Jacques. |
| Sfax | | | 30.05 | 763.2 | 69.8 | 21 | | W | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.08 | 764.1 | 84.6 | 29.2 | | SSW | | | 5 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.00 | 761.9 | 65.3 | 18.5 | | N | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | 30.11 | 764.7 | 77.7 | 25.4 | 46 | SSW | | | 3 | | 4 | | | 0 | 0 | Fair | Lemaillot |
| Laghouat | | | 30.10 | 764.5 | 85.1 | 29.5 | 22 | W | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.06 | 763.5 | 90.1 | 32.3 | | SW | | | 1 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.69 | 754.0 | 64.6 | 18.1 | 45 | SW | | | 6 | | 4 | | | 0.130 | 3.3 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.56 | 750.8 | 60.4 | 15.8 | 59 | W | | | 3 | | 7 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.51 | 749.6 | 61.2 | 16.2 | 78 | Calm | | | 0 | | ..cks | | NE | 0.417 | 10.60 | | Julius Mikolik. |
| Gratz | 28.48 | 723.4 | 29.71 | 754.6 | 59.0 | 15.5 | 74 | NW | | | 3 | | 8 | | | | | Thunder-storm | Andreas Rospini. |
| Hermannstadt | 28.28 | 718.3 | 29.66 | 753.4 | 63.3 | 17.4 | 56 | NNW | | | 3 | | 3 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.48 | 723.4 | 29.83 | 757.6 | 49.6 | 9.8 | 76 | W | | | 2 | | 10 | | | 0.130 | 3.3 | | Prof. C. Wagner. |
| Lemberg | | | 29.45 | 748.4 | 60.8 | 16.0 | 69 | W | | | 3 | | 7 | | | 0.008 | 0.2 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.81 | 757.2 | 66.2 | 19.0 | 66 | S | | | 1 | | 8cks | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.65 | 753.0 | 70.7 | 21.5 | 52 | W | | | 1 | | 6 | | | 0.031 | 0.80 | | Karl Stancel. |
| Trieste | | | 29.78 | 756.5 | 67.1 | 19.5 | 63 | Calm | | | 0 | | 10 | | | 0 | 0 | Cloudy | P. Busin. |
| Vienna | | | 29.67 | 753.6 | 57.4 | 14.1 | 62 | W | | | 6 | | 2 | | | 0.087 | 2.2 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.26 | 717.7 | 29.72 | 754.9 | 52.9 | 11.6 | 82 | SSW | | | 1 | | 10 | | | 0.138 | 3.5 | | Royal Observatory. |
| Brussels | | | 29.61 | 752.8 | 53.6 | 12.0 | 78 | WSW | | | 3 | | 10 | | W.WSW | 0.408 | 10.20 | Sprinkling | |
| Furnes | | | 29.63 | 752.6 | 53.4 | 11.9 | 98 | W | | | 2 | | 9 | | | 0 | 0 | | |
| Maeseyck | | | 29.54 | 750.2 | 48.9 | 9.4 | 92 | SSW | | | 4 | | 10 | | | 0.142 | 3.6 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Clouds. Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.85 | 758.2 | 45.4 | 7.4 | | ENE | 28 | 12.5 | | | 3 | | | 0 | 0 | Blue sky | William Roswell. |
| Ardrossan | | | 29.64 | 752.8 | 54 | 12.2 | | NE | | | 5 | | 6 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.55 | 750.6 | 48.0 | 8.9 | | ENE | 14 | 6.3 | | | 10 | | | | | Gloomy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.54 | 750.3 | 50.2 | 10.1 | | ENE | 16 | 7.2 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.43 | 747.5 | 53.0 | 11.7 | | SE | | | 3 | | 10 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.57 | 751.1 | 48.5 | 9.2 | | E | | | 1 | | 10 | | | 0.25 | 6.3 | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.02 | 762.5 | 81.2 | 29.0 | | NE | | | 2 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.56 | 750.8 | 58.0 | 14.4 | | S | | | 1 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.56 | 750.8 | 60.0 | 15.6 | | SW | | | 1 | | 8 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.61 | 752.1 | 60.2 | 15.7 | | SW | | | 3 | | 8 | | | Blank | Blank | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.09 | 713.5 | 29.56 | 750.8 | 47.8 | 8.8 | | SE | | | 4 | | 6 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.58 | 751.3 | 46 | 7.8 | | E | | | 6 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 29.60 | 751.8 | 54 | 12.2 | | SW | | | 2 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.53 | 750.0 | 51.8 | 11.0 | | E | 5.6 | 2.5 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.50 | 749.3 | 52.7 | 11.5 | | E | | | 3 | | 10 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.61 | 701.3 | 29.85 | 758.2 | 82.0 | 27.8 | | NE | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.98 | 761.5 | 87 | 30.6 | | NW | | | 3 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.35 | 745.5 | 56 | 13.3 | | E | | | 1 | | 5 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.03 | 762.7 | 70.0 | 21.1 | | SW | | | 5 | | 1 | | | | | D. clouds | Corp'l. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.70 | 751.4 | 50.6 | 10.3 | | NE | | | 5 | | 6 | | | | | Squally | Lewis Stuart. |
| Great Yarmouth | | | 29.56 | 7[illegible]0.8 | 53 | 11.7 | | SSE | | | 3 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.56 | 750.8 | 59.7 | 15.4 | | SSW | | | 1 | | 7 | | | | | Showery | The Staff, for G. B. Airy. |
| Guernsey | | | 29.55 | 750.6 | 52.5 | 11.4 | | SE | | | 2 | | 10 | | | | | Gloomy | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 29.53 | 750.0 | 55 | 12.8 | | S | | | 6 | | 3c,k | | | 0.10 | 2.5 | Fine | M. P. Moyle. |
| Holyhead | | | 29.51 | 749.5 | 51 | 10.6 | | SSW | | | 2 | | 10 | | | | | Gloomy | John Tilston. |
| Kew, Observatory | | | 29.56 | 750.8 | 60.5 | 15.8 | | SSW | 17 | 7.6 | | | 6k | | | | | D. clouds | The Staff. |
| Kingstown | | | 29.50 | 749.3 | 54 | 12.2 | | ESE | | | 4 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.53 | 750.0 | 58.2 | 14.6 | | SW | | | 4 | | 5 | | | | | D. clouds | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.07 | 763.8 | 72.8 | 22.7 | | SE | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.84 | 757.9 | 47 | 8.3 | | ENE | | | 3 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.03 | 762.7 | 75.5 | 24.2 | | NW | | | 1 | | 8 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.55 | 750.6 | 54.7 | 12.6 | | S | | | 2 | | 10ks,k, | c,d] | ESE, NE | 0.564 | 14.32 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.52 | 749.8 | 55.5 | 13.1 | | SE | | | 2 | | 9 | | | | | Drizzling | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.53 | 750.0 | 59 | 15.0 | | SE | | | 1 | | 9 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 29.51 | 749.5 | 55.0 | 12.8 | | S | | | 4 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.38 | 746.2 | 54 | 12.2 | | S | | | 5 | | 10 | | | | | Showery | W. Kennedy. |
| Saint Ann's Head | | | 29.46 | 748.3 | 53 | 11.7 | | SSW | | | 1 | | 2 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.47 | 748.5 | 54.2 | 12.3 | | SSE | | | 4 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.94 | 760.5 | 48.2 | 9.0 | | ENE | 26 | 11.6 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.83 | 757.7 | 71.0 | 21.7 | | S | | | 1 | | 9 | | | Blank | Blank | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.55 | 750.6 | 52.7 | 11.5 | | ENE | | | 2 | | 10 | | | 0.94[illegible] | 23.9[illegible] | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.60 | 751.8 | 56.4 | 13.6 | 58 | SE | | | 6 | | 3 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.56 | 750.8 | 48.2 | 9.0 | | E | | | 3 | | 10 | | | | | Drizzling | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.84 | 757.9 | 48 | 8.9 | | ENE | | | 6 | | 5 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 29.57 | 751.1 | 58.4 | 14.7 | | SW | | | 2 | | 7 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 29.90 | 759.4 | 59 | 10.0 | | ENE | | | 5 | | 3 | | | | | Blue sky | John Trotter. |
| Truro, Royal Institution | | | 29.49 | 749.0 | 56 | 13.3 | | SW | | | 4 | | 8 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.30 | 744.2 | 55.0 | 12.8 | | SE | 17 | 7.6 | | | 10 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 42 | 5.6 | | E | | | 4 | | 10 | | | 0.60 | 15.2 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.25 | 768.3 | 60.0 | 15.6 | 57 | W | 12 | 5.4 | | 0 | 4 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.01 | 763.0 | 58.0 | 11.4 | 83 | Calm | | | 0 | | 10n | | | 0.04 | 1.0 | Cloudy | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 29.77 | 756.1 | 46.3 | 7.9 | | E | | | 5 | 10ck | | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.12 | 765.0 | 73.7 | 23.2 | 63 | SE | 21.4 | 9.6 | | 0 | 1 | | ESE | 0.12 | 3.0 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 29.93 | 760.2 | 53.0 | 11.7 | 99 | Calm | 0 | 0 | | | 10 | | | | | Dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.79 | 75[illegible].7 | 48 | 8.9 | | E | | | 6 | 3 | 0 | E | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.96 | 761.0 | 42 | 5.6 | | NNE | | | 4 | 2 | 3 | NNE | | | | | Robert Burnet. |

Note.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 8 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 p. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind From— | Miles per hour. | Meters per second. | Force 0—10. | Up'er 0—10. | Low'r 0—10 | Upper From— | Lower From— | Sea or swell. Height scale 0–9 | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 46° 50′ W. 37° 10′ | | | 29.69 | 754.1 | 54.0 | 12.2 | | NNW | | | 2 | | 5 | | | 15* | Confused. | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Monland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuingLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 19° 15′ W. 39° 20′ | | | 30.19 | 766.8 | 76.8 | 24.9 | | ENE | | | 5 | | 3 | | | 5 | ENE | D. clouds | Capt. Jas. J. Price. |

Note.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 70.7 | 21.5 | 82 | NE | | | 3 | | 9cs | | E | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.67 | 753.6 | 54.9 | 12.7 | 75 | SSE | | | 2 | | 2 | | | | | | |
| Faröe | | | 29.61 | 752.2 | 58.6 | 14.8 | 73 | ESE | | | 4 | | 9 | | | | | | |
| Godthaab, (Greenland) | | | 29.84 | 758.0 | 34.2 | 1.2 | 73 | NE | | | 2 | | 3 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.79 | 756.6 | 42.4 | 5.8 | 96 | W | | | 6 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.06 | 763.4 | 44.1 | 6.7 | 64 | SE | | | 2 | | 0 | | | | | | |
| Vestervig | | | 29.64 | 752.9 | 49.8 | 9.9 | 89 | N | | | 4 | | 10 | | | | | Raining | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.66 | 753.3 | 55.4 | 13 | 80 | SW | | | 2 | | 8kn | | SSW | 0.299 | 7.6 | Very cloudy | Normal School. |
| Amiens | | | 29.59 | 751.6 | 65.8 | 18.8 | | WSW | | | 3 | | 5 | | SW | 0.317 | 8.0 | Cloudy | Normal School. |
| Avignon, Normal School | | | 29.89 | 759.1 | 65.3 | 18.5 | 42 | S | | | 2 | | | | | 0 | 0 | | Mr. Giraud. |
| Bar-sur-Seine | | | 29.74 | 755.5 | 56.8 | 13.8 | 51 | SW | | | 3 | | 8n | | WSW | 0.134 | 3.4 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.68 | 753.8 | 59.5 | 15.3 | 70 | SW | | | 2 | | 8 | | SW | 0.374 | 9.50 | Very cloudy | Normal School. |
| Besançon | | | 29.89 | 759.2 | 59.7 | 15.4 | 56 | SE | | | 4 | | 10 | | | 0.256 | 6.5 | Covered | Normal School. |
| Bourg en Bresse | | | 29.90 | 759.4 | 60.3 | 15.7 | 69 | N | | | 2 | | 5kn | | S | 0.16 | 4. | Cloudy | Normal School. |
| Bourges | | | 29.76 | 755.8 | 57.2 | 14.0 | 80 | SSW | | | 6 | | 5 | | NE | 0.28 | 7. | Cloudy | Normal School. |
| Brest | | | 29.18 | 748.8 | 46.6 | 8.1 | 77 | SE | | | 2 | | 10 | | S | 0.108 | 2.75 | Raining | Naval Observatory. |
| Carcassonne | | | 29.82 | 757.5 | 62.6 | 17 | 61 | W | | | 2 | | 2 | | E | 0.071 | 1.8 | Slightly cl'dy | Normal School. |
| Caen | | | 29.61 | 752.0 | 57.9 | 14.4 | 60 | S | | | 2 | | 10 | | N | 0.051 | 1.3 | Raining | Normal School. |
| Chartres | | | 29.68 | 753.8 | 55.8 | 13.2 | 95 | SW | | | 3 | | 10 | | | 0.492 | 12.5 | Covered | Normal School. |
| Châlons-sur-Marne | | | 29.72 | 754.8 | 59.4 | 15.2 | 41 | W | | | 4 | | 8kn | | E | 0.109 | 2.7 | Very cloudy | Normal School. |
| Clermont-Ferrand | | | 29.70 | 754.4 | 61.0 | 16.1 | 50 | SW | | | 2 | | 8 | | SW | 0.071 | 1.8 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.74 | 755.5 | 54.5 | 12.5 | 50 | SW | | | 6 | | 5 | | SW | 0.28 | 7. | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.94 | 760.5 | 61.0 | 16.1 | 49 | SW | | | 4 | | 8 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.78 | 756.4 | 58.1 | 14.5 | 63 | SE | | | 6 | | 5ks | | E | 0.08 | 2. | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 29.69 | 754.2 | 51.8 | 11 | 86 | SE | | | 6 | | 10 | | | 0.339 | 8.4 | Covered | Normal School. |
| Le Mans | | | 29.64 | 752.9 | 56.7 | 13.7 | 88 | S | | | 2 | | 8 | | S | 0.365 | 9.25 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.81 | 757.2 | 58.5 | 14.7 | 62 | SSW | | | 1 | | 2 | | | 0.346 | 8.8 | Slightly cl'dy | Normal School. |
| Lorient | | | 29.48 | 748.8 | 50.0 | 10.0 | 82 | ESE | | | 4 | | 10 | | SE | 0.871 | 22.1 | Raining | Naval Observatory. |
| Mâcon, Normal School | | | 29.81 | 758.0 | 59.4 | 15.2 | 68 | Calm | | | 0 | | 5 | | NE | 0.094 | 2.4 | Cloudy | Mr. Marchal. |
| Metz | | | 29.83 | 757.7 | 54.9 | 12.7 | 44 | SW | | | 2 | | 9k | | SW | 0.150 | 3.8 | | M. A. Schuster. |
| Mirecourt | | | 29.79 | 756.6 | 53.6 | 12 | 71 | SSW | | | 4 | | 8 | | E | 0.24 | 6. | Very cloudy | Normal School. |
| Nîmes | | | 29.87 | 758.7 | 65.5 | 18.6 | 41 | W | | | 2 | | 5 | | NW | 0 | 0 | Cloudy | Normal School. |
| Orleans | | | 29.61 | 752.0 | 57.6 | 14.2 | 65 | SW | | | 6 | | 5 | | SW | 0.59 | 15. | Cloudy | Normal School. |
| Paris, Observatory | | | 29.68 | 753.9 | 58.5 | 14.7 | 53 | S | | | 4 | | 7 | | SW | 0.323 | 8.2 | Solar halo | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 29.74 | 755.4 | 59.0 | 15.0 | 61 | SW | | | 6 | | 8 | | NE | 0.24 | 6. | ¾ covered | Naval Observatory. |
| Rouen | | | 29.63 | 752.7 | 58.8 | 14.9 | 47 | SSE | | | 6 | | 8 | | S | 0.457 | 11.6 | Very cloudy | Normal School. |
| Tarbes | 28.75 | 731.3 | 29.86 | 758.4 | 60.8 | 16 | 75 | SW | | | 2 | | 10 | | | | | Raining | Normal School. |
| Villefranche | | | 29.77 | 756.2 | 64.4 | 18 | 62 | SE | | | 4 | | 8 | | SE | 0.173 | 4.4 | Very cloudy | Normal School. |
| Sub-Stations. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.91 | 759.6 | 61.3 | 16.3 | 50 | SW | | | 1–2 | | 9 | | | Inap. | Inap. | Very cloudy | The Staff. |
| Mont-Louis | | | 29.99 | 761.8 | 40.8 | 4.9 | 81 | SSW | 53.8 | 24.07 | | | 8 | | SSW | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | 24.68 | 626.8 | 29.68 | 753.8 | 58.6 | 14.8 | 58 | SW | | | 2–3 | | 5 | | SW | 0.307 | 7.8 | | Montsouris Observatory |
| Perpignan | | | 29.80 | 756.8 | 63.1 | 17.3 | 63 | S | 18.6 | 8.33 | | | 8 | | SW | 0.319 | 8.1 | | Dr. Fines. |
| Pic-du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.22 | 565.4 | | | 32.7 | 0.4 | | SW | | | 6–8 | | 10 | | | 0.394 | 10.0 | Snowy | and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.69 | 754.0 | 61.7 | 16.5 | 52 | SSW | | | 3 | | 4 | | | 0.244 | 6.2 | | E. Renou. |
| Toulouse, Observatory | | | 29.82 | 757.5 | 60.8 | 16.0 | 54 | SSE | | | 3 | | 4 | | | 0.008 | 0.2 | | The Staff. |
| Tours | | | 29.66 | 753.3 | 55.9 | 13.3 | 84 | S | | | 4 | | 10 | | SSW | 0.358 | 9.1 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.69 | 754.0 | 59.7 | 15.4 | 52 | SW | | | 2 | | 8 | | | 0.329 | 8.37 | Cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.71 | 754.6 | 69.8 | 21.0 | 94 | SE | 11.4 | 5.1 | | | 10n | | | 0.031 | 0.8 | Raining | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day: the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.77 | 756.1 | 57.2 | 14.0 | 57 | W | | | 5 | | 8 | W | | 0.039 | 1.0 | | Prof. T. Hoh. |
| Berlin | | | 29.63 | 752.6 | 62.2 | 16.8 | 67 | N | | | 1 | | 7 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.60 | 751.7 | 62.2 | 16.8 | 53 | W | | | 3 | | 8 | | | | | Raining | Royal University Obs'y. |
| Carlsruhe | | | 29.76 | 756.0 | 57.2 | 14.0 | 53 | SW | | | 4 | | 9 | | | 0.031 | 0.8 | | Albert Senz. |
| Cassel | | | 29.77 | 756.2 | 62.2 | 16.8 | 40 | SW | | | 4 | | 5 | WSW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.64 | 752.8 | 55.4 | 13.0 | 72 | S | | | 4 | | 9 | | | 0.079 | 2.0 | | Director Lose. |
| Emden | | | 29.63 | 752.7 | 57.2 | 14.0 | 92 | W | | | 1 | | 10 | | | 0.008 | 0.2 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.80 | 756.8 | 60.4 | 15.8 | 42 | WSW | | | 3 | | 7 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.0? | 29.84? | 757.9? | 57.0 | 13.9 | 53 | SW | | | 3 | | 8 | WSW | | 0.031 | 0.8 | | M. Wilhelm. |
| Hamburg | | | 29.63 | 752.6 | 57.0 | 13.9 | 86 | ENE | | | 2 | | 10k,n | | | 0.232 | 5.9 | | Captain F. Hegemann. |
| Kiel | | | 29.62 | 752.3 | 56.5 | 13.6 | 73 | NE | | | 3 | | 10 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.53 | 750.0 | 53.6 | 12.0 | 84 | NW | | | 2 | | 10 | | | 0.102 | 2.6 | | Prof. E. Luther. |
| Köslin | | | 29.62 | 752.3 | 53.6 | 12.0 | | N | | | 2 | | 4 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.64 | 752.9 | 66.0 | 18.9 | 57 | NW | | | 2 | | 6 | W | | | | Light rain | Prof. Bruhns. |
| Memel, Naval School | | | 29.59 | 751.5 | 55.0 | 12.8 | | NE | | | 2 | | 10n | | | | | Rain & fog | Reinbrecht & Skalweit. |
| Münster | | | 29.90 | 759.4 | 58.6 | 14.8 | 60 | S | | | | | 1 | | | 0.016 | 0.4 | Light rain | Prof. E. Heis. |
| Neufahrwasser | | | 29.59 | 751.6 | 48.4 | 9.1 | 92 | N | | | 2 | | 10 | | | 0.075 | 1.9 | | A. Lothes. |
| Posen | | | 29.60 | 751.8 | 55.0 | 12.8 | 97 | NW | | | 2 | | 9 | | | 0.035 | 0.9 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.79 | 756.6 | 60.8 | 16.0 | 46 | SW | | | 3 | | 8 | SW | | 0.024 | 0.6 | | Dr. Schur. |
| Stuttgart | | | 29.79 | 756.7 | 58.5 | 14.7 | 50 | W | | | 2 | | 8 | W | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.62 | 752.3 | 56.8 | 13.8 | 52 | SW | | | 8 | | 9 | | | 0.102 | 2.6 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.28 | 718.4 | 29.78 | 756.4 | 52.3 | 11.3 | 62 | W | | | 3 | | 9 | W | | 0.228 | 5.8 | Raining | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.71 | 754.7 | 57.9 | 14.4 | 68 | NE | | | 4 | | 6 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.99 | 761.8 | 73.8 | 23.2 | | W | | | | | ..c | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.98 | 558.3 | 29.78 | 756.4 | 30.9 | — 0.6 | 94 | WNW | | | 4 | | 2 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 21.92 | 556.7 | 29.69 | 754.1 | 35.6 | 2.0 | | W | | | 2 | | 9 | N | | 0.232 | 5.9 | | Signora Ernesta Manfredi. |
| Udine | | | 29.76 | 755.9 | 54.5 | 12.5 | 89 | E | 1.3 | 0.6 | | | 10 | | | 1.371 | 34.8 | | Ab. Dem. Morgini. |
| Padua | | | 29.72 | 755.0 | 65.3 | 18.5 | 57 | WSW | 9.3 | 4.2 | | | 4 | SW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.72 | 755.0 | 67.6 | 19.8 | 49 | SW | 7.4 | 3.3 | | | 4 | W | | 0.173 | 4.4 | | Conte Alm. Da Schio. |
| Verona | | | 29.74 | 755.5 | 68.0 | 20.0 | 57 | E | | | 1 | | 10 | | | 0 | 0 | | Dott. E. Bertoncelli. |
| Bergamo | 28.44 | 722.3 | 29.75 | 755.6 | 62.6 | 17.0 | 54 | S | | | 4 | | 5 | | | 1.496 | 38.0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.71 | 754.6 | 62.4 | 16.9 | 32 | Calm | | | 0 | | 4 | | | 0.157 | 4.0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.73 | 755.2 | 68.4 | 20.2 | 60 | WSW | | | 1 | | 3 | W | | 0.130 | 3.3 | | Ab. Gio. Capelli. |
| Pavia | | | 29.74 | 755.3 | 64.8 | 18.2 | 53 | W | | | 4 | | 3 | SW | | 0.079 | 2.0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.76 | 756.0 | 63.1 | 17.3 | 50 | ESE | 2.5 | 1.1 | | | 1 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 27.81 | 707.0 | 29.72 | 754.8 | 62.4 | 16.9 | 61 | W | | | 4 | | 1 | WNW | | 0.012 | 0.3 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.84 | 757.9 | 63.7 | 17.6 | 55 | WSW | | | 6 | | 6 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.81 | 757.2 | 64.0 | 17.8 | 62 | SE | 13.6 | 5.8 | | | 4 | SE | | 0.031 | 0.8 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.75 | 755.7 | 65.3 | 18.5 | 54 | N | 1.7 | 0.6 | | | 8 | S | | 0.059 | 1.5 | | Dott. G. Manzi. |
| Parma | | | 29.74 | 755.4 | 66.0 | 18.9 | 46 | WSW | | | 8 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.89 | 759.2 | 64.8 | 18.2 | 48 | WSW | | | 4 | | 2 | W | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.87 | 758.7 | 63.7 | 17.6 | 69 | WSW | 15.4 | 6.9 | | | 7 | W | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.66 | 728.0 | 29.85 | 758.3 | 63.7 | 17.6 | 36 | SW | 4.9 | 2.2 | | | 8 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.30 | 718.9 | 29.84 | 757.9 | 61.5 | 16.4 | 61 | SW | | | 4 | | 10 | | | 0.157 | 4.0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.82 | 757.4 | 68.2 | 20.1 | 53 | SW | 39.1 | 17.5 | | | 9 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.84 | 757.9 | 67.3 | 19.6 | 55 | SW | | | 4 | | 10 | S | | 0.146 | 3.7 | | Prof. F. DeBosis. |
| Grosseto | | | 29.90 | 759.5 | 71.2 | 21.8 | 53 | SSE | | | 4 | | 5 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.96 | 761.0 | 68.4 | 20.2 | 56 | W | 8.7 | 3.9 | | | 8 | WSW | | 0.008 | 0.2 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.00 | 762.1 | 68.5 | 20.3 | 56 | WSW | | | 2 | | 8 | WNW | | 0.236 | 6.0 | | Prof. L. Palmieri. |
| Lecce | | | 29.99 | 761.7 | 66.9 | 19.4 | 49 | W | 18.6 | 8.3 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.08 | 763.9 | 66.2 | 19.0 | 66 | W | 5.6 | 2.5 | | | 5 | | | 0.169 | 4.3 | | Prof. F. D. Conti. |
| Cagliari | | | 29.95 | 760.8 | 71.8 | 22.1 | 45 | S | | | 2 | | 2 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.01 | 762.2 | 66.9 | 19.4 | 62 | NE | | | 2 | | 5 | S | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.00 | 762.1 | 75.7 | 24.3 | 29 | WSW | 8.7 | 3.9 | | | 6 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.12 | 714.2 | 30.02 | 762.5 | 66.6 | 19.2 | 39 | W | | | 4 | | 5 | S | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.01 | 762.2 | 73.6 | 22.8 | 59 | SW | | | 6 | | 10 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.04 | 763.1 | 63.7 | 17.6 | 76 | WSW | 6.9 | 3.1 | | | 10 | SW | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.15 | 765.8 | 59 | 15.0 | 82 | Calm | 0 | 0 | | 0 | | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.7 | 30.10 | 761.6 | 55.6 | 13.1 | 66 | W | 0.1 | 0.06 | | 4c | 3c | W | W | 0 | 0 | Foggy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.65 | 753.1 | 51.4 | 10.8 | | WNW | | | 2 | | | | | 0.106 | 2.7 | | |
| Groningen | | | 29.57 | 751.1 | 57.9 | 14.4 | | S | | | 2 | | | | | 0.122 | 3.1 | | |
| Helder | | | 29.61 | 752.0 | 51.3 | 12.4 | | SW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.60 | 751.7 | 57.7 | 14.3 | 45 | S | | | 3 | | 8 | | | 0.016 | 0.4 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.81 | 757.1 | 52.5 | 11.4 | 37 | NNW | 8.5 | 3.8 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 29.96 | 760.9 | 48.9 | 9.4 | 49 | E | 9 | 4 | | | 1 | | | 0 | 0 | | |
| Christiania | | | 29.77 | 756.2 | 56.7 | 13.7 | 38 | ENE | 7 | 3 | | | 4 | | | 0 | 0 | | |
| Tromsö | | | 30.07 | 763.8 | 38.5 | 3.6 | 57 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.13 | 765.2 | 60.1 | 15.6 | 75 | W | 6.9 | 3.1 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.95 | 760.7 | 64.4 | 18.0 | 57 | SW | 15.4 | 6.9 | | | 9 | SW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.09 | 764.3 | 69.8 | 21.0 | 72 | WSW | 13.6 | 5.8 | | | 6 | | | | | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.96 | 760.9 | 62.6 | 17.0 | 75 | SW | 23.7 | 10.6 | | | 10 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.14 | 765.5 | 65.5 | 18.6 | 59 | W | 5.6 | 2.5 | | | 4 | NE | | 0.016 | 0.4 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.50 | 749.3 | 56.7 | 13.7 | 86 | E | 7 | 3 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.52 | 749.7 | 57.9 | 14.4 | 89 | ENE | 4 | 2 | | | 10 | | | | | Raining | Astronomical Obs. |
| Dorpat | | | 29.79 | 756.7 | 53.8 | 12.1 | 65 | ENE | 11 | 5 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.97 | 761.1 | 57.9 | 14.4 | 45 | E | 16 | 7 | | | 8 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.12 | 765.1 | 48.2 | 9.0 | 61 | E | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.37 | 746.0 | 60.8 | 16.0 | 80 | S | 16 | 7 | | | 10 | | | | | Raining | Physical Cabinet. |
| Nikolaiev | | | 29.68 | 753.9 | 65.8 | 18.8 | 67 | SSW | 27 | 12 | | | 3 | | | | | | Kurdakof |
| Kertch | | | 29.89 | 759.3 | 63.0 | 17.2 | 87 | SSW | 2 | 1 | | | 10 | | | | | Thunder-storm. | Lagorio. |
| Moscow | | | 30.00 | 762.0 | 64.8 | 18.2 | 67 | E | 7 | 3 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.71 | 754.7 | 72.9 | 22.7 | 61 | E | 18 | 8 | | | 6 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 30.37 | 771.3 | 48.7 | 9.3 | 35 | WNW | 13 | 6 | | | 1 | | | | | | Ogorodnikof. |
| Tiflis | 28.54 | 724.8 | 29.88 | 759.0 | 78.8 | 26.0 | 36 | SE | 4 | 2 | | | 0 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.95 | 760.7 | 79.7 | 26.5 | 30 | SE | 2 | 1 | | | 3 | | | | | | Sebastianof. |
| Kasan | | | 30.19 | 766.7 | 64.9 | 18.3 | 34 | Calm | 0 | 0 | | | 0 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.26 | 743.3 | 30.20 | 767.0 | 60.4 | 15.8 | 29 | NNW | 4 | 2 | | | 7 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.17 | 715.6 | 29.80 | 756.8 | 77.4 | 25.2 | 31 | NW | 4 | 2 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 30.04 | 763.0 | 62.4 | 16.9 | 35 | N | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.93 | 760.1 | 59.5 | 15.3 | 46 | SE | 2 | 1 | | | 6 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 40.5 | 4.7 | | Calm | 0 | 0 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.90 | 759.4 | 56.7 | 13.7 | 98 | Calm | 0 | 0 | | | 10 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.00 | 762.1 | 46.6 | 8.1 | 89 | SE | 9 | 4 | | | 0 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 30.7 | — 0.7 | | SE | 9 | 4 | | | 10 | | | | | Snowing | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.92 | 759.9 | 59.2 | 15.1 | 63 | SW | 16.4 | 7.33 | | 0 | 10 | | | 0 | 0 | Covered | Royal Observatory. |
| San Fernando | | | 30.07 | 763.7 | 66.4 | 19.1 | 64 | SW | 4.9 | 2.2 | | 1 | 4 | SW | SW | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.04 | 763.0 | 75.0 | 23.9 | 67 | NNE | 6.3 | 2.8 | | 2cks | 3ks | | | 0 | 0 | Cloudy | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.23 | 767.7 | 46.0 | 7.8 | 57 | Calm | | | 0 | | 0 | | | 0 | 0 | | |
| Umea | | | 30.10 | 764.5 | 51.3 | 10.7 | 53 | E | | | 2 | | 8 | | | 0 | 0 | | |
| Hernosand | | | 30.02 | 762.5 | 47.5 | 8.6 | 58 | ENE | | | 2 | | 3 | | | 0 | 0 | | |
| Stockholm | | | 29.80 | 756.8 | 48.2 | 9.0 | 81 | E | | | 6 | | 3 | | | 0.008 | 0.2 | | |
| Wisby | | | 29.74 | 755.3 | 46.8 | 8.2 | 75 | NE | | | 6 | | 10 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.82 | 757.3 | 55.0 | 12.8 | 46 | ENE | 11.6 | 5.2 | | | 5 | SW | | 0 | 0 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.39 | 721.0 | 29.80 | 756.9 | 58.3 | 14.6 | 47 | SW | ..... | ..... | 4 | ..... | 6c | ..... | ..... | 0.469 | 11.9 | Solar halo... | The Observatory. |
| Zurich | 28.21 | 716.5 | 29.84 | 758.0 | 55.2 | 12.9 | 52 | W | ..... | ..... | 2 | ..... | 5 | ..... | ..... | 0.012 | 0.3 | Cloudy..... | The Observatory. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —3.8 mm; Thermometer, —1.0 cent.; Relative Humidity, —11 per cent.

NOTE.—The rain-fall is *measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the* scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | ..... | ..... | 29.89 | 759.1 | 71.6 | 22.0 | 55 | S | 6 | 2.5 | ..... | ..... | 10 | ..... | SW | 0.287 | 7.3 | ..... | The Observatory. |
| Fao, (Persian Gulf) | ..... | ..... | 30.02 | 762.6 | 77.0 | 25.0 | ..... | NW | ..... | ..... | 3 | ..... | 0 | ..... | ..... | ..... | ..... | ..... | |
| Salonica | ..... | ..... | 29.93 | 760.2 | 67.1 | 19.5 | ..... | NW | ..... | ..... | 1 | ..... | 8 | ..... | ..... | ..... | ..... | Thunder-storm.. | |
| Valona | ..... | ..... | 30.02 | 762.6 | 72.9 | 22.7 | ..... | S | ..... | ..... | 2 | ..... | 2 | ..... | ..... | 0 | 0 | Slightly cl'dy | A. Bakran. |
| Varna | ..... | ..... | 29.80 | 757.0 | 59.0 | 15.0 | ..... | SE | ..... | ..... | 2 | ..... | 5 | ..... | ..... | ..... | ..... | Thunder-storm . | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | ..... | ..... | 29.87 | 758.7 | 86.2 | 30.1 | 52 | E | ..... | ..... | 1 | ..... | 3c | ..... | ..... | 0 | 0 | D. clouds..... | Prof. C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; *no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale* 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | ..... | ..... | 30.06 | 763.5 | 36.8 | 2.7 | 75 | NE | 27 | 12.1 | ..... | ..... | 5 | ..... | ..... | ..... | ..... | ..... | Hon. J. Ferguson. |
| Brockville, Ontario | ..... | ..... | 30.05 | 763.3 | 40 | 4.4 | ..... | NE | 8 | 3.6 | ..... | ..... | 10s | ..... | NE | 0 | 0 | Cloudy..... | W. R. Bigg. |
| *Chatham, N. B. | ..... | ..... | 29.95 | 760.7 | 35 | 1.7 | 87 | N | 20 | 8.9 | ..... | ..... | 10s | ..... | ..... | 0.41 | 10.4 | Cloudy..... | G. A. Blair. |
| Charlottetown, P. E. Island. | ..... | ..... | 29.83 | 757.7 | 38 | 3.3 | 79 | NE | 28 | 12.5 | ..... | ..... | 10ks | ..... | ..... | 0 | 0 | Cloudy..... | H. J. Cundall, C. E. |
| Cornwall, Ontario | ..... | ..... | 29.99 | 761.7 | 39.5 | 4.2 | 90 | E | ..... | ..... | 4 | ..... | 10n | ..... | ..... | 0.03 | 0.8 | Raining..... | James Smith, M. A. |
| Dalhousie, N. B. | ..... | ..... | 30.08 | 764.0 | 38.7 | 3.7 | 90 | E | ..... | ..... | 3 | ..... | ..... | ..... | ..... | 0.12 | 3.0 | ..... | H. A. Johnson. |
| Esquimault, B. C. | ..... | ..... | 30.07 | 763.8 | 43.3 | 6.3 | 100 | Calm | ..... | ..... | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear ..... | W. H. Bevis. |
| *Father Point, Quebec | ..... | ..... | 30.12 | 765.0 | 38 | 3.3 | 79 | E | 30 | 13.4 | ..... | 5ck | 5s | NE | NE | 0.05 | 1.3 | Cloudy..... | J. McWilliams. |
| Fredericton, N. B. | ..... | ..... | 29.91 | 759.7 | 36.0 | 2.2 | 79 | NE | 20 | 8.9 | ..... | ..... | 10 | ..... | ..... | 0 | 0 | Cloudy..... | Prof. Harrison. |
| *Fort Garry, Manitoba | ..... | ..... | 30.06 | 763.5 | 48 | 8.9 | 63 | S | 12 | 5.4 | ..... | Haze | Sm'e | S | S | 0 | 0 | Smoky..... | James Stewart. |
| Goderich, Ontario | ..... | ..... | 30.13 | 765.3 | 44.3 | 6.8 | 77 | NE | ..... | ..... | 1 | 6k | 2s | NE | ..... | 0 | 0 | Cloudy..... | H. J. Strang, M. A. |
| Grafton, Ontario | ..... | ..... | 30.05 | 763.3 | 48 | 8.9 | 70 | N | ..... | ..... | 1 | 0 | 0 | ..... | ..... | Inap. | Inap. | Clear..... | James Grant. |
| *Halifax, N. S. | 28.95 | 735.3 | 29.63 | 752.6 | 39 | 3.9 | 91 | NE | 13 | 5.8 | ..... | ..... | 10n | ..... | ..... | 0.225 | 5.72 | Heavy rain... | F. Allison, M. A. |
| Hamilton, Ontario | ..... | ..... | 30.08 | 764.0 | 48.5 | 9.2 | 64 | W | ..... | ..... | 1 | 0 | 0 | ..... | ..... | 0 | 0 | Clear ..... | Geo. Dickson, M. A. |
| *Hearts Content, N. F. | ..... | ..... | 30.06 | 763.5 | 36 | 2.2 | 80 | NE | ..... | ..... | 3 | ..... | 10 | ..... | ..... | 0.14 | 3.6 | Overcast..... | E. Weedon. |
| *Kingston, Ontario | ..... | ..... | 30.03 | 762.7 | 43 | 6.1 | 89 | NE | 15 | 6.7 | ..... | ..... | 10n | ..... | NE | 0.01 | 0.3 | Light rain.. | S. Woods, M. A. |
| *Montreal, Quebec | ..... | ..... | 30.00 | 762.0 | 42 | 5.6 | 74 | NE | 24 | 10.7 | ..... | Haze | 5ks | ..... | NW | Inap. | Inap. | Cloudy..... | C. H. McLeod, C. |
| *Parry Sound, Ontario | ..... | ..... | 30.08 | 764.0 | 46 | 7.8 | 66 | N | 8 | 3.6 | ..... | 5ck | 2ks | N | N | 0 | 0 | Fair ..... | Rev. R. Mosley. |
| Port Dover, Ontario | ..... | ..... | 30.04 | 763.0 | 44 | 6.7 | 76 | N | 11 | 4.9 | ..... | 2c | 0 | N | ..... | 0.08 | 2.0 | Fair ..... | H. Morgan. |
| Port Hastings, N. S. | ..... | ..... | 29.75 | 755.6 | 38 | 3.3 | ..... | NE | 12 | 5.4 | ..... | ..... | ..... | ..... | ..... | 1.80 | 45.7 | Dark..... | Peter Grant |
| Port Stanley, Ontario | ..... | ..... | 30.09 | 764.3 | 43 | 6.1 | 83 | NW | 4 | 1.8 | ..... | 0 | 0 | ..... | ..... | 0.17 | 4.3 | Clear..... | M. Payne. |
| *Quebec, Quebec | ..... | ..... | 30.03 | 762.7 | 42 | 5.6 | 50 | NE | 26 | 11.6 | ..... | 10n | ..... | N | N | 0 | 0 | Cloudy..... | Capt. Aslie, R. N. |
| *Rockliffe, Ontario | ..... | ..... | 30.07 | 763.8 | 47 | 8.3 | 62 | NE | 4 | 1.8 | ..... | 8cs | 0 | E | ..... | 0.18 | 4.6 | Fair ..... | W. H. McIntyre. |
| St. John, N. B. | ..... | ..... | 29.77 | 756.1 | 38 | 3.3 | 81 | NE | 20 | 8.9 | ..... | ..... | 10 | ..... | ..... | Inap. | Inap. | Cloudy..... | G. Murdoch, C. E. |
| *Saugeen, Ontario | ..... | ..... | 30.08 | 764.0 | 45 | 7.2 | 80 | Calm | 0 | 0 | ..... | 5ck | 0 | ..... | ..... | 0 | 0 | Fair ..... | K. Stewart. |
| Stayner, Ontario | ..... | ..... | 30.07 | 763.8 | 44 | 6.7 | 76 | N | 5 | 2.2 | ..... | 5k | 0 | NE | ..... | 0 | 0 | Fair ..... | R. J. Cole. |
| Stratford, Ontario | 28.76 | 730.5 | 30.06 | 763.5 | 43.3 | 6.3 | 79 | N | 4 | 1.8 | ..... | 2cs | 0 | N | ..... | 0.07 | 1.8 | Fine..... | C. J. MacGregor, M. A. |
| *Sydney, C. B. | ..... | ..... | 29.82 | 757.4 | 36 | 2.2 | 91 | NE | 17 | 7.6 | ..... | ..... | 10n | ..... | E | 0.08 | 2.0 | Cloudy..... | T. C. Hill. |
| *Toronto, Ontario | ..... | ..... | 30.06 | 763.5 | 48 | 8.9 | 63 | NE | 8 | 3.6 | ..... | 8ck | 0 | N | ..... | 0.01 | 0.3 | Cloudy..... | Magnetic Observatory. |
| Windsor, N. S. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Prof. John E. Oram. |
| Woodstock, Ontario | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | ..... | ..... | 30.04 | 763.0 | 46.7 | 8.2 | 74 | N | 8 | 3.6 | ..... | 0 | 1s | ..... | ..... | 0 | 0 | Clear ..... | J. Montgomery. |
| ..... | ..... | ..... | 30.02 | 762.5 | 36.0 | 2.2 | 100 | NE | ..... | ..... | ..... | 10ks | 10n | ..... | ..... | 0.04 | 1.0 | Cloudy..... | John Delany. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Grafton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.87 | 758.7 | 42 | 5.6 | 91 | NW | 8 | 3.6 | | | 10ks | | NW | 0.19 | 4.8 | Cloudy | |
| Alpena, Mich. | | | 30.16 | 766.1 | 45 | 7.2 | 60 | NW | 4 | 1.8 | | 0 | 8s | | NW | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 29.83 | 759.2 | 48 | 8.9 | 85 | NW | 8 | 3.6 | | 2cs | 2ks | NW | NW | 0.17 | 4.3 | Fair | |
| Augusta, Ga. | | | 30.11 | 764.8 | 62 | 16.7 | 66 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.97 | 761.2 | 50 | 10.0 | 64 | NW | 13 | 5.8 | | 2c | Sm'e | | | 0.02 | 0.5 | Fair | |
| Barnegat, N. J. | | | 29.88 | 758.9 | 47 | 8.3 | 85 | NW | 9 | 4.0 | | | 10s | | NW | 0.33 | 8.4 | Cloudy | |
| Bismarck, Dakota | 28.14 | 714.7 | 29.75 | 755.6 | 52 | 11.1 | 86 | SE | 4 | 1.8 | | 8cs | 2s | SE | | 0.48 | 12.2 | Cloudy | |
| Boston, Mass. | | | 29.80 | 756.9 | 40 | 4.4 | 95 | N | 12 | 5.4 | | | 10n | | N | 0.22 | 5.6 | Light rain | |
| Breckenridge, Minn. | | | 30.05 | 763.3 | 45 | 7.2 | 53 | E | 11 | 4.9 | | 8k | Haze | | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 30.00 | 762.0 | 45 | 7.2 | 84 | N | 5 | 2.2 | | 5c | 0 | N | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 29.93 | 760.2 | 39 | 3.9 | 81 | N | 7 | 3.1 | | | 10s | | N | 0.03 | 0.8 | Cloudy | |
| Cairo, Ill. | | | 30.14 | 765.5 | 54 | 12.2 | 67 | E | 6 | 2.7 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Campo, Cal. | 27.32 | 693.9 | 29.89 | 759.2 | 46 | 7.8 | 77 | SW | 5 | 2.2 | | | 8ks | | W | 0 | 0 | Fair | |
| Camp Verde, Arizona | | | | | 54 | 12.2 | | Calm | | | | 5c | Haze | | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.92 | 760.0 | 53 | 11.7 | 66 | NW | 12 | 5.4 | | 0 | 0 | | | 0.01 | 1.0 | Clear | |
| Cape Henry, Va. | | | 29.95 | 760.7 | 52 | 11.1 | 73 | NW | 20 | 8.9 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Cape Lookout, N. C. | | | 29.93 | 760.2 | 55 | 12.8 | 73 | NW | 15 | 6.7 | | 0 | 0 | | | 0.26 | 6.6 | Clear | |
| Cape May, N. J. | | | 29.91 | 759.7 | 47 | 8.3 | 85 | NW | 14 | 6.3 | | 5c | 0 | NW | | 0.10 | 2.5 | Fair | |
| Charleston, S. C. | | | 30.09 | 764.3 | 59 | 15.0 | 54 | NE | 9 | 4.0 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 23.95 | 608.3 | 29.89 | 759.2 | 43 | 6.1 | 75 | NW | 8 | 3.6 | | 2ck | 0 | NW | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 30.13 | 765.3 | 45 | 7.2 | 76 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.07 | 763.8 | 49 | 9.4 | 71 | NE | 2 | 0.9 | | 0 | Sm'e | | | Inap. | Inap. | Clear | |
| Cleveland, Ohio | | | 30.09 | 764.3 | 45 | 7.2 | 68 | N | 7 | 3.1 | | Haze | 0 | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 29.97 | 761.2 | 60 | 15.6 | 88 | SE | 4 | 1.8 | | 2cs | 8s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.14 | 765.5 | 50 | 10.0 | 63 | E | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 29.94 | 760.5 | 62 | 16.7 | 82 | S | 9 | 4.0 | | 5cs | 3s | S | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.71 | 627.6 | 29.93 | 760.2 | 47 | 8.3 | 62 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.08 | 764.0 | 45 | 7.2 | 68 | N | 6 | 2.7 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Dodge City, Kan. | 27.22 | 691.4 | 29.44 | 747.8 | 56 | 13.3 | 87 | SE | 10 | 4.5 | | 2ck | Haze | SW | | 0.05 | 1.3 | Clear | |
| Dubuque, Iowa | | | 30.14 | 765.5 | 49 | 9.4 | 57 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 30.20 | 767.1 | 41 | 5.0 | 74 | NE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.74 | 755.4 | 39 | 3.9 | 81 | NE | 27 | 12.1 | | | 10s | | NE | Inap. | Inap. | Cloudy | |
| Erie, Pa. | | | 30.02 | 762.5 | 45 | 7.2 | 84 | W | 1 | 0.4 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.09 | 764.3 | 41 | 5.0 | 65 | N | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | | | | | 63 | 17.2 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.93 | 760.2 | 62 | 16.7 | 61 | SE | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.46 | 748.3 | 34 | 1.1 | 100 | SE | | | 7 | | 10s | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.66 | 728.0 | 29.73 | 755.1 | 66 | 18.9 | 68 | S | 20 | 8.9 | | 5c | 0 | E | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.18 | 715.8 | 29.82 | 757.4 | 52 | 11.1 | 86 | E | 4 | 1.8 | | | 10s | | | 0.06 | 1.5 | Cloudy | |
| Galveston, Tex. | | | 30.05 | 763.3 | 67 | 19.4 | 74 | SE | 3 | 1.3 | | 2ck | 8ks | SW | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 30.13 | 765.3 | 50 | 10.0 | 64 | NE | 3 | 1.3 | | 1c | Haze | NE | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.07 | 763.8 | 46 | 7.8 | 61 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.00 | 762.0 | 72 | 22.2 | 71 | SE | 12 | 5.4 | | 2ck | 2s | W | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.05 | 763.3 | 66 | 18.9 | 68 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.06 | 763.5 | 53 | 11.7 | 73 | SE | 9 | 4.0 | | 8c | 0 | S | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.02 | 762.5 | 72.0 | 22.2 | 75 | NE | 11 | 4.9 | | 2k | 0 | E | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 29.99 | 761.7 | 50 | 10.0 | 77 | NW | 12 | 5.4 | | 0 | Haze | | | Inap. | Inap. | Clear | |
| Knoxville, Tenn. | | | 30.13 | 765.3 | 44 | 6.7 | 92 | NW | 1 | 0.4 | | 0 | Fog | | | 0 | 0 | Fair | |
| LaCrosse, Wis. | | | 30.12 | 765.0 | 52 | 11.1 | 35 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.94 | 760.5 | 58 | 14.4 | 81 | SE | 6 | 2.7 | | | 10s | | SE | 0.04 | 1.0 | Cloudy | |
| Louisville, Ky. | | | 30.10 | 764.5 | 49 | 9.4 | 70 | N | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.01 | 762.2 | 54 | 12.2 | 55 | NW | 2 | 0.9 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Maricopa Wells, Arizona | | | | | 51 | 10.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.19 | 766.8 | 44 | 6.7 | 59 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.14 | 765.5 | 57 | 13.9 | 76 | SE | 1 | 0.4 | | | 10n | | SE | 0.62 | 0.5 | Light rain | |
| Milwaukee, Wis. | | | 30.19 | 766.8 | 42 | 5.6 | 75 | NE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.10 | 764.5 | 60 | 15.6 | 70 | N | 7 | 3.1 | | 5c | 0 | | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.12 | 765.0 | 56.5 | 13.6 | 59 | N | 4 | 1.8 | | 2c | Haze | W | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 28.98 | 736.1 | 30.04 | 763.0 | 43 | 6.1 | 83 | Calm | 0 | 0 | | | 10s | | SW | 0.12 | 3.0 | Cloudy | |
| Mt. Washington, N. H. | 23.47 | 596.1 | 29.83 | 757.7 | 20 | — 6.7 | 100 | NE | 48 | 21.5 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn. | | | 30.13 | 765.3 | 51 | 10.6 | 72 | NW | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.86 | 758.4 | 44 | 6.7 | 84 | N | 5 | 2.2 | | | 10s | | NW | 0.06 | 1.5 | Cloudy | |
| New London, Conn. | | | 29.83 | 757.7 | 44 | 6.7 | 84 | NW | 7 | 3.1 | | 8s | 2n | | N | 0.10 | 2.5 | Light rain | |
| New Orleans, La. | | | 30.07 | 763.8 | 65 | 18.3 | 78 | SW | 3 | 1.3 | | 9cs | Haze | | | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 29.81 | 757.2 | 42 | 5.6 | 83 | NW | 12 | 5.4 | | | 10ks | | NW | 0.03 | 0.8 | Threatening | |
| New York, N. Y. | | | 29.89 | 759.2 | 48 | 8.9 | 62 | NW | 8 | 3.6 | | | 10ks | | NW | 0.16 | 4.1 | Cloudy | |
| Norfolk, Va. | | | 29.98 | 761.5 | 50 | 10.0 | 71 | N | 9 | 4.0 | | 0 | Haze | | | 0.28 | 7.1 | Clear | |
| North Platte, Neb. | 26.95 | 684.5 | 29.47 | 748.5 | 50 | 10.0 | 89 | E | 16 | 7.2 | | 5k | Sm'e | E | | Inap. | Inap. | Fair | |
| Omaha, Neb. | 28.84 | 732.9 | 29.90 | 759.4 | 56 | 13.3 | 68 | SE | 6 | 2.7 | | | 10s | | SE | 0.02 | 0.5 | Cloudy | |
| Oswego, N. Y. | | | 30.01 | 762.2 | 41 | 5.0 | 78 | N | 13 | 5.8 | | | 10n | | NE | Inap. | Inap. | Light rain | |
| Pembina, Dakota | | | 30.05 | 763.3 | 46 | 7.8 | 64 | SE | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 29.91 | 759.7 | 48 | 8.9 | 56 | N | 24 | 10.7 | | 3cs,k | 2s | NW,N | N | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | | | | | | | | | | | | | | | |
| Pike's Peak, Col. | 17.70 | 449.6 | 29.91 | 759.7 | 18 | — 7.8 | 75 | W | 13 | 5.8 | | | 2s | | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 30.02 | 762.5 | 44 | 6.7 | 75 | NW | 5 | 2.2 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Port Huron, Mich. | | | 30.07 | 763.8 | 44 | 6.7 | 75 | N | 10 | 4.5 | | 0 | 2s | | | 0 | 0 | Clear | |
| Portland, Me. | | | 29.80 | 756.9 | 41 | 5.0 | 82 | N | 17 | 7.6 | | | 10n | | N | 0.03 | 0.8 | Light rain | |
| Portland, Oregon | | | 30.14 | 765.5 | 45 | 7.2 | 92 | Calm | 0 | 0 | | 0 | 5s | | | 0 | 0 | Fair | |
| Prescott, Arizona | | | | | 34 | 1.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.03 | 762.7 | 65 | 18.3 | 64 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.00 | 762.0 | 43 | 6.1 | 75 | NE | 6 | 2.7 | | | 10n | | E | Inap. | Inap. | Light rain | |
| Salt Lake City, Utah | 25.56 | 649.2 | 29.89 | 759.2 | 42 | 5.6 | 58 | N | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.89 | 759.2 | 48 | 8.9 | 70 | N | 12 | 5.4 | | | 10ks | | N | 0.16 | 4.1 | Cloudy | |
| San Antonio, Tex. | | | 29.82 | 757.4 | 66 | 18.9 | 89 | SE | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.98 | 761.5 | 58 | 14.4 | 62 | SE | 4 | 1.8 | | 0 | 8s | | SE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.92 | 760.0 | 53 | 11.7 | 79 | SW | 10 | 4.5 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.20 | 589.3 | 29.74 | 755.4 | 44 | 6.7 | 30 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.05 | 763.3 | 67 | 19.4 | 64 | E | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Shreveport, La. | | | 30.13 | 765.3 | 66 | 18.9 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.08 | 764.0 | 56 | 13.3 | 62 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.88 | 758.9 | 42.5 | 5.8 | 83 | N | 6 | 2.7 | | | 10n | | N | 0.09 | 2.3 | Light rain | |
| St. Louis, Mo. | | | 30.12 | 765.0 | 52 | 11.1 | 60 | E | 10 | 4.5 | | Haze | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.06 | 763.5 | 59 | 15.0 | 65 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.06 | 763.5 | 48 | 8.9 | 36 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 55 | 12.8 | | SW | | | | 2c | 0 | W | | 0 | 0 | Fair | |
| Thatcher's Island, Mass. | | | 29.78 | 756.4 | 40 | 4.4 | 91 | N | 28 | 12.5 | | | 10n | | NE | 0.18 | 4.6 | Light rain | |
| Toledo, Ohio | | | 30.10 | 764.5 | 48 | 8.9 | 70 | N | 6 | 2.7 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.44 | 697.0 | 30.00 | 762.0 | 53 | 11.7 | | SE | | | | 1c | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.03 | 762.7 | 66 | 18.9 | 61 | E | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.12 | 765.0 | 60 | 15.6 | 59 | E | 8 | 3.6 | | Haze | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.23 | 615.4 | 29.71 | 754.6 | 32 | 0.0 | 69 | Calm | 0 | 0 | | 10k | 0 | N | | 0.91 | 23.1 | Cloudy | |
| Washington, D. C | | | 29.98 | 761.5 | 49 | 9.4 | 64 | NW | 11 | 4.9 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Wickenburg, Arizona | | | | | 56 | 13.3 | | S | | | | 2c | 0 | S | | 0 | 0 | Fair | |
| Wilmington, N. C | | | 30.06 | 763.5 | 54 | 12.2 | 61 | NW | 8 | 3.6 | | 0 | 0 | | | Inap | Inap. | Clear | |
| Wood's Holl, Mass | | | 29.80 | 756.9 | 42 | 5.6 | 83 | N | 12 | 5.4 | | | 10m | | N | 0.15 | 3.8 | Light rain | |
| Yankton, Dakota | 28.67 | 728.2 | 29.94 | 760.5 | 53 | 11.7 | 86 | SE | 11 | 4.9 | | | 10s | | | 0.03 | 0.8 | Cloudy | |
| Yuma, Arizona | | | 29.83 | 757.7 | 61 | 16.1 | | SW | | | | 2cs | 0 | SW | | 0 | 0 | Fair | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.14 | 765.5 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 10c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | E | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.01 | 762.2 | 82 | 27.8 | 87 | E | | | 2 | 5k | 6ks | E | | 0.975 | 24.77 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.07 | 763.6 | | | 81.7 | 27.5 | | E | | | | | | | | 0.709 | 18.00 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.20 | 64[illegible] | | | 70.0 | 21.1 | 74 | Calm | | | 0 | 1cs | 0 | | | 0 | 0 | Fair | Thomas Herran |
| York Factory, B. A | | | 30.06 | 763.5 | 42.0 | 5.6 | 96 | E | 20 | 8.9 | | 4k | 0 | S | | Inap. | Inap. | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.06 | 763.5 | 72 | 22.2 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Fodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,159.7 ft., or 4,313.1 m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet: the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.20 | 767.1 | 70 | 21.1 | 49 | 9.4 | 50 | N | | | 2 | | 8 | | NNE | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.97 | 761.2 | 59 | 15.0 | 53.5 | 11.9 | | SSW | | | 3 | | 4 | | NNE | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va | 30.12† | 765.0† | 49 | 9.4 | 49 | 9.4 | 93 | NNW | 4 | 1.8 | | | 1c | | | 0.05 | 1.3 | | | D. clouds | |
| Navy Yard Pensacola, Fla | 30.15 | 765.8 | | | 62 | 16.7 | 88 | NE | 11 | 4.9 | | | 6 | | NNE | 0 | 0 | | | D. clouds | |
| Navy Yard Portsmouth, N.H. | 29.85 | 758.2 | 60 | 15.6 | 40 | 4.4 | 86 | NE | 11 | 4.9 | | | | | SW | 0 | 0 | | | Threatening | |
| Naval Hospital, Yokohama, Japan | 30.00 | 762.0 | 66 | 18.9 | 61 | 16.1 | 85 | ENE | | | 3 | | 8ks | | NE | 0.01 | 0.3 | | | Cloudy | |
| Adams, N. 21° 09′ W. 34° 42′ | 30.27 | 768.8 | 76 | 24.4 | 78 | 25.6 | 82 | NE | | | 4 | | 3 | | NE | | | Light | NE | D. clouds | |
| Alert, Yokohama, Japan | 30.29 | 769.4 | 68 | 20.0 | 64 | 17.8 | 94 | ENE | | | 2 | | 7 | | NE | | | Short | NE | D. clouds | |
| Alliance, Beirut, Syria | 29.96 | 761.0 | 80 | 26.7 | 82 | 27.8 | 63 | S&E | | | 0–1 | | 1 | | | | | | | Hazy | |
| Ashuelot, Canton, China | 29.80 | 756.9 | 83 | 28.3 | 82 | 27.8 | 83 | SSE | | | 4–5 | | 8 | | S | | | Smooth | | Lightning | |
| Canonicus, New Orleans, La | 30.03 | 762.7 | 49 | 9.4 | 64 | 17.8 | 83 | Calm | | | 0 | | 2 | | | | | | | Fair | |
| Colorado, New York, N. Y | 29.94 | 760.5 | 63 | 17.2 | 46 | 7.8 | 77 | NNE | 12 | 5.4 | | | 10 | | N&E | 0.16 | 4.1 | | | D. clouds | |
| Despatch, N 38° 52′ W. 39° 20′ | 30.03 | 762.7 | 65 | 18.3 | 65 | 18.3 | 94 | WSW | | | 5 | | 10 | | N | | | Long | SW | Damp | |
| Essex, N. 22° 50′ W. 92° 30′ | 29.96 | 761.0 | 77 | 25.0 | 79 | 26.1 | 91 | ENE | | | 4 | | 9 | | W | 0 | 0 | Moderate. | ENE | D. clouds | |
| Frolic, Monte Video, Uruguay | 30.15 | 765.8 | | | 54 | 12.2 | 87 | NW | | | 1 | | 6ks | | | 0 | 0 | Smooth | | Hazy | |
| ‡Gettysburg, Genoa, Italy | 29.84 | 757.9 | | | 64 | 17.8 | 100 | SE | | | 3 | | 5 | | SE | Blank | Blank | | | D. clouds | |
| Hartford, Santa Cruz, W. I. | 30.16 | 766.1 | 81 | 27.2 | 83 | 28.3 | 83 | ESE | 7.2 | 3.2 | | | 5 | | | 0.062 | 1.57 | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.08 | 764.0 | 76 | 24.4 | 74 | 23.3 | 90 | Calm | | | 0 | | 10 | | | 0 | 0 | Calm | None | Cloudy | |
| Lackawanna, Acapulco, Mexico | 29.83 | 757.7 | | | 81 | 27.2 | 96 | Calm | | | 0 | | 2 | | | | | Smooth | | Hazy | |
| Marion, Smyrna, Turkey | 29.96 | 761.0 | 73 | 22.8 | 71 | 21.7 | 95 | W | | | 1 | | 8 | | NW | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.50 | 749.3 | 53 | 11.7 | 45 | 7.2 | 76 | NW | | | 1 | | 5 | | NW | | | | | Fair | |
| Monocacy, Shanghai, China | 29.63 | 752.6 | 72 | 22.2 | 70 | 21.1 | 100 | SE | | | 2 | | 10 | | SE | | | | | Raining | |
| Monongahela, Norfolk, Va | 29.97 | 761.2 | 52 | 11.1 | 53 | 11.7 | | NW | | | 3 | | 0 | | | Blank | Blank | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.22 | 767.6 | | | 63 | 17.2 | 89 | NE | 14 | 6.3 | | | 1 | | SW | 0 | 0 | | | Hazy | |
| Omaha, S. 0° 40′ W. 81° 05′ | 29.95 | 761.0 | 81 | 27.2 | 81 | 27.2 | 91 | S | 1 | 0.4 | | | 3 | | N | 0.1 | 2.5 | Smooth | | Clear | |
| Ossipee, Key West, Fla | 30.08 | 764.0 | 73 | 22.8 | 74 | 23.3 | 72 | NNE | | | 2 | | 5 | | NNE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.76 | 755.9 | 75 | 23.9 | 71 | 21.7 | 90 | SSE | | | 3 | | 10 | | S&E | | | | | Rainy | |
| Pensacola, Acapulco, Mexico | 29.96 | 761.0 | | | 80 | 26.7 | 82 | S | | | 1 | | 3 | | | 0 | 0 | | | Pleasant | |
| Plymouth, New Orleans, La | 30.11 | 764.8 | 71 | 21.7 | 66 | 18.9 | 84 | W | | | 1 | | 6 | | | 0 | 0 | | | Smoky | |
| Ranger, N. 37° 18′ W. 31° 06′ | 30.27 | 768.8 | | | 64 | 17.8 | 89 | SW | | | 3 | | 10 | | | | | Moderate | S&W | Cloudy | |
| Richmond, S. 30° 15′ W. 47° 50′ | 30.16 | 766.1 | 65.5 | 21.8 | 67.5 | 19.7 | 99 | NE | | | 6 | | 10 | | NE | Blank | Blank | Cross, irregular. | SE, NE | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.84 | 757.9 | | | 65 | 18.3 | 94 | SE | | | 2 | | 0 | | | | | | | Blue sky | |
| Santee, Annapolis, Md | 30.02 | 762.5 | 64 | 17.8 | 53 | 11.7 | 86 | NW | | | 4 | | 4 | | | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 29.84 | 757.9 | 54 | 12.2 | 49 | 9.4 | 85 | NW | 14 | 6.3 | | | 8 | | NW | 0.02 | 0.5 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 29.96 | 761.0 | 83 | 28.3 | 84 | 28.9 | 96 | NNW | | | 2 | | 10n | | | Blank | Blank | Smooth | | Overcast | |
| Tennessee, Yokohama, Japan | 30.06 | 763.5 | 72 | 22.2 | 66 | 18.9 | 89 | ENE | | | 3 | | 5 | | S&W | | | Smooth | | D. clouds | |
| Trenton, N. 41° 25′ E. 11° 28′ | 30.02† | 762.5† | 68 | 20.0 | 61 | 16.1 | 88 | SSW | 12.5 | 5.6 | | | 3 | | S&W | 0 | 0 | | S&W | Hazy | |
| Vandalia, Constantinople, Turkey | 29.93 | 760.2 | 67 | 19.4 | 65 | 18.3 | 89 | SSW | | | 1 | | 9 | | SW | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.77 | 756.1 | 45 | 7.2 | 42 | 5.6 | 91 | NNW | 12 | 5.4 | | | 10 | | NNW | 0.24 | 6.1 | | | Drizzling | |
| Wyoming, Washington, D.C. | 30.34† | 770.6† | 54 | 12.2 | 50 | 10.0 | | N | | | 3 | | 1 | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.78 | 756.4 | 83 | 28.3 | 91 | SSW | | | 4 | | 8ks | | | | | Lightning | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 33° 26′, W. 77° 16′ | SW | 5 | 29.97 | 761.2 | 60 | 15.6 | 65 | WNW | 14 | 6 3 | | 2ck | 0 | NW | | Smooth | | Clear | Capt. James Jorgensen |

NOTE.—The original give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, nacto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 11, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.7 | 71.6 | 22.0 | 62 | NW | | | 1 | | 2 | | | 0 | 0 | Clear | Michel. |
| Aiglers | | | | | 70.2 | 21.2 | 85 | NW | | | 2 | | 8 | | | 0 | 0 | Cloudy | Peter. |
| La Calle | | | 29.83 | 757.6 | 73.8 | 23.2 | 78 | NW | | | 1 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.90 | 759.4 | 71.6 | 22.0 | | W | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.92 | 760.0 | 68.0 | 20.0 | | E | | | 1 | | 2 | | | Inap. | Inap. | Clear | Husson. |
| Saida | | | 30.00 | 762.1 | 76.8 | 24.9 | | NNE | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.91 | 759.7 | 68.2 | 20.1 | | SSW | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.01 | 762.2 | 79.2 | 26.2 | 29 | SW | | | 2 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 29.96 | 761.0 | 89.6 | 32.0 | 19 | W | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.91 | 759.7 | 95.0 | 35.0 | | SE | | | 1 | | 3 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.80 | 756.8 | 66.9 | 19.4 | 42 | SW | | | 6 | | 2 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.72 | 755.0 | 61.5 | 16.4 | 47 | W | | | 4 | | 5 | | | 0.020 | 0.5 | | Dr. Wierzbiski. |
| Eperies | | | 29.69 | 754.1 | 61.4 | 18.0 | 57 | S | | | 2 | | k,8 | | | 0.079 | 2.00 | | Julius Mikolik. |
| Gratz | 28.52 | 724.4 | 29.72 | 755.0 | 68.5 | 20.3 | 51 | SSW | | | 3 | | 4 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.47 | 723.0 | 29.81 | 758.0 | 63.7 | 17.6 | 48 | NW | | | 3 | | 4 | | | 0.057 | 1.45 | | Prof. Reissenberger. |
| Kremsmünster | 28.41 | 721.6 | 29.72 | 754.8 | 61.2 | 16.2 | 50 | WNW | | | 2 | | 10 | | | 0.047 | 1.2 | | Prof. C. Wagner. |
| Lemberg | | | 29.67 | 753.7 | 62.1 | 16.7 | 80 | S | | | 2 | | 6 | | | 0.075 | 1.9 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.91 | 759.7 | 68.0 | 20.0 | 57 | S | | | 1 | | 8cks | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.83 | 757.6 | 66.2 | 19.0 | 68 | W | | | 2 | | 4 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.91 | 759.8 | 66.2 | 19.0 | 67 | SW | | | 1 | | 1 | | | 0.193 | 4.9 | | P. Busin. |
| Vienna | | | 29.73 | 755.1 | 67.8 | 19.9 | 50 | SSE | | | 1 | | 5 | | | 0.146 | 3.7 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.19 | 716.0 | 29.66 | 753.3 | 51.1 | 10.6 | 83 | SSW | | | 3 | | 6 | | | 0.154 | 3.9 | | |
| Brussels | | | 29.54 | 750.2 | 55.2 | 12.9 | 64 | W | | | 2 | | 10 | | WSW | 0.039 | 1.00 | | Royal Observatory. |
| Furnes | | | 29.55 | 750.5 | 50.0 | 10.0 | 98 | WNW | | | 1 | | 9 | | | 0.189 | 4.8 | | |
| Maeseyck | | | 29.43 | 747.6 | 52.9 | 11.6 | 81 | SSW | | | 4 | | 10 | | | 0.134 | 3.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.79 | 756.7 | 45.6 | 7.6 | | ENE | 38 | 17.0 | | | 5 | | | 0 | 0 | Squally | William Boswell. |
| Ardrossan | | | 29.69 | 754.1 | 56 | 13.3 | | E | | | 4 | | 4 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.67 | 753.6 | 46.6 | 8.1 | | ENE | 9 | 4.0 | | | 10 | | | | | Gloomy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.60 | 751.8 | 45.4 | 7.4 | | ENE | 17 | 7.6 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.59 | 751.6 | 49.5 | 9.7 | | NNE | | | 2 | | 10 | | | | | Overcast | J. Dreyer. |
| Bradford, Yorkshire | | | 29.62 | 752.3 | 44.5 | 6.9 | | NE | | | 1 | | 10 | | | 0.20 | 5.1 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.99 | 761.7 | 84.5 | 29.2 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H.C. |
| Cambridge, Observatory | | | 29.54 | 750.3 | 59.0 | 15.0 | | N | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 29.56 | 750.8 | 58.0 | 14.4 | | E | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.65 | 753.1 | 50.2 | 10.1 | | Calm | | | 0 | | 8 | | | Blank | Blank | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.99 | 713.5 | 29.56 | 750.8 | 46.0 | 7.8 | | SE | | | 1 | | 9 | | | | | Showery | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.65 | 753.1 | 51 | 10.6 | | E | | | 6 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.55 | 750.6 | 54 | 12.2 | | WSW | | | 2 | | 6 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.59 | 751.6 | 45.6 | 7.6 | | NE | 4.2 | 1.9 | | | 10 | | | | | Showery | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.51 | 749.5 | 51.0 | 10.6 | | SE | | | 2 | | 8 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.71 | 703.8 | 29.96 | 761.0 | 55.9 | 13.3 | | E | | | 2 | | 10 | | | | | Overcast | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.98 | 761.5 | 87 | 30.6 | | W | | | 1 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.54 | 750.3 | 49 | 9.4 | | NE | | | 3 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.94 | 760.5 | 63.1 | 18.9 | | W | | | 2 | | 10 | | | | | Overcast | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.70 | 754.4 | 50.9 | 10.5 | | ENE | | | 3 | | 2 | | | | | Blue sky | Lewis Stuart. |
| Great Yarmouth | | | 29.55 | 750.6 | 51 | 10.6 | | NE | | | 2 | | 7 | | | | | Foggy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.59 | 751.6 | 47.0 | 8.3 | | SSE | | | 1 | | 10 | | | | | Drizzling | The Staff, for G. B. Airy. |
| Guernsey | | | 29.53 | 750.0 | 56.5 | 13.6 | | SW | | | 2 | | 5 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.18 | 748.8 | 56 | 13.3 | | S | | | 2 | | 1c | | | 0.8 | 20. | Fine | M. P. Moyle. |
| Holyhead | | | 29.58 | 751.3 | 49 | 9.4 | | ENE | | | 6 | | 10 | | | | | Misty | John Tilston. |
| Kew, Observatory | | | 29.57 | 751.1 | 50.4 | 10.2 | | NE | 4 | 1.8 | | | 10sd | | | | | Raining | The Staff. |
| Kingstown | | | 29.42 | 752.3 | 48 | 8.9 | | E | | | 5 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.58 | 751.3 | 49.7 | 9.8 | | NE | | | 3 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.97 | 761.2 | 72.8 | 22.7 | | SE | | | 3 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.84 | 757.9 | 48 | 8.9 | | ENE | | | 3 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.10 | 764.5 | 74.8 | 23.8 | | NE | | | 1 | | 10 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 29.60 | 751.8 | 46.8 | 8.2 | | N | | | 3 | | 10n,d | | NNE | 0.15 | 3.94 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.57 | 751.1 | 46.8 | 8.2 | | NNE | | | 3 | | 10 | | | | | Lgh mist | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.54 | 750.3 | 55 | 12.8 | | SE | | | 0 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 29.51 | 749.5 | 57 | 13.9 | | SE | | | 3 | | 6 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.51 | 749.5 | 53 | 11.7 | | ESE | | | 5 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.51 | 749.5 | 53 | 13.3 | | Calm | | | 0 | | 5 | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.55 | 750.6 | 56.0 | 13.3 | | SSW | | | 4 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.90 | 759.4 | 45 | 7.2 | | NE | 24 | 10.7 | | | 5 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.96 | 761.0 | 69.0 | 20.6 | | SW | | | 1 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.60 | 751.8 | 45.0 | 7.2 | | NE | | | 3 | | 10 | | | 0.201 | 5.11 | Drizzling | W. F. Cooper. |
| Silloth, Rectory | | | 29.66 | 753.4 | 52.5 | 11.4 | 55 | NE | | | 6 | | 3 | | | 0.235 | 5.97 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.62 | 752.3 | 46.0 | 7.8 | | E | | | 2 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.88 | 758.9 | 45 | 7.2 | | NE | | | 6 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 29.54 | 750.3 | 54.1 | 12.3 | | SE | | | 1 | | 9 | | | | | Overcast | Rev. Charles H. Griffith. |
| Thurso | | | 29.87 | 758.7 | 49 | 9.4 | | NNE | | | 5 | | 7 | | | | | Showery | John Trotter. |
| Truro, Royal Institution | | | 29.49 | 749.0 | 58 | 14.4 | | SW | | | 4 | | 5 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.53 | 750.0 | 54.3 | 12.4 | | NE | 17 | 7.6 | | | 8 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 46 | 7.8 | | E | | | 1 | | 10 | | | 0.20 | 5.1 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.34 | 771.1 | 61.7 | 16.5 | 57 | S | 6 | 2.7 | | 0 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.11 | 764.8 | 56.5 | 13.6 | 84 | | | | 2 | | 10kn | | | 0 | 0 | Cloudy | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.76 | 755.9 | 46.8 | 8.2 | | E | | | 6 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.97 | 763.8 | 74.2 | 23.4 | 69 | ESE | 18.7 | 8.4 | | 0 | 6 | | ESE | | | Showery | C. Meldrum. |
| Melbourne, Observatory | | | 29.93 | 760.2 | 53.3 | 11.8 | 86 | SE | 20 | 8.9 | | | 7 | | | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.83 | 757.7 | 48 | 8.9 | | E | | | 7 | 3 | 0 | E | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.91 | 759.7 | 44 | 6.7 | | NNE | | | 6 | 5 | 8 | N | | | | | Robert Burnet. |

Note.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the subseries; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,460 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 45° 10′ W. 43° 50′ | | | 29.64 | 752.8 | 61.0 | 16.1 | | SSW | | | 4 | | 10 | | | 5* | WNW | Showery | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. I. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 18° 50′ W. 42° 25′ | | | 30.18 | 766.6 | 77.5 | 25.3 | | ENE | | | 5 | | 7 | | | 5 | ENE | D. clouds | Capt. Jas. J. Price. |

Note.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665 7 | | | 73.4 | 23.0 | 78 | NE | | | 3 | | 7ck | | E | | | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.60 | 751.7 | 48.4 | 9.1 | 96 | Calm | | | 0 | | 10 | | | | | Raining | |
| Fanöe | | | 29.58 | 751.3 | 57.4 | 14.1 | 72 | SSE | | | 4 | | 6 | | | | | | |
| Godthaab, (Greenland) | | | 29.88 | 759.0 | 32.5 | 0.3 | 66 | NE | | | 4 | | 3 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.85 | 758.1 | 45.5 | 7.5 | 80 | SW | | | 2 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.06 | 763.4 | 46.0 | 7.8 | 71 | NE | | | 2 | | 10 | | | | | | |
| Vestervig | | | 29.56 | 750.9 | 58.3 | 14.6 | 68 | ENE | | | 6 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.65 | 753.0 | 55.4 | 13 | 78 | SW | | | 2 | | 8kn | | SW | 0.575 | 14.6 | Very cloudy | Normal School. |
| Amiens | | | 29.57 | 751.1 | 62.6 | 17 0 | | W | | | 4 | | 8 | | W | 0.291 | 7.4 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.78 | 756.4 | 65.8 | 18.8 | 62 | NE | | | 1 | | 10 | | | 0 | 0 | Covered | Mr. Giraud. |
| Bar-sur-Seine | | | 29.69 | 754.2 | 57.0 | 13.9 | 56 | SW | | | 4 | | 10 | | SW | 0.087 | 2.2 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.62 | 752.3 | 62 1 | 16.7 | 75 | W | | | 4 | | 8 | | WSW | 0.376 | 9.55 | Very cloudy | Normal School. |
| Besançon | | | 29.87 | 758.8 | 61.5 | 16.4 | 56 | S | | | 4 | | 5 | | SW | 0.04 | 1. | Cloudy | Normal School. |
| Bourg en Bresse | | | 29.87 | 758.8 | 60.1 | 15.6 | 53 | S | | | 4 | | 10kn | | N | 0 | 0 | Covered | Normal School. |
| Bourges | | | 29.78 | 756.3 | 57.7 | 14.3 | 78 | S | | | 2 | | 5 | | N | 0.20 | 5. | Cloudy | Normal School. |
| Brest | | | 29.51 | 749.5 | 57.4 | 14.1 | 80 | SW | | | 3 | | 9 | | SW | 0.551 | 14.00 | Raining | Naval Observatory. |
| Carcassonne | | | 29.76 | 755.8 | 59.2 | 15.1 | 75 | N | | | 2 | | 10 | | S | 0 | 0 | Covered | Normal School. |
| Caen | | | 29.61 | 752.0 | 58.6 | 14.8 | 74 | SW | | | 1 | | 10 | | NE | 0.374 | 9.5 | Thunder-storm | Normal School. |
| Chartres | | | 29.67 | 753.5 | 55.4 | 13 | 88 | SW | | | 3 | | 10 | | | 0.67 | 17. | Covered | Normal School. |
| Châlons-sur-Marne | | | 29.68 | 753.8 | 55.6 | 13.1 | 73 | SSW | | | 6 | | 8kn | | NNE | 0.177 | 4.5 | Very cloudy | Normal School. |
| Clermont-Ferrand | | | 29.69 | 754.2 | 63 7 | 17.6 | 52 | E | | | 2 | | 8 | | | 0.020 | 0.5 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.68 | 753.9 | 56.1 | 13.4 | 66 | WSW | | | 6 | | 5 | | WSW | 0.130 | 3.3 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.85 | 758.2 | 61.3 | 16.3 | 66 | SE | | | 4 | | 10 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.79 | 756.6 | 61.9 | 16 6 | 66 | SE | | | 6 | | 8kn | | NE | 0.39 | 10. | Very cloudy | Normal School. |
| La Roche-sur-Yon | | | 29.71 | 754.7 | 55.8 | 13.2 | 73 | S | | | 2 | | 8 | | N | 0.480 | 12.2 | Very cloudy | Normal School. |
| Le Mans | | | 29.66 | 753.3 | 58.3 | 14.6 | 67 | SW | | | 4 | | 8 | | W | 0.561 | 14.25 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.80 | 756.8 | 59.2 | 15.1 | 61 | SW | | | 1 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Lorient | | | 29.63 | 752.6 | 59.4 | 15.2 | 64 | SW | | | 5 | | 8 | | SW | 0.276 | 7.0 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.82 | 757.3 | 59.4 | 15.2 | 76 | Calm | | | 0 | | 10 | | | 0.04 | 1. | Covered | Mr. Marchal. |
| Metz | | | 29.78 | 756.3 | 56.1 | 13.4 | 48 | SW | | | 4 | | 8k | | SW | 0.193 | 4.9 | | M. A. Schuster. |
| Mirecourt | | | 29.73 | 755.2 | 56.8 | 13.8 | 62 | WSW | | | 4 | | 8 | | E | 0.12 | 3. | Very cloudy | Normal School. |
| Nismes | | | 29.77 | 756.2 | 65.1 | 18.4 | 67 | SE | | | 1 | | 10 | | N | 0.020 | 0.5 | Covered | Normal School. |
| Orleans | | | 30 102 | 764.69 | 56.1 | 13.4 | 88 | SW | | | 6 | | 5 | | SW | 0.35 | 9. | Cloudy | Normal School. |
| Paris, Observatory | | | 29.64 | 752.9 | 58.3 | 14.6 | 60 | WSW | | | 3 | | 9 | | WSW | 0 241 | 6.13 | Almost cov'd | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 29.63 | 752.6 | 57.6 | 14.2 | 72 | W | | | 5 | | 8 | | E | 0.04 | 1. | ¾ covered | Naval Observatory. |
| Rouen | | | 29.59 | 751.5 | 61.3 | 16.3 | 52 | WSW | | | 2 | | 5 | | W | 0.354 | 9.0 | Very cloudy | Normal School. |
| Tarbes | 28 66 | 727 9 | 29.72 | 754.8 | 59.5 | 15.3 | 68 | NW | | | 2 | | 10 | | | 0.04 | 1. | Covered | Normal School. |
| Villefranche | | | 29.78 | 756.4 | 62.6 | 17 | 90 | E | | | 1 | | 8 | | | 0.16 | 4. | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.7 | 82.8 | 28.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.78 | 756.5 | 64.8 | 18.2 | 62 | SSE | | | 0–1 | | 10 | | | Inap. | Inap. | Rainy | The Staff. |
| Mont-Louis | 24.65 | 626.2 | 29.97 | 761.2 | 45.9 | 7.7 | 82 | SSW | 22.4 | 10.00 | | | 10 | | SSW | 0.110 | 2.8 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.64 | 752.8 | 58.3 | 14.6 | 67 | SW | | | 3 | | 9 | | WSW | 0.276 | 7.0 | | Montsouris Observatory |
| Perpignan | | | 29.79 | 756.6 | 58.3 | 14.6 | 69 | SE | 3 7 | 1.67 | | | 10 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.26 | 565.4 | | | 39.7 | 4.3 | | W | | | 1 | | 10 | | | 0.370 | 9.4 | Snowy | and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.65 | 753.0 | 59.7 | 15.4 | 63 | SW | | | 3 | | 10 | | | 0.343 | 8.7 | Covered | E. Renou. |
| Toulouse, Observatory | | | 29.82 | 757.5 | 54.0 | 12.2 | 81 | NW | | | 1 | | 10 | | | 0.094 | 2.4 | Rainy | The Staff. |
| Tours | | | 29.58 | 751.2 | 56.8 | 13.8 | 74 | WSW | | | 3 | | 10 | W | | 0.331 | 8.4 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.65 | 753.1 | 61.5 | 16.4 | 53 | SW | | | 3 | | 9 | | | 0.338 | 8.58 | Almost cov'd | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.61 | 752.8 | 73.2 | 22.9 | 79 | SSW | 11.0 | 5 3 | | | 8kn | | | 0.122 | 3.1 | Lightning | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7: no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.74 | 755.5 | 59.7 | 15.4 | 47 | W | | | 5 | | 5 | W | | 0.098 | 2.5 | | Prof. T. Hoh. |
| Berlin | | | 29.65 | 753.2 | 59.0 | 15.0 | 54 | SW | | | 3 | | 9 | | | 0.008 | 0.2 | Light rain | Prof. Arndt. |
| Breslau | | | 29.71 | 754.7 | 62.2 | 16.8 | 42 | WSW | | | 3 | | 8 | | | 0.150 | 3.8 | | Royal University Obs'y. |
| Carlsruhe | | | 29.69 | 754.0 | 61.5 | 16.4 | 42 | SW | | | 5 | | 5 | | | 0.039 | 1.0 | | Albert Senz. |
| Cassel | | | 29.69 | 754.1 | 59.9 | 15.5 | 55 | SSW | | | 5 | | 8 | WSW | | 0.039 | 1.0 | | Dr. H. Möhl. |
| Crefeld | | | 29.54 | 750.3 | 53.2 | 11.8 | 82 | S | | | 4 | | 8 | | | 0.197 | 5.0 | | Director Lose. |
| Emden | | | 29.57 | 751.0 | 54.5 | 12.5 | 76 | SE | | | 1 | | 10 | | | 0.035 | 0.9 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.74 | 755.3 | 62.2 | 16.8 | 43 | SW | | | 3 | | 8 | | | 0.138 | 3.5 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.1? | 29.82? | 757.3? | 55.6 | 13.1 | 74 | NNW | | | 2 | | 10 | N | | 0.043 | 1.1 | Raining | M. Wilhelm. |
| Hamburg | | | 29.59 | 751.6 | 57.6 | 14.2 | 64 | SSW | | | 2 | | 10 | | | 0.142 | 3.6 | Covered | Captain F. Hegemann. |
| Kiel | | | 29.60 | 751.8 | 56.3 | 13.5 | 92 | | | | | | 10 | | | 0.449 | 11.4 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.57 | 751.1 | 44.4 | 6.9 | 91 | W | | | 5 | | 10 | | | 0.024 | 0.6 | | Prof. E. Luther. |
| Köslin | | | 29.63 | 752.7 | 53.8 | 12.1 | | W | | | 4 | | 2 | | | 0.031 | 0.8 | | H. Müller. |
| Leipsic | | | 29.67 | 753.7 | 59.9 | 15.5 | 52 | SW | | | 3 | | 9 | SSW | | 0.016 | 0.4 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.53 | 750.1 | 47.8 | 8.8 | | W | | | 3 | | 10ks | | | | | Light fog | Reinbrecht & Skalweit. |
| Münster | | | 29.56 | 750.8 | 53.2 | 11.8 | 83 | S | | | | | 4 | | | 0.008 | 0.2 | Light rain | Prof. E. Heis. |
| Neufahrwasser | | | 29.60 | 751.9 | 47.5 | 8.6 | 91 | WNW | | | 4 | | 10 | | | 0.217 | 5.5 | | A. Lothes. |
| Posen | | | 29.67 | 753.6 | 59.2 | 15.1 | 67 | W | | | 3 | | 9 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.72 | 755.0 | 64.2 | 17.9 | 34 | SW | | | 5 | | 9 | SW | | 0.031 | 0.8 | | Dr. Schur. |
| Stuttgart | | | 29.65 | 753.2 | 63.1 | 17.3 | 33 | W | | | 2 | | 4 | W | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.56 | 750.8 | 57.9 | 14.4 | 57 | SW | | | 8 | | 10 | | | 0.043 | 1.1 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.23 | 717.1 | 29.70 | 754.4 | 60.3 | 15.7 | 44 | SW | | | 1 | | 6 | S | | 0.024 | 0.6 | Light rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.68 | 753.9 | 55.6 | 13.1 | 76 | Calm | | | 0 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.03 | 762.8 | 75.0 | 23.9 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the cooperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.03 | 559.5 | 29.86 | 758.5 | 32.7 | 0.4 | 100 | WNW | | | 2 | | 10 | | | 3.937* | 100.0* | | Prof. Giovanni Clodig. |
| Stelvio | 22.00 | 558.8 | 29.77 | 756.1 | 35.6 | 2.0 | | WSW | | | 6 | | 10 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.87 | 758.6 | 65.3 | 18.5 | 53 | SW | 4.3 | 1.9 | | | 7 | | | 0.46 | 11.7 | | Ab. Dem. Morgini. |
| Padua | | | 29.85 | 758.2 | 66.0 | 18.9 | 55 | SSW | 3.8 | 1.7 | | | 10 | W | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.85 | 758.3 | 65.8 | 18.8 | 59 | SW | 4.9 | 2.2 | | | 6 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.82 | 757.3 | 64.0 | 17.8 | 75 | E | | | 1 | | 6 | | | 0.118 | 3.0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.55 | 725.1 | 29.84 | 757.9 | 60.8 | 16.0 | 58 | S | | | 1 | | 10 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.82 | 757.5 | 55.0 | 12.8 | 90 | Calm | | | 0 | | 10 | | | 0.126 | 3.2 | | Prof. Giuseppe Calza. |
| Milan | | | 29.84 | 757.9 | 58.3 | 14.6 | 85 | E | | | 4 | | 10 | NE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.87 | 757.5 | 60.8 | 16.0 | 71 | NE | | | 2 | | 10 | SW | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.80 | 756.9 | 60.8 | 16.0 | 72 | NW | 1.3 | 0.6 | | | 9 | NE | | 0.031 | 1.0 | | Prof. P. F. Denza. |
| Mondovi | 27.91 | 708.9 | 29.77 | 756.2 | 61.0 | 16.1 | 68 | NW | | | 6 | | 9 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.92 | 759.9 | 60.4 | 15.8 | 87 | SW | | | 2 | | 10 | | | 0.024 | 0.6 | | Prof. L. Vassallo. |
| Genoa | | | 29.89 | 759.2 | 59.9 | 15.5 | 89 | SE | 8.7 | 3.9 | | | 10 | S | | 0.276 | 7.0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.83 | 757.6 | 65.1 | 18.4 | 59 | SSE | 1.3 | 0.6 | | | 10 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.84 | 757.9 | 69.1 | 20.6 | 59 | SW | | | 2 | | 8 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.91 | 759.8 | 68.9 | 20.5 | 72 | NW | | | 2 | | 10 | S | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.89 | 759.3 | 65.3 | 18.5 | 71 | S | 9.8 | 4.4 | | | 10 | SW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.71 | 729.1 | 29.88 | 759.0 | 65.7 | 18.7 | 75 | SW | 2.5 | 1.1 | | | 8 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.38 | 720.8 | 29.90 | 759.5 | 65.3 | 18.5 | 56 | SW | | | 4 | | 7 | | | 0 | 0 | | Prof. P. Sernieri. |
| Pesaro | | | 29.89 | 759.3 | 71.4 | 21.9 | 57 | SW | 13.0 | 5.8 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.91 | 759.8 | 68.4 | 20.2 | 44 | SE | | | 4 | | 8 | S | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.93 | 760.3 | 72.0 | 22.2 | 51 | SSE | | | 4 | | 8 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.96 | 761.0 | 72.3 | 22.4 | 55 | S | 16.8 | 7.5 | | | 3 | S | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.00 | 762.0 | 71.8 | 22.1 | 65 | SSW | | | 4 | | 8 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.04 | 763.1 | 71.2 | 21.8 | 43 | SSE | 12.5 | 5.6 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.00 | 761.9 | 75.9 | 24.4 | 65 | NW | 7.4 | 3.3 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.85 | 758.2 | 70.2 | 21.2 | 63 | SE | | | 2 | | 1 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.93 | 760.2 | 67.6 | 19.8 | 49 | SE | | | 2 | | 3 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.91 | 759.8 | 68.7 | 20.4 | 58 | NE | 6.9 | 3.1 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.07 | 712.9 | 29.95 | 760.8 | 71.6 | 22.0 | 25 | SE | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.91 | 759.6 | 70.9 | 21.6 | 53 | SE | | | 6 | | 6 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.04 | 763.0 | 66.7 | 19.3 | 67 | ESE | 0.7 | 0.3 | | | 3 | SW | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824 ; Siena, 348.5 m., or 1,143.3 ft ; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.08 | 764.0 | 64 | 17.8 | 86 | S | 3 | 1.3 | | | 1ks | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Sonor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.2 | 30.08 | 764.0 | 55.4 | 13.0 | 53 | W | 0.02 | 0.01 | | 0 | 0 | | | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.54 | 750.4 | 50.9 | 10.5 | | N | | | 3 | | | | | 0.098 | 2.5 | | |
| Groningen | | | | | 51.7 | 12.6 | | S | | | 3 | | | | | 0.181 | 4.6 | | |
| Helder | | | 29.50 | 749.3 | 51.1 | 10.6 | | W | | | 1 | | | | | 0 | 0 | | |
| Utrecht | | | 29.44 | 747.8 | 52.5 | 11.4 | 70 | SW | | | 2 | | 10 | | | 0.055 | 1.4 | Dull | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.79 | 754.3 | 56.1 | 13.4 | 42 | NNW | 10.3 | 4.6 | | | 0 | | | 0 | 0 | | |
| Brône | | | 29.85 | 758.2 | 50.7 | 10.4 | 39 | E | 7 | 3 | | | 8 | | | 0 | 0 | | |
| Christiania | | | 29.68 | 753.8 | 57.9 | 14.4 | 38 | ENE | 4 | 2 | | | 3 | | | 0.008 | 0.2 | | |
| Tromsö | | | 30.04 | 763.0 | 43.3 | 6.3 | 62 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.93 | 761.0 | 63.3 | 17.4 | 96 | W | 18.1 | 8.1 | | | 9 | | | 0.787 | 20.0 | Raining | Dr. J. A. Sampaio. |
| Campo Major | | | 29.86 | 758.5 | 59.5 | 15.3 | 61 | SW | 12.5 | 5.6 | | | 9 | SW | | 0.047 | 1.2 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.09 | 764.2 | 67.1 | 19.5 | 59 | SE | 3.8 | 1.7 | | | 3 | | | 0.059 | 1.5 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.91 | 759.6 | 56.7 | 13.7 | 62 | SW | 16.1 | 7.2 | | | 9 | W | | 0.681 | 17.3 | | The Observatory. |
| *Ponta Delgada, (Azores) | | | 30.00 | 762.0 | 63.0 | 17.2 | 94 | WNW | 6.3 | 2.8 | | | 10 | | | 0.138 | 3.5 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 9 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.64 | 752.8 | 60.1 | 15.6 | 61 | W | 18 | 8 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 29.52 | 749.8 | 57.9 | 14.4 | 70 | SW | 9 | 4 | | | 7 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.32 | 744.7 | 61.7 | 16.5 | 86 | ESE | 4 | 2 | | | 9 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.44 | 747.8 | 55.6 | 13.1 | 91 | ESE | 13 | 6 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.58 | 751.3 | 38.5 | 3.6 | 100 | E | 18 | 8 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.65 | 753.0 | 67.8 | 19.9 | 51 | W | 9 | 4 | | | 9 | | | | | Solar corona | Physical Cabinet. |
| Nikolaiev | | | 29.83 | 757.6 | 73.8 | 23.2 | 44 | SSW | 13 | 6 | | | 6 | | | | | | Kurdakof. |
| Kertch | | | 29.96 | 761.0 | 64.9 | 18.3 | 71 | S | 9 | 4 | | | 9 | | | | | | Lagorio. |
| Moscow | | | 29.71 | 754.6 | 66.4 | 19.1 | 69 | SSW | 18 | 8 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.78 | 756.5 | 71.6 | 22.0 | 51 | SW | 9 | 4 | | | 8 | | | | | | Meteorological Obs. |
| Archangel | | | 30.13 | 765.3 | 48.0 | 8.9 | 37 | ENE | 27 | 12 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.40 | 721.4 | 29.74 | 755.5 | 78.6 | 25.9 | 38 | W | 4 | 2 | | | 8 | | | | | Thunder-storm | Physical Observatory. |
| Astrakhan | | | 29.93 | 760.3 | 74.8 | 23.8 | 19 | E | 7 | 3 | | | 8 | | | | | | Sebastianof. |
| Kasan | | | 30.05 | 763.3 | 73.6 | 23.1 | 34 | SE | 2 | 1 | | | 5 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.26 | 743.3 | 30.20 | 767.0 | 63.0 | 17.2 | 40 | Calm | 0 | 0 | | | 5 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.21 | 716.5 | 29.83 | 757.7 | 76.3 | 24.6 | 46 | Calm | 0 | 0 | | | 5 | | | | | | Michelson. |
| Barnaul | | | 29.94 | 760.4 | 64.8 | 18.2 | 30 | NW | 0 | 0 | | | 1 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.78 | 756.3 | 50.9 | 10.5 | 65 | NW | 7 | 3 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 32.5 | 0.3 | | Calm | 0 | 0 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.65 | 753.1 | 59.9 | 15.5 | 98 | Calm | 0 | 0 | | | 10 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.94 | 760.4 | 50.5 | 10.3 | 54 | NW | 13 | 6 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 26.6 | — 3.0 | | Calm | 0 | 0 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.72 | 754.9 | 64.0 | 18.1 | 67 | SW | 26.1 | 11.67 | | 0 | 7 | | | 0.024 | 0.6 | Cloudy | Royal Observatory |
| San Fernando | | | 29.98 | 761.4 | 62.4 | 16.9 | 95 | WSW | 11.6 | 5.2 | | | 10 | | SW | 0.106 | 2.7 | Raining | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.04 | 762.9 | 77.7 | 25.4 | 71 | E | 10.5 | 4.7 | | 5cks | 2ks | | | 0 | 0 | Cloudy | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.01 | 762.3 | 46.4 | 8.0 | 41 | NE | | | 6 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.81 | 757.2 | 42.4 | 5.8 | 61 | NNE | | | 6 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.71 | 754.7 | 48.7 | 9.3 | 50 | NE | | | 6 | | 9 | | | 0 | 0 | | |
| Stockholm | | | 29.53 | 750.0 | 42.8 | 6.0 | 91 | N | | | 6 | | 10 | | | 0 | 0 | | |
| Wisby | | | 29.58 | 751.2 | 37.8 | 3.2 | 97 | NNE | | | 4 | | 10 | | | 0.173 | 4.4 | Raining | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.59 | 751.5 | 41.7 | 5.4 | 71 | N | 18.8 | 8.4 | | | 10 | | N | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.41 | 721.7 | 29.85 | 758.2 | 50.4 | 10.2 | 80 | SE | | | 2 | | 10 | | | 0.091 | 2.3 | Raining | The Observatory. |
| Zurich | 28.10 | 715.9 | 29.82 | 757.5 | 53.6 | 12.0 | 82 | W | | | 2 | | 10 | | | 0.059 | 1.5 | Raining | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —3.1 mm; Thermometer, —5.7 cent.; Relative Humidity, +32 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.00 | 761.9 | 73.4 | 23.0 | 44 | WSW | 11 | 5.0 | | | 2 | | WNW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.02 | 762.4 | 77.0 | 25.0 | | NW | | | 1 | | 0 | | | | | | |
| Salonica | | | 30.03 | 762.8 | 73.8 | 23.2 | | SW | | | 1 | | 0 | | | | | | B. Stéfanidés. |
| Vaiona | | | 30.07 | 763.6 | 72.5 | 22.5 | | SW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.88 | 759.0 | 59.0 | 15.0 | | NE | | | 1 | | 5 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.99 | 761.8 | 76.8 | 24.9 | 65 | WSW | | | 3 | | 10s | | S | 0 | 0 | Overcast | Pro. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.14 | 765.5 | 44.8 | 7.1 | 67 | NE | 6 | 2.7 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.24 | 768.1 | 56 | 13.3 | | Calm | 0 | 0 | | 0 | 5s | | NE | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 30.11 | 764.8 | 44 | 6.7 | 61 | N | 12 | 5.4 | | 2c | 0 | N | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island. | | | 30.00 | 762.0 | 36 | 2.2 | 87 | N | 20 | 8.9 | | | 10ks | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.11 | 764.8 | 50.1 | 10.1 | 66 | E | | | 1 | cs,ck | 0 | S | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.24 | 768.1 | 40.0 | 7.8 | 77 | NW | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C. | | | 30.07 | 763.8 | 46.3 | 7.9 | 96 | Calm | | | | 0 | 0 | | | 0 | 0 | Hazy | W. H. Revis. |
| *Father Point, Quebec | | | 30.22 | 767.6 | 37 | 2.8 | 91 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 30.15 | 765.8 | 43.1 | 6.2 | 51 | N | 14 | 6.3 | | 1 | 0 | | | Inap. | Inap. | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.06 | 763.5 | 48 | 8.9 | 68 | S | 8 | 3.6 | | 2c | 5ks | SW | SW | 0 | 0 | Smoky | James Stewart. |
| Goderich, Ontario | | | 30.29 | 769.4 | 45.7 | 7.6 | 77 | Calm | | | 0 | 6ck | 2s | NE | | 0 | 0 | Cloudy | H. J. Strang, M. A |
| Granton, Ontario | 29.14 | 740.1 | 30.05 | 768.3 | 48 | 8.9 | 63 | N | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.93 | 760.2 | 38 | 3.3 | 81 | N | 13 | 5.8 | | | 10n | | N | 0.512 | 13.03 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.30 | 769.6 | 48.5 | 9.2 | 58 | S | | | 1 | 9ck | 0 | NW | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.80 | 756.9 | 35 | 1.7 | 80 | NE | | | 6 | | 10 | | | 0.02 | 0.5 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 30.31 | 769.9 | 49 | 9.4 | 80 | W | 10 | 4.5 | | 10cs | 0 | W | | Inap. | Inap. | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.26 | 768.6 | 45 | 7.2 | 64 | NE | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 30.27 | 768.8 | 47 | 8.3 | 74 | N | 3 | 1.3 | | 2cs | 5ks | N | N | 0 | 0 | Fair | Rev. R Mosley. |
| Port Dover, Ontario | | | 30.26 | 768.6 | 45 | 7.2 | 94 | Calm | 0 | 0 | | 5k | 0 | SE | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.90 | 759.4 | 39.7 | 4.3 | | NW | 8 | 3.6 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.24 | 768.1 | 49 | 9.4 | 79 | NE | 1 | 0.4 | | 5k | 0 | | | Inap. | Inap. | Fair | M. Payne. |
| *Quebec, Quebec | | | 30.26 | 768.6 | 44 | 6.7 | 60 | Calm | 0 | 0 | | 0 | 0 | | | * 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.27 | 768.8 | 50 | 10.0 | 63 | NW | 8 | 3.6 | | 8cs | 0 | NE | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 30.06 | 763.5 | 39 | 3.9 | 92 | N | 11 | 4.9 | | 5 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.24 | 768.1 | 46 | 7.8 | 69 | Calm | 0 | 0 | | | 10n | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 30.24 | 768.1 | 49 | 9.4 | 72 | Calm | 0 | 0 | | 10ck | 0 | | | 0 | 0 | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.97 | 735.8 | 30.28 | 769.1 | 43.8 | 6.6 | 78 | NE | 3 | 1.3 | | 2cs | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.89 | 759.2 | 34 | 1.1 | 95 | N | 10 | 4.5 | | | 10n | | N | 1.11 | 28.2 | Light snow | T. C. Hill. |
| *Toronto, Ontario | | | 30.29 | 769.4 | 47 | 8.3 | 79 | E | 1 | 0.4 | | 5ck | 5s | N | | 0 | 0 | Cloudy | Magnetic Observatory. |
| Windsor, N. S. | | | | | | | | | | | | | | | | | | | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.24 | 768.1 | 47.3 | 8.5 | 93 | W | 5 | 2.2 | | 0 | 6s | | | 0 | 0 | Fair | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.85 | 758.2 | 33.0 | 0.6 | 100 | NE | | | | | 10n | | | 0.50 | 12.7 | Snowing | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.17 | 766.3 | 48 | 8.9 | 77 | NW | 2 | 0.9 | | 5ck | 2s | | | 0.02 | 0.5 | Fair | |
| Alpena, Mich. | | | 30.29 | 769.4 | 48 | 8.9 | 56 | NW | 4 | 1.8 | | 8ck | 0 | NW | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 30.24 | 768.1 | 50 | 10.0 | 71 | NE | 6 | 2.7 | | 0 | 2s | | NE | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.23 | 767.8 | 62 | 16.7 | 72 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.24 | 768.1 | 50 | 10.0 | 64 | SW | 8 | 3.6 | | 2c | 2s | | | Inap. | Inap. | Fair | |
| Barnegat, N. J. | | | 30.22 | 767.6 | 48 | 8.9 | 77 | NE | 4 | 1.8 | | 8ck | 2s | NW | NE | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.24 | 717.3 | 29.86 | 758.4 | 55 | 12.8 | 87 | Calm | 0 | 0 | | | 10s | | E | 0.01 | 0.3 | Cloudy | |
| Boston, Mass. | | | 30.17 | 766.3 | 45 | 7.2 | 60 | NE | 8 | 3.6 | | | 10s | | NW | 0.38 | 9.7 | Cloudy | |
| Breckenridge, Minn. | | | 30.04 | 763.0 | 50 | 10.0 | 72 | SE | 12 | 5.4 | | 2k | Haze | S | | 0 | 0 | Fair | |
| Buffalo, N. Y. | | | 30.25 | 768.3 | 48 | 8.9 | 70 | E | 4 | 1.8 | | 1c | 0 | | | 0.01 | 0.3 | Clear | |
| Burlington, Vt. | | | 30.23 | 767.8 | 44 | 6.7 | 49 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.10 | 764.5 | 58 | 14.4 | 58 | E | 8 | 3.6 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Campo, Cal. | 27.49 | 698.2 | 29.96 | 761.0 | 50 | 10.0 | 77 | SW | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Camp Verde, Arizona | | | | | 49 | 9.4 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.15 | 765.8 | 60 | 15.6 | 65 | NW | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.22 | 767.6 | 57 | 13.9 | 75 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.24 | 768.1 | 62 | 16.7 | 77 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.22 | 767.6 | 48 | 8.9 | 77 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.23 | 767.8 | 62 | 16.7 | 77 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.99 | 609.3 | 29.93 | 760.2 | 43 | 6.1 | 91 | W | 4 | 1.8 | | | 10s | | | 0.04 | 1.0 | Cloudy | |
| Chicago, Ill. | | | 30.18 | 766.6 | 45 | 7.2 | 68 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.18 | 766.6 | 51 | 10.6 | 65 | E | 3 | 1.3 | | 2c | Sm'e | NW | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.28 | 769.1 | 47 | 8.3 | 70 | SW | 2 | 0.9 | | 0 | 5s | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 29.92 | 760.0 | 63 | 17.2 | 88 | SE | 7 | 3.1 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.17 | 766.3 | 48 | 8.9 | 77 | E | 8 | 3.6 | | Haze | 7cs | | | 0 | 0 | Cloudy | |
| Denison, Tex. | | | 29.90 | 759.4 | 66 | 18.9 | 73 | SE | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.76 | 628.9 | 29.98 | 761.5 | 48 | 8.9 | 77 | SW | 4 | 1.8 | | | 10s | | | 0.30 | 7.6 | Cloudy | |
| Detroit, Mich. | | | 30.24 | 768.1 | 47 | 8.3 | 55 | NE | 4 | 1.8 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Dodge City, Kan. | 27.25 | 692.1 | 29.49 | 749.0 | 52 | 11.1 | 86 | NW | 2 | 0.9 | | | 10s | | NW | 0.07 | 1.8 | Cloudy | |
| Dubuque, Iowa | | | 30.16 | 766.1 | 50 | 10.0 | 58 | SE | 2 | 0.9 | | 2cs | 0 | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.19 | 766.8 | 43 | 6.1 | 75 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Eastport, Me. | | | 30.08 | 764.0 | 41 | 5.6 | 57 | NE | 16 | 7.2 | | 2c | 2k | NW | NE | 0 | 0 | Fair | |
| Erie, Pa. | | | 30.22 | 767.6 | 52 | 11.1 | 59 | S | 4 | 1.8 | | 2c | Haze | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.26 | 768.6 | 43 | 6.1 | 67 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | | | | | 60 | 15.6 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.88 | 758.9 | 62 | 16.7 | 77 | S | 14 | 6.3 | | | 10n | | SW | 0.01 | 0.3 | Light rain | |
| Ft. St. Michael, Alaska | | | 29.51 | 749.5 | 28 | — 2.2 | 100 | SW | | | 6 | | 10s, fg | | | 0.03 | 0.8 | Cloudy | |
| Fort Sill, Indian Ter. | 28.07 | 712.2 | 29.74 | 755.4 | 65 | 18.3 | 83 | E | 12 | 5.4 | | 10k | 0 | S | | Inap. | Inap. | Cloudy | |
| Fort Sully, Dakota | 28.28 | 718.5 | 29.92 | 760.0 | 55 | 12.8 | 93 | SE | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 30.00 | 762.0 | 71 | 21.7 | 80 | SE | 8 | 3.6 | | 2ck | 1s | S | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 30.20 | 767.1 | 49 | 9.4 | 67 | E | 2 | 0.9 | | 0 | Hz'sm | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.19 | 766.8 | 53 | 11.7 | 60 | E | 3 | 1.3 | | 8cs | Sm'e | W | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 29.94 | 760.5 | 72 | 22.2 | 85 | SE | 12 | 5.4 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| Jacksonville, Fla. | | | 30.15 | 765.8 | 70 | 21.1 | 70 | NE | 10 | 4.5 | | 8k | 0 | NE | | 0 | 0 | Cloudy | |
| Keokuk, Iowa | | | 30.10 | 764.5 | 50 | 10.0 | 100 | SE | 14 | 6.3 | | | 10n | | SE | 0.10 | 2.5 | Light rain | |
| Key West, Fla. | | | 30.04 | 763.0 | 76.5 | 24.7 | 74 | E | 9 | 4.0 | | 2cs | 2ks | W | E | 0.01 | 0.3 | Fair | |
| Kittyhawk, N. C. | | | 30.25 | 768.3 | 53 | 11.7 | 90 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.22 | 767.6 | 48 | 8.9 | 70 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 30.15 | 765.8 | 53 | 11.7 | 48 | S | 6 | 2.7 | | Haze | 0 | | | 0 | 0 | Hazy | |
| Leavenworth, Kan. | | | 29.86 | 758.4 | 58 | 14.5 | 93 | SE | 7 | 3.1 | | | 10n | | SE | 0.03 | 0.8 | Light rain | |
| Louisville, Ky. | | | 30.18 | 766.6 | 52 | 11.1 | 65 | NE | 4 | 1.8 | | 5ck | Sm'e | W | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.26 | 768.6 | 51 | 10.6 | 59 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 62 | 16.7 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.24 | 768.1 | 58 | 3.3 | 71 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.08 | 764.0 | 62 | 16.7 | 61 | SE | 4 | 1.8 | | | 10ks | | S | 0.02 | 0.5 | Cloudy | |
| Milwaukee, Wis. | | | 30.24 | 768.1 | 45 | 7.2 | 60 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.12 | 765.0 | 62 | 16.7 | 83 | S | 4 | 1.8 | | 2c | 2s | | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.17 | 766.3 | 60 | 15.6 | 59 | E | 3 | 1.3 | | 5ck | Haze | | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.17 | 740.9 | 30.24 | 768.1 | 48 | 8.9 | 70 | Calm | 0 | 0 | | 0 | Haze | | | 0.01 | 0.3 | Clear | |
| Mt. Washington, N. H. | 23.76 | 603.5 | 30.12 | 765.0 | 17 | — 8.3 | 67 | NE | 24 | 10.7 | | 0 | 0 | | | 0.19 | 4.8 | Clear | |
| Nashville, Tenn. | | | 30.16 | 766.1 | 55 | 12.8 | 74 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 30.21 | 767.3 | 49 | 9.4 | 71 | NW | 10 | 4.5 | | 8ck | Haze | NW | | 0.15 | 3.8 | Fair | |
| New London, Conn. | | | 30.18 | 766.6 | 48 | 8.9 | 77 | N | 3 | 1.3 | | 2ck | 5s | N | NW | 0.14 | 3.6 | Fair | |
| New Orleans, La. | | | 30.07 | 763.8 | 64 | 17.8 | 83 | SE | 4 | 1.8 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 30.18 | 766.6 | 48 | 8.9 | 71 | N | 7 | 3.1 | | | 10ks | | NW | 0.08 | 2.0 | Threatening | |
| New York, N. Y. | | | 30.24 | 768.1 | 47 | 8.3 | 69 | NW | 6 | 2.7 | | 2k | 5s | NW | NW | 0.01 | 0.3 | Fair | |
| Norfolk, Va. | | | 30.24 | 768.1 | 54 | 12.2 | 73 | N | 7 | 3.1 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| North Platte, Neb. | 27.00 | 685.8 | 29.51 | 749.5 | 53 | 11.7 | 86 | NW | 12 | 5.4 | | | 10s | | N | 0.05 | 1.3 | Cloudy | |
| Omaha, Neb. | 28.80 | 731.5 | 29.86 | 758.4 | 55 | 12.8 | 87 | SE | 10 | 4.5 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Oswego, N. Y. | | | 30.27 | 768.8 | 46 | 7.8 | 72 | NW | 4 | 1.8 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Pembina, Dakota | | | 30.03 | 762.7 | 50 | 10.0 | 64 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Philadelphia, Pa. | | | 30.25 | 768.3 | 47 | 8.3 | 77 | E | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Phœnix, Arizona | | | | | | | | | | | | | | | | | | | |
| Pike's Peak, Col. | 17.69 | 449.3 | 29.90 | 759.4 | 19 | — 7.2 | 100 | SW | 4 | 1.8 | | | Fog | | | 0.04 | 1.0 | Light snow | |
| Pittsburg, Pa. | | | 30.24 | 768.1 | 44 | 6.7 | 84 | NW | 2 | 0.9 | | 2k | Fog | NW | | Inap. | Inap. | Fair | |
| Port Huron, Mich. | | | 30.25 | 768.3 | 41 | 5.0 | 83 | NE | 7 | 3.1 | | 0 | 2s,sm' | | N | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.16 | 766.1 | 48 | 8.9 | 36 | N | 12 | 5.4 | | 1k | Haze | | | Inap. | Inap. | Clear | |
| Portland, Oregon | | | 30.08 | 764.0 | 47 | 8.3 | 92 | Calm | 0 | 0 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Prescott, Arizona | | | | | 36 | 2.2 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.08 | 764.0 | 73 | 22.8 | 63 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.26 | 768.6 | 48 | 8.9 | 70 | NW | 4 | 1.8 | | Haze | 8s | | N | Inap. | Inap. | Cloudy | |
| Salt Lake City, Utah | 25.57 | 649.5 | 29.90 | 759.4 | 47 | 8.3 | 48 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.24 | 768.1 | 48 | 8.9 | 77 | NW | 8 | 3.6 | | 10ck | 0 | NW | | 0.01 | 0.3 | Cloudy | |
| San Antonio, Tex. | | | 29.76 | 755.9 | 71 | 21.7 | 84 | SE | 8 | 3.6 | | 10k | 0 | S | | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.00 | 762.0 | 59 | 15.0 | 76 | SW | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.95 | 760.7 | 53 | 11.7 | 79 | SW | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.12 | 587.2 | 29.66 | 753.4 | 43 | 6.1 | 35 | NE | 6 | 2.7 | | 2ck | 2s | | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.21 | 767.3 | 66 | 18.9 | 73 | NE | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.09 | 764.3 | 67 | 19.4 | 79 | Calm | 0 | 0 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Smithville, N. C. | | | 30.25 | 768.3 | 60 | 15.6 | 70 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.22 | 767.6 | 52 | 11.1 | 56 | Calm | 0 | 0 | | | 10ks | | NW | 0.06 | 1.5 | Cloudy | |
| St. Louis, Mo. | | | 30.10 | 764.5 | 52 | 11.1 | 79 | E | 6 | 2.7 | | | 10n | | | 0.28 | 7.1 | Light rain | |
| St. Marks, Fla. | | | 30.12 | 765.0 | 65 | 18.3 | 73 | SE | 8 | 3.6 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 30.07 | 763.8 | 55 | 12.8 | 56 | SE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 51 | 10.6 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 30.16 | 766.1 | 43 | 6.1 | 58 | NE | 16 | 7.2 | | 1k | 0 | N | | 0.25 | 6.3 | Clear | |
| Toledo, Ohio | | | 30.26 | 768.6 | 50 | 10.0 | 71 | Calm | 0 | 0 | | 8k | Sm'e | | | Inap. | Inap. | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.46 | 697.5 | 30.00 | 762.0 | 54 | 12.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.19 | 766.8 | 68 | 20.0 | 52 | E | 12 | 5.4 | | 5c | Haze | | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.11 | 764.8 | 60 | 15.6 | 76 | SE | 2 | 0.9 | | 5k | Haze | W | | 0 | 0 | Fair | |
| Virginia City, M. T | 24.26 | 616.2 | 29.74 | 755.4 | 36 | 2.2 | 70 | SE | 4 | 1.8 | | 1k | 0 | W | | 0.01 | 0.3 | Clear | |
| Washington, D. C | | | 30.26 | 768.6 | 50 | 10.0 | 64 | N | 8 | 3.6 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Wickenburg, Arizona | | | | | 57 | 13.9 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.24 | 768.1 | 56 | 13.3 | 68 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 30.20 | 767.1 | 49 | 9.4 | 63 | | 8 | 3.6 | | 0 | 5s | | N | 0.24 | 6.1 | Fair | |
| Yankton, Dakota | 28.69 | 728.7 | 29.96 | 761.0 | 53 | 11.7 | 90 | E | 12 | 5.4 | | | 10n | | | 0.32 | 8.1 | Light rain | |
| Yuma, Arizona | | | 29.84 | 757.9 | 62 | 16.7 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.16 | 766.1 | 81 | 27.2 | 78 | Calm | 0 | 0 | | 10c | 5s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | E | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.98 | 761.5 | 82 | 27.8 | 87 | E | | | 3 | | 7ks | | | 0.915 | 23.24 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.07 | 763.8 | | | 77.9 | 25.5 | | E | | | | | | | | 0.020 | 0.50 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.21 | 640.3 | | | 68.5 | 20.3 | 76 | Calm | | | 0 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.98 | 761.5 | 43.5 | 6.4 | 96 | S | 10 | 4.5 | | 7k | 0 | S | | 0 | 0 | Cloudy | J. Fortescue, W. Woor |
| Honolulu, Oahu, H. I | | | 30.08 | 764 0 | 71 | 21.7 | | NE | | | 4 | | | | | 0.18 | 4.6 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 (?) ft., or 2,091.6 (?) m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.61 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in. Pike's Peak, 12.21 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.34 | 770.6 | 72 | 22.2 | 49 | 9.4 | 64 | N | | | 1 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.02 | 762.5 | 57 | 13.9 | 53.5 | 11.9 | | WSW | | | 2 | | 6 | | | 0 | 0 | | | Cloudy | |
| Navy Yard, Norfolk, Va. | 30.34† | 770.6† | 54 | 12.2 | 54 | 12.2 | 80 | NW | 3 | 1.3 | | | 1c | | | 0.02 | 0.5 | | | D. clouds | |
| Navy Yard, Pensacola, Fla. | 30.21 | 767.3 | | | 65 | 18.3 | 63 | NE | 10 | 4.5 | | | 5 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.21 | 767.3 | 67 | 19.4 | 47 | 8.3 | 48 | NE | 6 | 2.7 | | | | | | 0.1 | 3. | | | Rainy | |
| Naval Hospital, Yokohama, Japan | 30.03 | 762.7 | 67 | 19.4 | 61 | 16.1 | ? | SW | | | 2 | | 2ck | | SW | 0 | 0 | | | Fair | |
| Adams, N. 17° 39′ W. 33° 20′ | 30.30 | 769.6 | 76 | 24.4 | 77 | 25.0 | 91 | ENE | | | 4 | | 6 | | E | | | Moderate. | NE | D. clouds | |
| Alert, Yeddo Bay, Japan | 30.24 | 768.1 | 70 | 21.1 | 67 | 19.4 | 100 | SW | | | 2 | | 3 | | SW | | | Calm | None | D. clouds | |
| Alliance, Beirut, Syria | 30.10 | 764.5 | 73 | 22.8 | 71 | 21.7 | 95 | S&W | | | 3 | | 5 | | N&W | | | | | Pleasant | |
| Ashuelot, Canton, China | 29.72 | 754.9 | 82 | 27.8 | 81 | 27.2 | 83 | SE | | | 3 | | 8 | | | | | smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.07 | 763.8 | 48 | 8.9 | 64 | 17.8 | 83 | ESE | | | 1 | | 5 | | NW | | | | | Fair | |
| Colorado, New York, N. Y | 30.32 | 770.1 | 67 | 19.4 | 50 | 10.0 | 65 | NW | 6 | 2.7 | | | 5 | | N&E | 0.01 | 0.3 | | | Hazy | |
| Despatch, N 38° 50′ W. 33° 29′ | 30.14 | 765.5 | 67 | 19.4 | 66 | 18.9 | 84 | NW | | | 3 | | 6 | | SW | | | Long | NW | Clearing | |
| Essex, N. 25° 10′ W. 91° 25′ | 29.98 | 761.5 | 77 | 25.0 | 76 | 24.4 | 95 | ENE | | | 5 | | 5 | | W | 0 | 0 | Moderate. | ENE | D. clouds | |
| Frolic, Monte Video, Uruguay | 30.09 | 764.3 | | | 60 | 15.6 | 88 | SSE | | | 3 | | 4k | | | 0 | 0 | Broken | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.84 | 757.9 | | | 62 | 16.7 | ? | ESE | | | 2 | | 10 | | SE | Blank | Blank | | | D. clouds | |
| Hartford, St. Thomas, W. I. | 30.15 | 765.8 | 84 | 28.9 | 85 | 29.4 | 76 | ESE | 7.2 | 3.2 | | | 5 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.07 | 763.8 | 78 | 25.6 | 76 | 24.4 | 86 | S | | | 2–3 | | 9 | | NNE | 0 | 0 | Calm | None | Cloudy | |
| Lackawana, Acapulco, Mexico | 29.91 | 759.7 | | | 80 | 26.7 | 91 | Calm | | | 0 | | 3 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 30.06 | 763.5 | 72 | 22.2 | 72 | 22.2 | 95 | WSW | | | 3 | | 8 | | WSW | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.70 | 754.4 | 55 | 12.8 | 48 | 8.9 | 78 | NE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.56 | 750.8 | 74 | 23.3 | 74 | 23.3 | 95 | S | | | 3 | | 10 | | S | Blank | Blank | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.22 | 767.6 | 58 | 14.4 | 58 | 14.4 | | N&W | | | 1 | | 0 | | | 0 | 0 | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.42 | 772.7 | | | 65 | 18.3 | 100 | ENE | 3 | 1.3 | | | 9 | | SW | 0 | 0 | | | D. clouds | |
| Omaha, Near Santa Clara Isl., Ecuador, S. A | 30.00 | 762.0 | 81 | 27.2 | 81 | 27.2 | 83 | E | 1 | 0.4 | | | 9 | | E | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, Key West, Fla | 30.10 | 764.5 | 76 | 24.4 | 76 | 24.4 | 73 | ENE | | | 2 | | 5 | | ENE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.71 | 754.6 | 77 | 25.0 | 73 | 22.8 | 90 | S | | | 3–4 | | 6 | | S | | | | | Lightning | |
| Pensacola, Acapulco, Mexico | 29.96 | 761.0 | | | 79 | 26.1 | 78 | Calm | | | 0 | | 1 | | | 0 | 0 | | | Pleasant | |
| Plymouth, New Orleans, La | 30.10 | 764.5 | 72 | 22.2 | 63 | 17.2 | 89 | E | | | 1 | | 6 | | W | 0 | 0 | | | Hazy | |
| Ranger, N. 37° 03′ W. 28° 45′ | 30.20 | 767.1 | | | 66 | 18.9 | 94 | NW | | | 3 | | 10 | | | | | Long | N&W | Cloudy | |
| Richmond, S. 30° 41′ W. 46° 16′ | 29.85 | 758.2 | 71.5 | 21.9 | 70.5 | 21.4 | 85 | SW | | | 6 | | 5 | | SW | Blank | Blank | Long | SW | Overcast | |
| Rio Bravo, Matamoras, Mexico | 29.76 | 755.9 | | | 69 | 20.6 | 95 | SE | | | 2 | | 9 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.22 | 767.6 | 68 | 20.0 | 55 | 12.8 | 56 | NW | | | 2 | | 2 | | N&E | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 30.13 | 765.3 | 51 | 10.6 | 50 | 10.0 | 72 | SE | 4 | 1.8 | | | 9 | | SE | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 29.96 | 761.0 | 83 | 28.3 | 84 | 28.9 | 91 | N | | | 2 | | 5k | | N | Blank | Blank | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 30.09 | 764.3 | 70 | 21.1 | 69 | 20.6 | 90 | S | | | 2 | | 1 | | | | | Long | S | D clouds | |
| Trenton, N. 39° 00′ E. 14° 42′ | 30.10† | 764.5† | 67 | 19.4 | 63 | 17.2 | 83 | E | 7.8 | 3.5 | | | 2 | | | 0 | 0 | | S&W | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.05 | 763.3 | 69 | 20.6 | 68 | 20.0 | 95 | SW | | | 1 | | 0 | | | | | | | Blue sky | |
| Wabash, Boston, Mass | 30.17 | 766.3 | 51 | 10.6 | 51 | 10.6 | 72 | NNE | 5 | 2.2 | | | 8 | | | 0.33 | 8.4 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.57† | 776.5† | 57 | 13.9 | 52 | 11.1 | | NNE | | | 1 | | 0 | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.89 | 759.2 | 79 | 26.1 | 82 | Calm | | | 0 | | 8ks | | | | | Lightning | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jennings. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amoun of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction From— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction From— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction From— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MARINE SERIES.** (Miscellaneous.) Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 32° 52′, W. 78° 09′ | WSW | 3 | 30.14 | 765.5 | 68 | 20.0 | 47 | NE | 7 | 3.1 | | 2c | 0 | | | Smooth | | Clear | Capt. James Jorgensen. |

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, tracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 12, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.98 | 761.6 | 72.7 | 22.6 | 66 | NW | | | 2 | | 2 | | | 0 | 0 | Clear. | Michel. |
| Algiers | | | 29.92 | 759.9 | 69.8 | 21.0 | 51 | WNW | | | 4 | | 7 | | | 0 | 0 | Cloudy | Peter. |
| La Calle | | | 29.86 | 758.4 | 75.4 | 24.1 | 72 | NNW | | | 1 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.91 | 759.8 | 75.2 | 24 | | W | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.84 | 758.0 | 75 2 | 24 | | W | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.99 | 761.7 | 73.0 | 22.8 | | NNW | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.89 | 759.2 | 84.6 | 29.2 | | SSW | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 29.96 | 760.9 | 75 2 | 24.0 | 40 | NW | | | 2 | | 3 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.92 | 760 0 | 90.9 | 32.7 | 19 | S | | | 4 | | 2 | | | 0 | 0 | Clear. | Guyot. |
| Biskra | | | 29.85 | 758.3 | 98.8 | 37.1 | | SE | | | 1 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.79 | 756.6 | 74.3 | 23.5 | 40 | SW | | | 4 | | 8 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.76 | 755.9 | 67.6 | 19.8 | 58 | NE | | | 2 | | 10 | | | 0.094 | 2.4 | | Dr. Wierzbiski. |
| Eperies | | | 29.78 | 756.3 | 69.8 | 21.0 | 58 | S | | | 2 | | 8,8 | | N | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.58 | 725 8 | 29.80 | 757.0 | 59.4 | 15.2 | 67 | SW | | | 1 | | 10 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.52 | 724.3 | 29.88 | 758.9 | 73.4 | 23.0 | 44 | SE | | | 2 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.28 | 718 3 | 29.56 | 750.8 | 68.7 | 20.4 | 76 | ENE | | | 3 | | 6 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.80 | 756.8 | 66.6 | 19.2 | 84 | SW | | | 1 | | 5 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.83 | 757.6 | 63.5 | 17.5 | 82 | SE | | | 6 | | 108 | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.85 | 758.1 | 67.3 | 19.6 | 64 | S | | | 1 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29 87 | 758 7 | 70.9 | 21.6 | 69 | S | | | 1 | | 6 | | | 0 | 0 | Cloudy | P. Busin. |
| Vienna | | | 29.61 | 752.2 | 72.5 | 22.5 | 40 | S | | | 3 | | 9 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.18 | 715.7 | 29.64 | 752.9 | 52.3 | 11.3 | 70 | SW | | | 1 | | 10 | | | 0.063 | 1.6 | | |
| Brussels | | | 29.61 | 752.0 | 59.0 | 15.0 | 69 | S | | | 0 | | 10 | | S | 0.289 | 7.35 | Sprinkling | Royal Observatory |
| Furnes | | | 29.59 | 751.6 | 52.7 | 11.5 | 82 | SSW | | | 0 | | 9 | | | 0.236 | 6.0 | | |
| Meeseyck | | | 29.52 | 749.7 | 58.5 | 14.7 | 66 | SW | | | 2 | | 8 | | | 0.08 | 2.1 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.76 | 755.9 | 42.6 | 5.9 | | NE | 19 | 8.5 | | | 10 | | | 0.040 | 1.02 | Raining | William Boswell. |
| Ardrossan | | | 29.66 | 753.4 | 49 | 9.4 | | ENE | | | 4 | | 8 | | | | | Overcast | William McNeil |
| Armagh, Observatory | | | 29.63 | 752.6 | 46.1 | 7.8 | | NNE | 9 | 4.0 | | | 10 | | | | | Gloomy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.57 | 751.1 | 51.0 | 10.6 | | ESE | 10 | 4.5 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.64 | 752.8 | 47.3 | 8.5 | | NNE | | | 2 | | 10 | | | | | Drizzling | J. Dreyer. |
| Bradford, Yorkshire | | | 29.54 | 750.3 | 48.8 | 9.3 | | E | | | 1 | | 10 | | | 0.10 | 2.5 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.94 | 760.5 | 83.8 | 28.8 | | NE | | | 2 | | 3? | | | | | Overcast? | Pvt. G. W. Roberts, A.H.C. |
| Cambridge, Observatory | | | 29.58 | 751.3 | 52.0 | 11.1 | | NE | | | 1 | | 10 | | | | | Raining | H. Todd. |
| Cardington | | | 29.59 | 751.6 | 60.0 | 15.6 | | E | | | 1 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.58 | 751.3 | 51.2 | 10.7 | | Calm | | | 0 | | 8 | | | | | Drizzling | Capt. Fellowes, R. E. |
| Dartmoor | 29.10 | 713.7 | 29.58 | 751.3 | 43.8 | 6.6 | | SE | | | 1 | | 9 | | | | | Raining | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.61 | 752.1 | 48 | 8.9 | | E | | | 4 | | 10 | | | | | Overcast | J. Mac Gowan. |
| Dover | | | 29.58 | 751.3 | 55 | 12.8 | | SSW | | | 1 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.57 | 751.1 | 53.7 | 12.1 | | ESE | 0.8 | 0.4 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.54 | 750.3 | 54.1 | 12.3 | | SSE | | | 1 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.85 | 707.4 | 30.09 | 764.3 | 63.3 | 17.4 | | E | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A.H.C. |
| Free Town, (Sierra Leone) | | | 29.98 | 761.5 | 88 | 31.1 | | NE | | | 1 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.60 | 751.8 | 48 | 8.9 | | E | | | 1 | | 10 | | | | | Gloomy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.93 | 760.2 | 66.3 | 19.1 | | W | | | 4 | | 10 | | | | | Showery | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 29.67 | 753.6 | 46.9 | 8.3 | | NE | | | 6 | | 10 | | | | | Squally | Lewis Stuart. |
| Great Yarmouth | | | 29.60 | 751.8 | 49 | 9.4 | | ESE | | | 3 | | 6 | | | | | Foggy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.56 | 750.8 | 57.6 | 14.2 | | ESE | | | 1 | | 10 | | | | | Thunder-storm. | The Staff, for G. B. Airy. |
| Guernsey | | | 29.53 | 750.0 | 52 | 11.1 | | SE | | | 1 | | 10 | | | | | Raining | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.54 | 750.3 | 54 | 12.2 | | NW | | | 2 | | 8n | | | 0.8 | 20. | Showery | M. P. Moyle. |
| Holyhead | | | 29.56 | 750.8 | 51 | 10.6 | | NNE | | | 3 | | 10 | | | | | Misty | John Tilston. |
| Kew, Observatory | | | 29.57 | 751.1 | 56.0 | 13.3 | | SSW | 8 | 3.6 | | | 10 | | | | | Misty | The Staff. |
| Kingstown | | | 29.60 | 751.8 | 46 | 7.8 | | NNW | | | 4 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.56 | 750.8 | 53.8 | 12.1 | | NE | | | 1 | | 4 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.95 | 760.7 | 73.8 | 23.2 | | SE | | | 1 | | 8k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.79 | 756.7 | 45 | 7.2 | | ENE | | | 2 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.13 | 765.3 | 79.8 | 26.6 | | NE | | | 3 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.61 | 751.8 | 52.0 | 11.1 | | NNW | | | 2 | | 7k | | NW | 0.28 | 7.16 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.56 | 750.8 | 52.1 | 11.2 | | NNE | | | 3 | | 9 | | | | | Hazy | Rev. Stephen Whitty. |
| Oxford, Radcliff Obs'y | | | 29.55 | 750.6 | 56 | 13.3 | | Calm | | | 0 | | 10 | | | | | Gloomy | J. W. Lucas. |
| Plymouth | | | 29.52 | 749.8 | 56.8 | 13.8 | | SE | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.58 | 751.3 | 54 | 12.2 | | E | | | 4 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.55 | 750.6 | 49 | 9.4 | | NNE | | | 1 | | 10 | | | | | Raining | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.48 | 748.8 | 53.8 | 12.1 | | S | | | 3 | | 10 | | | | | Raining | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.85 | 758.2 | 47 | 8.3 | | ENE | 29 | 13.0 | | | 8 | | | | | D. clouds | Rev. C. Clouston, LL.D. |
| Scutari, Cemetery, (Turkey | | | 30.01 | 762.2 | 69.0 | 20.6 | | SW | | | 1 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.60 | 751.8 | 52.2 | 11.2 | | ENE | | | 1 | | 10 | | | 0.020 | 0.6 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.61 | 752.1 | 58.6 | 14.8 | 83 | S | | | 1 | | 7 | | | 0.100 | 2.54 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.58 | 751.3 | 49.0 | 9.4 | | NE | | | 0 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.79 | 756.7 | 49 | 9.4 | | NE | | | 6 | | 0 | | | | | Blue sky | John Smith. |
| Strathfield Turgiss | | | 29.56 | 750.8 | 53.0 | 11.7 | | SW | | | 1 | | 10 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 29.81 | 757.2 | 47 | 8.3 | | ENE | | | 4 | | 8 | | | | | Gloomy | John Trotter. |
| Truro, Royal Institution | | | 29.53 | 750.0 | 56 | 13.3 | | W | | | 2 | | 10 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.63 | 752.6 | 51.5 | 10.8 | | N | 16 | 7.2 | | | 10 | | | | | D. clouds | The Staff. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 48 | 8.9 | | NE | | | 3 | | 10 | | | 0.5 | 13. | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.99 | 761.7 | 69.0 | 20.6 | 40 | SSE | 7 | 3.1 | | 1 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.01 | 762.2 | 57.0 | 13.9 | 93 | | | | 2 | | 4k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.71 | 754.6 | 43.1 | 6.2 | | NE | | | 6 | | 10n | | | 0.37 | 9.4 | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.93 | 762.7 | 74.5 | 23.6 | 64 | ESE | 13.9 | 6.2 | | 0 | 2 | | ESE | 0.07 | 1.8 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 29.85 | 758.2 | 50.3 | 10.2 | 82 | NE | 3 | 1.3 | | | 0 | | | 0 | 0 | Heavy dew. | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.76 | 755.9 | 50 | 10.0 | | ENE | | | 6 | 3 | 0 | E | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.89 | 759.2 | 44 | 6.7 | | NNE | | | 6 | 4 | 7 | NNE | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Sea or swell. Height scale 0—9 | Direction from | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 43° 35′ W. 49° 25′ | | | 29.88 | 758.9 | 39.0 | 3.9 | | NW | | | 5 | | 9 | | | 20* | SW, NW | Misty | Capt. W. Watson. |
| S. S. Batavia, N. 51° 25′. W. 14° 55′ | | | | | 54.0 | 12.2 | | NNE | | | 1 | | 4 | | | 2 | NNW | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 18° 35′ W. 45° 25′ | | | 30.10 | 764.5 | 77.2 | 25.1 | | ENE | | | 4 | | 4 | | | 5 | ENE | D. clouds | Capt. Ja . J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 73.4 | 23.0 | 84 | SE | | | 2 | | 4ck | | E | | | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the cooperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.73 | 755.1 | 48.2 | 9.0 | 92 | SE | | | 2 | | 10 | | | | | Raining | |
| Faröe | | | 29.64 | 752.9 | 56.3 | 13.5 | 71 | E | | | 4 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | 29.66 | 753.4 | 34.3 | 1.3 | 70 | NNE | | | 2 | | 6 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.77 | 756.1 | 46.2 | 7.9 | 78 | S | | | 8 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.02 | 762.4 | 46.2 | 7.9 | 60 | E | | | 2 | | 1 | | | | | | |
| Vestervig | | | 29.69 | 754.0 | 58.3 | 14.6 | 68 | ESE | | | 4 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.61 | 752.2 | 55.4 | 13 | 80 | SW | | | 1 | | 8kn | | SW | 0.16 | 4. | Very cloudy | Normal School. |
| Amiens | | | 29.55 | 750.6 | 61.2 | 16.2 | | S | | | 3 | | 8 | | SSW | 0.165 | 4.2 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.67 | 753.6 | 70.5 | 21.4 | 59 | SSE | | | 3 | | | | SW | 0.12 | 3. | Light clouds | Mr. Giraud. |
| Bar-sur-Seine | | | 29.59 | 751.6 | 59.7 | 15.4 | 65 | S | | | 1 | | 8kn | | SW | 0.04 | 1. | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.61 | 752.0 | 58.1 | 14.5 | 62 | S | | | 2 | | 10 | | SSW | 0.108 | 2.75 | Covered | Normal School. |
| Besançon | | | 29.72 | 754.9 | 57.9 | 14.4 | 86 | E | | | 2 | | 8 | | E | 0.307 | 7.8 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.72 | 754.8 | 57.2 | 14 | 91 | S | | | 2 | | 10n | | N | 1.06 | 27. | Covered | Normal School. |
| Bourges | | | 29.57 | 751.1 | 50.2 | 10.1 | 71 | S | | | 1 | | 5 | | E | 0.04 | 1. | Partly cl'dy. | Normal School. |
| Brest | | | 29.48 | 748.9 | 60.3 | 15.7 | 70 | WSW | | | 4 | | 8 | | WSW | 0.561 | 14.25 | Squally | Naval Observatory. |
| Carcassonne | | | 29.63 | 752.7 | 70.2 | 21.2 | 65 | NE | | | 2 | | 10 | | SE | 0.059 | 1.5 | Covered | Normal School. |
| Caen | | | 29.55 | 750.6 | 56.3 | 13.5 | 77 | SE | | | 2 | | 10 | | N | 0.335 | 8.5 | Raining | Normal School. |
| Chartres | | | 29.58 | 751.2 | 56.8 | 13.8 | 86 | N | | | 3 | | 10 | | | 0.169 | 4.3 | Covered | Normal School. |
| Châlons-sur-Marne | | | 29.61 | 752.0 | 60.1 | 15.6 | 59 | S | | | 1 | | 10kn | | N | 0.209 | 5.3 | Covered | Normal School. |
| Clermont-Ferrand | | | 29.50 | 749.4 | 61.5 | 16.4 | 71 | SW | | | 1 | | 10 | | | 0.118 | 3.0 | Covered | Puy de Dome Obs'y |
| Commercy | | | 29.59 | 751.6 | 55.9 | 13.3 | 73 | ESE | | | 2 | | 5 | | ESE | 0.020 | 0.5 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.75 | 755.6 | 70.7 | 21.5 | 45 | SW | | | 4 | | 8 | | SW | 0.051 | 1.3 | | M. Kina. |
| Grenoble | | | 29.65 | 753.2 | 59.2 | 15.1 | 76 | SSE | | | 4 | | 10sn | | N | 0.112 | 2.85 | Covered | Normal School. |
| La Roche-sur-Yon | | | 29.59 | 751.6 | 60.8 | 16 | 86 | S | | | 2 | | 8 | | N | 0.063 | 1.6 | Very cloudy | Normal School. |
| Le Mans | | | 29.63 | 752.5 | 52.7 | 11.5 | 80 | SSW | | | 2 | | 8 | | SW | 0.28 | 7. | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.64 | 752.8 | 54.9 | 12.7 | 98 | N | | | 1 | | 10 | | | 0.260 | 6.60 | Raining | Normal School. |
| Lorient | | | 29.57 | 751.0 | 60.1 | 15.6 | 56 | SW | | | 3 | | 5 | | SW | 0.197 | 5.0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.69 | 754.1 | 54.0 | 12.2 | 90 | Calm | | | 0 | | 10 | | | 0.252 | 6.4 | Covered | Mr. Marchal. |
| Metz | | | 29.71 | 754.7 | 58.1 | 14.5 | 50 | NE | | | 2 | | 9k | | NE | 0.059 | 1.5 | | M. A. Schuster. |
| Mirecourt | | | 29.62 | 752.3 | 59.9 | 15.5 | 64 | WSW | | | 2 | | 10 | | E | 0.04 | 1. | Covered | Normal School. |
| Nismes | | | 29.65 | 753.2 | 65.5 | 18.6 | 83 | SE | | | 6 | | 10 | | N | 0.138 | 3.5 | Covered | Normal School. |
| Orleans | | | 29.51 | 749.5 | 57.9 | 14.4 | 72 | E | | | 6 | | 5 | | SE | 0.098 | 2.5 | Cloudy | Normal School. |
| Paris, Observatory | | | 29.58 | 751.2 | 57.9 | 14.4 | 68 | SE | | | 1 | | 10 | | SE | 0.109 | 2.77 | Raining | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.63 | 752.6 | 57.2 | 14.0 | 78 | W | | | 3 | | 5 | | E | 0.39 | 10. | ½ covered | Naval Observatory. |
| Rouen | | | 29.58 | 751.2 | 54.3 | 12.4 | 70 | SSE | | | 2 | | 10 | | S | 0.409 | 10.4 | Covered | Normal School. |
| Tarbes | 28.62 | 727.0 | 29.69 | 754.2 | 59.9 | 10.5 | 84 | SW | | | 2 | | 5 | | | 0 | 0 | Cloudy | Normal School. |
| Villefranche | | | 29.65 | 753.0 | 56.3 | 13.5 | 88 | N | | | 2 | | 10 | | S | 0.925 | 23.5 | Covered | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.7 | 82.8 | 28.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.67 | 753.7 | 70.2 | 21.2 | 53 | SSE | | | 2 | | 5 | | | 0 | 0 | Very cloudy | The Staff. |
| Mont-Louis | 24.58 | 624.2 | 29.89 | 759.2 | 50.2 | 10.1 | 67 | SSW | 31.7 | 14.17 | | | 6 | | SSW | 0.181 | 4.6 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.58 | 751.2 | 59.4 | 15.2 | 75 | SE | | | 1 | | 10 | | SSE | 0.118 | 3.0 | Sprinkling | Montsouris Observatory |
| Perpignan | | | 29.58 | 751.3 | 64.6 | 18.1 | 75 | E | 9.3 | 4.17 | | | 7 | | W | 0.717 | 18.2 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty and M. Baylac, Obs'r |
| Pic du Midi, (Plantade,) H. P | 22.19 | 563.6 | | | 36.3 | 2.4 | | SW | | | 4–6 | | 10 | | | 0.181 | 4.6 | Snowy | |
| Saint Maur, (near Paris) | | | 29.58 | 751.2 | 57.2 | 14.0 | 78 | SSE | | | 1 | | 10 | | | 0.303 | 7.7 | Raining | E. Renou. |
| Toulouse, Observatory | | | 29.71 | 754.7 | 54.7 | 12.6 | 85 | WNW | | | 4 | | 9 | | | 0.130 | 3.3 | Rainy | The Staff. |
| Tours | | | 29.60 | 751.7 | 51.3 | 10.7 | 90 | NW | | | 3 | | 10 | | WNW | 0.343 | 8.7 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.59 | 751.6 | 55.8 | 13.2 | 77 | SW | | | 1 | | 10 | | | 0.241 | 6.12 | Covered | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.95 | 760.7 | 63.0 | 17.2 | 93 | WNW | 0.2 | 0.1 | | | 2k | | | 0.008 | 0.2 | Clear | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,490.1 ft.; Pic du Midi (Plantade,) 2,366 m. or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.69 | 754.0 | 64.9 | 18.3 | 47 | SW | | | 3 | | 6 | SW | | 0.039 | 1.0 | Raining | Prof. T. Hoh |
| Berlin | | | 29.70 | 754.4 | 66.2 | 19.0 | 39 | SW | | | 1 | | 5 | | | 0.047 | 1.2 | Light rain | Prof. Arndt. |
| Breslau | | | 29.77 | 756.2 | 68.2 | 20.1 | 43 | SSE | | | 2 | | 10 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.63 | 752.6 | 59.7 | 15.4 | 72 | SE | | | 2 | | 10 | | | 0.232 | 5.9 | Raining | Albert Senz. |
| Cassel | | | 29.74 | 755.3 | 60.8 | 16.0 | 50 | S | | | 2 | | 7 | SSE | | 0.161 | 4.1 | | Dr. H. Möhl. |
| Crefeld | | | 29.63 | 752.6 | 55.4 | 13.0 | 80 | SE | | | 3 | | 9 | | | 0.039 | 1.0 | Raining | Director Lose. |
| Emden | | | 29.68 | 753.9 | 61.0 | 16.1 | 51 | SE | | | 0 | | 1 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.72 | 754.9 | 60.1 | 15.6 | 50 | SSE | | | 1 | | 10 | | | Inap | Inap. | | Physical Society. |
| Friedrichshafen | 28.97? | 735.7? | 29.66? | 753.3? | 59.0 | 15.0 | 67 | WSW | | | 2 | | 4 | W | | 0.630 | 16.0 | | M. Wilhelm. |
| Hamburg | | | 29.69 | 754.0 | 59.2 | 15.1 | 63 | SW | | | 1 | | 5ck | WSW | | 0.008 | 0.2 | Very fine | Captain F. Hegemann. |
| Kiel | | | 29.67 | 753.5 | 54.7 | 12.6 | 78 | E | | | 2 | | 10 | | | 0.094 | 2.4 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.78 | 756.4 | 61.3 | 16.3 | 51 | SW | | | 2 | | 4 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | 29.76 | 756.0 | 60.4 | 15.8 | | N | | | 2 | | 1 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.69 | 754.1 | 68.7 | 20.3 | 46 | S | | | 1 | | 9 | SW | | 0.016 | 0.4 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.82 | 757.4 | 51.6 | 10.9 | | Calm | | | 0 | | 9ks | | W | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.66 | 753.3 | 59.5 | 15.3 | 79 | NE | | | | | 3 | | | 0.110 | 2.8 | Raining | Prof. E. Heis |
| Neufahrwasser | | | 29.75 | 755.7 | 57.7 | 14.3 | 77 | SSW | | | 2 | | 9 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.74 | 755.4 | 70.3 | 21.3 | 35 | SSE | | | 3 | | 6 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.65 | 753.2 | 61.3 | 16.3 | 68 | S | | | 2 | | 10 | S | | 0.079 | 2.0 | | Dr. Schur. |
| Stuttgart | | | 29.62 | 752.4 | 60.3 | 15.7 | 68 | NE | | | 1 | | 10 | W | | 0.362 | 9.2 | | Prof. Schoder |
| Treves, (Trier) | | | 29.53 | 750.0 | 58.6 | 14.8 | 65 | NE | | | 2 | | 10 | | | 0.012 | 0.3 | Foggy | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.17 | 715.6 | 29.64 | 752.9 | 59.5 | 15.3 | 66 | Calm | | | 0 | | 10 | | | 0.114 | 2.9 | Raining | T. V. Dicknether |
| Wustrow, Naval School | | | 29.75 | 755.7 | 55.6 | 13.1 | 73 | ESE | | | 2 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.04 | 763.1 | 79.0 | 26.1 | | W | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jabbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.97 | 558.1 | 29.81 | 757.1 | 30.9 | — 0.6 | 100 | NE | | | 1 | | 10 | | | 7.874* | 200.0 | | Prof. Giovanni Clodig. |
| Stelvio | 21.98 | 558.4 | 29.75 | 755.7 | 34.7 | 1.5 | | W | | | 8 | | 10 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.84 | 758.0 | 65.5 | 18.6 | 81 | SW | 8.1 | 3.6 | | | 10 | | | 0.118 | 3 0 | | Ab. Dom. Morgini. |
| Padua | | | 29.81 | 757.1 | 65.8 | 18.8 | 75 | E | 13.0 | 5.8 | | | 7 | SW | | 0.201 | 5.1 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.82 | 757.5 | 67.8 | 19.9 | 66 | SSE | 2.5 | 1.1 | | | 8 | E | | 0.295 | 7.5 | | Conte Alm. Da Schio. |
| Verona | | | 29.80 | 756.8 | 69.3 | 20.7 | 76 | E | | | 1 | | 6 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.50 | 724.0 | 29.80 | 756.8 | 58.6 | 14.8 | 64 | NE | | | 2 | | 10 | | | 0.185 | 4.7 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.82 | 757.3 | 53.8 | 12.1 | 93 | Calm | | | 0 | | 10 | | | 1.535 | 39.0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.82 | 757.3 | 61.0 | 16.1 | 88 | E | | | 4 | | 10 | E | | 0.043 | 1.1 | | Ab. Gio. Capelli. |
| Pavia | | | 29.76 | 755.9 | 65.1 | 18.4 | 67 | SE | | | 6 | | 10 | E | | 0.055 | 1.4 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.76 | 755.9 | 56.5 | 13.6 | 89 | NNW | 4.9 | 2.2 | | | 10 | SE | | 0.028 | 0.7 | | Prof. P. F. Denza. |
| Mondovi | 27.86 | 707.6 | 29.72 | 754.9 | 58.5 | 14.7 | 79 | NW | | | 6 | | 10 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.84 | 758.0 | 62.8 | 17.1 | 89 | E | | | 2 | | 8 | SE | | 0.343 | 8.7 | | Prof. L. Vassallo. |
| Genoa | | | 29.82 | 757.3 | 64.2 | 17.9 | 75 | SE | 10.5 | 4.7 | | | 10 | SE | | 0.146 | 3.7 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.78 | 756.5 | 62.6 | 17.0 | 80 | E | 13.7 | 6.1 | | | 10 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.78 | 756.5 | 67.8 | 19.9 | 60 | ESE | | | 2 | | 8 | | | 0.110 | 2.8 | | Prof. P. Pigorini. |
| Florence | | | 29.83 | 757.6 | 74.8 | 23.8 | 36 | SW | | | 4 | | 3 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.82 | 757 4 | 68.7 | 20.4 | 64 | S | 9.4 | 4.2 | | | 6 | S | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.63 | 727.2 | 29.81 | 757.1 | 71.6 | 22.0 | 42 | S | 2.5 | 1.1 | | | 7 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.30 | 718.9 | 29.83 | 757.6 | 69.8 | 21.0 | 38 | SW | | | 2 | | 7 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.82 | 757 5 | 67.1 | 19.5 | 80 | SE | 6.3 | 2.8 | | | 8 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.84 | 758.0 | 68.4 | 20.2 | 63 | SE | | | 4 | | 10 | S | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.83 | 757.6 | 74.5 | 23.6 | 47 | SSE | | | 6 | | 6 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.89 | 759.2 | 75.6 | 24.2 | 45 | SSE | 9.4 | 4.2 | | | 10 | SW | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.91 | 759.6 | 80.6 | 27.0 | 28 | WSW | | | 4 | | 5 | W | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.00 | 761.9 | 75.6 | 24 2 | 48 | WSW | 23.0 | 10.3 | | | 5 | W | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.95 | 760.6 | 74.1 | 23.4 | 68 | SW | 5.6 | 2 5 | | | 6 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.82 | 757.4 | 70.7 | 21.5 | 72 | SE | | | 2 | | 8 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.95 | 760.7 | 68.2 | 20.1 | 76 | E | | | 2 | | 8 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.82 | 757.4 | 87.1 | 30.6 | 75 | SW | 4.9 | 2.2 | | | 10 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.04 | 712.2 | 29.93 | 760.1 | 76.6 | 24.8 | 10 | SSE | | | 4 | | 10 | W | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.93 | 760.2 | 69.8 | 21 0 | 73 | SE | | | 2 | | 10 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.93 | 760.3 | 79.5 | 26.4 | 30 | WSW | 2.5 | 1.1 | | | 8 | SW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824 ; Siena, 348.5 m., or 1,143.3 ft ; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.84 | 757.9 | 73.5 | 23.1 | 74 | S | 12 | 5.4 | | | 3ks | SW | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.11 | 587.1 | 30.13 | 765.2 | 59.0 | 15.0 | 59 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.63 | 752.5 | 57.2 | 14.0 | | SE | | | 2 | | | | | 0 | 0 | | |
| Groningen | | | 29.61 | 752.0 | 54.3 | 12.4 | | NNE | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.65 | 753.0 | 50.9 | 10.5 | | NE | | | 2 | | | | | 0.087 | 2.2 | | |
| Utrecht | | | 29.58 | 751.4 | 61.0 | 16.1 | 48 | SSE | | | 2 | | 5 | | | 0.067 | 1.7 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.72 | 754.9 | 53.6 | 12.0 | 56 | W | 10 3 | 4.6 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 29.71 | 754.6 | 48.2 | 9.0 | 61 | Calm | 0 | 0 | | | 5 | | | 0 | 0 | | |
| Christiania | | | 29.72 | 754 9 | 54.7 | 12.6 | 48 | WSW | 2 | 1 | | | 10 | | | 0 | 0 | | |
| Tromsö | | | 29.80 | 756.8 | 40.1 | 4.5 | 68 | NE | 11 | 5 | | | 0 | | | 0.020 | 0.5 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.96 | 760.9 | 61.7 | 16.5 | 96 | W | 5.6 | 2.5 | | | 10 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.87 | 758.6 | 63.3 | 17.4 | 56 | W | 10.5 | 4.7 | | | 5 | NW | | 0.217 | 5.5 | | Dr. A. M. R. dos Santos |
| Funchal, (Madeira) | | | 30.10 | 764.4 | 69.4 | 20.8 | 72 | SE | 3.8 | 1.7 | | | 3 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.96 | 760.9 | 60.3 | 15.7 | 49 | NNW | 12.5 | 5.6 | | | 8 | | | 0.673 | 17.1 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.03 | 762.8 | 62.6 | 17.0 | 88 | SSW | 5.6 | 2.5 | | | 2 | | | 0.047 | 1.2 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirand. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. W ld, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.79 | 756.7 | 65.7 | 18.7 | 38 | E | 4 | 2 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 29.82 | 757.4 | 54.7 | 12.6 | 71 | W | 4 | 2 | | | 8 | | | | | Thunder-storm. | Astronomical Obs. |
| Dorpat | | | 29.70 | 754.3 | 43.5 | 6.4 | 90 | SW | 11 | 5 | | | 10 | | | | | Light rain | Physical Cabinet. |
| St. Petersburg | | | 29.67 | 753.6 | 53.8 | 12.1 | 80 | SSW | 11 | 5 | | | 10 | | | | | | Central Physical Obs |
| Kuopio | | | 29.51 | 749.6 | 38.7 | 3.7 | 100 | S | 7 | 3 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.84 | 758.0 | 72.5 | 22.5 | 44 | SSW | 9 | 4 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.04 | 763.1 | 74.7 | 23.7 | 44 | SW | 18 | 8 | | | 2 | | | | | | Kurdakof |
| Kertch | | | 30.09 | 764.3 | 64.9 | 18.3 | 72 | SSE | 11 | 5 | | | 0 | | | | | | Lugorio. |
| Moscow | | | 29.87 | 758.8 | 66.2 | 19.0 | 75 | S | 11 | 5 | | | 10 | | | | | | Meteorological Obs. |
| Lugan | | | 29.88 | 758.9 | 68.4 | 20.2 | 58 | SW | 4 | 2 | | | 6 | | | Blank | Blank | | Meteorological Obs |
| Archangel | | | 29.72 | 754.8 | 53.8 | 12.1 | 69 | ESE | 13 | 6 | | | 9 | | | | | | Ogorodnikof. |
| Tiflis | 28.59 | 726.1 | 29.97 | 761.3 | 68.5 | 20.3 | 56 | Calm | 0 | 0 | | | 9 | | | | | Light rain | Physical Observatory |
| Astrakhan | | | 30.02 | 762.6 | 73.9 | 23.3 | 36 | N | 7 | 3 | | | 8 | | | | | | Sebastianof. |
| Kasan | | | 30.04 | 763.0 | 77.0 | 25.0 | 19 | SSW | 13 | 6 | | | 1 | | | | | | Physical Cabinet |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischel. |
| Ekaterinburg | 29.28 | 743.7 | 30.20 | 767.0 | 69.8 | 21.0 | 39 | Calm | 0 | 0 | | | 10 | | | | | Foggy | Meteorogical Obs |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.29 | 718.6 | 29.93 | 760.2 | 73.0 | 22.8 | 64 | Calm | 0 | 0 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 29.91 | 759.8 | 52.7 | 11.5 | 41 | WNW | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.78 | 756.3 | 46.6 | 8.1 | 58 | WNW | 4 | 2 | | | 2 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 28.2 | — 2.1 | | Calm | 0 | 0 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.75 | 755.6 | 53.4 | 11.9 | 73 | Calm | 0 | 0 | | | 1 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.89 | 759.3 | 41.7 | 5.4 | 99 | Calm | 0 | 0 | | | 10 | | | Blank | Blank | | |
| Nikolaievsk, on the Amoor | | | | | 27.1 | — 2.7 | | Calm | 0 | 0 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.72 | 754.8 | 67.1 | 19.5 | 50 | SW | 16.4 | 7.33 | | 0 | 7 | | | 0.012 | 0.3 | Cloudy | Royal Observatory |
| San Fernando | | | 29.95 | 760.8 | 62.6 | 17.0 | 90 | SW | 12.1 | 5.4 | | 0 | 10 | | SW | 0.055 | 1.4 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.07 | 763.7 | 77.2 | 25.1 | 77 | ESE | 8.9 | 4.0 | | 0 | 0 | | | 0.610 | 15.5 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.52 | 749.8 | 37.8 | 3.2 | 100 | N | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.56 | 750.7 | 46.0 | 7.8 | 64 | NNW | | | 4 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.58 | 751.4 | 47.1 | 8.4 | 45 | N | | | 4 | | 1 | | | 0 | 0 | | |
| Stockholm | | | 29.69 | 754.0 | 48.9 | 9.4 | 80 | NNW | | | 2 | | 8 | | | 0 | 0 | | |
| Wisby | | | 29.74 | 755.4 | 44.6 | 7.0 | 74 | W | | | 4 | | 7 | | | 0.579 | 14.7 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.66 | 753.3 | 53.1 | 11.7 | 44 | N | 5.8 | 2.6 | | | 5 | | NW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.27 | 718.1 | 29.71 | 754.7 | 49.3 | 9.6 | 98 | NE | | | 1 | | 10 | | | 0.984 | 25.0 | Raining | The Observatory. |
| Zurich | 28.07 | 713.0 | 29.71 | 754.5 | 55.4 | 13.0 | 79 | W | | | 1 | | 10 | | | 0.591 | 15.0 | Covered | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, —6.8 mm; Thermometer, —6.4 cent.; Relative Humidity, +41 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.06 | 763.5 | 75.0 | 23.9 | 39 | NE | 8 | 3.5 | | | 2 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.04 | 764.4 | 80.6 | 27.0 | | SE | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.10 | 764.4 | 79.3 | 26.3 | | W | | | 1 | | 2 | | | | | | B. Stéfanidés. |
| Valona | | | 30.07 | 763.8 | 79.3 | 26.3 | | W | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.94 | 761.0 | 60.8 | 16.0 | | NE | | | 2 | | 2 | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.98 | 761.6 | 77.4 | 25.2 | 58 | SW | | | 2 | | 5s | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.26 | 768.6 | 45.8 | 7.7 | 81 | NE | 4 | 1.8 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.35 | 770.9 | 49 | 9.4 | | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 30.25 | 768.3 | 53 | 11.7 | 60 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.27 | 768.8 | 43 | 6.1 | 71 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.32 | 770.1 | 49.2 | 9.6 | 72 | E | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Smith, M. A. |
| Dalhousie, N. B. | | | | | | | | W | | | 1 | | | | | 0 | 0 | | H. A. Johnson. |
| Esquimault, B. C. | | | 29.89 | 759.2 | 44.8 | 7.1 | 92 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.30 | 769.6 | 41 | 5.0 | 82 | Ca'm | 0 | 0 | | 0 | 2s | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 30.33 | 770.4 | 49.0 | 9.4 | 53 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.10 | 764.5 | 53 | 11.7 | 83 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | James Stewart. |
| Goderich, Ontario | | | 30.42 | 772.7 | 52.3 | 11.3 | 70 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | 29.26 | 743.2 | 30.37 | 771.4 | 52 | 11.1 | 67 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 30.28 | 769.1 | 45 | 7.2 | 58 | N | 3 | 1.3 | | 2c | 0 | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.43 | 772.9 | 62.1 | 16.7 | 66 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.06 | 763.5 | 35 | 1.7 | 80 | NE | | | 3 | | 10 | | | 0 | 0 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 30.41 | 772.4 | 46 | 7.8 | 92 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.33 | 770.4 | 53 | 11.7 | 57 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 30.39 | 771.9 | 48 | 8.9 | 85 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R Mosley. |
| Port Dover, Ontario | | | 30.40 | 772.1 | 44 | 6.7 | 94 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 30.26 | 768.6 | 42.1 | 5.6 | | NW | 10 | 4.5 | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 30.39 | 771.9 | 48 | 8.9 | 88 | N | 1 | 0.4 | | 2k | Haze | | | 0 | 0 | Hazy | M. Payne. |
| *Quebec, Quebec | | | 30.30 | 769.6 | 54 | 12.2 | 55 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.35 | 770.9 | 50 | 10.0 | 58 | NW | 10 | 4.5 | | 5cs | 0 | | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 30.33 | 770.4 | 46 | 7.8 | 69 | S | 1 | 0.4 | | 6 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.39 | 771.9 | 49 | 9.4 | 70 | Calm | 0 | 0 | | 0 | Fog | | | 0 | 0 | Foggy | K. Stewart. |
| Stayner, Ontario | | | 30.42 | 772.7 | 51 | 10.6 | 57 | Calm | 0 | 0 | | 2c | 0 | | | 0 | 0 | Fair | R. J. Cole. |
| Stratford, Ontario | 28.09 | 738.9 | 30.40 | 772.1 | 47.0 | 8.3 | 83 | E | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.26 | 768.6 | 43 | 6.1 | 68 | NW | 7 | 3.1 | | 2k | 0 | N | | 0.02 | 0.5 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.40 | 772.1 | 51 | 10.6 | 67 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | | | | | | | | | | | | | | | | | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.41 | 772.4 | 51.3 | 10.7 | 75 | W | 3 | 1.3 | | 0 | 1s | | | 0 | 0 | Clear | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.12 | 765.0 | 35.5 | 1.9 | 74 | N | | | | | n | | | 0.08 | 2.0 | Cloudy | John Delany. |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford 1,182 ft. or 360.3 m.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.41 | 772.4 | 53 | 11.7 | 60 | Calm | 0 | 0 | | 5c | 0 | | | 0 | 0 | Fair | |
| Alpena, Mich. | | | 30.43 | 772.9 | 44 | 6.7 | 75 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.38 | 771.6 | 55 | 12.8 | 68 | NW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.27 | 768.8 | 66 | 18.9 | 64 | SE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.39 | 771.9 | 54 | 12.2 | 73 | E | 2 | 0.9 | | 5k | 2s | | | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 30.35 | 770.9 | 50 | 10.0 | 78 | NW | 7 | 3.1 | | 2ck | Haze | NW | | 0 | 0 | Clear | |
| Bismarck, Dakota | 28.38 | 720.8 | 30.03 | 762.7 | 52 | 11.1 | 86 | Calm | 0 | 0 | | Haze | Fog | | | Inap. | Inap. | Foggy | |
| Boston, Mass. | | | 30.31 | 769.9 | 52 | 11.1 | 66 | W | 3 | 1.3 | | 2ck | 2s,hz. | W | | 0 | 0 | Fair | |
| Breckenridge, Minn. | | | 30.18 | 766.6 | 46 | 7.8 | 85 | SE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Fair | |
| Buffalo, N. Y. | | | 30.38 | 771.6 | 47 | 8.3 | 70 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Burlington, Vt. | | | 30.35 | 770.9 | 50 | 10.0 | 59 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.13 | 765.3 | 57 | 13.9 | 69 | E | 9 | 4.0 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Campo, Cal. | 27.40 | 696.0 | 29.97 | 761.2 | 50 | 10.0 | 93 | SW | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Camp Verde, Arizona | | | | | 54 | 12.2 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.25 | 768.3 | 56 | 13.3 | 74 | NE | 14 | 6.3 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Cape Henry, Va. | | | 30.36 | 771.1 | 54 | 12.2 | 74 | E | 7 | 3.1 | | | 10s | | | 0 | 0 | Cloudy | |
| Cape Lookout, N. C. | | | 30.31 | 769.9 | 62 | 16.7 | 83 | E | 9 | 4.0 | | 2ck | 5s | E | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.37 | 771.4 | 52 | 11.1 | 79 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.24 | 768.1 | 62 | 16.7 | 83 | N | 8 | 3.6 | | 2cs | 0 | NE | | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 24.05 | 610.9 | 29.99 | 761.7 | 42 | 5.6 | 91 | NE | 2 | 0.9 | | | 10s | | E | 0.7 | 18.3 | Cloudy | |
| Chicago, Ill. | | | 30.26 | 768.6 | 52 | 11.1 | 66 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.25 | 768.3 | 54 | 12.2 | 55 | NE | 5 | 2.2 | | 2ck | 0 | NW | | 0 | 0 | Fair | |
| Cleveland, Ohio | | | 30.40 | 772.1 | 49 | 9.4 | 64 | NE | 2 | 0.9 | | | Sm'e | | | 0 | 0 | Smoky | |
| Corsicana, Tex. | | | 29.86 | 758.4 | 64 | 17.8 | 89 | S | 2 | 0.9 | | | 10s | | | 1.03 | 26.2 | Cloudy | |
| Davenport, Iowa | | | 30.23 | 767.8 | 52 | 11.1 | 72 | E | 12 | 5.4 | | | 10n | | E | Inap. | Inap. | Light rain | |
| Denison, Tex. | | | 29.86 | 758.4 | 64 | 17.8 | 88 | SE | 6 | 2.7 | | | 10s | | SE | 0.23 | 5.8 | Cloudy | |
| Denver, Col. | 24.82 | 630.4 | 30.04 | 763.0 | 48 | 8.9 | 85 | N | 1 | 0.4 | | | 10n | | | 0.37 | 9.4 | Light rain | |
| Detroit, Mich. | | | 30.36 | 771.1 | 49 | 9.4 | 71 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.35 | 694.7 | 29.61 | 752.1 | 53 | 11.7 | 93 | NE | 18 | 8.0 | | | 10n | | | 0.61 | 15.5 | Light rain | |
| Dubuque, Iowa | | | 30.24 | 768.1 | 51 | 10.6 | 65 | SE | 4 | 1.8 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.26 | 768.6 | 45 | 7.2 | 68 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Eastport, Me. | | | 30.32 | 770.1 | 45 | 7.2 | 60 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Erie, Pa. | | | 30.37 | 771.4 | 49 | 9.4 | 77 | NE | 1 | 0.4 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 30.34 | 770.6 | 44 | 6.7 | 68 | N | 1 | 0.4 | | | Fog | | | 0 | 0 | Dense fog | |
| Florence, Arizona | | | 29.93 | 760.2 | 60 | 15.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.86 | 758.4 | 64 | 17.8 | 78 | SE | 9 | 4.0 | | | 10s | | S | 1.0 | 25.4 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.44 | 747.8 | 31 | 0.6 | 80 | NE | | | 7 | | 10s | | | 0.04 | 1.0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.65 | 727.7 | 29.72 | 754.9 | 63 | 17.2 | 83 | W | 8 | 3.6 | | 1k | 0 | | | 0.46 | 11.7 | Fair | |
| Fort Sully, Dakota | 28.42 | 721.9 | 30.08 | 764.0 | 51 | 10.6 | 86 | E | 7 | 3.1 | | | 10s | | | 0.07 | 1.8 | Cloudy | |
| Galveston, Tex. | | | 29.89 | 759.2 | 67 | 19.4 | 94 | SE | 17 | 7.6 | | | 10s | | NW | 1.52 | 38.6 | Cloudy | |
| Grand Haven, Mich. | | | 30.32 | 770.1 | 53 | 11.7 | 51 | SE | 4 | 1.8 | | 0 | Hz.sm' | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.25 | 768.3 | 54 | 12.2 | 55 | E | 7 | 3.1 | | 2ck | 2s | W | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 29.89 | 759.2 | 67 | 19.4 | 90 | NW | 12 | 5.4 | | 2k | 2ks | NW | NW | 0.72 | 18.3 | Fair | |
| Jacksonville, Fla. | | | 30.19 | 766.8 | 73 | 22.8 | 67 | NE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.10 | 764.5 | 51 | 10.6 | 100 | E | 15 | 6.7 | | | 10n | | E | 0.59 | 15.0 | Light rain | |
| Key West, Fla. | | | 30.08 | 764.0 | 78.0 | 25.6 | 75 | E | 13 | 5.8 | | 2k | 0 | E | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 30.36 | 771.1 | 55 | 12.8 | 83 | NE | 10 | 4.5 | | | 10s | | W | 0 | 0 | Cloudy | |
| Knoxville, Tenn. | | | 30.3 | 767.8 | 56 | 13.3 | 74 | N | 1 | 0.4 | | 10ck | 0 | W | | 0.01 | 0.3 | Cloudy | |
| LaCrosse, Wis. | | | 30.26 | 768.6 | 51 | 10.6 | 59 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.94 | 760.5 | 58 | 14.4 | 93 | E | 6 | 2.7 | | | 10s | | E | 0.53 | 13.5 | Cloudy | |
| Louisville, Ky. | | | 30.23 | 767.8 | 55 | 12.8 | 73 | NE | 4 | 1.8 | | | 10s | | NE | 0.0 | 0.5 | Cloudy | |
| Lynchburg, Va. | | | 30.34 | 770.6 | 53 | 11.7 | 79 | NE | 2 | 0.9 | | | 10n | | | 0.04 | 1.0 | Light rain | |
| Maricopa Wells, Arizona | | | | | 61 | 16.1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.26 | 768.6 | 53 | 11.7 | 42 | SE | 3 | 1.3 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.07 | 763.8 | 67 | 19.4 | 56 | SE | 3 | 1.3 | | 8cs | Haze | SW | | 0 | 0 | Cloudy | |
| Milwaukee, Wis. | | | 30.32 | 770.1 | 47 | 8.3 | 62 | E | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.10 | 764.5 | 69 | 20.6 | 87 | SE | 8 | 3.6 | | 8c | 2s | | | 0 | 0 | Cloudy | |
| Montgomery, Ala. | | | 30.16 | 766.1 | 67.5 | 19.7 | 76 | SE | 10 | 4.5 | | 5c | Haze | | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.25 | 742.9 | 30.32 | 770.1 | 49 | 9.4 | 71 | NE | 2 | 0.9 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 24.01 | 609.8 | 30.37 | 771.4 | 29 | 1.7 | 67 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Nashville, Tenn. | | | 30.16 | 766.1 | 61 | 16.1 | 60 | E | 2 | 0.9 | | 5ck | 0 | W | | Inap. | Inap. | Fair | |
| New Haven, Conn. | | | 30.35 | 770.9 | 54 | 12.2 | 60 | NW | 5 | 2.2 | | | 10s | | W | 0.05 | 1.3 | Cloudy | |
| New London, Conn. | | | 30.35 | 770.9 | 50 | 10.0 | 78 | W | 4 | 1.8 | | 2c | 5cs,hz. | E | E | 0.01 | 0.3 | Fair | |
| New Orleans, La. | | | 30.01 | 762.2 | 70 | 21.1 | 84 | E | 10 | 4.5 | | 5cs | 5k | | SE | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 30.34 | 770.6 | 52 | 11.1 | 73 | S | 1 | 0.4 | | 10cs | 0 | | | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 30.38 | 771.6 | 54 | 12.2 | 49 | N | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 30.37 | 771.4 | 54 | 12.2 | 79 | NE | 4 | 1.8 | | | 10s | | | Inap. | Inap. | Threatening | |
| North Platte, Neb. | 27.12 | 688.8 | 29.67 | 753.6 | 50 | 10.0 | 93 | NE | 6 | 2.7 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| Omaha, Neb. | 28.89 | 733.8 | 29.96 | 761.0 | 53 | 11.7 | 93 | E | 7 | 3.1 | | | 10s | | | 0.99 | 25.1 | Cloudy | |
| Oswego, N. Y. | | | 30.37 | 771.4 | 52 | 11.1 | 59 | SW | 9 | 4.0 | | 2k | Haze | NE | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 30.12 | 765.0 | 53 | 11.7 | 86 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Philadelphia, Pa. | | | 30.39 | 771.9 | 55 | 12.8 | 50 | N | 7 | 3.1 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 69 | 20.6 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.72 | 450.1 | 29.93 | 760.2 | 15 | 9.4 | 83 | SW | 12 | 5.4 | | 5cs | 8ks | | | 0.09 | 2.3 | Fair | |
| Pittsburg, Pa. | | | 30.35 | 770.9 | 42 | 5.6 | 91 | NE | 3 | 1.3 | | 0 | Fog | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 30.39 | 771.9 | 41 | 5.0 | 73 | NE | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.31 | 769.9 | 50 | 10.0 | 64 | E | 2 | 0.9 | | 1k,hz | Haze | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 29.90 | 759.4 | 52 | 11.1 | 79 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.75 | 628.6 | 30.11 | 764.8 | 36 | 2.2 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.11 | 764.8 | 73 | 22.8 | 71 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.36 | 771.1 | 50 | 10.0 | 71 | W | 6 | 2.7 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Salt Lake City, Utah | 25.56 | 649.2 | 29.89 | 759.2 | 51 | 10.6 | 40 | E | 2 | 0.9 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Sandy Hook, N. J. | | | 30.36 | 771.1 | 53 | 11.7 | 66 | NE | 2 | 0.9 | | 10ck | Haze | NW | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.73 | 755.1 | 65 | 18.3 | 83 | NE | 4 | 1.8 | | 8k | 0 | N | | 0.04 | 1.0 | Cloudy | |
| San Diego, Cal. | | | 30.00 | 762.0 | 57 | 13.9 | 93 | W | 8 | 3.6 | | | 10n | | W | 0.04 | 1.0 | Light rain | |
| San Francisco, Cal. | | | 29.94 | 760.5 | 55 | 12.8 | 74 | W | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fe, N. M. | 23.24 | 590.3 | 29.78 | 756.4 | 42.5 | 5.8 | 48 | NE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.25 | 768.3 | 67 | 19.4 | 79 | NE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.04 | 763.0 | 64 | 17.8 | 94 | S | 2 | 0.9 | | | 10n | | | 0.19 | 4.8 | Light rain | |
| Smithville, N. C. | | | 30.28 | 769.1 | 65 | 18.3 | 83 | E | 11 | 4.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 30.36 | 771.1 | 52.5 | 11.4 | 66 | Calm | 0 | 0 | | 10c | Haze | NE | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.12 | 765.0 | 54 | 12.2 | 93 | E | 8 | 3.6 | | | 10n | | | 0.53 | 13.5 | Light rain | |
| St. Marks, Fla. | | | 30.16 | 766.1 | 68 | 20.0 | 75 | E | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.20 | 767.1 | 53 | 11.7 | 54 | Calm | 0 | 0 | | 8c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | 0 | | | |
| Stanwix, Arizona | | | | | 51 | 10.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 30.32 | 770.1 | 47 | 8.3 | 77 | SW | 8 | 3.6 | | 5c | 0 | W | | 0 | 0 | Hazy | |
| Toledo, Ohio | | | 30.35 | 770.9 | 53 | 11.7 | 73 | E | 6 | 2.7 | | Haze | Haze | | | 0 | 0 | Hazy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.46 | 697.5 | 30.00 | 762.0 | 57 | 13.9 | | S | | | | 0 | Haze | | | 0 | 0 | Hazy | |
| Tybee Island, Ga | | | 30.02 | 767.6 | 64 | 17.8 | 88 | NE | 10 | 4.5 | | 1k | Haze | NE | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.08 | 764.0 | 63 | 17.2 | 72 | SE | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Virginia City, M. T | 24.29 | 617.0 | 29.77 | 756.1 | 36 | 2.2 | 70 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.39 | 771.9 | 52 | 11.1 | 79 | E | 1 | 0.4 | | 2ck | s,ks,fg | SW | E,SW,S | 0 | 0 | Cloudy | |
| Wickenburg, Arizona | | | | | 50 | 10.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.28 | 769.1 | 62 | 16.7 | 83 | E | 7 | 3.1 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 30.37 | 771.4 | 52 | 11.1 | 53 | SE | 4 | 1.8 | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Yankton, Dakota | 28.80 | 731.5 | 30.09 | 764.3 | 50 | 10.0 | 85 | E | 11 | 4.9 | | | 10s | | | 0.03 | 0.8 | Cloudy | |
| Yuma, Arizona | | | 29.84 | 757.9 | 65 | 18.3 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.16 | 766.1 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 5c | 0 | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | NE | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.95 | 760.7 | 80 | 26.7 | 91 | E | | | 3 | 5ck | 6k | E | | 0.965 | 24.51 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.03 | 762.8 | | | 78.8 | 26.0 | | E | | | | | | | | 0.551 | 14.00 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.20 | 640.1 | | | 68.6 | 20.3 | 71 | Calm | | | 0 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.85 | 758.4 | 41.0 | 5.0 | 87 | S | 16 | 7.2 | | 4k | 4s | W | W | 0 | 0 | Cloudy | J. Fortescue, W. Woo |
| Honolulu, Oahu, H. I | | | 30.08 | 764.0 | 71 | 21.7 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,185 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, [illegible] ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,206 ft., or 672.1 m.; Morristown, 1,027.6 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,314.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 3,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.74 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 1—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.46 | 773.7 | 70 | 21.1 | 53 | 11.7 | 86 | N | | | 1 | | 4 | | W | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.99 | 761.7 | 61 | 16.1 | 54.5 | 12.5 | | WSW | | | 6 | | 9 | | NE | 0 | 0 | | | | |
| Navy Yard, Norfolk, Va. | 30.48† | 774.2† | 52 | 11.1 | 52 | 11.1 | 86 | ENE | 3 | 1.3 | | | 10n | | | Inap. | Inap. | | | Drizzling | |
| Navy Yard, Pensacola, Fla. | 30.24 | 768.1 | | | 70 | 21.1 | 85 | ENE | 25 | 11.2 | | | 8 | | WNW | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.34 | 770.6 | 66 | 18 9 | 49 | 9.4 | 71 | W | 1 | 0.4 | | | | | | 0.15 | 3.8 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.81 | 757.2 | 72.5 | 22.5 | 72 | 22.2 | 83 | SW | | | 7 | | 5kd | | SW | 0 | 0 | | | ¼ clouded | |
| Adams, N. 14° 13′ W. 32° 04′ | 30.10 | 764.5 | 78 | 25.6 | 78 | 25.6 | 91 | NE | | | 5 | | 4 | | NE | | | Light | NE | D. clouds | |
| Alert, Yeddo Bay, Japan | 30.04 | 763.0 | 74 | 23.3 | 75 | 23.9 | 90 | SSW | | | 4–6 | | 6 | | SW | | | Short | S&W | Squally | |
| Alliance, Beirut, Syria | 30.09 | 764.3 | 74 | 23.3 | 68 | 20.0 | 90 | W | | | 1–2 | | 3 | | W | | | | | Hazy | |
| Ashuelot, Canton, China | 29.93 | 760.2 | 78 | 25.6 | 78 | 25.6 | 82 | E | | | 2 | | 3 | | E | | | Smooth | | Hazy | |
| Canonicus, New Orleans, La | 30.01 | 762.2 | 51 | 10.6 | 69 | 20.6 | 90 | SE | | | 2 | | 10 | | NW | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.41 | 772.4 | 67 | 19.4 | 53 | 11.7 | 61 | NNE | 7 | 3.1 | | | 10 | | N&W | 0 | 0 | | | Foggy | |
| Despatch, N 38° 49′ W. 29° 40′ | 30.04 | 763.0 | 65 | 18.3 | 66 | 18.9 | 79 | SSW | | | 4 | | 0? | | NE | | | Moderate. | SW | Rain and fog | |
| Essex, N. 25° 05′ W. 90° 50′ | 29.96 | 761.0 | 76 | 24.4 | 78 | 25 6 | 95 | ESE | | | 5 | | 10 | | N&W | 0 | 0 | Moderate | SE | Overcast | |
| Frolic, S. 34° 41′ W. 53° 04′ | 30.10 | 764.5 | | | 61 | 16.1 | 82 | NE | | | 3 | | 5ck | | | 0 | 0 | Smooth | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.84 | 757.9 | | | 69 | 20.6 | 100 | SE | | | 3 | | 10 | | SE | Blan | Blank | | | D. clouds | |
| Hartford, St. Thomas, W. I | 30.15 | 765.8 | 83 | 28 3 | 83 | 28.3 | 83 | ESE | 3.6 | 1.6 | | | 9 | | | | | | | Pleasant. | |
| Kearsarge, Nagasaki, Japan | 30.03 | 762.7 | 76 | 24.4 | 73 | 22.8 | 95 | SW | | | 2 | | 10 | | | ¶0.35 | 8.9¶ | Calm | None | Thunder-storm. | |
| Lackawana, Acapulco, Mexico | 29.94 | 760.5 | | | 82 | 27.8 | 87 | W | | | 0–1 | | 4 | | | | | Smooth | | D clouds | |
| Marion, Smyrna, Turkey | 30.05 | 763.3 | 71 | 21.7 | 72 | 22.2 | 85 | WSW | | | 4 | | 9 | | ENE | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.85 | 758.2 | 59 | 15.0 | 48 | 8.9 | 78 | NE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.83 | 757.7 | 71 | 21.7 | 70 | 21.1 | 75 | SW | | | 0–1 | | 1 | | SW | | | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.13 | 772 9 | 57 | 13.9 | 58 | 14.4 | | ENE | | | 1–2 | | ..k,n | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.44 | 773.2 | | | 65 | 18.3 | 100 | NE | 3 | 1.3 | | | 9 | | SW | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.95 | 760.7 | 81 | 27.2 | 81 | 27.2 | 87 | Calm | 0 | 0 | | | 3 | | | 0 | 0 | Smooth | | Pleasant | |
| Ossipee, Key West, Fla | 30.15 | 765.8 | 78 | 25.6 | 78 | 25.6 | 82 | ESE | | | 3 | | 2 | | E | | | | | D. clouds | |
| Palos, Shanghai, China | 30.00 | 762.0 | 70 | 21.1 | 66 | 18.9 | 84 | W | | | 0–1 | | 2 | | W | | | | | Clear | |
| Pensacola, N. 16° 50′ W. 100° 00′ | 30.00 | 762.0 | | | 80 | 26.7 | 82 | N&W | | | 1 | | 8 | | | 0 | 0 | | | Pleasant | |
| Plymouth, New Orleans, La | 30.06 | 763.5 | 74 | 23.3 | 69 | 20.6 | 90 | ESE | | | 4 | | 9 | | SE | 0 | 0 | | | Cloudy | |
| Powhatan, N. 38° 49′ W. 75° 03′ | 30.18 | 766.6 | | | 58 | 14.4 | 76 | W | | | 1 | | 2 | | NW | | | Moderate | E | D. clouds | |
| Ranger, N. 36° 36′ W. 25° 42′ | 30.20 | 767.1 | | | 64 | 17.8 | 94 | S | | | 3–4 | | 10 | | | | | Smooth | | Cloudy | |
| Richmond, S. 29° 16′ W. 44° 39′ | 30.13 | 765 3 | 71.8 | 22.1 | 71.8 | 22.1 | 82 | S | | | 1 | | 5 | | | Blank | Blank | Long | S | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.70 | 754.4 | | | 72 | 22.2 | 90 | SE | | | 3 | | 10 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.44 | 773.2 | 64 | 17.8 | 58 | 14.4 | 76 | NW | | | 1 | | 7 | | | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 30.25 | 768.3 | 49 | 9.4 | 50 | 10.0 | 86 | SW | 5 | 2.2 | | | 6 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 29.96 | 761.0 | 84 | 28.9 | 84 | 28.9 | 96 | NNE | | | 1 | | 10k | | | Blank | Blan. | Smooth | | Overcast | |
| Tennessee, Yokohama, Japan | 29.82 | 757.4 | 75 | 23.9 | 76 | 24.4 | 95 | SW | | | 2 | | 7 | | | | | Heavy | E | D clouds | |
| Trenton, N. 37° 42′ E. 17° 23′ | 30.04† | 763.0† | 66 | 18.9 | 66 | 18.9 | 84 | SE | 12.4 | 5.5 | | | 7 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.10 | 764.5 | 67 | 19.4 | 67 | 19.4 | 95 | Calm | | | 0 | | 1 | | N | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.33 | 770.4 | 52 | 11.1 | 51 | 10.6 | 79 | WSW | 4 | 1.8 | | | 4 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.68† | 779.3† | 57 | 13.9 | 57 | 13.9 | | Calm | | | 0 | | 9 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made; and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level. * Approximated.

# UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| Vessel | Observer |
|---|---|
| S. S. Alaska | Capt. Seabury. |
| S. S. China | Capt. Berry. |
| S. S. City of New York | Capt. Cobb. |
| S. S. City of Panama | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | Capt. Dearborn. |
| S. S. City of Tokio | Capt. Maury. |
| S. S. Colima | Capt. Searle. |
| S. S. Costa Rica | Capt. Whitebury. |
| S. S. Dakota | Capt. Morse. |
| S. S. Georgia | Capt. Cavarly. |
| S. S. Grenada | Capt. Connolly. |
| S. S. Wilmington | Capt. Austin. |

| Date | True course toward— | Hourly rate in knots. | Barometer (Inches.) | Barometer (Millimeters.) | Temperature (Fahrenheit.) | Temperature (Centigrade.) | Relative humidity (Per cent.) | Wind direction (From—) | Wind velocity (Miles per hour.) | Wind velocity (Meters per second.) | Wind force (0—10.) | Clouds amount Up'er (0—10.) | Clouds amount Low'r (0—10.) | Clouds direction Upper (From—) | Clouds direction Lower (From—) | Sea-swell character | Sea-swell direction (From—) | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May 12 | | | 29.92 | 760.0 | 83 | 28.3 | 91 | SE | | | 1 | | 2s | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| Vessel | Observer |
|---|---|
| S. S. Britannic | Capt. W. H. Thompson. |
| S. S. Germanic | Capt. C. W. Kennedy. |
| S. S. Celtic | Capt. B. Gleadell. |
| S. S. Adriatic | Capt. H. H. Perry. |
| S. S. Baltic | Capt. J. W. Jenning. |
| S. S. Republic | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Vessel | Observer |
|---|---|
| S. S. Belgic | Capt. John Metcalf. |
| S. S. Gaelic | Capt. W. H. Kidley. |
| S. S. Oceanic | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| Vessel | Observer |
|---|---|
| S. S. Baltimore | Capt. H. Andressen. |
| S. S. Berlin | Capt. C. Pohle. |
| S. S. Braunschweig | Capt. K. Undütsch. |
| S. S. Nürnberg | Capt. A. Jaeger. |
| S. S. Ohio | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, [ship] off Martins Industry Light- | SWby W | 4 | 30.16 | 766.1 | 68 | 20.0 | 74 | NE | 9 | 4.0 | | 2k | 0 | NE | | Smooth | | Clear | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, tracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 13, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.05 | 763.3 | 71.6 | 22.0 | 67 | NNW | | | 1 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.00 | 762.1 | 67.3 | 19.6 | 60 | NW | | | 3 | | 4 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.90 | 761.8 | 70.9 | 21.6 | 83 | NNW | | | 3 | | 2 | | | 0 | 0 | Clear | Fleury. |
| Tunis | | | 30.03 | 762.8 | 82.4 | 28 | | NE | | | | | | | | | | | Jacques. |
| Sfax | | | 29.96 | 761.0 | 80.6 | 27 | | | | | | | | | | | | | Husson. |
| Saïda | | | 30.03 | 762.7 | 72.7 | 22.6 | | N | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.98 | 761.6 | 76.8 | 24.9 | | SW | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.02 | 762.6 | 75.7 | 24.3 | 45 | N | | | 3 | | 2 | | | 0 | 0 | Clear | Lemuillot. |
| Laghouat | | | 30.02 | 762.5 | 92.3 | 33.5 | 22 | W | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.98 | 761.5 | 93.9 | 34.4 | | NW | | | 3 | | 8 | | | 0 | 0 | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saïda is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.86 | 758.4 | 63.7 | 17.6 | 68 | NW | | | 4 | | 7 | | | 0.071 | 1.8 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.67 | 753.7 | 77.0 | 25.0 | 36 | NE | | | 1 | | 1 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.73 | 755.1 | 73.8 | 23.2 | 55 | S | | | 3 | | c,k,s | | N | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.52 | 724.5 | 29.73 | 755.1 | 68.4 | 20.2 | 52 | SW | | | 5 | | 8 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.49 | 723.7 | 29.83 | 757.6 | 81.7 | 27.6 | 36 | S | | | 3 | | 4 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.54 | 725.0 | 29.88 | 759.0 | 52.5 | 11.4 | 69 | W | | | 3 | | 10 | | | 0.031 | 0.8 | | Prof. C. Wagner. |
| Lemberg | | | 29.72 | 754.9 | 74.8 | 23.8 | 50 | SW | | | 2 | | 3 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhazza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.85 | 758.2 | 62.8 | 17.1 | 82 | SE | | | 4 | | 10s | | | 0.05 | 1.40 | | I.R.Hydrographic Office |
| Szegedin | | | 29.81 | 757.2 | 77.4 | 25.2 | 50 | S | | | 3 | | 10 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.85 | 758.2 | 68.4 | 20.2 | 69 | S | | | 1 | | 10 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 29.73 | 755.1 | 61.9 | 16.6 | 58 | W | | | 6 | | 8 | | | 0.490 | 12.6 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.30 | 718.8 | 29.78 | 756.4 | 47.5 | 8.6 | 86 | S | | | 1 | | 10 | | | 0.248 | 6.3 | | |
| Brussels | | | 29.65 | 753.0 | 50.4 | 10.2 | 89 | SW | | | 3 | | 10 | | WSW | 0.581 | 14.7 | Raining | Royal Observatory. |
| Furnes | | | 29.66 | 753.3 | 49.1 | 9.5 | 95 | W | | | 2 | | 10 | | | 0.472 | 12.0 | | |
| Maeseyck | | | 29.51 | 749.5 | 51.1 | 10.6 | 87 | SSW | | | 6 | | 10 | | | 0.154 | 3.9 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.78 | 756.4 | 44.5 | 6.9 | | NE | 20 | 8.9 | | | 9 | | | 0.280 | 7.11 | Overcast | William Boswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 29.70 | 754.4 | 50.9 | 10.5 | | ESE | 10 | 4.5 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.71 | 754.6 | 54.5 | 12.5 | | S | 4 | 1.8 | | | 5 | | | | | Hazy | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.65 | 753.1 | 57.1 | 13.9 | | SE | | | 1 | | 8 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0 | 0 | | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.93 | 760.2 | 83.0 | 28.3 | | NE | | | 3 | | 2? | | | | | Overcast? | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.70 | 754.4 | 52.0 | 11.1 | | N | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 29.72 | 754.9 | 53.0 | 11.7 | | N | | | 1 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.77 | 756.1 | 54.2 | 12.3 | | Calm | | | 0 | | 8 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 28.31 | 719.1 | 29.77 | 756.1 | 54.0 | 12.2 | | NW | | | 2 | | 6 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.72 | 754.9 | 53 | 11.7 | | ESE | | | 3 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.68 | 753.9 | 54 | 12.2 | | WNW | | | 2 | | 8 | | | | | Overcast | J. Costello. |
| Eccles, (near Manchester) | | | 29.69 | 754.1 | 54.2 | 12.3 | | NE | 1.4 | 0.6 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.75 | 755.6 | 55.0 | 12.8 | | SSE | | | 3 | | 6? | | | | | Overcast? | The Staff. |
| Fort Napier, (Natal) | 27.67 | 702.8 | 29.91 | 759.7 | 71.5 | 21.9 | | E | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.91 | 759.7 | 89 | 31.7 | | N | | | 0 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.58 | 751.3 | 49 | 9.4 | | S | | | 2 | | 7 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.03 | 762.7 | 74.6 | 23.7 | | W | | | 2 | | 2 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.72 | 754.9 | 51.8 | 11.0 | | ENE | | | 2 | | 10 | | | | | Gloomy | Lewis Stuart. |
| Great Yarmouth | | | 29.65 | 753.1 | 47 | 8.3 | | NNW | | | 2 | | 8 | | | | | Misty | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.71 | 754.6 | 53.2 | 11.8 | | N | | | 1 | | 10 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 29.79 | 756.7 | 55 | 12.8 | | WNW | | | 2 | | 4 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.77 | 756.1 | 58 | 14.4 | | S | | | 4 | | 1c | | | 0.5 | 13. | Fine | M. P. Moyle. |
| Holyhead | | | 29.72 | 754.9 | 55 | 12.8 | | SSW | | | 1 | | 4 | | | | | Misty | John Tilston. |
| Kew, Observatory | | | 29.73 | 755.1 | 54.0 | 12.2 | | WNW | 5 | 2.2 | | | 10 | | | | | Hazy | The Staff. |
| Kingstown | | | 29.70 | 754.4 | 51 | 10.6 | | SE | | | 3 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.73 | 755.1 | 49.1 | 9.5 | | NE | | | 1 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.97 | 761.2 | 70.0 | 21.1 | | SE | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.80 | 756.9 | 47 | 8.3 | | ENE | | | 2 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.12 | 765.0 | 78.5 | 25.8 | | NE | | | 3 | | 6 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.73 | 755.1 | 50.2 | 10.1 | | NE | | | 2 | | 10k | | N | 0.137 | 3.48 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.73 | 755.1 | 49.1 | 9.5 | | Calm | | | 0 | | 10 | | | Blank | Blank | Light mist | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.72 | 754.9 | 54 | 12.2 | | NNW | | | 1 | | 10 | | | | | Gloomy | J. W. Lucas. |
| Plymouth | | | 29.75 | 755.6 | 58.5 | 14.7 | | S | | | 2 | | 2 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.66 | 753.4 | 59 | 15.0 | | SE | | | 3 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.80 | 756.9 | 56.8 | 13.8 | | SW | | | 3 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.85 | 758.2 | 47.5 | 8.6 | | E | 21 | 10.7 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.03 | 762.7 | 79.0 | 26.1 | | NE | | | 1 | | 0 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.73 | 755.1 | 49.6 | 9.8 | | NE | | | 1 | | 10 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Stiloth, Rectory | | | 29.72 | 754.9 | 53.1 | 11.7 | 71 | SE | | | 2 | | 5 | | | 0.035 | 0.89 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.71 | 754.6 | 53.1 | 11.7 | | SE | | | 0 | | 8 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.76 | 755.9 | 50 | 10.0 | | ENE | | | 4 | | 2 | | | | | Blue sky | John Smith. |
| Strathfield Turgiss | | | 29.74 | 755.4 | 55.7 | 13.2 | | SW | | | 1 | | 9 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 29.82 | 757.4 | 50 | 10.0 | | ENE | | | 3 | | 5 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.75 | 755.6 | 58 | 14.4 | | SE | | | 6 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.55 | 750.6 | 55.7 | 13.2 | | SE | 32 | 14.3 | | | 10 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 48 | 8.9 | | NE | | | 3 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.94 | 760.5 | 61.0 | 16.1 | 79 | NNW | 19 | 8.5 | | 10 | 6 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.82 | 757.4 | 60.0 | 15.6 | 81 | Calm | | | 0 | | 4k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restaurig Park | | | 29.79 | 756.7 | 45.0 | 7.2 | | E | | | 2 | | 10s | | | 0.10 | 2.5 | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.07 | 763.8 | 75.8 | 24.3 | 71 | ENE | 6.9 | 3.1 | | 1 | 2 | | ENE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.63 | 753.4 | 57.0 | 13.9 | 78 | NE | 14 | 6.3 | | | 10 | | | 0.01 | 0.3 | Drizzling | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.72 | 754.9 | 51 | 10.6 | | E | | | 3 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.89 | 759.2 | 45 | 7.2 | | NNE | | | 6 | 3 | 4 | NE | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.02 m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. | Wind. Force. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 42° 45′ W. 56° 20′ | | | 30.20 | 767.1 | 41.0 | 5.0 | | NNW | | 2 | | 4 | | | 0 | Smooth | D. clouds | Capt. W. Watson. |
| S. S. Batavia, N. 50° 50′, W. 22° 50′ | | | | | 51.0 | 10.6 | | NW | | 5 | | 9 | | | 5 | NW | Misty | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 18° 30′ W. 48° 5′ | | | 30.09 | 764.3 | 78.0 | 25.6 | | ENE | | 4 | | 2 | | | 5 | ENE | Blue sky | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.17 | 664.7 | | | 70.7 | 21.5 | 86 | E | | | 2 | | 5cs | | | *0.2 | *5. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. * Amount of Rain-fall on the 11th, 12th and 13th.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.72 | 754.9 | 49.5 | 9.7 | 76 | ESE | | | 2 | | 10 | | | | | Raining | |
| Fanöe | | | 29.65 | 753.1 | 51.6 | 10.9 | 86 | ENE | | | 4 | | 8 | | | | | Raining | |
| Godthaab, (Greenland) | | | 29.76 | 756.0 | 35.1 | 1.7 | 71 | NNE | | | 4 | | 0 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.91 | 759.7 | 46.9 | 8.3 | 67 | Calm | | | 0 | | 8 | | | | | | |
| Thorshavn, (Fanöe) | | | 29.99 | 761.8 | 45.7 | 7.7 | 68 | E | | | 2 | | 7 | | | | | | |
| Vestervig | | | 29.69 | 754.0 | 56.5 | 13.6 | 75 | E | | | 6 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alengon | | | 29.85 | 758.1 | 55.4 | 13 | 57 | WSW | | | 2 | | 8kn | | WSW | 0.063 | 1.6 | Very cloudy | Normal School. |
| Amiens | | | 29.66 | 753.4 | 59.0 | 15.0 | | WNW | | | 4 | | 8 | | WNW | 0.268 | 6.8 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.98 | 761.5 | 68.0 | 20 | 41 | N | | | 1 | | 0 | | | 0.303 | 7.7 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.81 | 757.2 | 56.5 | 13.6 | 67 | SW | | | 4 | | 8kn | | W | 0.098 | 2.5 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.78 | 756.3 | 58.1 | 14.5 | 62 | W | | | 3 | | 8 | | WNW | 0.108 | 2.7 | Very cloudy | Normal School. |
| Besançon | | | 30.00 | 762.1 | 53.1 | 11.7 | 77 | WSW | | | 2 | | 8 | | S | 1.398 | 35.5 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 30.04 | 762.9 | 61.3 | 16.3 | 63 | W | | | 2 | | 8kn | | E | 0.55 | 14. | Very cloudy | Normal School. |
| Bourges | | | 29.72 | 754.8 | 57.6 | 14.2 | 72 | S | | | 6 | | 5 | | E | 0.059 | 1.5 | Partly cl'dy | Normal School. |
| Brest | | | 29.75 | 755.6 | 60.6 | 15.9 | 66 | SW | | | 3 | | 7 | | SW | 0.157 | 4.00 | | Naval Observatory. |
| Carcassonne | | | 30.02 | 762.4 | 67.5 | 19.7 | 50 | W | | | 2 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| Caen | | | 29.80 | 756.9 | 60.6 | 15.9 | 59 | W | | | 2 | | | | E | 0.055 | 1.4 | | Normal School. |
| Chartres | | | 29.79 | 756.7 | 57.7 | 14.3 | 84 | SW | | | 3 | | 4 | | NE | 0.63 | 16. | | Normal School. |
| Châlons-sur-Marne | | | 29.79 | 756.6 | 56.5 | 13.6 | 60 | SW | | | 6 | | 8kn | | E | 0.106 | 2.7 | Very cloudy | Normal School. |
| Clermont-Ferrand | | | 29.89 | 759.3 | 60.6 | 15.9 | 53 | W | | | 3 | | 8 | | W | 0.126 | 3.2 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.89 | 757.0 | 52.9 | 11.6 | 78 | WSW | | | 6 | | 5 | | WSW | 0 | 0 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 30.02 | 762.4 | 62.1 | 16.7 | 49 | NW | | | 4 | | 2 | | NW | 0 | 0 | | M. Kiun. |
| Grenoble | | | 29.94 | 760.4 | 63.7 | 17.6 | 59 | N | | | 4 | | 5ck | | NE | 1.048 | 26.50 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 29.90 | 759.4 | 60.8 | 16 | 58 | W | | | 2 | | 8 | | E | 0.142 | 3.6 | Very cloudy | Normal School. |
| Le Mans | | | 29.85 | 758.3 | 57.9 | 14.4 | 67 | WSW | | | 2 | | 5 | | W | 0.364 | 9.2 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.95 | 760.8 | 53.4 | 11.9 | 60 | W | | | 4 | | 5 | | E | 1.874 | 47.60 | Cloudy | Normal School. |
| Lorient | | | 29.87 | 758.7 | 60.8 | 16.0 | 58 | SW | | | 3 | | 5 | | SW | 0.236 | 6.0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.04 | 763.0 | 60.3 | 15.7 | 61 | Calm | | | 0 | | 10 | | | 1.371 | 31.8 | Covered | Mr. Marchal. |
| Metz | | | 29.88 | 758.9 | 58.5 | 14.7 | 60 | SW | | | 4 | | 8k | | SW | 0.012 | 0.3 | | M. A. Schuster. |
| Mirecourt | | | 29.84 | 758.0 | 55.4 | 13 | 68 | SW | | | 4 | | 8 | | NE | 0.08 | 2. | Very cloudy | Normal School. |
| Nismes | | | 29.95 | 760.6 | 68.0 | 20 | 47 | N | | | 1 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 29.83 | 757.7 | 57.9 | 14.4 | 72 | WSW | | | 6 | | 5 | | WSW | 0.47 | 12. | Cloudy | Normal School. |
| Paris, Observatory | | | 29.81 | 757.2 | 50.7 | 10.4 | 84 | W | | | 3 | | 9k | | W | 0.530 | 13.40 | Almost cov'd | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 30.07 | 763.6 | 60.4 | 15.8 | 61 | W | | | 4 | | 5 | | E | 0.04 | 1. | ½ covered | Naval Observatory. |
| Rouen | | | 29.77 | 756.2 | 60.1 | 15.6 | 48 | NW | | | 6 | | 5 | | SW | 0.177 | 4.5 | Cloudy | Normal School. |
| Tarbes | 28.91 | 734.3 | 29.99 | 761.7 | 62.6 | 17. | 83 | NW | | | 2 | | 10 | | | 0.291 | 7.4 | Raining | Normal School. |
| Villefranche | | | 29.95 | 760.8 | 62.6 | 17 | 74 | N | | | 4 | | 8 | | NW | 1.524 | 38.7 | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.96 | 761.0 | 62.4 | 16.9 | 54 | W | | | 3–4 | | 0 | | | 0.016 | 0.40 | | The Staff. |
| Mont-Louis | 24.82 | 630.4 | 30.13 | 765.4 | 51.3 | 10.7 | 38 | SSW | 18.6 | 8.33 | | | 2 | | SW | 0.079 | 2.0 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.80 | 756.9 | 57.2 | 14.0 | 76 | W | | | 2 | | 10 | | WNW | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 30.02 | 762.5 | 62.6 | 17.0 | 48 | S | 3.7 | 1.67 | | | 7 | | SW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty and M. Baylac, Obs'r |
| Pic du Midi, (Plantade,) H. P. | 22.44 | 570.0 | | | 39.2 | 4.0 | | W | | | 3 | | 1 | | | 0 | 0 | Clear | |
| Saint Maur, (near Paris) | | | 29.81 | 757.2 | 54.1 | 12.3 | 75 | WNW | | | 2 | | 10 | | | 0.654 | 16.6 | Rainy | E. Renou. |
| Toulouse, Observatory | | | 30.04 | 763.1 | 62.1 | 16.7 | 57 | W | | | 1 | | 4 | | | 0 | 0 | | The Staff. |
| Tours | | | 29.89 | 759.1 | 59.4 | 15.2 | 64 | W | | | 2 | | 10 | | W | 0.445 | 11.3 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.82 | 757.3 | 55.4 | 13.0 | 73 | W | | | 1 | | 8 | | | 0.547 | 13.9 | Almost cov'd | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.91 | 759.8 | 65.1 | 18.4 | 80 | ESE | 15.0 | 6.7 | | | 10kn | | | 0 | 0 | Covered | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 358 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 298 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometrical observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.82 | 757.5 | 60.4 | 15.8 | 56 | W | | | 5 | | 5 | W | | 0.118 | 3.0 | Raining | Prof. T. Hoh |
| Berlin | | | 29.71 | 754.7 | 61.3 | 16.3 | 72 | SW | | | 4 | | 10 | | | 0.004 | 0.1 | Light rain | Prof. Arndt. |
| Breslau | | | 29.67 | 753.7 | 73.0 | 22.8 | 49 | SE | | | 3 | | 9 | | | 0.020 | 0.5 | Light rain | Royal University Obs'y. |
| Carlsruhe | | | 29.79 | 756.7 | 55.4 | 13.0 | 70 | SW | | | 3 | | 9 | | | 0.059 | 1.5 | | Albert Senz. |
| Cassel | | | 29.76 | 755.8 | 62.2 | 16.8 | 43 | WSW | | | 5 | | 8 | S | | 0.094 | 2.4 | | Dr. H. Möhl. |
| Crefeld | | | 29.61 | 752.1 | 57.0 | 13.9 | 61 | SW | | | 5 | | 8 | | | 0.079 | 2.0 | | Director Lose. |
| Emden | | | 29.60 | 751.9 | 60.1 | 15.6 | 70 | SW | | | 3 | | 10 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.81 | 757.2 | 60.6 | 15.9 | 45 | WSW | | | 3 | | 7 | | | 0.028 | 0.7 | | Physical Society. |
| Friedrichshafen | 28.99? | 736.3? | 29.89? | 759.3? | 54.3 | 12.4 | 67 | SSE | | | 6 | | 6 | WNW | | 0.031 | 0.8 | Rain & graupel | M. Wilhelm. |
| Hamburg | | | 29.64 | 752.9 | 54.3 | 12.4 | 90 | SW | | | 3 | | 10 | | | 0.236 | 6.0 | Heavy Rain | Captain F. Hegemann. |
| Kiel | | | 29.61 | 752.2 | 48.0 | 8.9 | 93 | WSW | | | 4 | | 10 | | | 0.154 | 3.9 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.72 | 755.0 | 69.8 | 21.0 | 61 | E | | | 2 | | 4 | | | 0 | 0 | Thunder, lightn'g | Prof. E. Luther. |
| Köslin | | | 29.69 | 754.1 | 62.6 | 17.0 | | Calm | | | 0 | | 3 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.77 | 756.1 | 59.7 | 15.4 | 77 | SW | | | 4 | | 9 | SW | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.80 | 756.9 | 67.8 | 19.9 | | E | | | 5 | | 4c | SW | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.62 | 752.4 | 59.0 | 15.0 | 72 | SW | | | | | 5 | | | 0.197 | 5.0 | Raining | Prof. E. Heis |
| Neufahrwasser | | | 29.71 | 754.6 | 55.4 | 13.0 | 82 | NNW | | | 2 | | 4 | | | 0.085 | 2.1 | | A. Lothes. |
| Posen | | | 29.65 | 753.1 | 74.8 | 23.8 | 44 | SE | | | 3 | | 3 | | | 0.059 | 1.5 | Thunder-storm | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.84 | 758.0 | 59.7 | 15.4 | 51 | SW | | | 5 | | 4 | SW | | 0.425 | 10.8 | | Dr. Schur. |
| Stuttgart | | | 29.80 | 756.8 | 58.5 | 14.7 | 47 | W | | | 3 | | 5 | W | | 0.035 | 0.9 | Rain, graupel | Prof. Schoder |
| Treves, (Trier) | | | 29.65 | 753.2 | 56.1 | 13.4 | 63 | SW | | | 8 | | 10 | | | 0.177 | 4.5 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.35 | 720.1 | 29.86 | 758.4 | 50.5 | 10.3 | 78 | S | | | 7 | | 9 | S | | 0.244 | 6.2 | Raining | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.74 | 755.3 | 48.9 | 9.4 | 93 | SW | | | 4 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.06 | 763.4 | 81.3 | 27.4 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.04 | 559.7 | 29.87 | 758.7 | 31.1 | — 0.5 | 92 | W | | | 6 | | 3 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 21.98 | 558.3 | 29.75 | 755.6 | 33.8 | 1.0 | | WSW | | | 8 | | 10 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.82 | 757.5 | 65.1 | 18.4 | 77 | SW | 4.3 | 1.9 | | | 10 | | | 0 | 0 | | Ab. Dem. Morgini. |
| Padua | | | 29.79 | 756.7 | 67.5 | 19.7 | 71 | E | 8.7 | 3.9 | | | 10 | SSW | | 0.012 | 0.3 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.79 | 756.7 | 70.0 | 21.1 | 66 | SE | 4.9 | 2.2 | | | 8 | S | | 0.028 | 0.7 | | Conte Alm. Da Schio. |
| Verona | | | 29.81 | 757.2 | 70.3 | 21.3 | 63 | E | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.47 | 723.1 | 29.78 | 755.9 | 67.6 | 19.8 | 47 | S | | | 4 | | 4 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.75 | 755.7 | 61.7 | 16.5 | 62 | Calm | | | 0 | | 7 | | | 1.740 | 44.2 | | Prof. Giuseppe Calza. |
| Milan | | | 29.78 | 756.4 | 73.6 | 23.1 | 57 | W | | | 2 | | 3 | W | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.77 | 756.2 | 70.2 | 21.2 | 37 | SW | | | 6 | | 1 | | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.77 | 756.2 | 68.7 | 20.4 | 45 | WSW | 2.5 | 1.1 | | | 1 | S | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 27.90 | 708.7 | 29.76 | 756.0 | 65.8 | 18.8 | 51 | WNW | | | 4 | | 2 | | | 0.098 | 2.5 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.84 | 757.9 | 68.4 | 20.2 | 38 | W | | | 6 | | 1 | W | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.88 | 758.9 | 65.7 | 18.7 | 56 | SE | 9.8 | 4.4 | | | 4 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.77 | 756.1 | 71.8 | 22.1 | 21 | SW | 19.2 | 8.6 | | | 2 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.78 | 756.5 | 69.6 | 20.9 | 40 | SW | | | 6 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.90 | 759.5 | 71.6 | 22.0 | 61 | WNW | | | 2 | | 10 | W | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.91 | 759.7 | 69.1 | 20.6 | 59 | WSW | 6.9 | 3.1 | | | 6 | WSW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.69 | 728.8 | 29.87 | 758.7 | 69.8 | 21.0 | 60 | SSE | 4.3 | 1.9 | | | 10 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.34 | 719 7 | 29.86 | 758.4 | 66.2 | 19.0 | 54 | SW | | | 4 | | 8 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.85 | 758.2 | 69.3 | 20.7 | 60 | S | 19.2 | 8.6 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.88 | 759.0 | 64.4 | 18.0 | 70 | ESE | | | 4 | | 10 | S | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.93 | 760.2 | 69.8 | 21.0 | 70 | SSE | | | 4 | | 8 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.97 | 761.2 | 69.8 | 21.0 | 83 | W | 4.3 | 1.9 | | | 8 | WSW | | 0.039 | 1.0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.96 | 761.0 | 78.3 | 25.7 | 42 | SW | | | 2 | | 9 | S | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.03 | 762.7 | 76.1 | 24.5 | 29 | W | 18 6 | 8.3 | | | 8 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.95 | 760.8 | 77.7 | 25.4 | 66 | SE | 7.4 | 3.3 | | | 6 | | | 0.012 | 0.3 | | Prof. F. D. Conti. |
| Cagliari | | | 29.91 | 759.7 | 74.5 | 23.6 | 55 | NW | | | 2 | | 1 | NW | | 0.008 | 0.2 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.93 | 760.3 | 70.9 | 21.6 | 54 | SE | | | 2 | | 4 | NE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.89 | 759.3 | 72.9 | 22.7 | 53 | E | 3.1 | 1.4 | | | 9 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28 00 | 711.1 | 29.88 | 759.0 | 72.5 | 22.5 | 31 | E | | | 6 | | 3 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.93 | 760.1 | 69.4 | 20.8 | 71 | NE | | | 4 | | 9 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.01 | 762.3 | 73.9 | 23.3 | 45 | ESE | 0.7 | 0.3 | | | 10 | E | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.07 | 763.8 | 50 | 10.0 | 89 | NE | 7 | 3.1 | | | 10n | | | | | Cloudy | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.3 | 30.08 | 764.1 | 62.2 | 16.8 | 56 | NW | 0.02 | 0.01 | | 0 | 0 | | | 0 | 0 | Clear | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.61 | 752.1 | 48.0 | 8.9 | | WNW | | | 5 | | | | | 0.689 | 17.5 | | |
| Groningen | | | 29.53 | 750.0 | 55.2 | 12.9 | | S | | | 4 | | | | | 0.134 | 3.4 | | |
| Helder | | | 29.50 | 749.4 | 53.6 | 12.0 | | SSE | | | 2 | | | | | 0.268 | 6.8 | | |
| Utrecht | | | 29.50 | 749.4 | 52.0 | 11.1 | 49 | SSE | | | 5 | | 8 | | | 0.335 | 8.5 | Very cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.81 | 757.1 | 56.8 | 13.8 | 59 | WSW | 4.5 | 2.0 | | | 3 | | | 0 | 0 | | |
| Brönö | | | 29.76 | 755.8 | 40.3 | 4.6 | 87 | WSW | 27 | 12 | | | 10 | | | | | Light rain | |
| Christiania | | | 29.82 | 757.4 | 60.1 | 15.6 | 37 | S | 0 | 0 | | | 0 | | | 0 | 0 | | |
| Tromsö | | | 29.66 | 753.4 | 38.1 | 3.4 | 70 | NE | 4 | 2 | | | 10 | | | 0.118 | 3.0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna Th- symbols. Cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. (1—10. | Clouds. Amount. Up'er (0—10. | Clouds. Amount. Low'r (0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.85 | 758.2 | 62.6 | 17.0 | 78 | W | 13.7 | 6.1 | | | 3 | | | 0.354 | 9.0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.01 | 762.3 | 64.4 | 18.0 | 44 | SSW | 6.9 | 3.1 | | | 9 | WSW | | 0 | 0 | | Dr. A. M. R. dos Santos |
| Funchal, (Madeira) | | | 30.13 | 765.2 | 67.8 | 19.9 | 62 | SSW | 3.8 | 1.7 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.06 | 763.4 | 59.0 | 15.0 | 65 | SW | 16.1 | 7.2 | | | 10 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 29.92 | 759.9 | 66.7 | 19.3 | 79 | W | 8.7 | 3.9 | | | 3 | | | 0.382 | 9.7 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. W ld, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | (1—10. | (0—10. | (0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.66 | 753.3 | 76.3 | 24.6 | 47 | SE | 9 | 4 | | | 7 | | | | | | Astronomical Obs. |
| Wilna | | | 29.81 | 757.2 | 62.2 | 16.8 | 80 | SE | 4 | 2 | | | 10 | | | | | Raining | Astronomical Obs. |
| Dorpat | | | 29.95 | 760.6 | 53.4 | 11.9 | 45 | NW | 4 | 2 | | | 2 | | | | | | Physical Cabinet |
| St. Petersburg | | | 29.92 | 759.9 | 41.0 | 5.0 | 88 | WNW | 16 | 7 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.78 | 756.5 | 45.9 | 7.7 | 65 | W | 7 | 3 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.86 | 758.5 | 76.3 | 24.6 | 40 | SSW | 9 | 4 | | | 6 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.10 | 764.5 | 71.6 | 22.0 | 50 | SW | 29 | 13 | | | 2 | | | | | | Kurdakof |
| Kertch | | | 30.19 | 766.8 | 71.4 | 21.9 | 66 | SSE | 4 | 2 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.98 | 761.6 | 68.2 | 20.1 | 64 | SSE | 4 | 2 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 30.02 | 762.6 | 74.1 | 23.4 | 59 | SSE | 2 | 1 | | | 6 | | | | | | Meteorological Obs. |
| Archangel | | | 29.72 | 755.0 | 55.2 | 12.9 | 77 | Calm | 0 | 0 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.68 | 728.4 | 30.04 | 763.1 | 75.9 | 24.4 | 40 | SE | 9 | 4 | | | 3 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.13 | 765.2 | 77.2 | 25.1 | 36 | NNW | 2 | 1 | | | 10 | | | | | | Sebastianof. |
| Kasan | | | 29.90 | 759.4 | 74.5 | 23.6 | 35 | S | 18 | 8 | | | 9 | | | | | | Physical Cabinet |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.24 | 742.6 | 30.15 | 765.7 | 73.0 | 22.8 | 30 | S | 4 | 2 | | | 8 | | | | | Smoke-haze. | Meteorogical Obs |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.39 | 721.0 | 30.02 | 762.5 | 76.3 | 24.6 | 59 | Calm | 0 | 0 | | | 6 | | | | | | Michelson. |
| Barnaul | | | 30.32 | 770.0 | 39.9 | 4.4 | 43 | NNW | 9 | 4 | | | 9 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 30.02 | 762.6 | 39.9 | 4.4 | 65 | WNW | 11 | 5 | | | 9 | | | | | | Marks |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 31.8 | —0.1 | | NW | 4 | 2 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.94 | 760.5 | 54.9 | 12.7 | 95 | Calm | 0 | 0 | | | 0 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.11 | 764.7 | 41.2 | 5.1 | 78 | SE | 18 | 8 | | | 8 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they give the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| Stations. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | (1—10. | (0—10. | (0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.98 | 761.5 | 66.7 | 19.3 | 39 | E | 17.9 | 8.0 | | 0 | 9 | | | 0 | 0 | Almost cov'd | Royal Observatory |
| San Fernando | | | 30.08 | 763.9 | 67.8 | 19.9 | 68 | SSW | 5.8 | 2.6 | | 3 | 4 | W | W | 0 | 0 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.02 | 762.5 | 75.7 | 24.3 | 83 | E | 10.7 | 4.8 | | 10pc | 0 | | | 0.071 | 1.8 | Covered | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published: rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | (1—10. | (0—10. | (0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.77 | 756.2 | 39.9 | 4.4 | 80 | SW | | | 2 | | 9 | | | 0.748 | 19.0 | | |
| Umea | | | 29.78 | 756.3 | 52.9 | 11.6 | 51 | SW | | | 2 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 29.80 | 756.8 | 53.2 | 11.8 | 30 | W | | | 4 | | 3 | | | 0 | 0 | | |
| Stockholm | | | 29.82 | 757.3 | 60.1 | 15.6 | 70 | SSW | | | 2 | | 5 | | | 0 | 0 | | |
| Wisby | | | 29.81 | 757.1 | 52.5 | 11.4 | 52 | ESE | | | 6 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.82 | 757.5 | 58.8 | 14.9 | 45 | S | 3.4 | 1.5 | | | 9 | W | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low' 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.54 | 724.9 | 29.97 | 761.2 | 53 2 | 11.8 | 73 | W | | | 4 | | 10 | | | 1.610 | 40.9 | Raining | The Observatory. |
| Zurich | 28.25 | 717.5 | 29.88 | 759.0 | 55.0 | 12.8 | 61 | W | | | 4 | | 8 | | | 0 | 0 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, 0.0 mm; Thermometer, —4.4 cent.; Relative Humidity, +16 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the cooperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low' 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.09 | 764 3 | 75.[illegible] | 24.0 | 57 | SE | 7 | 3.0 | | | 0 | | | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.10 | 764.4 | 77.0 | 25.0 | | SW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.11 | 764.9 | 76.6 | 24.8 | | S | | | 2 | | 0 | | | | | | B. Stéfanidés. |
| Valona | | | 30.04 | 763.1 | 74.3 | 23.5 | | S | | | 2 | | 5 | | | 0 | 0 | Cloudy | A. Bertrand. |
| Varna | | | 30.00 | 762 0 | 77.0 | 25.0 | | SE | | | 2 | | 5 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.09 | 761.8 | 72.0 | 22.2 | 72 | NW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Pro . C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the cooperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low' 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.32 | 770.1 | 51 | 10.6 | | SW | 4 | 1 8 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 30.15 | 765.8 | 53 | 11.7 | 63 | NW | 1 | 0.4 | | 2c | 0 | NW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.16 | 766.1 | 45 | 7.2 | 82 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.28 | 769.1 | 50.9 | 10.5 | 59 | E | | | 1 | 0 | 0 | | | 0 | 0 | Hazy | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.04 | 763.0 | 52.5 | 11.4 | 72 | NW | | | 2 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C. | | | 29.70 | 754.4 | 49.3 | 9.6 | 93 | N | | | | 1ck | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.20 | 767.1 | 42 | 5 6 | 91 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 30.19 | 766.8 | 54 | 12.2 | 56 | N | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.17 | 766.3 | 48 | 8.9 | 85 | S | 4 | 1.8 | | Haz | Sm'e | S | S | 0 | 0 | Smoky | James Stewart. |
| Goderich, Ontario | | | 30.38 | 771.6 | 54.3 | 12.4 | 67 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | 29.24 | 742.7 | 30.35 | 770.9 | 52 | 11.1 | 60 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 30.15 | 765.8 | 49 | 9.4 | 58 | SW | 1 | 0.4 | | 5ck | 0 | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.39 | 771.9 | 61.9 | 16.6 | 38 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.00 | 762.0 | 45 | 7.2 | 92 | NW | | | 1 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.38 | 771.6 | 54 | 12.2 | 86 | NW | 4 | 1.8 | | Haz | Sm'e | | NW | 0 | 0 | Hazy | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.[illegible]5 | 768.3 | 54 | 12.2 | 55 | SW | 16 | 7.2 | | 2cs | Sm'e | SW | | 0 | 0 | Fair | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 30.38 | 771.6 | 50 | 10.0 | 72 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.37 | 771.4 | 49 | 9.4 | 71 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | | | | | | | | | | | | | | | | | Peter Grant |
| Port Stanley, Ontario | | | 30.35 | 770.9 | 52 | 11.1 | 73 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.23 | 767.8 | 58 | 14.4 | 53 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.33 | 770.4 | 54 | 12.2 | 52 | NW | 14 | 6.3 | | 2c | 0 | NW | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 30.20 | 767.1 | 49 | 9.4 | 64 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.36 | 771.1 | 53 | 11.7 | 57 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 29.08 | 738.6 | 30.38 | 771.6 | 46.0 | 7.8 | 76 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.13 | 765.3 | 55 | 12.8 | 51 | S | 2 | 0.9 | | 2c | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.38 | 771.6 | 55 | 12.8 | 50 | N | 2 | 0.9 | | 0 | Haze | | | | | Hazy | Magnetic Observatory. |
| Windsor, N. S. | | | 30.12 | 765.0 | 48 | 8.9 | 66 | NW | 7 | 3.1 | | 3c | 0 | NW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.33 | 770.4 | 55.4 | 13.0 | 62 | W | 3 | 1.3 | | 0 | 2s | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.02 | 762.5 | 52.0 | 11.1 | 52 | W | | | | 0 | 0 | | | 0.02 | 0.5 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.33 | 770.4 | 56 | 13.3 | 62 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Alpena, Mich. | | | 30.38 | 771.6 | 45 | 7.2 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.39 | 771.9 | 57 | 13.9 | 75 | W | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.27 | 768.8 | 63 | 17.2 | 83 | NE | 8 | 3.6 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Baltimore, Md. | | | 30.38 | 771.6 | 55 | 12.8 | 80 | SE | 1 | 0.4 | | 5ck | Sm'e | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 30.37 | 771.4 | 58 | 14.4 | 69 | SW | 2 | 0.9 | | 2c | Haze | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.34 | 719.8 | 29.99 | 761.7 | 50 | 10.0 | 93 | E | 3 | 1.3 | | | 10s | | S | 0 | 0 | Cloudy | |
| Boston, Mass. | | | 30.27 | 768.8 | 58 | 14.4 | 42 | NW | 10 | 4.5 | | 0 | Haze | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 30.12 | 765.0 | 55 | 12.8 | 68 | SE | 20 | 8.9 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 30.35 | 770.9 | 52 | 11.1 | 60 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.32 | 770.1 | 58 | 14.4 | 35 | S | 4 | 1.8 | | Haze | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.12 | 765.0 | 61 | 16.1 | 88 | E | 9 | 4.0 | | | 10n | | | 0.24 | 6.1 | Light rain | |
| Campo, Cal. | 27.42 | 696.7 | 29.98 | 761.5 | 43 | 6.1 | 91 | SW | 2 | 0.9 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Camp Verde, Arizona | | | | | 59 | 15.0 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.27 | 766.8 | 56 | 13.3 | 74 | NE | 11 | 4.9 | | 8k | 0 | W | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.37 | 771.4 | 54 | 12.2 | 67 | NE | 14 | 6.3 | | 2c | 0 | W | | Inap. | Inap. | Clear | |
| Cape Lookout, N. C. | | | 30.34 | 770.6 | 60 | 15.6 | 94 | E | 15 | 6.7 | | 5ck | 2s | E | | 0.26 | 6.3 | Fair | |
| Cape May, N. J. | | | 30.37 | 771.4 | 54 | 12.2 | 86 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.26 | 768.6 | 67 | 19.4 | 90 | NE | 6 | 2.7 | | 5cs | 5s | | NE | 0.66 | 1.5 | Cloudy | |
| Cheyenne, Wyoming | 23.95 | 608.3 | 29.89 | 759.2 | 43 | 6.1 | 91 | S | 8 | 3.6 | | 2ck | 8s | S | S | 0.10 | 2.5 | Cloudy | |
| Chicago, Ill. | | | 30.25 | 768.3 | 50 | 10.0 | 72 | SE | 6 | 2.7 | | 5c | Haze | | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 30.20 | 767.1 | 56 | 13.3 | 56 | NE | 3 | 1.3 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 30.33 | 770.4 | 52 | 11.1 | 62 | Calm | 0 | 0 | | | Sm'e | | | 0 | 0 | Smoky | |
| Corsicana, Tex. | | | 29.98 | 761.5 | 64 | 17.8 | 94 | SE | 2 | 0.9 | | 2cs | 5k | | SE | 0 | 0 | Fair | |
| Davenport, Iowa | | | 30.21 | 767.3 | 55 | 12.8 | 62 | E | 12 | 5.4 | | | 10ks | | E | Inap. | Inap. | Cloudy | |
| Denison, Tex. | | | 29.99 | 761.7 | 62 | 16.7 | 82 | NE | 4 | 1.8 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Denver, Col. | 24.70 | 627.4 | 29.92 | 760.0 | 47 | 8.3 | 77 | Calm | 0 | 0 | | | 8s | | | 0.08 | 2.0 | Cloudy | |
| Detroit, Mich. | | | 30.32 | 770.1 | 52 | 11.1 | 53 | NE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.36 | 694.9 | 29.63 | 752.6 | 51 | 10.6 | 93 | N | 18 | 8.0 | | | 10s | | | 0.06 | 1.5 | Cloudy | |
| Dubuque, Iowa | | | 30.22 | 767.6 | 57 | 13.9 | 57 | SE | 4 | 1.8 | | 10k | 0 | SE | | Inap. | Inap. | Cloudy | |
| Duluth, Minn. | | | 30.27 | 768.8 | 45 | 7.2 | 76 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Eastport, Me. | | | 30.18 | 766.6 | 53 | 11.7 | 60 | Calm | 0 | 0 | | 5c | Haze | | | 0 | 0 | Fair | |
| Erie, Pa. | | | 30.32 | 770.1 | 51 | 10.6 | 64 | E | 7 | 3.1 | | 0 | Haz | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 30.32 | 770.1 | 47 | 8.3 | 70 | S | 3 | 1.3 | | | Sm'e | | | 0 | 0 | Dense smoke | |
| Florence, Arizona | | | 29.89 | 759.2 | 57 | 13.9 | | SW | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.92 | 760.0 | 61 | 16.1 | 94 | S | 2 | 0.9 | | | 10s | | SW | 0.81 | 20.6 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.35 | 745.5 | 35 | 1.7 | 90 | S | | | 7 | | 10s | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.80 | 731.5 | 29.89 | 759.2 | 58 | 14.4 | 57 | SW | 8 | 3.6 | | 2k | 0 | | | 0.18 | 4.6 | Fair | |
| Fort Sully, Dakota | 28.31 | 719.1 | 29.96 | 761.0 | 52 | 11.1 | 100 | SE | 12 | 5.4 | | | 10n | | SE | 0.49 | 12.4 | Light rain | |
| Galveston, Tex. | | | 29.98 | 761.5 | 71 | 21.7 | 95 | E | 7 | 3.1 | | 0 | 8ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 30.32 | 770.1 | 54 | 12.2 | 61 | E | 3 | 1.3 | | 0 | Hz'am | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.22 | 767.6 | 56 | 23.3 | 57 | E | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 29.96 | 761.0 | 70 | 21.1 | 84 | SE | 6 | 2.7 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| Jacksonville, Fla. | | | 30.19 | 766.8 | 74 | 23.3 | 72 | E | 5 | 2.2 | | 5k | 0 | E | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 30.06 | 763.5 | 57 | 13.9 | 69 | E | 14 | 6.3 | | 5c | 0 | E | | 0.06 | 1.5 | Fair | |
| Key West, Fla. | | | 30.03 | 762.7 | 77.0 | 25.0 | 79 | E | 15 | 6.7 | | | 10s | | E | 0 | 0 | Cloudy | |
| Kittyhawk, N. C. | | | 30.38 | 771.6 | 54 | 12.2 | 79 | NE | 15 | 6.7 | | 8cs | 0 | NE | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.24 | 768.1 | 58 | 14.4 | 81 | N | 2 | 0.9 | | | 10ks | | W | 0.01 | 0.3 | Cloudy | |
| LaCrosse, Wis. | | | 30.24 | 768.1 | 54 | 12.2 | 61 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.96 | 759.4 | 61 | 16.1 | 82 | E | 6 | 2.7 | | | 10n | | E | 0.63 | 16.0 | Light rain | |
| Louisville, Ky. | | | 30.20 | 767.1 | 59 | 15.0 | 64 | NE | 3 | 1.3 | | 5c | 5s | W | | Inap. | Inap. | Cloudy | |
| Lynchburg, Va. | | | 30.36 | 771.1 | 54 | 12.2 | 73 | E | 1 | 0.4 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 63 | 17.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.23 | 767.8 | 57 | 13.9 | 46 | W | 8 | 3.6 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Memphis, Tenn. | | | 30.09 | 764.3 | 66 | 18.9 | 78 | E | 8 | 3.6 | | | 10s | | SE | 0.05 | 1.3 | Cloudy | |
| Milwaukee, Wis. | | | 30.34 | 770.6 | 50 | 10.0 | 58 | E | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Dense haze | |
| Mobile, Ala. | | | 30.09 | 764.3 | 72 | 22.2 | 75 | SE | 4 | 1.8 | | Haze | 2s | | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.16 | 766.1 | 68 | 20.0 | 62 | E | 9 | 4.0 | | 8cs | Haze | W | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.20 | 741.7 | 30.26 | 768.6 | 58 | 14.4 | 64 | E | 1 | 0.4 | | 2c | 0 | W | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 24.05 | 610.4 | 30.39 | 771.9 | 33 | 0.6 | 79 | NW | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Nashville, Tenn. | | | 30.18 | 766.6 | 63 | 17.2 | 88 | SE | 3 | 1.3 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| New Haven, Conn. | | | 30.33 | 770.4 | 61 | 16.1 | 40 | NW | 5 | 2.2 | | Haze | Haze | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.32 | 770.1 | 58 | 14.4 | 58 | W | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Orleans, La. | | | 30.02 | 762.5 | 72 | 22.2 | 80 | E | 14 | 6.3 | | 9k | 0 | SE | | 0.35 | 8.9 | Cloudy | |
| Newport, R. I. | | | 30.28 | 769.1 | 56 | 13.3 | 57 | W | 1 | 0.4 | | 1k | Haze | | | 0 | 0 | Hazy | |
| New York, N. Y. | | | 30.37 | 771.4 | 52 | 11.1 | 66 | W | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.39 | 771.9 | 58 | 14.4 | 64 | E | 6 | 2.7 | | 5k | 0 | W | | Inap. | Inap. | Fair | |
| North Platte, Neb. | 27.04 | 686.8 | 29.58 | 751.3 | 50 | 10.0 | 96 | NE | 4 | 1.8 | | | 10n | | | 0.09 | 2.3 | Light rain | |
| Omaha, Neb. | 28.88 | 733.5 | 29.95 | 760.7 | 54 | 12.2 | 93 | E | 6 | 2.7 | | | 10n | | E | 0.46 | 11.7 | Light rain | |
| Oswego, N. Y. | | | 30.36 | 771.1 | 53 | 11.7 | 51 | S | 6 | 2.7 | | Haze | Haz | | | 0 | 0 | Hazy | |
| Pembina, Dakota | | | 30.12 | 765.0 | 48 | 8.9 | 77 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 30.38 | 771.6 | 55 | 12.8 | 68 | S | 2 | 0.9 | | 1cs | Fog | S | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 63 | 17.2 | | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.69 | 449.3 | 29.90 | 759.4 | 17 | −8.3 | 100 | W | 4 | 1.8 | | | Fog | | | 0.16 | 4.1 | Light snow | |
| Pittsburg, Pa. | | | 30.28 | 769.1 | 51 | 10.6 | 72 | E | 4 | 1.8 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 30.36 | 771.1 | 42 | 5.6 | 74 | NE | 6 | 2.7 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.24 | 768.1 | 55 | 12.8 | 62 | W | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 29.82 | 757.4 | 52 | 11.1 | 72 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.65 | 626.1 | 30.02 | 762.5 | 38 | 3.3 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.08 | 764.0 | 72 | 22.2 | 71 | E | 16 | 7.2 | | 0 | 8ks | | | 0.03 | 0.8 | Cloudy | |
| Rochester, N. Y. | | | 30.35 | 770.9 | 47 | 8.3 | 70 | W | 4 | 1.8 | | 5k | 0 | E | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.39 | 644.7 | 29.72 | 754.9 | 53 | 11.7 | 42 | E | 4 | 1.8 | | 5k | 0 | E | | 0 | 0 | Fair | |
| Sandy Hook, N. J. | | | 30.37 | 771.4 | 52 | 11.1 | 79 | W | 8 | 3.6 | | 0 | | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.82 | 757.4 | 71 | 21.7 | 75 | E | 6 | 2.7 | | 2k | 0 | N | | 0 | 0 | Clear | |
| San Diego, Cal. | | | 29.94 | 760.5 | 55 | 12.8 | 93 | S | 4 | 1.8 | | | 10n | | S | 0.09 | 2.3 | Light rain | |
| San Francisco, Cal. | | | 29.85 | 758.2 | 52 | 11.1 | 86 | W | 2 | 0.9 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Santa Fé, N. M. | 23.15 | 587.5 | 29.67 | 753.6 | 51 | 10.6 | 32 | S | 16 | 7. | | | 10ks | | SE | Inap. | Inap. | Cloudy | |
| Savannah, Ga. | | | 30.24 | 768.1 | 66 | 18.9 | 94 | NE | 2 | 0.9 | | | 10n | | | Inap. | Inap. | Light rain | |
| Shreveport, La. | | | 30.08 | 764.0 | 68 | 20.0 | 75 | Calm | 0 | 0 | | | 10s | | | 0.08 | 2.0 | Cloudy | |
| Smithville, N. C. | | | 30.32 | 770.1 | 65 | 17.2 | 88 | E | 12 | 5.4 | | | 10s | | E | 0.12 | 3.0 | Cloudy | |
| Springfield, Mass. | | | 30.33 | 770.4 | 58.5 | 14.7 | 58 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 30.11 | 764.8 | 60 | 15.6 | 88 | SE | 5 | 2.2 | | 2cs | 5s | SE | SE | 0.11 | 2.8 | Clearing | |
| St. Marks, Fla. | | | 30.15 | 765.8 | 67 | 19.4 | 79 | E | 10 | 4.5 | | 5k | 2s | W | E | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 30.17 | 766.3 | 58 | 14.4 | 53 | E | 3 | 1.3 | | 2c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 59 | 15.0 | | SW | | | | 0 | Haze | | | 0 | 0 | Hazy | |
| Thatcher's Island, Mass. | | | 30.25 | 768.3 | 52 | 11.1 | 53 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Hazy | |
| Toledo, Ohio | | | 30.32 | 770.1 | 54 | 12.2 | 67 | NE | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Hazy | |

UNITED STATES SERIES.—CONTINUED.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.41 | 696.2 | 29.96 | 761.0 | 55 | 12.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.90 | 767.1 | 67 | 19.4 | 90 | E | 8 | 3.6 | | | 10ks | | SE | 0 | 0 | Threatening | |
| Vicksburg, Miss | | | 30.08 | 764.0 | 66 | 18.9 | 89 | SE | 8 | 3.6 | | 2k | 5ks | | SE | 0.34 | 8.6 | Fair | |
| Virginia City, M. T | 24.07 | 611.4 | 29.95 | 760.6 | 38 | 3.3 | 71 | SE | 6 | 2.7 | | 1k | 0 | SE | | Inap. | Inap. | Clear | |
| Washington, D. C | | | 30.39 | 771.9 | 54 | 12.2 | 79 | S | 3 | 1.3 | | 8ck,hz | Fog | SW | S | 0 | 0 | Cloudy | |
| Wickenburg, Arizona | | | | | 57 | 13.9 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.32 | 770.1 | 62 | 16.7 | 88 | E | 10 | 4.5 | | | 10s | | E | 0.23 | 5.8 | Cloudy | |
| Wood's Holl, Mass | | | 30.29 | 769.4 | 57 | 13.9 | 57 | NW | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Yankton, Dakota | 28.76 | 730 5 | 30.04 | 763.0 | 51 | 10.6 | 89 | E | 8 | 3.6 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Yuma, Arizona | | | 29 84 | 757.9 | 62 | 16.7 | | W | | | | 5k | 0 | W | | 0 | 0 | Fair | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.13 | 765.3 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 5c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | NE | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.97 | 761.2 | 78 | 25.6 | 95 | E | | | 2 | | 10n | | | 1.225 | 31.12 | Rainy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 29.99 | 761.8 | | | 79.7 | 26.5 | | E | | | | | | | | 0.394 | 10.00 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.20 | 614.7 | | | 75.5 | 24.2 | 84 | Calm | | | 0 | | 10n | | | 0.11 | 2.8 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.91 | 759.7 | 40.5 | 4.7 | 91 | W | 8 | 3.6 | | 5k | 4s | W | W | Inap. | Inap. | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.08 | 764.0 | 71 | 21.7 | | NE | | | 5 | | | | | 0 | 0 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,878 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,382.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.46 | 773.7 | 72 | 22.2 | 56 | 13.3 | 69 | ESE | | | 1 | | 3 | | W | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.82 | 757.4 | 61 | 16.1 | 55 | 12.8 | | WSW | | | 1 | | 3 | | NE | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va | 30.48† | 774.2† | 56 | 13.3 | 56 | 13.3 | 81 | E | 2 | 0.9 | | | 1c | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Pensacola, Fla. | 30.22 | 767.6 | | | 70 | 21.1 | 70 | ENE | 23 | 10.3 | | | 7 | | NNE | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.28 | 769.1 | 65 | 18.3 | 54 | 12.2 | 61 | W | 2 | 0.9 | | | | | | 0 | 0 | | | Hazy | |
| Naval Hospital. Yokohama, Japan | 29.94 | 760.5 | 65 | 18.3 | 54 | 12.2 | 87 | ENE | | | 6 | | 10n | | NE | | | | | Light rain | |
| Adams, N. 10° 55′ W. 30° 18′ | 30.05 | 763.3 | 80 | 26.7 | 81 | 27.2 | 87 | ENE | | | 6 | | 7 | | E | | | Moderate. | NE | D. clouds | |
| Alert, Yeddo Bay, Japan | 30.19 | 766.8 | 64 | 17.8 | 63 | 17.2 | 94 | N | | | 4 | | 10 | | N | | | Short | NNE | D. clouds | |
| Alliance, Beirut, Syria | 30.11 | 764.8 | 73 | 22.8 | 71 | 21.7 | 71 | N | | | 0–1 | | 1 | | S | | | | | Hazy | |
| Ashuelot, Canton, China | 29.96 | 761.0 | 82 | 27.8 | 81 | 27.2 | 87 | ESE | | | 2–3 | | 10 | | E | | | Smooth | | Lightning | |
| Canonicus, New Orleans, La | 30.02 | 762.5 | 51 | 10.6 | 70 | 21.1 | 90 | ESE | | | 3 | | 8 | | NW | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.45 | 773.4 | 70 | 21.1 | 61 | 16.1 | 55 | W | | | 2 | | 3 | | | 0 | 0 | | | D. clouds | |
| Despatch, Horta, Fayal, Azores, | 29.95 | 760.7 | 62 | 16.7 | 64 | 17.8 | 94 | W | | | 2–5 | | 3 | | E | | | | | Squally | |
| Essex, N. 25° 45′ W. 88° 11′ | 29.94 | 760.5 | 75 | 23.9 | 77 | 25.0 | 95 | E | | | 6 | | 10 | | NW | | | Rough | E | Raining | |
| Frolic, S. 32° 27′ W. 50° 13′ | 29.97 | 761.2 | | | 68 | 20.0 | 95 | E | | | 4 | | 10kn | | | | | Moderate. | E | Showery | |
| ‡Gettysburg, Genoa, Italy | 29.83 | 757.7 | | | 66 | 18.9 | 100 | ESE | | | 3 | | 2 | | | 0 | 0 | | | D. clouds | |
| Hartford, St. Thomas, W. I | 30.20 | 767.1 | 84 | 28.9 | 81 | 27.2 | 83 | E | 3.6 | 1.6 | | | 8 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.10 | 764.5 | 74 | 23.3 | 69 | 20.6 | 95 | N | | | 1 | | 10 | | SE | ¶0.2 | 5.1¶ | Calm | None | Overcast | |
| Lackawanna, Acapulco, Mexico | 29.93 | 760.2 | | | 82 | 27.8 | 91 | Calm | | | 0 | | 4 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 30.04 | 763.0 | 73 | 22.8 | 64 | 17.8 | 89 | WSW | | | 4 | | 0 | | | 0 | 0 | Chop'd | WSW | Blue sky | |
| Michigan, Erie, Pa | 29.82 | 757.4 | 60 | 15.6 | 51 | 10.6 | 52 | NE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.84 | 757.9 | 70 | 21.1 | 66 | 18.9 | 89 | SW | | | 3 | | 10 | | SW | | | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.41 | 772.4 | 59 | 15.0 | 62 | 16.7 | | NE | | | 1 | | k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.45 | 773.4 | | | 65 | 18.3 | 94 | ESE | 5 | 2.2 | | | 10 | | | 0.1 | 3. | | | Thunder | |
| Omaha, Guayaquil, Ecuador | 29.95 | 760.7 | 80 | 26.7 | 79 | 26.1 | 91 | Calm | 0 | 0 | | | 9 | | | 0.09 | 2.3 | Smooth | | Cloudy | |
| Ossipee, N. 26° 22′ W. 79° 53′ | 30.14 | 765.5 | 75 | 23.9 | 74 | 23.3 | 95 | ENE | | | 4 | | 2 | | ENE | | | Light | ENE | D. clouds | |
| Pa os, Shanghai, China | 29.98 | 761.5 | 68 | 20.0 | 66 | 18.9 | 84 | SE | | | 3 | | 10 | | E | | | | | Overcast | |
| Pensacola, N. 17° 32′ W. 102° 09′ | 30.00 | 762.0 | | | 82 | 27.8 | 75 | S&W | | | 1 | | 2 | | S | 0 | 0 | Light | S&W | Pleasant | |
| Plymouth, New Orleans, La | 30.07 | 763.8 | 75 | 23.9 | 71 | 21.7 | 80 | ENE | | | 5 | | 8 | | | ¶0.15 | 3.8¶ | | | Cloudy | |
| Powhatan, N. 36° 58′ W. 76° 05′ | 30.18 | 766.6 | | | 57 | 13.9 | 81 | E | | | 2 | | 3 | | E | | | Calm | None | D. clouds | |
| Ranger, N. 36° 33′ W. 21° 12′ | 30.17 | 766.3 | | | 64.5 | 18.1 | 97 | NW | | | 3 | | 10 | | | | | Moderate. | N&W | Thick mist | |
| Richmond, S. 28° 24′ W. 45° 5′ | 29.87 | 758.7 | 71.5 | 21.9 | 70.0 | 21.1 | 95 | ENE | | | 6 | | 10 | | ENE | | | Moderate. | ENE | Raining | |
| Rio Bravo, Matamoras, Mexico | 29.89 | 756.9 | | | 68 | 20.0 | 95 | E | | | 1 | | 8 | | NW | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.45 | 773.4 | 67 | 19.4 | 61 | 16.1 | 66 | Calm | | | 0 | | 8 | | | 0 | 0 | | | Hazy | |
| St. Louis, League Island, Pa | 30.27 | 768.8 | 49 | 9.4 | 48 | 8.9 | 92 | SE | 2 | 0.9 | | | 8 | | S | 0 | 0 | | | Foggy | |
| Swatara, N. 10° 00′ W. 80° 30′ | 29.96 | 761.0 | 83 | 28.3 | 83 | 28.3 | 87 | NNE | | | 2 | | 5k | | NNE | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 30.02 | 762.5 | 68 | 20.0 | 60 | 15.6 | 88 | NE | | | 4 | | 10 | | | Blank | Blank | Moderate. | E | Squally | |
| Trenton, N. 36° 58′ E. 19° 52′ | 30.06 | 763.5 | 72 | 22.2 | 73 | 22.8 | 81 | ESE | 3.1 | 1.4 | | | 2 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.14 | 765.5 | 67 | 19.4 | 75 | 23.9 | 86 | NE | | | 1 | | 1 | | N | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.30 | 769.6 | 58 | 14.4 | 59 | 15.0 | 59 | NW | 7 | 3.1 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.64 | 778.2 | 64 | 17.8 | 56 | 13.3 | | Calm | | | 0 | | | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

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| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Hong-Kong, China | | | 29.93 | 760.2 | 83 | 28.3 | 87 | E | | | 2 | | 1s | | | | | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
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| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

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| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
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| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.13 | 765.3 | 69 | 20.6 | 90 | SE | 13 | 5 8 | | | 108 | | SE | | | Overcast | Capt. James Jorgensen |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg'd,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 14, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.7 | 71.8 | 22.1 | 67 | N | | | 2 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.08 | 764.1 | 72.7 | 22.6 | 33 | WNW | | | 3 | | 5 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.04 | 762.9 | 69.3 | 20.7 | 87 | ENE | | | 2 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.08 | 764.0 | 73.4 | 23 | | NNE | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.09 | 764.3 | 84.2 | 29 | | N | | | 4 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.11 | 764.7 | 84.5 | 30.3 | | W | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.07 | 763.6 | 77.7 | 25.4 | | W | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.13 | 765.3 | 86.0 | 30.0 | | W | | | 2 | | 1 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.10 | 764.5 | 87.8 | 31.0 | 22 | W | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.06 | 763.5 | 91.0 | 32.8 | | SE | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.91 | 759.6 | 72.3 | 22.4 | 51 | SW | | | 2 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.83 | 759.3 | 61.9 | 16.6 | 48 | W | | | 3 | | 3 | | | 0.567 | 14.4 | | Dr. Wierzbiski. |
| Eperies | | | 29.86 | 758.5 | 65.5 | 18.6 | 60 | W | | | 3 | | k,s | | NE | 0.047 | 1.14 | | Julius Mikolik. |
| Gratz | | | 29.90 | 759.5 | 67.5 | 19.7 | 53 | SW | | | 3 | | 2 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.69 | 728.7 | 29.90 | 759.5 | 67.5 | 19.7 | 53 | SE | | | 1 | | 5 | | | 0.179 | 4.55 | | Prof. Reissenberger. |
| Kremsmünster | 28.53 | 724.6 | 29.88 | 758.9 | 76.6 | 24.8 | 48 | ENE | | | 2 | | 3 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | 28.48 | 723.5 | 29.79 | 756.7 | 61.5 | 16.4 | 70 | SW | | | 3 | | 7 | | | 0.102 | 2.6 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | 29.82 | 757.5 | 61.7 | 16.5 | 59 | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.98 | 761.5 | 66.9 | 19.4 | 63 | SSE | | | 0 | | 10s | | | 0.014 | 0.36 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.94 | 760.5 | 78.3 | 25.7 | 30 | NW | | | 2 | | 3 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.06 | 763.9 | 66.9 | 18.9 | 65 | NNW | | | 1 | | 6 | | | Inap | Inap. | ¾ covered | P. Busin. |
| Vienna | | | 29.86 | 758.5 | 67.7 | 19.5 | 59 | SSE | | | 2 | | 1 | | | 0.295 | 7.5 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 348.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.26 | 717.8 | 29.73 | 755.1 | 51.1 | 10.6 | 84 | S | | | 1 | | 10 | | | 0.481 | 12.3 | | Royal Observatory. |
| Brussels | | | 29.67 | 753.6 | 61.0 | 16.1 | 78 | SSW | | | 1 | | 10 | | SSW | 0.061 | 1.55 | Sprinkling | |
| Furnes | | | 29.68 | 753.8 | 54.9 | 12.7 | 98 | S | | | 1 | | 10 | | | 0.129 | 3.1 | | |
| Maeseyck | | | 29.58 | 751.2 | 55.0 | 12.8 | 79 | SSW | | | 6 | | 10 | | | 0.339 | 8.6 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.75 | 755.6 | 46.2 | 7.9 | | ENE | 16 | 7.2 | | | 1 | | | 0.005 | 0.13 | Blue sky | William Boswell. |
| Ardrossan | | | 29.65 | 753.1 | 51 | 10.6 | | ENE | | | 3 | | 6 | | | | | Hailing | William McNeil |
| Armagh, Observatory | | | 29.59 | 751.6 | 54.4 | 12.4 | | SE | 13 | 5.8 | | | 8 | | | | | D. clouds | S. Call, for Dr. Robinson |
| Bidston, (Liverpool Obs.) | | | 29.60 | 751.8 | 54.8 | 12.7 | | E | 23 | 10.3 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.54 | 750.3 | 53.7 | 12.1 | | ESE | | | 1 | | 10 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 29.77? | 756.1? | 47.1 | 8.4 | | E | | | 0 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 84.0 | 28.9 | | NE | | | 3 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H.C. |
| Cambridge, Observatory | | | 29.64 | 752.8 | 57.0 | 13.9 | | ESE | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 29.64 | 752.8 | 59.0 | 15.0 | | SE | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.60 | 751.8 | 54.2 | 12.3 | | Calm | | | 0 | | 8 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 28.11 | 714.0 | 29.57 | 751.1 | 51.0 | 10.6 | | SE | | | 2 | | 10 | | | | | Drizzling | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.62 | 752.3 | 55 | 12.8 | | ESE | | | 4 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.64 | 752.8 | 54 | 12.2 | | SSE | | | 2 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.64 | 752.8 | 52.7 | 11.5 | | SE | 0.8 | 0.4 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.54 | 750.3 | 58.0 | 14.4 | | W | | | 3 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.56 | 700.0 | 29.79 | 756.7 | 81.4 | 27.4 | | NW | | | 3 | | 2 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.90 | 759.4 | 89 | 31.7 | | E | | | 3 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.46 | 748.3 | 56 | 13.3 | | SSE | | | 4 | | 10 | | | | | Raining | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.00 | 761.3 | 72.2 | 22.3 | | NW | | | 3 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 29.68 | 753.9 | 47.4 | 8.6 | | NE | | | 3 | | 10 | | | | | Overcast | Lewis Stuart. |
| Great Yarmouth | | | 29.68 | 753.9 | 46 | 7.8 | | SE | | | 1 | | 6 | | | | | Misty | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.63 | 752.6 | 54.9 | 12.7 | | E | | | 1 | | 10 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 29.59 | 751.6 | 53 | 11.7 | | SSE | | | 2 | | 10 | | | | | Raining | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.62 | 752.3 | 58 | 14.4 | | SW | | | 0 | | 4k | | | 0.69 | 17.5 | Hazy | M. P. Moyle. |
| Holyhead | | | 29.58 | 751.3 | 56 | 13.3 | | S | | | 1 | | 10 | | | | | Overcast | John Tilston. |
| Kew, Observatory | | | 29.63 | 752.6 | 51.7 | 10.9 | | SSE | 3 | 1.3 | | | 10 | | | | | Raining | The Staff. |
| Kingstown | | | 29.56 | 750.8 | 53 | 11.7 | | SE | | | 4 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.65 | 753.1 | 51.9 | 11.1 | | NE | | | 2 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.99 | 761.7 | 72.0 | 22.0 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.69 | 754.1 | 52 | 11.1 | | ENE | | | 1 | | 2 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.12 | 765.0 | 73.0 | 23.1 | | NE | | | 5 | | 10 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 29.68 | 753.9 | 49.8 | 9.9 | | SE | | | 3 | | 10k | | ESE | 0 | 0 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.62 | 752.3 | 52.2 | 11.2 | | ENE | | | 3 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.62 | 752.3 | 54 | 12.2 | | SE | | | 1 | | 10 | | | | | Drizzling | J. W. Lucas. |
| Plymouth | | | 29.55 | 750.6 | 54.5 | 12.5 | | SE | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.50 | 749.3 | 56 | 13.3 | | SE | | | 4 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.50 | 749.3 | 49 | 9.4 | | ESE | | | 6 | | 10 | | | | | Foggy | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.58 | 751.3 | 55.0 | 12.8 | | SSE | | | 2 | | 10 | | | | | Raining | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.80 | 756.9 | 50.2 | 10.1 | | E | 22 | 9.8 | | | 8 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.98 | 761.5 | 69.8 | 21.0 | | NE | | | 2 | | 5 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.67 | 753.6 | 50.5 | 10.3 | | E | | | 1 | | 10 | | | 0.277 | 7.04 | Overcast | W. F. Cooper. |
| Stilloth, Rectory | | | 29.63 | 752.6 | 57.5 | 14.0 | 65 | SE | | | 3 | | 2 | | | 0 | 0 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.65 | 753.1 | 52.1 | 11.2 | | SE | | | 2 | | 10 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.67 | 753.6 | 57 | 13.9 | | SE | | | 1 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 29.62 | 752.3 | 55.9 | 13.3 | | S | | | 1 | | 10 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 29.75 | 755.6 | 54 | 12.2 | | ESE | | | 3 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.57 | 751.1 | 60 | 15.6 | | W | | | 4 | | 10 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.54 | 750.3 | 52.2 | 11.2 | | W | 20 | 8.9 | | | 10 | | | | | Misty | The Staff. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 47 | 8.3 | | E | | | 3 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.05 | 763.3 | 61.3 | 16.3 | 97 | NW | 7 | 3.1 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.64 | 752.8 | 62.0 | 16.7 | 94 | Calm | | | 0 | | 10n | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.74 | 755.4 | 45.9 | 7.7 | | E | | | 2 | | 10s | | | 0.01 | 0.3 | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.09 | 764.3 | 74.4 | 23.6 | 65 | SE | 14.0 | 6.3 | | 0 | 1 | | SE | 0 | 0 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 29.83 | 757.7 | 57.0 | 13.9 | 84 | NNE | 9 | 4.0 | | | 0 | | | 0.06 | 1.5 | Clear | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.66 | 753.4 | 51 | 10.6 | | E | | | 3 | 5 | 3 | E | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.85 | 758.2 | 45 | 7.2 | | E | | | 6 | | 10 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 42° 0′ W. 63° 15′ | | | 30.11 | 764.8 | 45.0 | 7.2 | | W | | | 2 | | 0 | | | 0 | Smooth | Hazy | Capt. W. Watson. |
| S. S. Batavia, N. 49° 35′. W. 28° 45′ | | | | | 52.0 | 11.1 | | WSW | | | 3 | | 8 | | | 4 | SW | Showery | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 18° 20′ W. 50° 0′ | | | 30.02 | 762.5 | 79.5 | 26.4 | | ENE | | | 4 | | 1 | | | 4 | ENE | Blue sky | Capt. Ja . J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.13 | 663.7 | | | 70.7 | 21.5 | 86 | NE | | | 1 | | 1c | | | 0.6 | 15. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.49 | 749.1 | 49.6 | 9.8 | 92 | SW | | | 2 | | 10 | | | | | Raining | |
| Fanöe | | | 29.56 | 751.0 | 50.4 | 10.2 | 94 | W | | | 4 | | 10 | | | | | | |
| Godthaab, (Greenland) | | | 29.84 | 757.8 | 37.2 | 2.9 | 82 | WSW | | | 2 | | 1 | | | | | | |
| Strykkisholm, (Iceland) | | | 29.99 | 759.5 | 47.3 | 8.5 | 88 | Calm | | | 0 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.93 | 760.1 | 47.5 | 8.6 | 50 | E | | | 4 | | 7 | | | | | | |
| Vestervig | | | 29.50 | 749.4 | 46.4 | 8.0 | 98 | NE | | | 4 | | 10 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.69 | 754.0 | 55.4 | 13 | 87 | SW | | | 1 | | 5n | | SW | 0.220 | 5.6 | Cloudy | Normal School. |
| Amiens | | | 29.61 | 752.2 | 57.9 | 14.4 | | ESE | | | 3 | | 10 | | | 0.094 | 2.4 | Covered | Normal School. |
| Avignon, Normal School | | | 29.91 | 759.8 | 61.2 | 16.2 | 85 | SE | | | 2 | | 8 | | SSE | | | Rainy | Mr. Giraud. |
| Bar-sur-Seine | | | 29.73 | 755.1 | 57.4 | 14.1 | 82 | S | | | 4 | | 10n | | SW | 0.059 | 1.5 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.65 | 753.1 | 61.3 | 16.3 | 72 | SSW | | | 1 | | 10 | | WSW | 0.134 | 3.40 | Covered | Normal School. |
| Besançon | | | 29.91 | 759.6 | 58.1 | 14.5 | 76 | S | | | 3 | | 8 | | S | 0.283 | 7.2 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.95 | 760.7 | 54.5 | 12.5 | 83 | SE | | | 6 | | 10n | | | 0.150 | 3.8 | Covered | Normal School. |
| Bourges | | | 29.74 | 755.3 | 59.7 | 15.4 | 87 | SSW | | | 6 | | 5 | | E | 0.055 | 1.4 | Partly cl'dy. | Normal School. |
| Brest | | | 29.56 | 750.8 | 58.8 | 14.9 | 84 | WSW | | | 4 | | 9 | | WSW | 0.413 | 10.70 | Squally | Naval Observatory. |
| Carcassonne | | | 29.83 | 757.6 | 71.6 | 22 | 48 | W | | | 2 | | 2 | | E | 0 | 0 | S'lightly cl'dy | Normal School. |
| Caen | | | 29.60 | 751.7 | 58.6 | 14.8 | 82 | S | | | 1 | | 10 | | E | 0.280 | 7.1 | Raining | Normal School. |
| Chartres | | | 29.63 | 752.6 | 56.7 | 13.7 | 91 | WSW | | | 3 | | 7 | | SW | 0.177 | 4.5 | | Normal School. |
| Châlons-sur-Marne | | | 29.71 | 754.5 | 57.2 | 14.0 | 84 | SSW | | | 3 | | 10 | | | 0.118 | 3.0 | Raining | Normal School. |
| Clermont-Ferrand | | | 29.77 | 756.1 | 64.4 | 18.0 | 55 | SW | | | 2 | | 8 | | SW | 0 | 0 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.75 | 755.6 | 52.9 | 11.6 | 87 | S | | | 4 | | 10 | | SE | 0.059 | 1.5 | Covered | Normal School. |
| Commune de Gréasque* | | | 30.00 | 762.0 | 56.7 | 13.7 | 93 | SE | | | 2 | | 10 | | SE | | | Showery | M. Kina. |
| Grenoble | | | 29.89 | 759.1 | 60.3 | 15.7 | 70 | SW | | | 6 | | 10n | | N | 0 | 0 | Covered | Normal School. |
| La Roche-sur-Yon | | | 29.70 | 754.4 | 61.2 | 16.2 | 75 | W | | | 6 | | 8 | | E | 0.098 | 2.5 | Very cloudy | Normal School. |
| Le Mans | | | 29.65 | 753.2 | 60.6 | 15.9 | 74 | SW | | | 4 | | 8 | | SW | 0.138 | 3.50 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.81 | 757.1 | 57.7 | 14.3 | 72 | S | | | 4 | | | | E | 0.008 | 0.20 | | Normal School. |
| Lorient | | | 29.67 | 753.6 | 62.6 | 17.0 | 68 | WSW | | | 4 | | 10 | | SW | 0.197 | 5.0 | Covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.93 | 760.1 | 56.7 | 13.7 | 89 | SW | | | 2 | | 10 | | | 0.20 | 5. | Covered | Mr. Marchal. |
| Metz | | | 29.84 | 757.9 | 54.7 | 12.6 | 70 | SSE | | | 3 | | 10 | | | 0.126 | 3.2 | Hailing | M. A. Schuster. |
| Mirecourt | | | 29.79 | 756.6 | 52.9 | 11.6 | 85 | SSW | | | 4 | | 10 | | NE | 0 | 0 | Covered | Normal School. |
| Nismes | | | 29.86 | 758.4 | 68.0 | 20 | 62 | S | | | 4 | | 10 | | NW | 0.374 | 9.5 | Covered | Normal School. |
| Orleans | | | 29.63 | 752.5 | 60.1 | 15.6 | 91 | WSW | | | 4 | | 5 | | WSW | 0.04 | 1. | Cloudy | Normal School. |
| Paris, Observatory | | | 29.63 | 752.7 | 59.5 | 15.3 | 77 | SW | | | 2 | | 10 | | WSW | 0.208 | 5.29 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 29.78 | 756.4 | 61.2 | 16.9 | 78 | SW | | | 8 | | 8 | | NE | 0.04 | 1. | ¾ covered | Naval Observatory. |
| Rouen | | | 29.63 | 752.7 | 55.6 | 13.1 | 83 | WNW | | | 2 | | 10 | | S | 0.256 | 6.5 | Covered | Normal School. |
| Tarbes | 28.79 | 731.3 | 29.86 | 758.4 | 66.6 | 19.2 | 66 | SW | | | 1 | | 0 | | | 0.256 | 6.5 | Clear | Normal School. |
| Villefranche | | | 29.85 | 758.1 | 53.6 | 12 | 94 | E | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique. | | | 29.87 | 758.8 | 81.3 | 27.4 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.94 | 760.4 | 69.1 | 15.6 | 90 | SE | | | 1-2 | | 10 | | | 0.423 | 10.75 | Raining | The Staff. |
| Mont-Louis | 24.77 | 629.2 | 30.09 | 764.2 | 51.4 | 10.8 | 70 | SSW | 28.4 | 12.50 | | | 8 | | SSW | 0.031 | 0.8 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.63 | 752.7 | 58.8 | 14.9 | 78 | SW | | | 2 | | 10 | | SW | 0.165 | 4.2 | Sprinkling | Montsouris Observatory |
| Perpignan | | | 29.88 | 759.0 | 62.6 | 17.0 | 74 | S | 1.9 | 0.83 | | | 4 | | SW | 0.441 | 11.2 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P | | | | | | | | | | | | | | | | | | | } Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P | 22.41 | 569.2 | | | 37.4 | 3.0 | | SW | | | 4-6 | | 10 | | | 0.217 | 5.5 | Snowy | } and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 29.64 | 752.8 | 59.4 | 15.2 | 86 | SW | | | 2 | | 10 | | | 0.295 | 7.5 | Rainy | E. Renou. |
| Toulouse, Observatory | | | 29.87 | 758.6 | 71.2 | 21.8 | 55 | SSE | | | 2 | | 6 | | | 0.220 | 5.6 | | The Staff. |
| Tours | | | 29.70 | 754.3 | 58.8 | 14.9 | 84 | WSW | | | 3 | | 9 | | W | 0.094 | 2.4 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.65 | 753.2 | 59.0 | 15.0 | 85 | WSW | | | 1 | | 10 | | | 0.196 | 4.90 | Light rain | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.90 | 759.5 | 67.1 | 19.5 | 92 | N | 4.9 | 2.2 | | | 10kn | | | 0.181 | 4.6 | Dark sky | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7.8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,556.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:71, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

**Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.82 | 757.3 | 65.7 | 18.7 | 47 | SW | | | 3 | | 8 | SW | | 0.03 | 1.0 | Raining | Prof. T. Hoh. |
| Berlin | | | 29.74 | 755.3 | 63.5 | 17.5 | 44 | S | | | 3 | | 8 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.84 | 757.9 | 65.5 | 18.6 | 34 | SW | | | 3 | | 6 | W | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.82 | 757.3 | 56.1 | 13.4 | 79 | SW | | | 8 | | 10 | | | 0.031 | 0.8 | Raining | Albert Senz. |
| Cassel | | | 29.78 | 756.5 | 65.5 | 18.6 | 37 | WSW | | | 5 | | 7 | SW | | 0.09 | 2.4 | | Dr. H. Möhl. |
| Crefeld | | | 29.67 | 753.7 | 64.4 | 18.0 | 53 | NW | | | 2 | | 9 | | | 0.27 | 7.0 | | Director Lose. |
| Emden | | | 29.68 | 753.9 | 56.1 | 13.4 | 67 | WNW | | | 3 | | 10 | | | 0.35 | 9.0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.81 | 757.1 | 64.9 | 18.3 | 35 | SSW | | | 2 | | 9 | | | 0.02 | 0.6 | | Physical Society. |
| Friedrichshafen | 28.97? | 735.9? | 29.87? | 758.7? | 58.6 | 14.8 | 54 | S | | | 1 | | 4 | N | | 0.22 | 5.8 | Light rain | M. Wilhelm. |
| Hamburg | | | 29.66 | 753.4 | 53.8 | 12.1 | 85 | WSW | | | 6 | | 10n | | | 0.18 | 4.7 | Squally | Captain F. Hegemann. |
| Kiel | | | 29.58 | 751.3 | 55.6 | 13.1 | 95 | WSW | | | 3 | | 7 | | | 0.20 | 5.3 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.71 | 754.7 | 63.1 | 17.3 | 57 | W | | | 2 | | 2 | | | 0.28 | 7.1 | Hailing | Prof. L. Luther. |
| Köslin | | | 29.70 | 754.4 | 58.6 | 14.8 | | SSW | | | 4 | | 4 | | | 0.22 | 5.7 | | H. Müller. |
| Leipsic | | | 29.79 | 756.6 | 67.3 | 19.6 | 30 | SW | | | 3 | | 8 | SW | | 0.07 | 2.0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.73 | 755.2 | 51.6 | 10.9 | | SSW | | | 1 | | 10ks | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.63 | 752.5 | 59.0 | 15.0 | 61 | SW | | | | | 5 | | | 0.31 | 8.0 | Raining | Prof. E. Heis. |
| Neufahrwasser | | | 29.72 | 754.8 | 64.8 | 18.2 | 55 | WSW | | | 3 | | 8 | SW | | 0.08 | 2.1 | | A. Lothes. |
| Posen | | | 29.81 | 757.2 | 66.7 | 19.3 | 41 | W | | | 5 | | 3 | | | 0.03 | 0.8 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.82 | 757.5 | 58.3 | 13.5 | 81 | SSW | | | 1 | | 10 | SW | | | | Raining | Dr. Schur. |
| Stuttgart | | | 29.89 | 756.8 | 59.9 | 15.5 | 49 | SW | | | 2 | | 10 | W | | 0.154 | 3.9 | Raining | Prof. Schoder |
| Treves, (Trier) | | | 29.64 | 752.8 | 58.1 | 14.5 | 66 | SW | | | 6 | | 10 | | | 0.539 | 13.7 | Foggy | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.34 | 719.8 | 29.81 | 757.2 | 60.3 | 15.7 | 48 | SW | | | 2 | | 10 | SW | | 0.004 | 0.1 | Light rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.69 | 753.4 | 51.1 | 10.6 | 88 | SW | | | 3 | | 10 | | | 0.504 | 12.8 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

**Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.**

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.99 | 761.8 | 80.2 | 26.8 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

**Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.**

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.14 | 562.3 | 29.97 | 761.3 | 32.4 | 0.2 | 100 | NW | | | 1 | | 10 | | | 1.575* | 40.08 | | Prof. Giovanni Clodig. |
| Stelvio | 22.08 | 560.9 | 29.85 | 758.2 | 33.1 | 0.6 | | W | | | 6 | | 10 | | | 0.327 | 8.5 | | Signora Ernesta Manfredi. |
| Udine | | | 29.93 | 760.9 | 67.6 | 19.8 | 58 | S | 2.7 | 1.1 | | | 4 | | | 0.020 | 0.5 | | Ab. Dom. Morgini. |
| Padua | | | 29.94 | 760.5 | 68.0 | 20.0 | 54 | S | 4.3 | 1.9 | | | 5 | NW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.95 | 760.7 | 69.4 | 20.8 | 44 | ENE | 1.8 | 0.8 | | | 5 | W | | 0 | 0 | | Cont. Alm. Da Schio. |
| Verona | | | 29.89 | 759.1 | 57.9 | 14.4 | 92 | SE | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.66 | 728.0 | 29.95 | 760.8 | 63.5 | 17.5 | 42 | SSW | | | 2 | | 9 | | | 0.118 | 3.0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.91 | 759.8 | 62.1 | 16.7 | 47 | S | | | 4 | | 10 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.91 | 759.6 | 66.9 | 19.4 | 71 | NE | | | 2 | | 10 | WSW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.95 | 760.8 | 64.4 | 18.0 | 44 | NE | | | 2 | | 10 | SW | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.95 | 760.6 | 61.5 | 16.4 | 56 | NNW | 3.1 | 1.4 | | | 10 | SE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovì | 28.04 | 712.2 | 29.91 | 759.6 | 58.1 | 14.5 | 65 | NW | | | 6 | | 10 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.05 | 763.3 | 64.0 | 17.8 | 63 | SW | | | 6 | | 9 | SW | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.02 | 762.4 | 61.7 | 16.5 | 70 | SE | 9.4 | 4.2 | | | 10 | S | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.97 | 761.1 | 66.9 | 19.4 | 48 | SW | 2.7 | 1.1 | | | 10 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.96 | 761.0 | 67.6 | 19.8 | 58 | WNW | | | 2 | | 10 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.05 | 763.2 | 68.5 | 20.3 | 46 | W | | | 2 | | 7 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.04 | 762.9 | 65.1 | 18.4 | 58 | SW | 1.3 | 0.6 | | | 7 | WSW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.82 | 731.9 | 29.99 | 761.8 | 62.1 | 16.7 | 52 | NW | 0 | 0 | | | 7 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.48 | 723.3 | 30.00 | 762.0 | 66.2 | 19.0 | 38 | SW | | | 2 | | 8 | | | 0.098 | 2.5 | | Prof. P. Serpieri. |
| Pesaro | | | 29.99 | 761.8 | 65.7 | 18.7 | 40 | E | 0 | 0 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.98 | 761.4 | 67.3 | 19.6 | 43 | SE | | | 4 | | 10 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.04 | 762.9 | 70.2 | 21.2 | 35 | NNW | | | 2 | | 8 | SE | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.02 | 762.6 | 72.0 | 22.2 | 57 | SE | 5.6 | 2.5 | | | 4 | WSW | | 0.008 | 0.2 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.02 | 762.4 | 76.1 | 24.5 | 48 | W | | | 4 | | 6 | WSW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.02 | 762.6 | 73.0 | 22.8 | 52 | S | 7.4 | 3.3 | | | 4 | | | 0 | 0 | | Prof. C. Dettiorgi. |
| Cosenza | | | 29.98 | 761.6 | 78.4 | 25.8 | 66 | NW | 6.9 | 3.1 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.89 | 759.1 | 72.7 | 26.0 | 50 | S | | | 2 | | 7 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.94 | 760.4 | 68.4 | 20.2 | 70 | NE | | | 2 | | 3 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.00 | 761.9 | 69.6 | 20.9 | 50 | NE | 6.3 | 2.8 | | | 9 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.04 | 712.1 | 29.92 | 760.0 | 72.3 | 22.4 | 31 | WNW | | | 4 | | 5 | NE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.90 | 759.5 | 70.5 | 21.4 | 60 | NE | | | 4 | | 6 | SSW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.07 | 763.8 | 72.3 | 22.4 | 28 | WSW | 3.8 | 1.7 | | | 8 | NW | | 0.016 | 0.4 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovì, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.29 | 769.4 | 51.7 | 10.8 | 89 | NE | 4 | 1.8 | | | 10n | | | 0.52 | 13.2 | Cloudy | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.7 | 30.10 | 764.6 | 60.8 | 16.0 | 65 | Calm | 0 | 0 | | 0 | 0 | | | 0.178 | 4.5 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.69 | 754.1 | 55.0 | 12.8 | | NW | | | 2 | | | | | 0.827 | 21.0 | | |
| Groningen | | | 29.63 | 752.5 | 53.8 | 12.1 | | NW | | | 4 | | | | | 0.146 | 3.7 | | |
| Helder | | | 29.68 | 753.8 | 51.6 | 10.9 | | WSW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.65 | 753.0 | 60.6 | 15.9 | 30 | WSW | | | 2 | | 8 | | | 0.150 | 3.8 | Very cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.71 | 754.5 | 60.8 | 16.0 | 45 | ESE | 6.5 | 2.9 | | | 1 | | | 0 | 0 | | |
| Brône | | | 29.96 | 760.9 | 42.8 | 6.0 | 79 | N | 18 | 8 | | | 3 | | | 0.353 | 9.0 | | |
| Christiania | | | 29.74 | 755.3 | 47.7 | 8.7 | 67 | ENE | 4 | 2 | | | 10 | | | | | Light rain | |
| Tromsö | | | 29.82 | 757.4 | 36.5 | 2.7 | 87 | Calm | 0 | 0 | | | 10 | | | 0.260 | 6.6 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna The symbols. Cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.14 | 765.5 | 63.0 | 17.2 | 86 | W | 9.8 | 4.4 | | | 7 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.08 | 764.1 | 66.6 | 19.2 | 58 | WNW | 9.4 | 4.2 | | | 6 | WNW | | 0.156 | 3.8 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.22 | 767.6 | 68.4 | 20.2 | 76 | SW | 3.1 | 1.4 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.14 | 765.6 | 64.9 | 18.3 | 66 | W | 11.2 | 5.0 | | | 6 | | | 0.366 | 9.3 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.17 | 766.4 | 67.3 | 19.6 | 70 | WSW | 4.9 | 2.2 | | | 4 | NNW | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.80 | 757.0 | 61.7 | 16.5 | 59 | WSW | 11 | 5 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.69 | 754.6 | 64.9 | 18.3 | 80 | S | 9 | 4 | | | 10 | | | | | Raining | Astronomical Obs. |
| Dorpat | | | 29.73 | 755.1 | 55.2 | 12.9 | 78 | ESE | 9 | 4 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.85 | 758.2 | 54.0 | 12.2 | 56 | ENE | 13 | 6 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.83 | 757.7 | 54.0 | 12.2 | 63 | S | 13 | 6 | | | 7 | | | | | | Ch. Forsten. |
| Kieff | | | 29.85 | 758.1 | 79.9 | 26.6 | 45 | SSW | 18 | 8 | | | 8 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.11 | 764.7 | 75.6 | 24.2 | 41 | S | 7 | 3 | | | 2 | | | | | | Kurdakof |
| Kertch | | | 30.11 | 764.8 | 72.3 | 22.4 | 70 | NE | 11 | 5 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.96 | 760.9 | 66.7 | 19.3 | 84 | S | 9 | 4 | | | 6 | | | | | | Meteorological Obs |
| Lugan | | | 30.07 | 763.6 | 78.4 | 25.8 | 46 | Calm | 0 | 0 | | | 5 | | | | | | Meteorological Obs. |
| Archangel | | | 29.89 | 759.2 | 49.8 | 9.9 | 50 | W | 9 | 4 | | | 3 | | | | | | Ogorodnikof. |
| Tiflis | 28.71 | 729.2 | 30.08 | 763.9 | 75.6 | 24.2 | 47 | SW | 9 | 4 | | | 1 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.10 | 764.6 | 79.2 | 26.2 | 34 | N | 4 | 2 | | | 10 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 30.03 | 762.8 | 66.4 | 19.1 | 61 | SW | 4 | 2 | | | 5 | | | | | | Physical Cabinet |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischet. |
| Ekaterinburg | 29.04 | 737.5 | 29.94 | 760.5 | 71.4 | 21.9 | 33 | SW | 31 | 14 | | | 7 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | | | | | | | | | | | | | | | | | | | Michelson. |
| Barnaul | | | 30.35 | 770.9 | 45.5 | 7.5 | 51 | Calm | 0 | 0 | | | 4 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 30.15 | 765.7 | 42.3 | 5.7 | 61 | W | 2 | 1 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 33.3 | 0.7 | | NW | 4 | 2 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 30.15 | 765.9 | 54.9 | 12.7 | 86 | ESE | 18 | 8 | | | 5 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.09 | 764.3 | 41.4 | 5.2 | 99 | SE | 18 | 8 | | | 10 | | | | | Raining | |
| Nikolaievsk, on the Amoor | | | | | 32.0 | 0.0 | | Calm | 0 | 0 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they give the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286.6?; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.98 | 761.4 | 65.3 | 18.5 | 58 | SW | 20.9 | 9.34 | | 0 | 5 | | | 0.031 | 0.8 | Cloudy | Royal Observatory |
| San Fernando | | | 30.18 | 766.5 | 67.3 | 19.6 | 72 | WNW | 11.6 | 5.2 | | 0 | 9 | | WNW | 0 | 0 | | Naval Observatory |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.02 | 762.4 | 75.4 | 24.1 | 91 | ENE | 5.8 | 2.6 | | 0 | 10n | | | 0.201 | 5.1 | Covered | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.83 | 757.6 | 41.0 | 5.0 | 75 | SW | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.86 | 758.5 | 50.4 | 10.2 | 46 | NW | | | 2 | | 6 | | | 0 | 0 | | |
| Hernosand | | | 29.83 | 757.6 | 48.9 | 9.4 | 46 | SW | | | 2 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 29.66 | 753.3 | 39.9 | 4.4 | 100 | NNE | | | 7 | | 10 | | | | | Raining | |
| Wisby | | | 29.59 | 751.5 | 45.3 | 7.4 | 89 | W | | | 4 | | 10 | | | 0.22 | 5.7 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.71 | 754.5 | 45.3 | 7.4 | 72 | ENE | 12.3 | 5.5 | | | 10 | | | 0.284 | 7.23 | Raining | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.47 | 723.2 | 29.83 | 759.3 | 55.4 | 13.0 | 89 | WNW | | | 1 | | 10 | | | 0.134 | 3.4 | Covered | The Observatory. |
| Zurich | 28.25 | 717.5 | 29.88 | 758.9 | 56.1 | 13.4 | 61 | NW | | | 1 | | 8 | | | 0.177 | 4.5 | Covered | The Observatory. |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —1.8 mm; Thermometer, —3.3 cent.; Relative Humidity, +23 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.93 | 761.8 | 67.6 | 19.8 | 57 | N | 12 | 5.5 | | | 0 | | | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.06 | 763.4 | 78.8 | 26.0 | | SE | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.07 | 763.8 | 76.1 | 24.5 | | NE | | | 1 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.06 | 763.4 | 76.1 | 24.5 | | W | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.93 | 761.0 | 68.0 | 20.0 | | SE | | | 3 | | 2 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.96 | 761.0 | 73.9 | 23.3 | 77 | N | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.87 | 758.7 | 45.8 | 7.7 | 75 | Calm | 0 | 0 | | | 9 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.22 | 767.6 | 52 | 11.1 | | SW | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.91 | 759.7 | 54 | 12.2 | 58 | SW | 3 | 1.3 | | 8c | 0 | SW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.99 | 761.7 | 49 | 9.4 | 70 | Calm | 0 | 0 | | 5cs | 0 | | | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.24 | 768.1 | 53.8 | 12.1 | 58 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Hazy | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.90 | 759.4 | 43.8 | 6.6 | 78 | W | | | 1 | | | | | 0 | 0 | Threatening | H. A. Johnson. |
| Esquimault, B. C. | | | 29.99 | 759.4 | 49.8 | 9.9 | 71 | SW | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.93 | 760.2 | 48 | 8.9 | 89 | S | 6 | 2.7 | | 5k | 5n | W | W | 0.08 | 2.0 | Light rain | J. McWilliams. |
| Fredericton, N. B. | | | 30.03 | 762.7 | 51.9 | 11.1 | 61 | SW | 4 | 1.8 | | | 10 | | | 0.195 | 4.96 | Hazy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.98 | 761.5 | 58 | 14.4 | 76 | S | 4 | 1.8 | | 8k | Sm'e | S | S | 0 | 0 | Smoky | James Stewart. |
| Goderich, Ontario | | | 30.37 | 771.4 | 57.3 | 14.1 | 54 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | 29.25 | 742.9 | 30.34 | 770.6 | 58 | 14.4 | 64 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.98 | 761.5 | 55 | 12.8 | 93 | SE | 1 | 0.4 | | 2c | 0 | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.40 | 772.4 | 53.2 | 11.8 | 36 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.98 | 761.5 | 42 | 5.6 | 70 | N | | | 2 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.39 | 771.9 | 48 | 8.9 | 91 | SW | 4 | 1.8 | | Haze | Sm'e | | SW | 0 | 0 | Hazy | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.19 | 766.8 | 54 | 12.2 | 60 | SW | 21 | 9.4 | | 0 | Sm'e | | | 0 | 0 | Fair | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 30.37 | 771.4 | 49 | 9.4 | 71 | S | 2 | 0.9 | | Haze | Haze | | | 0 | 0 | Smoky | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.37 | 771.4 | 52 | 11.1 | 60 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 29.98 | 761.5 | 42.5 | 5.8 | | Calm | 0 | 0 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.35 | 770.9 | 51 | 10.6 | 75 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.09 | 764.3 | 55 | 12.8 | 56 | S | 3 | 1.3 | | | 10n | | SW | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.30 | 769.6 | 55 | 12.8 | 49 | W | 12 | 5.4 | | 5cs | 0 | NW | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 30.05 | 763.3 | 49 | 9.4 | 74 | S | 1 | 0.4 | | 8 | 0 | | | 0.02 | 0.5 | Pleasant | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.33 | 770.4 | 59 | 15.0 | 53 | Calm | 0 | 0 | | | Sm'e | | | 0 | 0 | Smoky | K. Stewart. |
| Stayner, Ontario | | | 30.36 | 771.1 | 50 | 10.0 | 24 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | R. J. Cole. |
| Stratford, Ontario | 26.08 | 738.6 | 30.37 | 771.4 | 52.1 | 11.2 | 65 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.00 | 762.0 | 60 | 15.6 | 46 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.37 | 771.4 | 54 | 12.2 | 56 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 29.96 | 761.0 | 49.8 | 9.9 | 63 | N | 4 | 1.8 | | 4c | 0 | N | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.36 | 771.1 | 53.5 | 11.9 | 68 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.04 | 763.0 | 40 | 4.4 | 61 | NE | | | | Sm'e | Sm'e | | | 0 | 0 | Fair | John Delany. |
| | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | |
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NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.30 | 769.6 | 57 | 13.9 | 57 | Calm | 0 | 0 | | | Haze | | | 0 | 0 | Dense haze | |
| Alpena, Mich. | | | 30.35 | 770.9 | 50 | 10.0 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.36 | 771.1 | 60 | 15.6 | 70 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.31 | 769.9 | 67 | 19.4 | 79 | SE | 4 | 1.8 | | 5c | Haze | | | 0.11 | 2.8 | Fair | |
| Baltimore, Md. | | | 30.37 | 771.4 | 58 | 14.4 | 75 | Calm | 0 | 0 | | Haze | Fog | | | 0 | 0 | Foggy | |
| Barnegat, N. J. | | | 30.33 | 770.4 | 63 | 17.2 | 62 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 28.06 | 712.7 | 29.65 | 753.1 | 56 | 13.3 | 93 | SE | 4 | 1.8 | | | 10s | | SE | 0.25 | 6.3 | Cloudy | |
| Boston, Mass. | | | 30.22 | 767.6 | 58 | 14.4 | 53 | W | 7 | 3.1 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Breckenridge, Minn. | | | 29.94 | 760.5 | 54 | 12.2 | 86 | SE | 20 | 8.9 | | | 10n | | S | 0.03 | 0.8 | Light rain | |
| Buffalo, N. Y. | | | 30.35 | 770.9 | 55 | 12.8 | 56 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.25 | 768.3 | 57 | 13.9 | 52 | S | 3 | 1.3 | | Sm'e | | | | 0 | 0 | Dense smoke | |
| Cairo, Ill. | | | 30.16 | 766.1 | 64 | 17.8 | 83 | S | 4 | 1.8 | | | 10s | | S | 0.36 | 9.1 | Cloudy | |
| Campo, Cal. | 27.38 | 695.4 | 29.96 | 761.0 | 44 | 6.7 | 42 | SW | 5 | 2.2 | | 2k | 0 | W | | 0.05 | 1.3 | Fair | |
| Camp Verde, Arizona | | | | | 50 | 10.0 | | SE | | | | 10c | 0 | | | 0 | 0 | Cloudy | |
| Cape Hatteras, N. C. | | | 30.28 | 769.1 | 58 | 14.4 | 93 | SE | 4 | 1.8 | | | 10n | | SE | 0.13 | 0.8 | Light rain | |
| Cape Henry, Va. | | | 30.36 | 771.1 | 57 | 13.9 | 75 | E | 4 | 1.8 | | 8k | 0 | | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.37 | 771.4 | 59 | 15.0 | 100 | E | 8 | 3.6 | | | 10n | | E | 0.42 | 10.7 | Light rain | |
| Cape May, N. J. | | | 30.36 | 771.1 | 55 | 12.8 | 80 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.30 | 769.6 | 66 | 18.9 | 90 | NE | 3 | 1.3 | | | 10s | | E | 0.0 | 0.5 | Cloudy | |
| Cheyenne, Wyoming | 23.88 | 606.5 | 29.82 | 757.4 | 39 | 3.9 | 95 | S | 2 | 0.9 | | 2c | 0 | SW | | 0.06 | 1.5 | Fair | |
| Chicago, Ill. | | | 30.20 | 767.1 | 55 | 12.8 | 68 | SE | 2 | 0.9 | | 2ck | 2s | S | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 30.22 | 767.6 | 61 | 16.1 | 60 | SE | 4 | 1.8 | | 5ck | 5ks | W | W | Inap. | Inap. | Cloudy | |
| Cleveland, Ohio | | | 30.34 | 770.6 | 54 | 12.2 | 55 | NE | 3 | 1.3 | | | Sm'e | | | 0 | 0 | Smoky | |
| Corsicana, Tex. | | | 29.98 | 761.5 | 69 | 20.6 | 90 | SE | 7 | 3.1 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.15 | 765.8 | 56 | 13.3 | 80 | E | 10 | 4.5 | | | 10s | | SE | 0 | 0 | Threatening | |
| Denison, Tex. | | | 29.99 | 761.7 | 72 | 22.2 | 75 | SW | 8 | 3.6 | | | 10n | | S | Inap | Inap | Light rain | |
| Denver, Col. | 24.64 | 625.8 | 29.86 | 758.4 | 43 | 6.1 | 75 | S | 2 | 0.9 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Detroit, Mich. | | | 30.32 | 770.1 | 54 | 12.2 | 61 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.33 | 694.2 | 29.57 | 751.1 | 56 | 13.3 | 87 | SE | 10 | 4.5 | | | 10s | | SE | 0.21 | 5.3 | Cloudy | |
| Dubuque, Iowa | | | 30.15 | 765.8 | 55 | 12.8 | 68 | SE | 4 | 1.8 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Duluth, Minn. | | | 30.18 | 766.6 | 50 | 10.0 | 64 | NE | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Eastport, Me. | | | 30.04 | 763.0 | 55 | 12.8 | 62 | NW | 4 | 1.8 | | 5c,hz | Haze | | | 0 | 0 | Hazy | |
| Erie, Pa. | | | 30.32 | 770.1 | 57 | 13.9 | 62 | E | 1 | 0.4 | | | Haz | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 30.30 | 769.6 | 46 | 7.8 | 77 | N | 2 | 0.9 | | | Sm'e | | | 0 | 0 | Dense smoke | |
| Florence, Arizona | | | 29.91 | 759.7 | 66 | 18.9 | | W | | | | 5c | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.93 | 760.2 | 72 | 22.2 | 71 | SE | 7 | 3.1 | | 2cs | 2ks | W | SW | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.16 | 740.7 | 34 | 1.1 | 90 | S | | | 5 | | 10ks | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.73 | 729.7 | 29.80 | 756.9 | 64 | 17.8 | 78 | S | 12 | 5.4 | | 2k | 0 | SW | | 0.26 | 6.6 | Fair | |
| Fort Sully, Dakota | 28.12 | 714.2 | 29.73 | 755.1 | 58 | 14.4 | 87 | SE | 8 | 3.6 | | 5k | 0 | SE | | 0.53 | 13.5 | Fair | |
| Galveston, Tex. | | | 30.02 | 762.5 | 72 | 22.2 | 90 | SE | 10 | 4.5 | | 2ck | 5ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 30.29 | 769.4 | 54 | 12.2 | 63 | E | 7 | 3.1 | | 0 | Hz,smk | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.22 | 767.6 | 60 | 15.6 | 59 | E | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 30.00 | 762.0 | 74 | 23.3 | 90 | SE | 7 | 3.1 | | 0 | 8ks | | SE | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.22 | 767.6 | 75 | 23.9 | 68 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.02 | 762.5 | 60 | 15.6 | 88 | SE | 10 | 4.5 | | | 10s | | SE | 0.02 | 0.5 | Cloudy | |
| Key West, Fla. | | | 30.03 | 762.7 | 76.0 | 24.4 | 86 | E | 16 | 7.2 | | | 10s | | E | 0 | 0 | Cloudy | |
| Kittyhawk, N. C. | | | 30.38 | 771.6 | 57 | 13.9 | 87 | NE | 4 | 1.8 | | 1c | 0 | | | Inap. | Inap | Clear | |
| Knoxville, Tenn. | | | 30.29 | 769.4 | 59 | 15.0 | 87 | NE | 3 | 1.3 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| LaCrosse, Wis. | | | 30.13 | 765.3 | 59 | 15.6 | 54 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.97 | 761.2 | 60 | 15.6 | 94 | S | 1 | 0.4 | | | 10n | | | 0.14 | 3.6 | Light rain | |
| Louisville, Ky. | | | 30.22 | 767.6 | 60 | 15.6 | 81 | NE | 2 | 0.9 | | 8k | 2s | | | 0.11 | 2.8 | Cloudy | |
| Lynchburg, Va. | | | 30.33 | 770.4 | 57 | 13.9 | 87 | S | 2 | 0.9 | | | 10s | | | 0.03 | 0.8 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 65 | 18.3 | | W | | | | 10c | 0 | W | | 0 | 0 | Cloudy | |
| Marquette, Mich. | | | 30.23 | 767.8 | 55 | 12.8 | 56 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.15 | 765.8 | 71 | 21.7 | 71 | SE | 4 | 1.8 | | 2c | 2ks | SW | SW | Inap. | Inap | Fair | |
| Milwaukee, Wis. | | | 30.29 | 769.4 | 48 | 8.9 | 70 | E | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.17 | 766.3 | 71 | 21.7 | 89 | SE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.21 | 768.1 | 68.5 | 20.3 | 77 | SE | 12 | 5.4 | | 8ck | 2ks | | SE | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 29.23 | 742.4 | 30.29 | 769.4 | 57 | 13.9 | 63 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 23.95 | 608.3 | 30.31 | 769.9 | 34 | 1.1 | 69 | NW | 42 | 18.8 | | 2c | Sm'e | | | 0 | | Fair | |
| Nashville, Tenn. | | | 30.22 | 767.6 | 70 | 21.1 | 66 | SE | 3 | 1.3 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| New Haven, Conn. | | | 30.39 | 769.6 | 64 | 17.8 | 45 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.28 | 769.1 | 59 | 15.0 | 54 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Dense haze | |
| New Orleans, La. | | | 30.09 | 764.3 | 74 | 23.3 | 78 | E | 12 | 5.4 | | 9k | 0 | SE | | 0.20 | 5.1 | Cloudy | |
| Newport, R. I. | | | 30.25 | 768.3 | 56 | 13.3 | 62 | SW | 3 | 1.3 | | | Haze | | | 0 | 0 | Hazy | |
| New York, N. Y. | | | 30.34 | 770.6 | 59 | 15.0 | 54 | NW | 3 | 1.3 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.37 | 771.4 | 62 | 16.7 | 61 | SE | 4 | 1.8 | | 8k | 0 | | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.99 | 685.5 | 29.50 | 749.3 | 55 | 12.8 | 87 | SE | 12 | 5.4 | | 0 | 0 | | | 0.04 | 1.0 | Clear | |
| Omaha, Neb. | 28.85 | 732.8 | 29.90 | 759.4 | 59 | 15.0 | 100 | S | 6 | 2.7 | | | Fog | | | 0.18 | 4.6 | Foggy | |
| Oswego, N. Y. | | | 30.35 | 770.9 | 56 | 13.3 | 51 | SW | 7 | 3.1 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Pembina, Dakota | | | 29.90 | 759.4 | 61 | 16.1 | 60 | S | 16 | 7.2 | | 10k | 0 | S | | 0 | 0 | Cloudy | |
| Philadelphia, Pa. | | | 30.37 | 771.4 | 59 | 15.0 | 64 | NW | 6 | 2.7 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 60 | 15.6 | | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.65 | 448.3 | 29.86 | 758.4 | 13 | —10.6 | 100 | SW | 26 | 11.6 | | 5s | | SW | | 0.01 | 0.3 | Drift'g snow | |
| Pittsburg, Pa. | | | 30.31 | 769.9 | 54 | 12.2 | 73 | E | 5 | 2.2 | | 0 | Fog | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 30.34 | 770.6 | 45 | 7.2 | 76 | NE | 6 | 2.7 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.14 | 765.5 | 61 | 16.1 | 45 | W | 5 | 2.2 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 30.01 | 762.2 | 49 | 9.4 | 78 | Calm | 0 | 0 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Prescott, Arizona | 24.73 | 628.1 | 30.09 | 764.3 | 35 | 1.7 | | Calm | | | | | 10s | | S | 0 | 0 | Cloudy | |
| Punta Rassa, Fla. | | | 30.08 | 764.0 | 73 | 22.8 | 76 | E | 16 | 7.2 | | 0 | 2ks | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.34 | 770.6 | 53 | 11.7 | 60 | SW | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.58 | 649.7 | 29.91 | 759.7 | 47 | 8.3 | 77 | SE | 8 | 3.6 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Sandy Hook, N. J. | | | 30.34 | 770.6 | 56 | 13.3 | 74 | W | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.83 | 757.7 | 75 | 23.9 | 59 | E | 9 | 4.0 | | 2k | 0 | SW | | 0 | 0 | Clear | |
| San Diego, Cal. | | | 30.00 | 762.0 | 52 | 11.1 | 86 | NE | 4 | 1.8 | | 0 | 2s | | NE | 0.04 | 1.0 | Clear | |
| San Francisco, Cal. | | | 29.92 | 760.0 | 53 | 11.7 | 83 | NW | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Santa Fé, N. M. | 23.21 | 589.5 | 29.75 | 755.6 | 45 | 7.2 | 19 | E | 6 | 2.7 | | 2cs | Haze | W | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.30 | 769.6 | 65 | 18.3 | 89 | NE | 5 | 2.2 | | 2ck | Fog | E | N | 0.21 | 5.3 | Fair | |
| Shreveport, La. | | | 30.15 | 765.8 | 71 | 21.7 | 85 | SE | 3 | 1.3 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.3 | 770.1 | 65 | 18.3 | 90 | NE | 2 | 0.9 | | | 10ks | | | 0.05 | 1.3 | Cloudy | |
| Springfield, Mass. | | | 30.30 | 769.6 | 56 | 13.3 | 61 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| St. Louis, Mo. | | | 30.10 | 764.5 | 62 | 16.7 | 88 | SE | 4 | 1.8 | | | 10s | | | 0.44 | 11.2 | Cloudy | |
| St. Marks, Fla. | | | 30.21 | 767.3 | 69 | 20.6 | 79 | E | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.04 | 763.0 | 57 | 13.9 | 46 | SE | 12 | 5.4 | | 10c | 0 | SE | | 0 | 0 | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 55 | 12.8 | | SE | | | | 0 | 5s | | W | 0 | 0 | Fair | |
| Thatcher's Island, Mass. | | | 30.18 | 766.6 | 61 | 16.1 | 45 | W | 16 | 7.2 | | | | | | 0 | 0 | Dense smoke | |
| Toledo, Ohio | | | 30.32 | 770.1 | 58 | 14.4 | 64 | NE | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Hazy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.45 | 697.2 | 30.00 | 762.0 | 46 | 7.8 | | S | | | | 8c | 0 | W | | 0 | 0 | Cloudy | |
| Tybee Island, Ga | | | 30.27 | 768.8 | 66 | 18.9 | 94 | NE | 12 | 5.4 | | | 10ks | | | 1.30 | 33.0 | Cloudy | |
| Vicksburg, Miss | | | 30.16 | 766.1 | 68.5 | 20.3 | 90 | SE | 4 | 1.8 | | 0 | 5ks | | SE | 0 | 0 | Fair | |
| Virginia City, M. T | 24.04 | 610.6 | 29.52 | 749.8 | 40 | 4.4 | 72 | Calm | 0 | 0 | | 8k | 0 | SW | | 0 | 0 | Cloudy | |
| Washington, D. C | | | 30.38 | 771.6 | 58 | 14.4 | 76 | N | 1 | 0.4 | | 2ck | Haze | SW | | 0 | 0 | Hazy | |
| Wickenburg, Arizona | | | | | 59 | 15.0 | | Calm | | | | | 10s | | E | 0 | 0 | Cloudy | |
| Wilmington, N. C | | | 30.32 | 770.1 | 62 | 16.7 | 94 | NE | 6 | 2.7 | | | 10n | | | 0.25 | 6.3 | Light rain | |
| Wood's Holl, Mass | | | 30.26 | 768.6 | 60 | 15.6 | 55 | W | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Yankton, Dakota | 28.66 | 728.0 | 29.92 | 760.0 | 58 | 14.4 | 91 | SE | 8 | 3.6 | | | 10s | | | 0.12 | 3.0 | Cloudy | |
| Yuma, Arizona | | | 29.88 | 758.9 | 66 | 18.9 | | SE | | | | 0 | 8s | | W | 0 | 0 | Fair | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.08 | 764.0 | 82 | 27.8 | 79 | SE | 18 | 8.0 | | 10c | 8n | SE | | 0.11 | 2.8 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | E | | | 4 | | | | | 0.30 | 7.6 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.96 | 761.0 | 80 | 26.7 | 91 | SE | | | 2 | 5k | 7ks | E | | 1.110 | 28.19 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.04 | 762.9 | | | 77.4 | 25.2 | | E | | | | | | | | 0.817 | 20.75 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.10 | 639.8 | | | 71.0 | 21.7 | 84 | Calm | | | 0 | | 10n | | | 0.42 | 10.7 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.95 | 760.7 | 43.0 | 6.1 | 96 | W | 10 | 4.5 | | 3c | 0 | SW | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.06 | 763.5 | 72 | 22.2 | | NE | | | 5 | | | | | 0.10 | 2.5 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,900 (?) ft. or 395.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,878 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,342.2 ft., or 1,323.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.45 | 773.4 | 72 | 22.2 | 59 | 15.0 | 65 | S | | | 1 | | 1 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.00 | 762.0 | 60 | 15.6 | 56 | 13.3 | | W | | | 2 | | 4 | | S | 0 | 0 | | | Pleasant | |
| Navy Yard, Norfolk, Va. | 30.48† | 774.2† | 61 | 16.1 | 62 | 16.7 | 77 | SSE | 2 | 0.9 | | | 2cs | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Pensacola, Fla. | 30.28 | 769.1 | | | 70 | 21.1 | 90 | ENE | 17 | 7.6 | | | 3 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.22 | 767.6 | 62 | 16.7 | 54 | 12.2 | 87 | WNW | 1 | 0.4 | | | | | | 0 | 0 | | | Hazy | |
| Naval Hospital, Yokohama, Japan | 30.14 | 765.5 | 61 | 16.1 | 54 | 12.2 | 86 | ENE | | | 4 | | 8ks | | NE | 0.09 | 2.3 | | | Threatening | |
| Adams, N. 7° 48′ W. 30° 00′ | 30.04 | 763.0 | 83 | 28.3 | 83 | 28.3 | 83 | ENE | | | 4 | | 4 | | E | | | Moderate. | NE | D. clouds | |
| Alert, N. 33° 44′ E. 138° 10′ | 30.26 | 768.6 | 74 | 23.3 | 73 | 22.8 | 100 | SE | | | 1–2 | | 10 | | SSW | | | Long | NE | D. clouds | |
| Alliance, Beirut, Syria | 30.08 | 764.0 | 74 | 23.3 | 73 | 22.8 | 81 | N | | | 0–1 | | 1 | | | | | | | Pleasant | |
| Ashuelot, Canton, China | 29.87 | 758.7 | 83 | 28.3 | 80 | 26.7 | 91 | SSE | | | 2 | | 6 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.08 | 764.0 | 52 | 11.1 | 72 | 22.2 | 80 | E | | | 3 | | 10 | | W | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.35 | 770.9 | 61 | 16.1 | 63 | 17.2 | 62 | W | 3 | 1.3 | | | 0 | | | 0 | 0 | | | Hazy | |
| Despatch, Horta, Fayal, Azores, | 30.24 | 768.1 | 66 | 18.9 | 65 | 18.3 | 89 | W | | | 2 | | 7 | | E | | | | | Pleasant. | |
| Essex, N. 24° 40′ W. 85° 51′ | 29.97 | 761.2 | 77 | 25.0 | 81 | 27.2 | 91 | E | | | 5 | | 7 | | W | Blank | Blank | High, chop'd. | E | Squally | |
| Frolic, S. 31° 51′ W. 47° 59′ | 29.93 | 760.2 | | | 71 | 21.7 | 95 | E | | | 4 | | 7kn | | | Blank | Blank | Moderate | E | Misty | |
| ‡Gettysburg, Genoa, Italy | 29.87 | 758.7 | | | 65 | 18.3 | 100 | ESE | | | 3 | | 10 | | SE | 0 | 0 | | | D. clouds | |
| Hartford, St. Thomas, W. I | 30.30 | 769.6 | 84 | 28.9 | 84 | 28.9 | 75 | ESE | 2.4 | 1.1 | | | 3 | | | | | | | Pleasant | |
| Kearsarge, Nagasaki, Japan | 30.13 | 765.3 | 76 | 24.4 | 73 | 22.8 | 90 | S | | | 3 | | 10 | | | ¶0.0 | 0.5¶ | Calm | None | Drizzling | |
| Lackawana, Acapulco, Mexico | 29.82 | 757.4 | | | 83 | 28.3 | 91 | W | | | 0–1 | | 1 | | | | | Smooth | | Hazy | |
| Marion, Smyrna, Turkey | 30.00 | 762.0 | 75 | 23.9 | 75 | 23.9 | 95 | W | | | 4 | | 9 | | E | 0 | 0 | Chop'd | W | D. clouds | |
| Michigan, Erie, Pa | 29.84 | 757.9 | 56 | 13.3 | 55 | 12.8 | 74 | NE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.80 | 756.9 | 70 | 21.1 | 70 | 21.1 | 95 | NW | | | 2 | | 10 | | NW | Blank | Blank | | | | |
| Monongahela, Norfolk, Va | 30.40 | 772.1 | 62 | 16.7 | 68 | 20.0 | | E | | | 1–2 | | k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.52 | 775.2 | | | 66 | 18.9 | 89 | NE | 5 | 2.2 | | | 6 | | NW | 0.21 | 5.3 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.95 | 760.7 | 79 | 26.1 | 79 | 26.1 | 91 | N | 1 | 0.4 | | | 7 | | N | 0.05 | 1.3 | Smooth | | Pleasant | |
| Ossipee, N 30° 35′ W. 79° 34′ | 30.30 | 769.6 | 73 | 22.8 | 73 | 22.8 | 95 | E | | | 5 | | 10 | | E | | | Long | E | D. clouds | |
| Pa os, Shanghai, China | 29.95 | 760.7 | 71 | 21.7 | 69 | 20.6 | 90 | NNW | | | 3 | | 10 | | N&W | | | | | Overcast | |
| Pensacola, N. 18° 49′ W. 104° 15′ | 29.94 | 760.5 | | | 80 | 26.7 | 91 | W | | | 1 | | 7 | | | 0 | 0 | Light | S&W | Pleasant | |
| Plymouth, New Orleans, La | 30.14 | 765.5 | 76 | 24.4 | 71 | 21.7 | 90 | ENE | | | 4 | | 9 | | SE | ¶0.26 | 6.1¶ | | | Cloudy | |
| Powhatan, Annapolis, Md | 30.16 | 766.1 | | | 60 | 15.6 | 94 | Calm | | | 0 | | 2 | | S&W | | | | | D. clouds | |
| Ranger, N. 36° 36′ W. 17° 52′ | 30.39 | 769.6 | | | 65.3 | 18.6 | 94 | ENE | | | 2 | | 5 | | N&W | | | Smooth | | Pleasant | |
| Richmond, S. 27° 00′ W. 45° 7′ | 29.95 | 760.7 | 75.0 | 23.9 | 74.0 | 23.3 | 83 | W | | | 4 | | 5 | | W | Blank | Blank | Moderate | ENE | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.83 | 757.7 | | | 65 | 18.3 | 94 | ESE | | | 1 | | 2 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.44 | 773.2 | 69 | 20.6 | 62 | 16.7 | 66 | Calm | | | 0 | | 2 | | | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 30.27 | 768.8 | 59 | 15.0 | 58 | 14.4 | 82 | WNW | 6 | 2.7 | | | 0 | | | 0 | 0 | | | Clear | |
| Swatara, N. 9° 56′ W. 80° 33′ | 29.94 | 760.5 | 83 | 28.3 | 83 | 28.3 | 87 | SSW | | | 1 | | 3ck | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 30.15 | 765.8 | 67 | 19.4 | 60 | 15.6 | 60 | NE | | | 3–5 | | 10 | | S&W | | | Smooth | | D clouds | |
| Trenton, N. 39° 10′ E. 23° 27′ | 30.03† | 762.0† | 76 | 24.4 | 75 | 23.9 | 77 | NE | 4.7 | 2.0 | | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.07 | 763.8 | 67 | 19.4 | 65 | 18.3 | 89 | NNE | | | 3 | | 8 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.26 | 768.6 | 60 | 15.6 | 61 | 16.1 | 61 | W | 4 | 1.8 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.62† | 777.7† | 64 | 17.8 | 60 | 15.6 | | Calm | | | 0 | | 4 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Pekong, Hong-Kong, China | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per c nt. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.17 | 766.3 | 69 | 20.6 | 89 | NE | 4 | 1.8 | | 2k | 0 | | | | | D. clouds. | Capt. James Jorgensen. |

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, macro, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 15, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.19 | 766.7 | 73.4 | 23.0 | 66 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.21 | 767.3 | 66.2 | 19.0 | 75 | N | | | 3 | | 1 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.13 | 765.2 | 72.0 | 22.2 | 70 | NNW | | | 2 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.15 | 765.7 | 75.2 | 24 | | NE | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.19 | 766.9 | 80.6 | 27 | | NE | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.18 | 766.6 | 81.0 | 27.2 | | NW | | | 1 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.10 | 764.5 | 75.2 | 24.0 | | NE | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | 30.18 | 766.6 | 88.5 | 31.4 | | NW | | | 2 | | 0 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.17 | 766.4 | 88.7 | 31.5 | 22 | S | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.12 | 765.1 | 95.2 | 35.1 | | NW | | | 4 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.78 | 756.4 | 68.2 | 20.1 | 49 | SW | | | 4 | | 9 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.80 | 756.8 | 72.3 | 22.4 | 45 | W | | | 1 | | 7 | | | 0.003 | 0.1 | | Dr. Wierzbiski. |
| Eperies | | | 29.79 | 756.6 | 65.7 | 18.7 | 65 | Calm | | | 0 | | n,k,s | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.58 | 725.9 | 29.81 | 757.1 | 58.1 | 14.5 | 87 | NE | | | 5 | | 10 | | | 0.409 | 10.3 | | Andreas Rospini. |
| Hermannstadt | 28.41 | 721.5 | 29.77 | 756.2 | 67.3 | 19.6 | 69 | NNW | | | 1 | | 9 | | | 0.96 | 24.45 | | Prof. Reissenberger. |
| Kremsmünster | 28.54 | 724.9 | 29.86 | 758.4 | 58.3 | 14.6 | 78 | WNW | | | 3 | | 5 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.79 | 756.7 | 69.8 | 21.0 | 67 | S | | | 1 | | 4 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.81 | 757.0 | 65.8 | 18.8 | 65 | S | | | 1 | | 10s | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 29.73 | 755.2 | 77.7 | 25.4 | 36 | W | | | 3 | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.86 | 758.5 | 67.3 | 19.6 | 70 | W | | | 1 | | 8 | | | 0.067 | 1.7 | | P. Busin. |
| Vienna | | | 29.81 | 757.2 | 61.2 | 16.2 | 76 | WNW | | | 3 | | 10 | | | | | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.45 | 722.7 | 29.91 | 759.8 | 53.6 | 12.0 | 82 | WSW | | | 2 | | 9 | | | 0.114 | 2.9 | | |
| Brussels | | | 29.87 | 758.6 | 58.1 | 14.5 | 82 | WSW | | | 1 | | 10k n | | } SW. | 0.159 | 4.05 | | Royal Observatory. |
| Furnes | | | 29.87 | 758.7 | 51.8 | 11.0 | 98 | W | | | 2 | | 10 | | } WSW | 0.083 | 2.1 | | |
| Maeseyck | | | 29.73 | 755.2 | 56.7 | 13.7 | 78 | WNW | | | 4 | | 7 | | | 0.134 | 3.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.84 | 757.9 | 48.4 | 9.1 | | S | 15 | 6.7 | | | 4 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 29.78 | 756.4 | 48 | 8.9 | | W | | | 1 | | 9 | | | | | Raining | William McNeil. |
| Armagh, Observatory | | | 29.81 | 757.2 | 56.1 | 13.4 | | WNW | 4 | 1.8 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.84 | 757.7 | 53.5 | 11.9 | | W | 28 | 12.5 | | | 2 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.82 | 757.4 | 60.0 | 15.6 | | SSW | | | 1 | | 4 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 29.82 | 757.4 | 48.8 | 9.3 | | W | | | 1 | | 10 | | | 0.11 | 2.8 | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 84.5 | 29.2 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.85 | 758.2 | 52.0 | 11.1 | | WNW | | | 1 | | 10 | | | | | Raining | H. Todd. |
| Cardington | | | 29.88 | 758.9 | 55.0 | 12.8 | | W | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.88 | 758.9 | 56.2 | 13.4 | | S | | | 0 | | 7 | | | | | Hazy | Capt. Followes, R. E. |
| Dartmoor | 28.52 | 724.4 | 29.99 | 761.7 | 54.0 | 12.2 | | W | | | 4 | | 6 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.78 | 756.4 | 55 | 12.8 | | SE | | | 3 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.88 | 758.9 | 57 | 13.9 | | WNW | | | 3 | | 7 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.83 | 757.7 | 51.4 | 10.8 | | NW | 19.0 | 4.5 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.99 | 761.7 | 57.2 | 14.0 | | WSW | | | 4 | | 6? | | | | | Overcast? | The Staff. |
| Fort Napier, (Natal) | 27.62 | 701.5 | 29.85 | 758.4 | 67.7 | 19.8 | | E | | | 2 | | 4 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.92 | 760.0 | 89 | 31.7 | | E | | | 0 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.78 | 756.4 | 57 | 13.9 | | SW | | | 6 | | 7 | | | | | Gloomy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.12 | 765.0 | 75.2 | 24.0 | | SW | | | 2 | | 0 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.78 | 756.4 | 49.5 | 9.7 | | E | | | 1 | | 10 | | | | | Raining | Lewis Stuart. |
| Great Yarmouth | | | 29.89 | 758.4 | 48 | 8.9 | | ESE | | | 1 | | 6 | | | | | Drizzling | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.88 | 758.9 | 60.6 | 15.9 | | WNW | | | 2 | | 6 | | | Blank | Blank | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.00 | 762.0 | 56.5 | 13.6 | | WSW | | | 4 | | 4 | | | | | D. clouds | Dr. S. F. Hoskins, F.R.S. |
| Helston | | | 30.07 | 763.8 | 61 | 16.1 | | SW | | | 4 | | 2c | | | 0.5 | 13. | Fine | M. P. Moyle. |
| Holyhead | | | 29.89 | 758.4 | 56 | 13.3 | | SW | | | 4 | | 1 | | | | | Blue sky | John Tilsen. |
| Kew, Observatory | | | 29.83 | 759.2 | 59.4 | 15.2 | | W | 17 | 7.6 | | | 7 | | | | | Threatening | The Staff. |
| Kingstown | | | 29.82 | 757.4 | 57 | 13.9 | | WNW | | | 4 | | 7 | | | Black | Blank | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.86 | 758.4 | 52.9 | 11.6 | | NW | | | 2 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.98 | 761.5 | 76.4 | 24.7 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.73 | 755.1 | 69 | 15.6 | | E | | | 1 | | 2 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.14 | 765.5 | 69.5 | 20.8 | | NE | | | 7 | | 10 | | | | | Raining | J. Belgrave. |
| Nottingham, Observatory | | | 29.86 | 758.4 | 50.4 | 10.2 | | WNW | | | 3 | | 10a | | W | 0.293 | 6.68 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.84 | 757.9 | 55.6 | 13.1 | | W | | | 4 | | 7 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.89 | 759.2 | 60 | 15.6 | | W | | | 2 | | 5 | | | | | D. clouds | J. W. Lucas. |
| Plymouth | | | 29.96 | 761.0 | 58.3 | 14.6 | | WSW | | | 3 | | 8 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.88 | 758.9 | 57 | 13.9 | | SW | | | 4 | | 5 | | | | | ½ clouded | W. Kennedy. |
| Saint Ann's Head | | | 29.93 | 759.4 | 55 | 12.8 | | WSW | | | 2 | | 2 | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.02 | 762.5 | 58.6 | 14.8 | | W | | | 5 | | 2 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.81 | 757.9 | 53 | 11.7 | | SE | 15 | 6.7 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.81 | 757.2 | 76.4 | 24.7 | | NNE | | | 1 | | 2 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.84 | 757.9 | 51.0 | 10.6 | | SW | | | 1 | | 10 | | | 0.093 | 1.60 | Drizz'ing | W. F. Cooper. |
| Silloth, Rectory | | | 29.77 | 756.1 | 50.1 | 10.1 | 89 | Calm | | | 0 | | 10 | | | 0.185 | 4.70 | Overcast | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.83 | 757.7 | 47.9 | 8.8 | | W | | | 3 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.72 | 754.9 | 56 | 13.3 | | SSE | | | 1 | | 2 | | | | | Blue sky | John Smith. |
| Strathfield Turgiss | | | 29.91 | 759.4 | 58.2 | 14.6 | | NW | | | 2 | | 5 | | | | | Squally | Rev. Charles H. Griffith. |
| Thurso | | | 29.75 | 755.6 | 61 | 16.1 | | SSE | | | 2 | | 3 | | | | | Blue sky | John Trotter. |
| Truro, Royal Institution | | | 30.00 | 762.0 | 62 | 16.7 | | W | | | 6 | | 5 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.84 | 757.9 | 55.0 | 12.8 | | SSW | 31 | 13.9 | | | 6 | | | | | D. clouds | The Staff. |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 47 | 8.3 | | NW | | | 3 | | 10 | | | 0.10 | 2.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.85 | 758.4 | 69.0 | 15.6 | 83 | WNW | 16 | 7.2 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.72 | 754.9 | 66.0 | 18.9 | 68 | | | | 2 | | 4ks | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restrig Park | | | 29.82 | 757.4 | 51.1 | 10.6 | | SE | | | 2 | | 10ks | | | 0 | 0 | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.18 | 766.6 | 74.9 | 23.8 | 70 | ESE | 15.1 | 6.8 | | 0 | 2 | | ESE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.87 | 758.7 | 60.4 | 15.8 | 69 | N | 17 | 7.6 | | | 0 | | | 0 | 0 | Clear | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | | | | | | | | | | | | | | | | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.87 | 758.7 | 47 | 8.3 | | E | | | 4 | | 10 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 5 in the subseries; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.02 m.; Fort Napier, 2,200 ft., or 670.6 m.

## MARINE SERIES.

VESSELS.

| | | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 49° 40' W. 69° 35' | | | 30.12 | 765.0 | 47.0 | 8.3 | | W | | | 3 | | 6 | | WNW | 0 | Smooth | Hazy | Capt. W. Watson. |
| S. S. Batavia, N. 48° 5', W. 34° 10' | | | | | 56.0 | 13.3 | | WNW | | | 5 | | 4 | | | 5 | W | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Ceceste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Quangle | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 18° 0' W. 52° 25' | | | 30.12 | 765.0 | 80.8 | 27.1 | | ESE | | | 4 | | 3 | | | 4 | ESE | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully examined and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.14 | 663.9 | | | 68.9 | 20.5 | 83 | NE | | | 1 | | 1c | | | 0.8 | 20. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.77 | 756.1 | 56.8 | 13.8 | 57 | S | | | 4 | | 5 | | | | | | |
| Fanöe | | | 29.72 | 754.8 | 53.2 | 11.8 | 75 | NNW | | | 4 | | 8 | | | | | | |
| Godthaab, (Greenland) | | | 29.97 | 761.1 | 33.1 | 0.6 | 84 | S | | | 2 | | 4 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.83 | 757.6 | 47.3 | 8.5 | 73 | SE | | | 2 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.87 | 758.6 | 46.0 | 7.8 | 67 | E | | | 2 | | 10 | | | | | | |
| Vestervig | | | 29.79 | 756.6 | 44.2 | 6.8 | 85 | NE | | | 4 | | 10 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.13 | 765.2 | 55.4 | 13 | 61 | WSW | | | 2 | | 5n | | WSW | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 29.94 | 760.5 | 57.9 | 14.4 | | W | | | 3 | | 5 | | W | 0.256 | 6.5 | Cloudy | Normal School. |
| Avignon, Normal School | | | 30.09 | 764.3 | 66.9 | 19.4 | 39 | NNW | | | 2 | | 2 | | NW | 0.47 | 12. | Partly cl'dy | Mr. Giraud. |
| Bar-sur-Seine | | | 30.07 | 763.8 | 52.7 | 11.5 | 75 | W | | | 2 | | 10 | | W | 0.264 | 6.7 | Raining | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.01 | 762.3 | 58.5 | 14.7 | 44 | W | | | 4 | | 8 | | W | 0.34 | 8.75 | Very cloudy | Normal School. |
| Besançon | | | 30.17 | 766.3 | 53.6 | 12 | 80 | SW | | | 3 | | 8 | | SW | 0.528 | 13.3 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 30.23 | 767.7 | 59.5 | 15.3 | 62 | W | | | 4 | | 5k | | E | 0.36 | 9.2 | Cloudy | Normal School. |
| Bourges | | | 30.13 | 765.3 | 57.2 | 14.0 | 80 | SSW | | | 6 | | 10 | | N | 0.51 | 13. | Covered | Normal School. |
| Brest | | | 30.00 | 762.0 | 60.6 | 15.9 | 75 | W | | | 5 | | 8 | | W | 0.059 | 1.50 | | Naval Observatory. |
| Carcassonne | | | 30.21 | 767.3 | 64.4 | 18 | 53 | W | | | 2 | | 2 | | E | 0.21 | 5.4 | Slightly cl'dy | Normal School. |
| Caen | | | 30.01 | 762.2 | 60.4 | 15.8 | 61 | W | | | 2 | | | | E | 0 | 0 | | Normal School. |
| Chartres | | | 30.03 | 762.8 | 59.9 | 15.5 | 83 | WNW | | | 4 | | 4 | | NW | 0.16 | 4. | | Normal School. |
| Châlons-sur-Marne | | | 30.02 | 762.5 | 52.9 | 11.6 | 78 | NW | | | 3 | | 10n | | SE | 0.39 | 10.0 | Covered | Normal School. |
| Clermont-Ferrand | | | 30.11 | 764.7 | 58.8 | 14.9 | 52 | WNW | | | 2 | | 8 | | | 0.079 | 2.0 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.99 | 761.8 | 53.2 | 11.8 | 83 | W | | | 4 | | 10 | | W | 0.20 | 5. | Covered | Normal School. |
| Commune de Gréasque* | | | 30.09 | 764.3 | 61.0 | 16.1 | 47 | NW | | | 6 | | 5 | | NW | 0.228 | 5.8 | | M. Kina. |
| Grenoble | | | 30.13 | 765.2 | 55.8 | 13.2 | 68 | NE | | | 6 | | 8kn | | SE | 0.44 | 11.25 | Very cloudy | Normal School. |
| La Roche-sur-Yon | | | 30.15 | 765.7 | 59.5 | 15.3 | 68 | W | | | 2 | | 8 | | E | 0.12 | 3. | Very cloudy | Normal School. |
| Le Mans | | | 30.10 | 764.5 | 58.3 | 14.6 | 53 | NW | | | 2 | | 2 | | W | 0.177 | 4.50 | Slightly cl'dy | Normal School. |
| Lons-Le-Saulnier | | | 30.11 | 764.8 | 57.0 | 13.9 | 61 | WNW | | | 2 | | | | E | 0.476 | 12.10 | | Normal School. |
| Lorient | | | 30.14 | 764.9 | 61.5 | 16.4 | 72 | SW | | | 4 | | 2 | | SW | 0 | 0 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.15 | 765.7 | 57.7 | 14.3 | 61 | SE | | | 2 | | 5 | | S | 0.20 | 5.2 | Cloudy | Mr. Marchal. |
| Metz | | | 30.04 | 762.9 | 55.2 | 12.9 | 73 | WSW | | | 4 | | 9k | | | 0.138 | 3.5 | | M. A. Schuster. |
| Mirecourt | | | 30.00 | 762.0 | 55.8 | 13.2 | 70 | W | | | 4 | | 10 | | E | 0.63 | 16. | Covered | Normal School. |
| Nismes | | | 30.09 | 764.3 | 69.4 | 20.8 | 45 | N | | | 4 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.02 | 762.5 | 59.0 | 15 | 64 | W | | | 4 | | 5 | | W | 0.39 | 10. | Cloudy | Normal School. |
| Paris, Observatory | | | 30.04 | 762.9 | 58.8 | 14.9 | 43 | WNW | | | 2 | | 8 | | W | 0.05 | 1.3 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 30.21 | 767.2 | 61.2 | 16.2 | 61 | SW | | | 5 | | 2 | | NE | 0 | 0 | ¾ covered | Naval Observatory. |
| Rouen | | | 30.01 | 762.2 | 60.6 | 15.9 | 53 | W | | | 2 | | 2 | | W | 0.138 | 3.5 | Slightly cl'dy | Normal School. |
| Tarbes | 23.22 | 742.3 | 30.31 | 769.8 | 56.5 | 13.6 | 60 | NW | | | 2 | | 0 | | | 0.350 | 8.9 | Clear | Normal School. |
| Villefranche | | | 30.13 | 765.4 | 55.4 | 15.2 | 81 | W | | | 2 | | 8 | | W | 0.39 | 10. | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.89 | 759.2 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.02 | 762.5 | 65.8 | 18.8 | 45 | WNW | | | 3–4 | | 2 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Mont-Louis | 24.95 | 633.8 | 30.27 | 768.8 | 49.3 | 9.6 | 62 | NNW | 13.0 | 5.83 | | | 6 | | W | 0.114 | 2.9 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.03 | 762.7 | 60.1 | 15.6 | 49 | W | | | 2–3 | | 4 | | WNW | 0.028 | 0.7 | | Montsouris Observatory |
| Perpignan | | | 30.18 | 766.5 | 65.3 | 18.5 | 44 | N | 22.4 | 10.00 | | | 5 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty |
| Pic du Midi, (Plantade,) H. P. | 22.02 | 574.5 | | | 34.0 | 1.1 | | SW | | | 2 | | 8 | | | 0.240 | 6.1 | Cloudy | and M. Baylac, Obs'r |
| Saint Maur, (near Paris) | | | 30.04 | 763.0 | 59.7 | 15.4 | 53 | NW | | | 3 | | 7 | | | 0.028 | 0.7 | Very cloudy | E. Renou. |
| Toulouse, Observatory | | | 30.28 | 769.2 | 58.1 | 14.5 | 58 | W | | | 3 | | 4 | | | 0.035 | 0.9 | | The Staff. |
| Tours | | | 30.11 | 764.8 | 60.8 | 16.0 | 50 | WNW | | | 3 | | 7 | | WNW | 0.248 | 6.3 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.04 | 763.1 | 60.1 | 15.6 | 52 | NW | | | 3 | | 7 | | | 0.024 | 0.61 | Cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.15 | 765.9 | 52.9 | 11.6 | 85 | N | 0.9 | 0.4 | | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.87 | 758.8 | 60.6 | 15.9 | 71 | W | | | 4 | | 8 | W | | 0.079 | 2.0 | Raining | Prof. T. Hoh. |
| Berlin | | | 29.78 | 756.5 | 64.2 | 17.9 | 66 | S | | | 2 | | 7 | | | 0.008 | 0.2 | Raining | Prof. Arndt. |
| Breslau | | | 29.84 | 757.8 | 69.8 | 21.0 | 36 | WSW | | | 1 | | 4 | | | 0.016 | 0.4 | Light rain | Royal University Obs'y. |
| Carlsruhe | | | 29.95 | 760.6 | 54.0 | 12.2 | 90 | SW | | | 3 | | 10 | | | 0.236 | 6.0 | Raining | Albert Senz. |
| Cassel | | | 29.92 | 760.0 | 57.6 | 14.2 | 69 | WNW | | | 5 | | 10 | W | | 0.071 | 1.8 | | Dr. H. Möhl. |
| Crefeld | | | 29.84 | 757.8 | 59.2 | 15.1 | 69 | NW | | | 3 | | 8 | | | 0.079 | 2.0 | | Director Lose. |
| Emden | | | 29.85 | 758.1 | 54.7 | 12.6 | 65 | NW | | | 1 | | 10 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.91 | 759.6 | 61.3 | 16.3 | 70 | W | | | 1 | | 10 | | | 0.220 | 5.6 | Raining | Physical Society. |
| Friedrichshafen | 28.99? | 736.4? | 30.02? | 762.4? | 55.6 | 13.1 | 69 | SW | | | 8 | | 9 | WSW | | 0.035 | 0.9 | Light rain | M. Wilhelm. |
| Hamburg | | | 29.80 | 756.8 | 54.7 | 12.6 | 77 | WNW | | | 1 | | 10 | | | 0.012 | 0.3 | Covered | Captain F. Hegemann. |
| Kiel | | | 29.85 | 758.2 | 55.9 | 13.3 | 93 | WSW | | | 3 | | 8 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.81 | 757.1 | 64.9 | 18.3 | 58 | SE | | | 2 | | 5 | | | 0.276 | 7.0 | | Prof. E. Luther. |
| Köslin | | | 29.77 | 756.1 | 62.4 | 16.9 | | | | | | | 4 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.80 | 757.0 | 67.1 | 19.5 | 48 | SW | | | 3 | | 8 | SW | | 0.004 | 0.1 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.83 | 757.7 | 62.8 | 17.1 | | W | | | 1 | | 8s | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.82 | 757.3 | 59.0 | 15.0 | 83 | SW | | | | | 4 | | | 0.047 | 1.2 | Raining | Prof. E. Heis. |
| Neufahrwasser | | | 29.78 | 756.5 | 67.6 | 19.8 | 52 | SSW | | | 4 | | 9 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.82 | 757.3 | 68.0 | 20.0 | 54 | NW | | | 2 | | 9 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.99 | 761.7 | 58.6 | 14.8 | 68 | SW | | | 3 | | 10 | W | | 0.094 | 2.4 | | Dr. Schur. |
| Stuttgart | | | 29.85 | 758.2 | 63.5 | 17.5 | 54 | W | | | 1 | | 8 | W | | 0.016 | 0.4 | | Prof. Schoder |
| Treves, (Trier) | | | 29.80 | 757.0 | 55.4 | 13.0 | 90 | WNW | | | 5 | | 10 | | | 0.53 | 13.5 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.47 | 723.1 | 29.97 | 761.2 | 54.7 | 12.6 | 81 | W | | | 4 | | 10 | NNW | | 0.08 | 2.1 | Heavy rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.83 | 757.6 | 52.5 | 11.4 | 80 | N | | | 2 | | 7 | | | 0.075 | 1.9 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.84 | 757.8 | 78.4 | 25.8 | | SW | | | | | | | | | | Sirocco | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.11 | 561.5 | 29.94 | 760.5 | 32.2 | 0.1 | 100 | WNW | | | 6 | | 7 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.08 | 560.8 | 29.85 | 758.1 | 32.5 | 0.3 | | ENE | | | 2 | | 10 | | | 0.03 | 0.9 | | Signora Ernesta Manfredi. |
| Udine | | | 29.83 | 757.6 | 66.6 | 19.2 | 66 | SW | 3.8 | 1.7 | | | 9 | | | 0.09 | 2.3 | | Ab. Dem. Morgini. |
| Padua | | | 29.85 | 758.2 | 58.1 | 14.5 | 88 | WSW | 6.9 | 3.1 | | | 10 | WSW | | 0.07 | 2.0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.86 | 758.4 | 57.0 | 13.9 | 90 | W | 3.1 | 1.4 | | | 10 | N | | 0.20 | 5.1 | | Conte Alm. Da Schio. |
| Verona | | | 29.85 | 758.2 | 70.7 | 21.5 | 60 | E | | | 2 | | 10 | | | 0.70 | 17.9 | | Dott. E. Bertoncelli. |
| Bergamo | 28.57 | 725.6 | 29.86 | 758.4 | 57.2 | 14.0 | 77 | SE | | | 1 | | 9 | | | 0.29 | 7.5 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.84 | 757.9 | 62.2 | 16.8 | 68 | S | | | 4 | | 3 | | | 0.07 | 2.0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.88 | 758.9 | 62.1 | 16.7 | 67 | NW | | | 2 | | 8 | NW | | 0.16 | 4.2 | | Ab. Gio. Capelli. |
| Pavia | | | 29.89 | 759.1 | 62.1 | 16.7 | 68 | NE | | | 2 | | 8 | SW | | 0.40 | 10.2 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.88 | 758.9 | 65.8 | 18.8 | 57 | ESE | 6.3 | 2.8 | | | 4 | NW | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.00 | 711.3 | 29.87 | 758.6 | 61.0 | 16.1 | 50 | WNW | | | 4 | | 1 | | | 0.27 | 7.0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.98 | 761.4 | 62.1 | 16.7 | 73 | ESE | | | 2 | | 2 | NW | | 0.24 | 6.1 | | Prof. L. Vassallo. |
| Genoa | | | 29.96 | 759.5 | 64.0 | 17.8 | 62 | W | 11.9 | 5.3 | | | 0 | | | 0.19 | 5.0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.91 | 759.8 | 57.6 | 14.2 | 76 | NW | 4.3 | 1.9 | | | 10 | | | 0.54 | 13.9 | | Dott. G. Manzi. |
| Parma | | | 29.90 | 759.4 | 58.6 | 14.8 | 71 | WNW | | | 4 | | 10 | | | 0.26 | 6.7 | | Prof. P. Pigorini. |
| Florence | | | 29.96 | 759.4 | 68.0 | 20.0 | 65 | NW | | | 2 | | 10 | | | 0.17 | 4.5 | | Cav. F. Meucci. |
| Leghorn | | | 29.81 | 759.2 | 63.3 | 17.4 | 73 | W | 3.8 | 1.7 | | | 5 | W | | 0.25 | 6.5 | | Prof. P. Monte. |
| Siena | 28.67 | 728.2 | 29.85 | 758.1 | 60.1 | 15.6 | 77 | WNW | 1.3 | 0.6 | | | 10 | NW | | 0.13 | 3.5 | | Prof. L. Toscani. |
| Urbino | 28.34 | 719.8 | 29.86 | 758.5 | 57.2 | 14.0 | 80 | SW | | | 4 | | 10 | | | 0.72 | 18.3 | | Prof. P. Serpieri. |
| Pesaro | | | 29.87 | 758.7 | 61.3 | 16.3 | 80 | NE | 3.1 | 1.4 | | | 10 | SW | | 0.16 | 4.2 | | Prof. Luigi Guidi. |
| Ancona | | | 29.89 | 759.2 | 61.5 | 16.4 | 70 | SE | | | 4 | | 10 | | | 0.11 | 3.0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.91 | 759.6 | 67.3 | 19.6 | 57 | NNW | | | 6 | | 6 | NW | | 0.05 | 1.3 | | Avv. P. Ponticelli. |
| Rome | | | 29.94 | 759.7 | 70.9 | 21.6 | 60 | E | 10.5 | 4.7 | | | 3 | W | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U | | | 29.94 | 760.5 | 72.7 | 22.6 | 63 | WSW | | | 6 | | 4 | NW | | 0.01 | 0.3 | | Prof. L. Palmieri. |
| Lecce | | | 29.89 | 759.1 | 73.6 | 23.1 | 41 | SE | 6.3 | 2.8 | | | 6 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.92 | 760.1 | 77.0 | 25.0 | 68 | SW | 4.3 | 1.9 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.99 | 761.8 | 71.6 | 22.0 | 40 | NW | | | 6 | | 1 | NW | | 0 | 0 | | Prof. A. Pacinotti. |
| Ripposto, (Sicily) | | | 29.89 | 759.1 | 70.7 | 21.5 | 51 | SE | | | 2 | | 3 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.93 | 760.3 | 73.6 | 23.1 | 37 | W | 19.2 | 8.6 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.98 | 710.6 | 29.81 | 758.5 | 72.9 | 22.7 | 29 | W | | | 8 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.91 | 759.6 | 69.8 | 21.0 | 75 | NE | | | | | 2 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.90 | 761.0 | 67.6 | 19.8 | 65 | SE | 1.8 | 0.8 | | | 7 | SW | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,588.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 550 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.82 | 757.4 | 54.7 | 12.5 | 97 | N | 2 | 0.9 | | | 10n | | | | | Rainy | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.12 | 587.3 | 30.13 | 765.4 | 55.0 | 12.8 | 63 | NW | 0.9 | 0.40 | | 0 | 0 | | | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,200 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.89 | 759.2 | 53.6 | 12.0 | | SE | | | 1 | | | | | 0.031 | 0.8 | | |
| Groningen | | | 29.89 | 759.9 | 51.4 | 10.8 | | NNW | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.87 | 758.7 | 51.4 | 10.9 | | NNE | | | 2 | | | | | 0.024 | 0.6 | | |
| Utrecht | | | 29.82 | 757.5 | 57.4 | 14.1 | 53 | NNW | | | 2 | | 10 | | | 0.169 | 4.3 | Dull | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.83 | 757.6 | 52.9 | 11.6 | 59 | WNW | 6.0 | 2.7 | | | 1 | | | 0 | 0 | | |
| Brönö | | | 29.98 | 761.5 | 48.2 | 9.0 | 61 | NNE | 9 | 4 | | | 0 | | | 0 | 0 | | |
| Christiania | | | 29.86 | 758.4 | 46.6 | 8.1 | 64 | ENE | 4 | 2 | | | 10 | | | 0.362 | 9.2 | Light rain | |
| Tromsö | | | 30.02 | 762.6 | 39.2 | 4.0 | 66 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna The symbols. Cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.10 | 764.6 | 59.9 | 15.5 | 93 | SE | 24.8 | 11.1 | | | 10 | | | 0.244 | 6.2 | Raining | Dr. J. A. Sampaio |
| Campo Major | | | 30.19 | 766.9 | 69.8 | 21.0 | 37 | NNE | 5.0 | 2.5 | | | 3 | | | 0 | 0 | | Dr. A. M. R dos Santos. |
| Funchal, (Madeira) | | | 30.25 | 768.3 | 67.8 | 19.9 | 71 | SW | 6.9 | 3.1 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.26 | 768.5 | 64.8 | 18.2 | 50 | N | 11.2 | 5.0 | | | 3 | WSW | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.17 | 766.3 | 62.6 | 17.0 | 94 | SSE | 8.7 | 3.9 | | | 10 | | | 0.012 | 0.3 | Light rain | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.83 | 757.7 | 70.7 | 21.5 | 39 | S | 9 | 4 | | | 3 | | | | | | Astronomical Obs. |
| Wilna | | | 29.89 | 759.3 | 67.8 | 19.6 | 49 | S | 11 | 5 | | | 5 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.84 | 757.8 | 64.8 | 18.2 | 44 | WSW | 11 | 5 | | | 2 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.85 | 758.1 | 44.4 | 6.9 | 87 | WNW | 18 | 8 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.79 | 756.7 | 50.0 | 10.0 | 100 | Calm | 0 | 0 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.89 | 759.3 | 76.8 | 24.9 | 41 | S | 11 | 5 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.98 | 761.4 | 82.4 | 28.0 | 33 | Calm | 0 | 0 | | | 3 | | | | | | Kurdakof |
| Kertch | | | 29.97 | 761.3 | 74.1 | 23.4 | 75 | ESE | 2 | 1 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.01 | 762.3 | 67.5 | 19.7 | 59 | SSE | 7 | 3 | | | 1 | | | | | | Meteorological Obs. |
| Lugan | | | 29.98 | 761.5 | 78.1 | 25.6 | 45 | E | 13 | 6 | | | 6 | | | | | | Meteorological Obs. |
| Archangel | | | 29.69 | 754.2 | 46.6 | 8.1 | 70 | Calm | 0 | 0 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.62 | 726.9 | 29.98 | 761.4 | 77.4 | 25.2 | 38 | E | 4 | 2 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.07 | 763.6 | 82.6 | 28.1 | 23 | S | 13 | 6 | | | 1 | | | | | | Sebastianof. |
| Kasan | | | 29.91 | 759.6 | 72.9 | 22.7 | 62 | SW | 4 | 2 | | | 6 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.00 | 736.6 | 29.91 | 759.7 | 69.3 | 20.7 | 34 | NW | 9 | 4 | | | 6 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.41 | 721.6 | 30.04 | 763.1 | 77.0 | 25.0 | 61 | Calm | 0 | 0 | | | 3 | | | | | | Michelson. |
| Barnaul | | | 30.15 | 765.9 | 64.9 | 18.3 | 32 | S | 9 | 4 | | | 5 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.99 | 761.8 | 44.6 | 7.0 | 70 | SSW | 9 | 4 | | | 10 | | | | | Raining | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 26.8 | — 2.9 | | NW | 9 | 4 | | | 7 | | | | | | Mossin. |
| Peking, (China) | | | 30.15 | 765.8 | 57.0 | 13.9 | 75 | SW | 18 | 8 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.79 | 756.7 | 39.6 | 3.9 | 90 | NW | 11 | 5 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 33.8 | 1.0 | | E | 2 | 1 | | | 0 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 469 meters, or 1,541.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 30.16 | 766.0 | 69.4 | 20.8 | 35 | W | 6.7 | 3.00 | | 2 | 1 | W | | 0 | 0 | Light clouds | Royal Observatory |
| San Fernando | | | 30.19 | 766.7 | 75.0 | 23.9 | 48 | N | 9.2 | 4.1 | | 0 | 2 | | NW | 0 | 0 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.03 | 762.8 | 76.1 | 24.5 | 77 | E | 12.8 | 5.7 | | 2cs | 7s,k | | | 0.024 | 0.6 | Covered | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.95 | 760.8 | 46.4 | 8.0 | 52 | NE | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.96 | 761.0 | 46.0 | 7.8 | 52 | E | | | 4 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 29.89 | 759.3 | 40.1 | 4.5 | 60 | NE | | | 6 | | 10 | | | 0 | 0 | | |
| Stockholm | | | 29.71 | 754.6 | 44.2 | 6.8 | 80 | WSW | | | 2 | | 10 | | | 0.142 | 3.6 | | |
| Wisby | | | 29.75 | 755.6 | 46.4 | 8.0 | 89 | NW | | | 4 | | 5 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.72 | 754.9 | 37.8 | 3.2 | 91 | NNW | 9.4 | 4.2 | | | 10 | | | 0.043 | 1.08 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Lower 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.68 | 728.5 | 30.11 | 764.7 | 54.7 | 12.6 | 61 | SW | ..... | ..... | 5 | ..... | 10 | ..... | ..... | 0.35 | 8.9 | Covered | The Observatory. |
| Zurich | 28.41 | 721.5 | 30.05 | 763.2 | 52.5 | 11.4 | 77 | W | ..... | ..... | 2 | ..... | 10 | ..... | ..... | 0.177 | 4.5 | Raining | The Observatory. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +3.5 mm; Thermometer, —4.1 cent.; Relative Humidity, +7 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Lower 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | ..... | ..... | 29.90 | 759.4 | 70.2 | 21.2 | 59 | ENE | 9 | 4.0 | ..... | ..... | 9 | ..... | S | 0 | 0 | ..... | The Observatory. |
| Fao, (Persian Gulf) | ..... | ..... | 30.00 | 764.3 | 77.4 | 25.2 | ..... | SW | ..... | ..... | 3 | ..... | 5 | ..... | ..... | ..... | ..... | ..... | |
| Salonica | ..... | ..... | 29.85 | 758.2 | 73.8 | 23.2 | ..... | NE | ..... | ..... | 6 | ..... | 5 | ..... | ..... | ..... | ..... | ..... | B. Stéfanidés. |
| Valona | ..... | ..... | 29.93 | 760.2 | 77.4 | 25.2 | ..... | SW | ..... | ..... | 2 | ..... | 2 | ..... | ..... | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | ..... | ..... | 29.84 | 758.0 | 75.2 | 24.0 | ..... | S | ..... | ..... | 2 | ..... | 8 | ..... | ..... | ..... | ..... | ..... | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | ..... | ..... | 29.91 | 759.6 | 79.9 | 26.6 | 65 | WSW | ..... | ..... | 2 | ..... | 3c | ..... | ..... | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Lower 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | ..... | ..... | 29.82 | 757.4 | 50.9 | 10.5 | 43 | NW | 6 | 2.7 | ..... | ..... | 5 | ..... | ..... | ..... | ..... | ..... | Hon. J. Ferguson. |
| Brockville, Ontario | ..... | ..... | 30.22 | 767.6 | 51 | 10.6 | ..... | SW | 4 | 1.8 | ..... | Haze | Sm'e | ..... | ..... | 0 | 0 | Smoky | W. R. Bigg. |
| *Chatham, N. B. | ..... | ..... | 29.89 | 759.2 | 52 | 11.1 | 66 | NW | 17 | 7.6 | ..... | 8c | 2ks | NW | NW | Inap. | Inap | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | ..... | ..... | 29.82 | 757.4 | 46 | 7.8 | 72 | N | 20 | 8.9 | ..... | 0 | 5ks | ..... | N | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | ..... | ..... | 30.15 | 765.8 | 54.9 | 12.7 | 60 | SW | ..... | ..... | 1 | 0 | 0 | ..... | ..... | 0 | 0 | Smoky | James Smith, M. A. |
| Dalhousie, N. B. | ..... | ..... | 29.95 | 760.7 | 51.4 | 10.8 | 69 | N | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 0.06 | 1.5 | Clearing | H. A. Johnson. |
| Esquimault, B. C. | ..... | ..... | 29.99 | 761.7 | 43.3 | 6.3 | 96 | NE | ..... | ..... | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | ..... | ..... | 30.04 | 763.0 | 42 | 5.6 | 74 | W | 12 | 5.4 | ..... | 2c | 2s | NW | NW | 0.06 | 1.5 | Clear | J. McWilliams. |
| Fredericton, N. B. | ..... | ..... | 29.94 | 761.7 | 54 | 12.2 | 50 | NW | 8 | 3.6 | ..... | 2 | 0 | ..... | ..... | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | ..... | ..... | 29.78 | 754.9 | 57 | 13.9 | 97 | S | 3 | 1.3 | ..... | 5ks | 5n | S | S | 0.12 | 3.0 | Cloudy | James Stewart. |
| Goderich, Ontario | ..... | ..... | 30.21 | 767.3 | 59.1 | 15.1 | 64 | Calm | ..... | ..... | 0 | 6ks | 4s | W | ..... | 0.07 | 1.9 | Cloudy | H. J. Strang, M. A. |
| *Halifax, N. S. | 29.13 | 739.9 | 30.21 | 767.3 | 60 | 15.6 | 55 | SE | ..... | ..... | 1 | 2ks | 0 | ..... | ..... | 0 | 0 | Clear | James Grant. |
| Hamilton, Ontario | ..... | ..... | 29.77 | 756.1 | 55 | 12.8 | 68 | NW | 22 | 9.8 | ..... | 0 | 2ks | ..... | ..... | 0.249 | 6.3 | Fair | F. Allison, M. A. |
| Heart's Content, N. F. | ..... | ..... | 30.27 | 768.8 | 58.5 | 14.7 | 56 | SW | ..... | ..... | 2 | 6c | 0 | ..... | ..... | 0 | 0 | Fair | Geo. Dickson, M. A. |
| *Kingston, Ontario | ..... | ..... | 29.79 | 756.7 | 47 | 8.3 | 62 | N | ..... | ..... | 1 | 0 | 0 | ..... | ..... | 0 | 0 | Fine | E. Weedon. |
| *Montreal, Quebec | ..... | ..... | 30.28 | 769.1 | 49 | 9.4 | 93 | SW | 3 | 1.3 | ..... | Haz | Sm'e | ..... | SW | 0 | 0 | Hazy | S. Woods, M. A. |
| *Parry Sound, Ontario | ..... | ..... | 30.14 | 765.5 | 61 | 16.1 | 61 | SW | 4 | 1.8 | ..... | ..... | Sm'e | ..... | ..... | 0.03 | 0.8 | Smoky | C. H. McLeod, C. |
| Port Dover, Ontario | ..... | ..... | 30.23 | 767.8 | 55 | 12.8 | 59 | S | 4 | 1.8 | ..... | Haze | Haze | ..... | ..... | 0 | 0 | Smoky | Rev. R. Mosley. |
| Port Hastings, N. S. | ..... | ..... | 30.27 | 768.8 | 52 | 11.1 | 79 | Calm | 0 | 0 | ..... | 10ck | 0 | NW | ..... | 0 | 0 | Fair | H. Morgan. |
| Port Stanley, Ontario | ..... | ..... | 29.84 | 757.9 | 42.1 | 5.6 | ..... | NW | 16 | 7.2 | ..... | ..... | ..... | ..... | ..... | 0 | 0 | Fine | Peter Grant. |
| *Quebec, Quebec | ..... | ..... | 30.24 | 768.1 | 57 | 13.9 | 70 | E | 4 | 1.8 | ..... | 2ck | 0 | W | ..... | 0 | 0 | Clear | M. Payne. |
| *Rockliffe, Ontario | ..... | ..... | 30.07 | 763.8 | 58 | 14.4 | 48 | W | 6 | 2.7 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | Capt. Ashe, R. N. |
| St. John, N. B. | ..... | ..... | 30.28 | 769.1 | 56 | 13.3 | 51 | W | 8 | 3.6 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Smoky | W. H. McIntyre. |
| *Saugeen, Ontario | ..... | ..... | 29.93 | 760.2 | 55 | 12.8 | 44 | NW | 17 | 7.6 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Fine | G. Murdoch, C. E. |
| Stayner, Ontario | ..... | ..... | 30.18 | 766.0 | 61 | 15.6 | 44 | Calm | 0 | 0 | ..... | 0 | Sm'e | ..... | ..... | 0 | 0 | Smoky | K. Stewart. |
| Stratford, Ontario | 28.96 | 735.6 | 30.18 | 766.6 | 64 | 17.8 | 38 | W | 1 | 0.4 | ..... | 0 | Haze | ..... | ..... | 0 | 0 | Hazy | R. J. Cole. |
| *Sydney, C. B. | ..... | ..... | 30.23 | 767.8 | 56.6 | 13.7 | 69 | SE | 2 | 0.9 | ..... | 2ck | 2s | NW | ..... | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Toronto, Ontario | ..... | ..... | 29.69 | 754.1 | 46 | 7.8 | 80 | N | 8 | 3.6 | ..... | 8k | 0 | N | ..... | 0.03 | 0.8 | Fair | T. C. Hill. |
| Windsor, N. S. | ..... | ..... | 30.25 | 768.3 | 59 | 15.0 | 53 | W | 3 | 1.3 | ..... | 2ck | Haze | W | ..... | 0 | 0 | Fair | Magnetic Observatory. |
| Woodstock, Ontario | ..... | ..... | 29.80 | 756.9 | 52.0 | 11.1 | 68 | NW | 14 | 6.3 | ..... | 3c | 0 | NW | ..... | 0.14 | 3.6 | Clear | Prof. John E. Oram. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | ..... | ..... | 29.92 | 760.0 | 51.0 | 10.6 | 59 | SE | ..... | ..... | ..... | Haze | Haze | ..... | ..... | 0 | 0 | Fair | John Delany. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.18 | 766.6 | 57 | 13.9 | 57 | Calm | 0 | 0 | | | Haze | | | 0 | 0 | Dense haze | |
| Alpena, Mich. | | | 30.16 | 766.1 | 51 | 10.6 | 78 | SE | 2 | 0.9 | | 5ck | Sm'e | SW | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 30.29 | 769.4 | 63 | 17.2 | 72 | W | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.40 | 772.1 | 66 | 18.9 | 79 | SE | 3 | 1.3 | | | 10s | | SE | 0.02 | 0.5 | Cloudy | |
| Baltimore, Md. | | | 30.32 | 770.1 | 60 | 15.6 | 82 | SE | 2 | 0.9 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Barnegat, N. J. | | | 30.27 | 768.8 | 67 | 19.4 | 64 | NW | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 27.92 | 709.2 | 29.50 | 749.3 | 55 | 12.8 | 93 | W | 3 | 1.3 | | 8cs | 1s | W | | 0.18 | 4.3 | Cloudy | |
| Boston, Mass. | | | 30.10 | 764.5 | 65 | 18.3 | 35 | W | 8 | 3.6 | | | Haze | | | 0 | 0 | Dense haze | |
| Breckenridge, Minn. | | | 29.61 | 752.1 | 61 | 16.1 | 88 | SE | 36 | 16.1 | | | 10ks | | S | 0.16 | 4.1 | Cloudy | |
| Buffalo, N. Y. | | | 30.24 | 768.1 | 58 | 14.4 | 42 | Calm | 0 | 0 | | 1c | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.16 | 766.1 | 58 | 14.4 | 53 | S | 2 | 0.9 | | Sm'e | 10s | | | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 30.16 | 766.1 | 67 | 19.4 | 84 | S | 7 | 3.1 | | 2cs | 0 | | | 0 | 0 | Fair | |
| Campo, Cal. | 27.35 | 694.7 | 29.92 | 760.0 | 41 | 5.0 | 91 | W | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Camp Verde, Arizona | | | | | 50 | 10.0 | | Calm | | | | 10c | 0 | | | 0 | 0 | Cloudy | |
| Cape Hatteras, N. C. | | | 30.34 | 770.6 | 65 | 18.3 | 73 | W | 3 | 1.3 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Cape Henry, Va. | | | 30.36 | 771.1 | 69 | 20.6 | 70 | W | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.42 | 772.7 | 63 | 17.2 | 88 | E | 6 | 2.7 | | 0 | 0 | | | 0.13 | 3.3 | Clear | |
| Cape May, N. J. | | | 30.31 | 769.9 | 56 | 13.3 | 87 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.39 | 771.9 | 64 | 17.8 | 89 | N | 6 | 2.7 | | 0 | 1s | | N | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.01 | 609.8 | 29.95 | 760.7 | 43 | 6.1 | 67 | W | 4 | 1.8 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Chicago, Ill. | | | 30.06 | 763.5 | 63 | 17.2 | 83 | SW | 3 | 1.3 | | 2c | 5s | S | S | Inap. | Inap. | Fair | |
| Cincinnati, Ohio | | | 30.18 | 766.6 | 64 | 17.8 | 78 | SE | 5 | 2.2 | | 2ck | 8ks | SW | SW | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 30.25 | 768.3 | 62 | 16.7 | 46 | SE | 9 | 4.0 | | 5c | 5k | | SW | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 30.02 | 762.5 | 71 | 21.7 | 90 | SE | 7 | 3.1 | | 0 | 8s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.02 | 762.5 | 61 | 16.1 | 88 | S | 1 | 0.4 | | 7ck | 0 | SW | | Inap. | Inap. | Fair | |
| Denison, Tex. | | | 30.03 | 762.7 | 72 | 22.2 | 80 | SE | 5 | 2.2 | | | 10s | | S | 0.01 | 0.3 | Cloudy | |
| Denver, Col. | 24.77 | 629.2 | 29.99 | 761.7 | 45 | 7.2 | 53 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.15 | 765.8 | 57 | 13.9 | 63 | NE | 4 | 1.8 | | 8k | 0 | W | | Inap. | Inap. | Fair | |
| Dodge City, Kan. | 27.30 | 693.4 | 29.51 | 749.5 | 60 | 15.6 | 87 | S | 8 | 3.6 | | 0 | 5s | | SW | 0 | 0 | Fair | |
| Dubuque, Iowa | | | 29.98 | 761.5 | 64 | 17.8 | 78 | SW | 5 | 2.2 | | | 10s | | SW | 0.08 | 2.0 | Cloudy | |
| Duluth, Minn. | | | 29.95 | 760.7 | 48 | 8.9 | 77 | NE | 4 | 1.8 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Eastport, Me. | | | 29.97 | 761.2 | 55 | 12.8 | 50 | NW | 9 | 4.0 | | 5c | Haze | | | 0.15 | 3.8 | Fair | |
| Erie, Pa. | | | 30.22 | 767.6 | 62 | 16.7 | 46 | S | 8 | 3.6 | | 2c | Fog | W | | 0 | 0 | Foggy | |
| Escanaba, Mich. | | | 30.05 | 763.3 | 52 | 11.1 | 79 | SE | 8 | 3.6 | | | Sm'e | | | 0.03 | 0.8 | Dense smoke | |
| Florence, Arizona | | | 29.92 | 760.0 | 64 | 17.8 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.03 | 762.7 | 63 | 17.2 | 94 | SE | 1 | 0.4 | | | 10n | | | 0.40 | 10.2 | Light rain | |
| Ft. St. Michael, Alaska | | | 29.11 | 739.4 | 28 | —2.2 | 88 | NW | | | 5 | 5ck | 5ks | S | S | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.76 | 730.5 | 29.84 | 757.9 | 66 | 18.9 | 78 | S | | | | 8k | 0 | S | | Inap. | Inap. | Cloudy | |
| Fort Sully, Dakota | 28.08 | 713.2 | 29.69 | 754.1 | 56 | 13.3 | 89 | S | 3 | 1.3 | | 0 | 0 | | | 0.76 | 19.3 | Clear | |
| Galveston, Tex. | | | 30.09 | 764.3 | 73 | 22.8 | 90 | SE | 10 | 4.5 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 30.10 | 764.5 | 62 | 16.7 | 85 | SE | 4 | 1.8 | | | 10s | | SW | 0.07 | 1.8 | Cloudy | |
| Indianapolis, Ind. | | | 30.15 | 765.8 | 68 | 20.0 | 69 | S | 5 | 2.2 | | | 10s | | S | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 30.04 | 763.6 | 73 | 22.8 | 85 | SE | 10 | 4.5 | | 0 | 5ks | | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.31 | 769.9 | 75 | 23.9 | 56 | E | 12 | 5.4 | | 2k | 0 | E | | Inap. | Inap. | Clear | |
| Keokuk, Iowa | | | 29.96 | 761.0 | 66 | 18.9 | 78 | S | 3 | 1.3 | | 8k | 0 | S | | 0.12 | 3.0 | Fair | |
| Key West, Fla. | | | 30.09 | 764.3 | 69.0 | 20.6 | 100 | E | 6 | 2.7 | | | 10n | | E | 2.37 | 60.2 | Light rain | |
| Kittyhawk, N. C. | | | 30.41 | 772.4 | 63 | 17.2 | 78 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.34 | 770.6 | 61 | 16.1 | 88 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.92 | 760.0 | 65 | 18.3 | 83 | S | 6 | 2.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| Leavenworth, Kan. | | | 29.90 | 759.4 | 66 | 18.9 | 84 | S | 3 | 1.3 | | | 10s | | | 0.12 | 3.0 | Cloudy | |
| Louisville, Ky. | | | 30.19 | 766.8 | 69 | 20.6 | 74 | SE | 6 | 2.7 | | 5k | 2s | SW | E | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.36 | 771.1 | 57 | 13.9 | 81 | S | 2 | 0.9 | | 10k | 0 | W | | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 75 | 23.9 | | SW | | | | 10c | Haze | | | 0 | 0 | Cloudy | |
| Marquette, Mich. | | | 30.01 | 762.2 | 59 | 15.0 | 54 | E | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.20 | 767.1 | 74 | 23.3 | 72 | S | 2 | 0.9 | | Haze | 5ks | | SW | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 30.07 | 763.8 | 53 | 11.7 | 93 | SE | 7 | 3.1 | | 0 | 5ks | | SW | 0.02 | 0.5 | Fair | |
| Mobile, Ala. | | | 30.24 | 768.1 | 71 | 21.7 | 80 | SE | 11 | 4.9 | | 2c | 2s | | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.31 | 769.9 | 71 | 21.7 | 69 | SE | 6 | 2.7 | | 5c | 0 | | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.24 | 742.7 | 30.29 | 769.4 | 60 | 15.6 | 65 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 23.83 | 605.3 | 30.19 | 766.8 | 39 | 3.9 | 72 | NW | 54 | 24.1 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Nashville, Tenn. | | | 30.23 | 767.8 | 72 | 22.2 | 63 | SE | 4 | 1.8 | | 5ck.cs | 0 | SW | | 0.03 | 0.8 | Fair | |
| New Haven, Conn. | | | 30.20 | 767.1 | 61 | 16.1 | 55 | Calm | 0 | 0 | | Haze | Fog | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 30.17 | 766.3 | 57 | 13.9 | 69 | Calm | 0 | 0 | | Haze | Sm'e | | | 0 | 0 | Dense smoke | |
| New Orleans, La. | | | 30.17 | 766.3 | 71 | 21.7 | 85 | E | 10 | 4.5 | | 5'c | 5ks | W | | 0.01 | 0.3 | Cloudy | |
| Newport, R. I. | | | 30.14 | 765.5 | 58 | 14.4 | 57 | SW | 4 | 1.8 | | | Haze | | | 0 | 0 | Hazy | |
| New York, N. Y. | | | 30.25 | 768.3 | 61 | 16.1 | 60 | W | 12 | 5.4 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.38 | 771.6 | 68 | 20.0 | 74 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.95 | 684.5 | 29.50 | 749.3 | 46 | 7.8 | 92 | W | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.81 | 731.8 | 29.86 | 758.4 | 59 | 15.0 | 87 | N | 10 | 4.5 | | | 10n | | W | 0.03 | 0.8 | Light rain | |
| Oswego, N. Y. | | | 30.26 | 768.6 | 58 | 14.4 | 46 | SW | 6 | 2.7 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Pembina, Dakota | | | 29.58 | 751.3 | 57 | 13.9 | 93 | S | 3 | 1.3 | | | 10n | | | 0.16 | 4.1 | Light rain | |
| Philadelphia, Pa. | | | 30.30 | 769.6 | 61 | 16.1 | 77 | W | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 60 | 15.6 | | S | | | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| Pike's Peak, Col. | 17.77 | 451.4 | 29.98 | 761.5 | 13 | —10.6 | 79 | W | 20 | 8.9 | | 2c | 2s | W | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 30.28 | 769.1 | 52 | 11.1 | 86 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| Port Huron, Mich. | | | 30.19 | 766.8 | 52 | 11.1 | 72 | SW | 6 | 2.7 | | 2c | 8n,fg | | SW | Inap. | Inap. | Light rain | |
| Portland, Me. | | | 30.04 | 763.0 | 65 | 18.3 | 48 | N | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 30.00 | 762.0 | 43 | 6.1 | 81 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.73 | 628.1 | 30.19 | 766.8 | 40 | 4.4 | | Calm | | | | 8ck | 0 | S | | 0 | 0 | Fair | |
| Punta Rassa, Fla. | | | 30.14 | 765.5 | 74 | 23.3 | 63 | E | 20 | 8.9 | | 0 | 2ks | | | 0.02 | 0.5 | Clear | |
| Rochester, N. Y. | | | 30.24 | 768.1 | 58 | 14.4 | 47 | W | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.55 | 649.0 | 29.88 | 758.9 | 45 | 7.2 | 60 | NE | 4 | 1.8 | | 2c | 0 | NW | | 0.03 | 0.8 | Fair | |
| Sandy Hook, N. J. | | | 30.26 | 768.6 | 60 | 15.6 | 70 | W | 18 | 8.0 | | | Haze | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.87 | 758.7 | 72 | 22.2 | 85 | SE | 7 | 3.1 | | 10cs | 0 | N | | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.96 | 761.0 | 54 | 12.2 | 86 | NE | 4 | 1.8 | | 0 | 2s | | NE | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 29.86 | 758.4 | 54 | 12.2 | 79 | SW | 4 | 1.8 | | Haze | 5s | | S | 0 | 0 | Fair | |
| Santa Fé, N. M. | 23.26 | 590.8 | 29.80 | 756.9 | 42.5 | 5.8 | 21 | NE | 2 | 0.9 | | 2cs | 8s | SW | SW | 0 | 0 | Cloudy | |
| Savannah, Ga. | | | 30.38 | 771.6 | 69 | 20.6 | 84 | E | 6 | 2.7 | | 8c | 0 | E | | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.22 | 767.6 | 69 | 20.6 | 90 | SE | 5 | 2.2 | | | 10s | | | 0.15 | 3.8 | Cloudy | |
| Smithville, N. C. | | | 30.12 | 772.7 | 65 | 18.3 | 90 | NE | 4 | 1.8 | | 2k | 0 | | | 0.37 | 9.4 | Fair | |
| Springfield, Mass. | | | 30.18 | 766.6 | 64 | 17.8 | 46 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 30.07 | 763.8 | 66 | 18.9 | 84 | S | 10 | 4.5 | | 2c | 0 | | | 0.53 | 3.5 | Clear | |
| St. Marks, Fla. | | | 30.28 | 769.1 | 69 | 20.6 | 79 | SE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.84 | 757.7 | 62 | 16.7 | 84 | SE | 8 | 3.6 | | | 10s | | | 0.12 | 3.0 | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 58 | 14.4 | 24 | SW | | | | 0 | 10s | | | 0 | 0 | Cloudy | |
| Thatcher's Island, Mass. | | | 30.05 | 763.3 | 65 | 18.3 | 35 | NW | 20 | 8.9 | | | | | | 0 | 0 | Dense smoke | |
| Toledo, Ohio | | | 30.16 | 766.1 | 65 | 18.3 | 63 | S | 7 | 3.1 | | 5c | 2ks | SW | SW | 0 | 0 | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meter per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.46 | 697.5 | 30.01 | 762.2 | 49 | 9.4 | | S | | | | 2c | 8s | W | SW | 0 | 0 | Cloudy | |
| Tybee Island, Ga | | | 30.35 | 770.9 | 68 | 20.0 | 99 | NE | 12 | 5.4 | | 8k | 0 | NE | | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 30.27 | 767.6 | 68 | 20.0 | 81 | SE | 6 | 2.7 | | 8k | 0 | | | 0 | 0 | Fair | |
| Virginia City, M. T | 24.22 | 615.2 | 29.70 | 754.4 | 42 | 5.6 | 83 | E | 1 | 0.4 | | 10k | 0 | W | | 0.13 | 3.3 | Cloudy | |
| Washington, D. C | | | 30.34 | 770.6 | 61 | 16.1 | 78 | S | 3 | 1.3 | | 0 | Haze | | S | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 52 | 11.1 | | Calm | | | | | 10s | | S | 0 | 0 | Cloudy | |
| Wilmington, N. C | | | 30.40 | 772.1 | 66 | 18.9 | 84 | E | 5 | 2.2 | | 0 | 2s | | | 0.21 | 5.3 | Fair | |
| Wood's Holl, Mass | | | 30.14 | 765.5 | 60 | 15.6 | 79 | SW | 3 | 1.3 | | 0 | Sm'c | | | 0 | 0 | Smoky | |
| Yankton, Dakota | 28.52 | 724.4 | 29.76 | 755.9 | 60 | 15.6 | 71 | S | 1 | 0.4 | | 8cs | 8s | W | W | 0.15 | 3.8 | Cloudy | |
| Yuma, Arizona | | | | | 70 | 21.1 | | SW | | | | | 10s | | | 0 | 0 | Cloudy | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.09 | 764.3 | 82 | 27.8 | 74 | SE | 12 | 5.4 | | 10c | 8n | SE | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 80 | 26.7 | | E | | | 4 | | | | | 0.11 | 2.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.01 | 762.2 | 80 | 26.7 | 87 | E | | | 2 | 5k | 6ks | E | | 0.31 | 7.87 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.18 | 767.9 | | | 77.0 | 25.0 | | E | | | | | | | | 1.20 | 31.0 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.19 | 639.8 | | | 65.5 | 18.6 | 82 | Calm | | | 0 | 5es | 2s | | | 0.48 | 12.2 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.65 | 753.1 | 48.0 | 8.9 | 89 | S | 10 | 4.5 | | 2k | 3s | NW | NW | 0.10 | 2.5 | Threatening | I. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.04 | 763.0 | 71 | 21.7 | | NE | | | 6 | | | | | 0.25 | 6.3 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,382.2 ft., or 1,320.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.40 | 772.1 | 73 | 22.8 | 61 | 16.1 | 77 | WSW | | | 2 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.98 | 761.5 | 63.5 | 17.5 | 55.8 | 13.2 | | SSW | | | 3 | | 8 | | NNE | 0 | 0 | | | Cloudy | |
| Navy Yard, Norfolk, Va | 30.44† | 773.2† | 63 | 17.2 | 62 | 16.7 | 94 | SSE | 2 | 0.9 | | | 3c | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Pensacola, Fla. | 30.38 | 771.6 | | | 71 | 21.7 | 87 | W | 24 | 10.7 | | | 3 | | W | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.12 | 765.0 | 70 | 21.1 | 65 | 18.3 | 80 | NW | 6 | 2.7 | | | | | | 0 | 0 | | | Smoky | |
| Naval Hospital, Yokohama, Japan | 29.78 | 756.4 | 60.5 | 15.8 | 55 | 12.8 | 97 | NNE | | | 1 | | 10nd | | NE | 0.60 | 15.2 | | | Heavy rain. | |
| Adams, N. 5° 49′ W. 28° 39′ | 30.01 | 762.2 | 82 | 27.8 | 82 | 27.8 | 87 | ESE | | | 3 | | 10 | | E | | | Light | E | D. clouds | |
| Alert, N. 32° 44′ E. 138° 43′ | 30.18 | 766.6 | 74 | 23.3 | 74 | 23.3 | 95 | SW | | | 5-6 | | 8 | | SW | | | Long | SW | Squally | |
| Alliance, Beirut, Syria | 30.04 | 763.0 | 75 | 23.9 | 75 | 23.9 | 68 | SW | | | 1 | | 6 | | N&W | | | | | Pleasant | |
| Ashuelot, Canton, China | 29.98 | 761.5 | 77 | 25.0 | 74 | 23.3 | 90 | E | | | 2 | | 10 | | E | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.17 | 766.3 | 51 | 10.6 | 71 | 21.7 | 85 | SE | | | 2 | | 8 | | NW | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.30 | 769.6 | 60 | 15.6 | 65 | 18.3 | 63 | SW | 10 | 4.5 | | | 0 | | | 0 | 0 | | | Hazy | |
| Despatch, N. 38° 04′ W. 24° 09′ | 30.26 | 768.6 | 64 | 17.8 | 64 | 17.8 | 94 | SSW | | | 4 | | 9 | | NE | | | Smooth | | Cloudy | |
| Essex, N. 24° 30′ W. 83° 28′ | 30.04 | 763.0 | 80 | 26.7 | 80 | 26.7 | 91 | E | | | 6 | | 8 | | W | Blank | Blank | Rough | E | Squally | |
| Frolic, S. 29° 20′ W. 45° 25′ | 30.09 | 764.3 | | | 71 | 21.7 | 80 | SSW | | | 4 | | 5k | | | Blank | Blank | Moderate. | S&W | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.84 | 757.9 | | | 65 | 18.3 | 100 | W | | | 2 | | 3 | | | Blank | Blank | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.06 | 763.5 | 69 | 20.6 | 64 | 17.8 | 89 | Calm | | | 0 | | 1 | | | ¶1.5 | 38.¶ | Calm | None | Misty | |
| Lackawana, Acapulco, Mexico | 29.99 | 759.4 | | | 83 | 28.3 | 91 | W | | | 1 | | 8 | | | | | Smooth | | Hazy | |
| Marion, Smyrna, Turkey | 29.90 | 759.4 | 78 | 25.6 | 78 | 25.6 | 100 | WNW | | | 2 | | 10 | | ESE | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.74 | 755.4 | 64 | 17.8 | 65 | 18.3 | 49 | S | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 30.01 | 762.2 | 59 | 15.0 | 57 | 13.9 | 94 | NNE | | | 2 | | 2 | | NNE | | | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.46 | 773.7 | 62 | 16.7 | 65 | 18.3 | | SW | | | 2 | | 0 | | | 0 | 0 | | | Blue sky | |
| New Hampshire, Port Royal, S. C | 30.62 | 777.7 | | | 65 | 18.3 | 94 | NE | 5 | 2.2 | | | 8 | | NW | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.92 | 760.0 | 79 | 26.1 | 79 | 26.1 | 91 | Calm | 0 | 0 | | | 4 | | | 0 | 0 | Smooth | | Pleasant | |
| Ossipee, Port Royal, S. C | 30.43 | 772.9 | 70 | 21.1 | 69 | 20.6 | 90 | NE | | | 5 | | 8 | | NE | | | | | D. clouds | |
| Palos, Shanghai, China | 30.17 | 766.3 | 61 | 16.1 | 59 | 15.0 | 82 | NNE | | | 2 | | 1 | | N&E | | | | | Clear | |
| Pensacola, N. 20° 50′ W. 105° 40′ | 29.94 | 760.5 | | | 79 | 26.1 | 86 | N&W | | | 2 | | 4 | | S&E | 0 | 0 | Light | S&W | Pleasant | |
| Plymouth, New Orleans, La | 30.20 | 767.1 | 74 | 23.3 | 69 | 20.6 | 90 | E | | | 3 | | 9 | | SE | 0 | 0 | | | Cloudy | |
| Ranger, N. 36° 30′ W. 14° 40′ | 30.45 | 773.4 | | | 68 | 20.0 | 87 | E | | | 1 | | 2 | | N&E | | | Smooth | | Clear | |
| Richmond, S. 24° 57′ W. 41° 2′ | | | | | | | | SSW | | | 2 | | 10 | | | | | | | Heavily overcast. | |
| Rio Bravo, Matamoras, Mexico | 29.89 | 759.2 | | | 70 | 21.1 | 95 | SE | | | 1 | | 10 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.37 | 771.4 | 67 | 19.4 | 66 | 18.9 | 64 | W | | | 2 | | 1 | | WNW | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 30.21 | 767.3 | 61 | 16.1 | 60 | 15.6 | 76 | WSW | 8 | 3.6 | | | 1 | | WSW | 0 | 0* | | | Fair | |
| Swatara, N. 10° 20′ W. 89° 40′ | 29.94 | 760.5 | 84 | 28.9 | 83 | 28.3 | 91 | NNW | | | 1 | | 3ck | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.75 | 755.6 | 67 | 19.4 | 59 | 15.0 | 82 | NNW | | | 3 | | 10 | | S | | | Smooth | | Raining | |
| Trenton, Smyrna, Turkey | 29.78† | 756.4† | 80 | 26.7 | 88 | 31.1 | 80 | W | 4 | 1.8 | | | 10 | | | 0 | 0 | Smooth | | Hazy | |
| Vandalia, Constantinople, Turkey | 29.94 | 760.5 | 69 | 20.6 | 72 | 22.2 | 90 | NNE | | | 1 | | 0 | | | | | | | Blue sky | |
| Wabash, Boston, Mass | 30.17 | 766.3 | 66 | 18.9 | 69 | 20.6 | 94 | WNW | 7 | 3.1 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 29.58† | 776.7† | 61 | 17.8 | 60 | 15.6 | | Calm | | | 0 | | 0 | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 22° 22' E 114° 55' | | | 29.94 | 760.5 | 80 | 26.7 | 96 | ESE | | | 1 | | 10n | | | Smooth | | Overcast | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Co Lon | | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. German'c | | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, off Scilly Island | W¾S | 8.0 | 30.05 | 763.3 | 59.0 | 15.0 | | WSW | | | 4 | | Haze | | | Long | | Haze, smoke | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.22 | 767.6 | 76 | 24.4 | 68 | E | 9 | 4 0 | | 2k | 0 | E | | | | Clear | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg'd.) Chief Signal Officer. U. S. A.*

# BULLETIN

## OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 16, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.20 | 767.1 | 69.4 | 20.8 | 71 | NW | | | 2 | | 6 | | | 0 | 0 | Fair | Michel. |
| Algiers | | | 30.27 | 768.9 | 64.4 | 18.0 | 63 | ENE | | | 3 | | 3 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.22 | 767.5 | 68.9 | 20.5 | 69 | NNW | | | 3 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.22 | 767.6 | 75.2 | 24.0 | | NW | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.22 | 767.6 | 77.0 | 25.0 | | SSE | | | 2 | | 2 | | | 0 | 0 | Clear. | Husson. |
| Saida | | | 30.18 | 766.6 | 83.3 | 28.5 | | N | | | 3 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.16 | 766.0 | 63.0 | 17.2 | | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.18 | 766.5 | 89.6 | 32.0 | | NW | | | 2 | | 1 | | | 0 | 0 | Clear. | Lemaillot. |
| Laghouat | | | 30.17 | 766.4 | 87.8 | 31.0 | 19 | E | | | 1 | | 0 | | | 0 | 0 | Clear. | Guyot. |
| Biskra | | | 30.24 | 768.0 | 89.6 | 32.0 | 26 | NW | | | 3 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.94 | 760.4 | 62.6 | 17.0 | 63 | SW | | | 3 | | 10 | | | 0.093 | 0.8 | Raining | Prof. Ivan Stoxir. |
| Cracow, I. R. Observatory | | | 29.88 | 759.0 | 54.7 | 12.6 | 96 | W | | | 1 | | 10 | | | 0.815 | 20.7 | | Dr. Wierzbiski. |
| Eperies | | | 29.78 | 756.4 | 57.0 | 13.9 | 88 | Calm | | | 0 | | 10k,s | | S | 1.130 | 28.70 | | Julius Mikolik. |
| Gratz | | | 29.98 | 761.4 | 62.4 | 16.9 | 55 | NW | | | 6 | | 9 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.75 | 730.2 | 29.98 | 761.4 | 62.4 | 16.9 | 55 | NW | | | 1 | | 5 | | | 0.330 | 8.40 | | Prof. Reissenberger. |
| Kremsmünster | 28.98 | 718.4 | 29.64 | 753.3 | 66.6 | 19.2 | 66 | NW | | | 2 | | 8 | | | 0.143 | 3.6 | | Prof. C. Wagner. |
| Lemberg | 28.79 | 731.2 | 30.13 | 765.3 | 55.0 | 12.8 | 70 | WNW | | | 2 | | 4 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | 29.67 | 753.6 | 72.3 | 22.4 | 56 | SE | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.96 | 761.0 | 61.5 | 16.4 | 78 | NW | | | 2 | | 10s | | | 0.13 | 3.36 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.72 | 754.8 | 62.2 | 16.8 | 59 | N | | | 2 | | 10 | | | 0.209 | 5.30 | | Karl Stancel. |
| Trieste | | | 29.99 | 761.8 | 64.8 | 18.2 | 79 | NW | | | 1 | | 10 | | | 0 | 0 | Cloudy | P. Busin. |
| Vienna | | | 30.02 | 762.6 | 54.3 | 12.4 | 87 | WNW | | | 3 | | 10 | | | 0.701 | 17.8 | Raining | I. R. Central Met. Obs'y |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:[illegible] instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.71 | 729.3 | 30.17 | 766.2 | 56.5 | 13.6 | 62 | W | | | 1 | | 5 | | | 0 | 0 | | Royal Observatory. |
| Brussels | | | 30.15 | 765.8 | 58.6 | 14.8 | 68 | WSW | | | 3 | | 9 | | SW | | | Thunder-storm. | |
| Furnes | | | 30.13 | 765.4 | 56.5 | 13.6 | 85 | SW | | | 2 | | 5 | | | 0.091 | 2.3 | | |
| Maeseyck | | | 30.00 | 761.9 | 61.9 | 16.6 | 66 | SW | | | 4 | | 5 | | | 0.215 | 5.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.93 | 760.2 | 51.0 | 11.1 | | S | 16 | 7.2 | | | 2 | | | 0.075 | 1.91 | Hazy | William Boswell. |
| Ardrossan | | | 29.85 | 758.2 | 54 | 12.2 | | SSE | | | 1 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.89 | 759.9 | 59.2 | 15.1 | | SSW | 13 | 5.8 | | | 5 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.94 | 760.5 | 55.0 | 12.8 | | S | 10 | 4.5 | | | 9 | | | | | Raining | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.82 | 757.4 | 54.1 | 12.3 | | SW | | | 1 | | 8 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.95 | 760.7 | 58.7 | 14.8 | | SW | | | 4 | | 10 | | | 0.10 | 2.5 | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 84.2 | 29.0 | | NE | | | 2 | | 4? | | | | | Overcast? | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 30.06 | 763.5 | 61.0 | 16.1 | | SW | | | 1–2 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.07 | 763.8 | 58.0 | 14.4 | | SW | | | 1 | | 7 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.10 | 764.5 | 58.5 | 14.7 | | W | | | 2 | | 9 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 28.40 | 721.3 | 29.86 | 758.4 | 51.4 | 10.8 | | SW | | | 4 | | 7 | | | | | Raining | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.82 | 757.4 | 52 | 11.1 | | SSW | | | 5 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.14 | 765.5 | 55 | 12.8 | | SW | | | 3 | | 3 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.98 | 761.5 | 51.8 | 11.0 | | W | | | | | 7 | | | | | Showery | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.04 | 763.0 | 57.4 | 14.1 | | SSW | | | 4 | | 10 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.56 | 700.0 | 29.79 | 756.7 | 77.8 | 25.4 | | E | | | 1 | | 10 | | | | | Overcast | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.89 | 759.2 | 88.0 | 31.1 | | E | | | 1 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.73 | 755.1 | 58 | 14.4 | | W | | | 5 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.17 | 766.3 | 70.0 | 21.1 | | E | | | 2 | | 6 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.84 | 757.9 | 50.8 | 10.4 | | S | | | 3 | | 10 | | | | | Gloomy | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.06 | 763.5 | 57 | 13.9 | | WSW | | | 2 | | 5 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.10 | 764.5 | 60.1 | 15.6 | | SSW | | | 1 | | 7 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 30.12 | 765.0 | 56.5 | 13.6 | | SSW | | | 2 | | 8 | | | | | Showery | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.08 | 764.0 | 58 | 14.4 | | S | | | 4 | | 8k | | | 0 | 0 | Cloudy | M. P. Moyle. |
| Holyhead | | | 29.91 | 759.7 | 56 | 13.3 | | SSW | | | 5 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.10 | 764.5 | 55.2 | 12.9 | | SSW | 12 | 5.4 | | | 9sd | | | | | Raining | The Staff. |
| Kingstown | | | 29.84 | 757.9 | 59 | 15.0 | | WSW | | | 3 | | 6 | | | Blank | Blank | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.01 | 762.2 | 59.9 | 15.5 | | SW | | | 1 | | 9 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.02 | 762.5 | 69.2 | 20.7 | | W | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.81 | 757.2 | 61 | 16.1 | | Calm | | | 0 | | 2 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.08 | 764.0 | 70.2 | 21.2 | | NE | | | 4 | | 10 | | | | | Raining | J. Belgrave. |
| Nottingham, Observatory | | | 30.00 | 762.0 | 59.7 | 15.4 | | W | | | 1 | | 7ksk,d | | WSW | 0.065 | 1.65 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.99 | 761.7 | 60.3 | 15.7 | | S | | | 3–4 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliff Obs'y | | | 30.06 | 763.5 | 55 | 12.8 | | S | | | 1 | | 10 | | | | | Drizzling | J. W. Lucas. |
| Plymouth | | | 30.06 | 763.5 | 56.0 | 13.3 | | S | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.88 | 758.9 | 57 | 13.9 | | SW | | | 3 | | 5 | | | Blank | Blank | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.96 | 761.0 | 55 | 12.8 | | SW | | | 4 | | 0 | | | | | Hazy | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.15 | 765.8 | 58.0 | 14.4 | | SW | | | 4 | | 10 | | | | | Raining | A. P. Amy. |
| Sandwick Manse, (Orkneys | | | 29.89 | 759.2 | 50.7 | 10.4 | | SE | 25 | 11.2 | | | 5 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.54 | 750.3 | 72.0 | 22.2 | | NNE | | | 2 | | 6 | | | Blank | Blank | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.97 | 761.2 | 63.9 | 17.7 | | SW | | | 3 | | 5 | | | 0.386 | 9.81 | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 29.89 | 759.2 | 60.2 | 15.7 | 86 | SW | | | 6 | | 4 | | | 0 | 0 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.98 | 761.5 | 49.1 | 9.5 | | S | | | 2 | | 7 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.78 | 756.4 | 55 | 12.8 | | S | | | 1 | | 10 | | | | | Overcast | John Smith. |
| Strathfield Turgiss | | | 30.09 | 764.3 | 55.5 | 13.1 | | S | | | 2 | | 10 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 29.83 | 757.7 | 62 | 16.7 | | SSE | | | 3 | | 4 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.06 | 763.5 | 59 | 15.0 | | SW | | | 6 | | 10 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.81 | 757.2 | 57.4 | 14.1 | | S | 38 | 17.0 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 45 | 7.2 | | S | | | 4 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.88 | 758.9 | 62.2 | 16.8 | 96 | NW | 17 | 7.6 | | 8 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.64 | 752.8 | 68.0 | 20.0 | 94 | | | | 3 | | 10n | | | | | Raining | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.90 | 759.4 | 61.4 | 16.3 | | SW | | | 2 | | 2k | | | 0.12 | 3.0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.24 | 768.1 | 74.4 | 23.6 | 61 | ESE | 14.3 | 6.4 | | 0 | 2 | | E | 0.58 | 14.7 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.80 | 756.9 | 58.3 | 14.6 | 82 | NW | 14 | 6.3 | | | 6 | | | 0.01 | 0.3 | Showery | R. L. J. Ellery. |
| Monach L'-house, Hebrides | | | 29.73 | 755.1 | 50 | 10.0 | | S | | | 4 | 10 | 5 | S | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.94 | 760.5 | 48 | 8.9 | | S | | | 4 | | 10 | | | | | | Robert Burnet. |

Note.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the cabeat series; 0 to 6 in the subseries; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.: Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 46° 20′, W. 40° 10′ | | | | | 54.0 | 12.2 | | SW | | | 1 | | 3 | | | 2 | W | D. clouds | Capt. J. E. Monland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Ceceste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Quangle | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 17° 35′ W. 54° 50′ | | | 30.09 | 764.3 | 79.7 | 26.5 | | ENE | | | 4 | | 3 | | | 4 | ENE | D. clouds | Capt. Jas. J. Price. |

Note.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully examined and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.15 | 664.2 | | | 71.6 | 22.0 | 91 | SE | | | 1 | | 3cs | | | 0.6 | 15. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.04 | 762.9 | 52.5 | 11.4 | 69 | NW | | 2 | | 10 | | | | | | |
| Faröe | | | 30.03 | 762.8 | 50.0 | 10.0 | 66 | NNW | | 4 | | 9 | | | | | | |
| Godthaab, (Greenland) | | | 30.02 | 762.6 | 38.1 | 3.4 | 93 | Calm | | 0 | | 10 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.89 | 759.3 | 45.9 | 7.7 | 72 | Calm | | 0 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.87 | 758.6 | 48.2 | 9.0 | 73 | E | | 2 | | 10 | | | | | | |
| Vestervig | | | 30.04 | 763.0 | 47.8 | 8.9 | 76 | NNE | | 4 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.28 | 769.0 | 57.2 | 14 | 69 | SW | | | 2 | | 5kn | | SW | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 30.17 | 766.2 | 64.4 | 18.0 | | SW | | | 2 | | 5 | | SW | 0 | 0 | Cloudy | Normal School. |
| Avignon, Normal School | | | 30.17 | 766.4 | 68.7 | 20.4 | 40 | N | | | 3 | | 0 | | | 0 | 0 | Clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.23 | 767.9 | 60.8 | 16.0 | 58 | NE | | | 2 | | 8kn | | W | 0.004 | 0.1 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.22 | 767.5 | 63.7 | 17.6 | 56 | SSW | | | 2 | | 8 | | WSW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.34 | 770.7 | 57.2 | 14 | 71 | NW | | | 3 | | 8 | | W | 0.16 | 4. | Very cloudy | Normal School. |
| Bourg en Bresse | | | 30.35 | 771.0 | 59.5 | 15.3 | 75 | W | | | 4 | | 2ck | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges | | | 30.25 | 768.4 | 59.4 | 15.2 | 80 | S | | | 2 | | 5 | | N | 0.04 | 1. | Cloudy | Normal School. |
| Brest | | | 30.09 | 764.2 | 58.1 | 14.5 | 84 | SW | | | 4 | | 10 | | SW | 0.02 | 0.50 | | Naval Observatory. |
| Carcassonne | | | 30.21 | 767.4 | 73.4 | 23 | 33 | W | | | 2 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| Caen | | | 30.16 | 766.0 | 60.3 | 15.7 | 73 | SW | | | 2 | | 10 | | NE | 0.031 | 0.8 | Raining | Normal School. |
| Chartres | | | 30.20 | 767.1 | 60.1 | 15.6 | 85 | SW | | | 2 | | 7 | | W | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 30.22 | 767.6 | 61.9 | 16.6 | 53 | SW | | | 3 | | 5k | | NE | 0 | 0 | Cloudy | Normal School. |
| Clermont-Ferrand | | | 30.21 | 767.2 | 64.2 | 17.9 | 52 | NE | | | 1 | | 2 | | W | 0 | 0 | Slightly cl'dy | Puy de Dome Obs'y. |
| Commercy | | | 30.19 | 766.9 | 58.8 | 14.9 | 56 | W | | | 2 | | 5 | | W | 0.031 | 0.8 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 30.17 | 766.4 | 64.9 | 18.3 | 37 | NW | | | 6 | | 5 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.25 | 768.4 | 59.9 | 15.5 | 66 | NW | | | 4 | | 5kc | | S | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 30.21 | 767.3 | 62.6 | 17 | 64 | SW | | | 2 | | 8 | | E | 0.142 | 3.6 | Very cloudy | Normal School. |
| Le Mans | | | 30.23 | 767.7 | 60.1 | 15.6 | 62 | W | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.24 | 768.0 | 65.3 | 18.5 | 31 | NNE | | | 1 | | | | E | 0.209 | 5.30 | | Normal School. |
| Lorient | | | 30.22 | 767.5 | 61.5 | 16.4 | 87 | SW | | | 4 | | 5 | | SW | 0.059 | 1.5 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.24 | 768.0 | 60.1 | 15.6 | 62 | Calm | | | 0 | | 5 | | NE | 0.150 | 3.8 | Cloudy | Mr. Marchal. |
| Metz | | | 30.27 | 768.8 | 57.9 | 14.4 | 43 | W | | | 2 | | 7k | | W | 0.177 | 4.5 | | M. A. Schuster. |
| Mirecourt | | | 30.22 | 767.6 | 57.9 | 14.4 | 60 | NW | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Nîsmes | | | 30.20 | 767.1 | 70.5 | 21.4 | 41 | S | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School |
| Orléans | | | 30.20 | 767.0 | 61.5 | 16.4 | 64 | W | | | 2 | | 2 | | W | 0.063 | 1.6 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.21 | 767.4 | 60.8 | 16.0 | 62 | SW | | | 2 | | 8k | | SW | 0 | 0 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Observatory | | | 30.27 | 768.8 | 64.8 | 18.2 | 55 | SW | | | 2 | | 2 | | NE | 0 | 0 | ¼ covered | Naval Observatory. |
| Rouen | | | 30.19 | 766.7 | 61.5 | 16.4 | 50 | SSW | | | 6 | | 10 | | W | 0 | 0 | Covered | Normal School. |
| Tarbes | 29.10 | 739.2 | 30.17 | 766.4 | 68.4 | 20.2 | 65 | N | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Villefranche | | | 30.26 | 768.5 | 64.4 | 18 | 85 | NW | | | 1 | | 8 | | NE | 0 | 0 | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchés. |
| Marseilles, Observatory | | | 30.11 | 764.7 | 68.4 | 20.2 | 40 | WNW | | | 4 | | 4 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Mont-Louis | 25.04 | 635.9 | 30.35 | 770.9 | 50.7 | 10.4 | 56 | SE | 11.2 | 5.00 | | | 6 | | W | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.21 | 767.4 | 62.6 | 17.0 | 55 | SW | | | 2 | | 7 | | SW | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 30.24 | 768.0 | 68.0 | 20.0 | 31 | N | 5.6 | 2.50 | | | 1 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty and M. Baylac, Obs'r |
| Pic du Midi, (Plantade,) H. P | 22.08 | 576.0 | | | 46.0 | 7.8 | | NW | | | 2 | | 5 | | | 0 | 0 | Fair | |
| Saint Maur, (near Paris) | | | 30.21 | 767.4 | 63.5 | 17.5 | 60 | SSW | | | 1 | | 5 | | | 0 | 0 | Cloudy | E. Renou. |
| Toulouse, Observatory | | | 30.30 | 769.5 | 64.0 | 17.8 | 46 | N | | | 1 | | 5 | | | 0 | 0 | | The Staff. |
| Tours | | | 30.27 | 768.8 | 61.5 | 16.4 | 71 | SW | | | 2 | | 7 | | W | 0.383 | 9.7 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.21 | 767.4 | 62.6 | 17.0 | 50 | SW | | | 3 | | 7 | | | 0.016 | 0.26 | Cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.93 | 760.3 | 60.4 | 15.8 | 78 | ESE | 6.7 | 3.0 | | | 10k | | | 0 | 0 | Dark sky | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observtions for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.13 | 765.3 | 61.5 | 16.4 | 45 | NW | | | 4 | | 6 | NW | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.12 | 765.0 | 62.2 | 16.8 | 54 | S | | | 1 | | 8 | | | 0.154 | 3.9 | | Prof. Arndt. |
| Breslau | | | 30.05 | 763.2 | 61.5 | 16.4 | 50 | NW | | | 4 | | 10 | NW | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.18 | 766.6 | 56.8 | 13.8 | 76 | SE | | | 2 | | 5 | | | 0.291 | 7.4 | Raining | Albert Senz. |
| Cassel | | | 30.18 | 766.5 | 61.2 | 16.2 | 43 | NW | | | 2 | | 5 | SW | | 0.071 | 1.8 | | Dr. H. Möhl. |
| Crefeld | | | 30.12 | 765.0 | 62.2 | 16.8 | 66 | SW | | | 3 | | 7 | | | 0.551 | 14.0 | | Director Lose. |
| Emden | | | 30.15 | 765.8 | 51.6 | 10.9 | 78 | W | | | 3 | | 10 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.20 | 767.1 | 65.1 | 18.4 | 43 | WSW | | | 3 | | 6 | | | 0.319 | 8.1 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.2? | 30.21? | 767.3? | 59.9 | 15.5 | 59 | SW | | | 1 | | 5 | WSW | | | | Light rain | M. Wilhelm. |
| Hamburg | | | 30.11 | 764.7 | 54.3 | 12.4 | 69 | W | | | 3 | | 10 | | | 0 | 0 | Covered | Captain F. Hegemann. |
| Kiel | | | 30.08 | 763.9 | 54.3 | 12.4 | 84 | WSW | | | 3 | | 7 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.97 | 761.1 | 60.8 | 16.0 | 69 | NW | | | 2 | | 5 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 30.09 | 764.3 | 53.4 | 11.9 | | NW | | | 2 | | 4 | | | 0.130 | 3.3 | | H. Muller. |
| Leipsic | | | 30.16 | 766.1 | 57.9 | 14.4 | 69 | WSW | | | 2 | | 9 | W | | 0.016 | 0.4 | Rainy | Prof. Brahms. |
| Memel, Naval School | | | 29.97 | 761.2 | 56.5 | 13.6 | | NW | | | 4 | | 9cs | S | | 0 | 0 | | Reinbrecht & Skalweit. |
| Münster | | | 30.11 | 764.9 | 60.1 | 15.6 | 61 | SW | | | | | 4 | | | 0.114 | 2.9 | Thunder-storm | Prof. E. Reis. |
| Neufahrwasser | | | 30.02 | 762.6 | 51.8 | 11.0 | 81 | NNW | | | 3 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.05 | 763.3 | 63.1 | 17.3 | 52 | WNW | | | 6 | | 10 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.19 | 766.9 | 64.8 | 18.2 | 59 | S | | | 1 | | 7 | W | | 0.094 | 2.4 | | Dr. Schur. |
| Stuttgart | | | 30.17 | 766.4 | 56.8 | 13.8 | 57 | NE | | | 2 | | 5 | | | 0.067 | 1.7 | | Prof. Schoder |
| Treves, (Trier) | | | 30.07 | 763.6 | 60.4 | 15.8 | 51 | WNW | | | 6 | | 3 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.65 | 727.6 | 30.15 | 765.7 | 57.7 | 14.3 | 50 | WNW | | | 3 | | 8 | W | | 0.185 | 4.7 | Thunder-storm | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.13 | 765.4 | 51.6 | 10.9 | 78 | W | | | 2 | | 5 | | | 0 | 0 | | E. F. Schatz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.67 | 753.6 | 78.3 | 25.7 | | W | | | Strong | | ..k | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | |
| Korkee | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.26 | 565.5 | 30.10 | 764.5 | 31.6 | — 0.2 | 98 | WNW | | | 4 | | 2 | NNW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.22 | 564.5 | 29.99 | 761.8 | 33.3 | 0.7 | | NE | | | 1 | | 5 | S | | 0.020 | 0.5 | | Signora Ernesta Manfredi. |
| Udine | | | 29.95 | 760.6 | 68.9 | 20.5 | 56 | SW | 0.7 | 0.3 | | | 7 | | | 0.183 | 4.7 | | Ab. Dom. Morgini. |
| Padua | | | 29.96 | 761.0 | 68.2 | 20.1 | 39 | NW | 9.4 | 4.2 | | | 5 | W | | 0.220 | 5.6 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.96 | 760.9 | 71.8 | 22.1 | 37 | SW | 1.3 | 0.6 | | | 2 | W | | 0.189 | 4.8 | | Conte Alm. Da Schio. |
| Verona | | | 29.97 | 761.2 | 71.6 | 22.0 | 60 | W | | | 2 | | 0 | | | 0 | 0 | | Dott. E. Bertoncelli. |
| Bergamo | 28.71 | 729.1 | 30.00 | 761.9 | 68.0 | 20.0 | 38 | WSW | | | 4 | | 1 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.04 | 763.1 | 67.8 | 19.9 | 21 | N | | | 6 | | 1 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.01 | 763.0 | 73.8 | 23.2 | 35 | NNW | | | 2 | | 1 | NNE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.02 | 762.6 | 71.1 | 21.7 | 20 | W | | | 4 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 30.03 | 762.8 | 68.9 | 20.5 | 30 | S | 6.3 | 2.8 | | | 1 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.15 | 715.1 | 30.02 | 762.4 | 66.0 | 18.9 | 17 | S | | | 4 | | 1 | NNW | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.11 | 764.8 | 66.6 | 19.2 | 55 | SW | | | 4 | | 2 | WNW | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.01 | 763.0 | 70.0 | 21.1 | 25 | N | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.04 | 763.0 | 68.7 | 20.4 | 39 | WNW | 9.4 | 4.2 | | | 1 | | | 0.087 | 2.2 | | Dott. G. Manzi. |
| Parma | | | 30.03 | 762.7 | 68.9 | 20.5 | 51 | SW | | | 4 | | 1 | | | 0.189 | 4.8 | | Prof. P. Pigorini. |
| Florence | | | 30.05 | 763.2 | 71.6 | 22.0 | 45 | W | | | 4 | | 5 | | | 0.039 | 1.0 | | Cav. F. Meucci. |
| Leghorn | | | 30.00 | 761.9 | 66.9 | 19.4 | 66 | WSW | 6.9 | 3.1 | | | 1 | W | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.82 | 732.0 | 30.00 | 761.9 | 65.5 | 18.6 | 49 | NW | 4.9 | 2.2 | | | 7 | N | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.48 | 723.4 | 30.00 | 762.1 | 62.4 | 16.9 | 51 | NNE | | | 4 | | 5 | | | 0.327 | 8.3 | | Prof. P. Serpieri. |
| Pesaro | | | 30.00 | 762.1 | 65.7 | 18.7 | 62 | W | 36.0 | 16.1 | | | 9 | N | | 0.058 | 1.5 | | Prof. Luigi Guidi. |
| Ancona | | | 30.01 | 762.2 | 62.2 | 16.8 | 75 | NW | | | 4 | | 10 | NW | | 0.287 | 7.3 | | Prof. F. DeBosis. |
| Grosseto | | | 30.04 | 762.9 | 71.2 | 21.8 | 43 | NNW | | | 4 | | 4 | NE | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.98 | 761.4 | 69.4 | 20.8 | 42 | N | 16.1 | 7.2 | | | 1 | NNE | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.91 | 759.6 | 70.0 | 21.1 | 51 | WNW | | | 2 | | 2 | NE | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.89 | 759.2 | 64.6 | 18.1 | 60 | WNW | 13.7 | 6.1 | | | 8 | | | 0.071 | 1.8 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.95 | 760.7 | 66.2 | 19.0 | 72 | SW | 7.4 | 3.3 | | | 10 | | | 0.532 | 13.5 | | Prof. F. D. Conti. |
| Cagliari | | | 30.07 | 763.8 | 68.0 | 20.0 | 41 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.92 | 760.0 | 73.8 | 23.2 | 47 | SE | | | 2 | | 3 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.98 | 761.5 | 68.0 | 20.0 | 32 | W | 20.2 | 11.7 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.01 | 712.1 | 29.92 | 760.0 | 65.3 | 18.5 | 40 | NW | | | 8 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.93 | 760.3 | 69.6 | 20.9 | 59 | E | | | 4 | | 4 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.98 | 761.4 | 65.8 | 18.8 | 56 | SW | 1.8 | 0.8 | | | 8 | SW | | 0 | 0 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824 ft.; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.94 | 760.5 | 60.0 | 15.6 | 63 | N | 1 | 0.4 | | | 1k | | | 0.78 | 19.8 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.8 | 30.11 | 764.7 | 54.5 | 12.5 | 56 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fair | Mariano Bárcena. |
| | | | | | | | | | | | | | | | | | | | Vicente Reyes. |
| | | | | | | | | | | | | | | | | | | | Miguel Perez. |
| | | | | | | | | | | | | | | | | | | | (Engineers in charge |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.18 | 766.6 | 53.4 | 11.9 | | WNW | | | 4 | | | | | 0.102 | 2.6 | | |
| Groningen | | | 30.05 | 763.2 | 51.8 | 11.0 | | S | | | 2 | | | | | 0.043 | 1.1 | | |
| Helder | | | 30.10 | 764.5 | 54.3 | 12.4 | | WSW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.07 | 763.8 | 62.4 | 16.9 | 43 | WSW | | | 5 | | 5 | | | 0.012 | 0.3 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.05 | 763.3 | 51.8 | 11.0 | 59 | W | 8.5 | 3.8 | | | 3 | | | 0 | 0 | | |
| Brönö | | | 30.12 | 765.1 | 53.2 | 11.8 | 45 | E | 9 | 4 | | | 0 | | | 0 | 0 | | |
| Christiania | | | 30.04 | 762.9 | 54.7 | 12.6 | 38 | ENE | 4 | 2 | | | 8 | | | 0 | 0 | | |
| Tromsö | | | 30.18 | 766.6 | 41.9 | 5.5 | 62 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna The symbols. cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.00 | 762.0 | 63.5 | 17.5 | 92 | W | 10.5 | 4.7 | | | 8 | | | 0.102 | 2.6 | | Dr. J. A. Sampaio. |
| Campo Major | | | 30.15 | 765.7 | 77.7 | 25.4 | 30 | ESE | 2.5 | 1.1 | | | 2 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.19 | 766.8 | 68.0 | 20.0 | 68 | SW | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.21 | 767.2 | 69.6 | 20.9 | 51 | SE | 3.8 | 1.7 | | | 1 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.08 | 764.1 | 64.4 | 18.0 | 92 | SW | 14.3 | 6.4 | | | 10 | | | 0.016 | 0.4 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.89 | 759.3 | 63.0 | 17.2 | 71 | NE | 11 | 5 | | | 10 | | | | | Raining | Astronomical Obs. |
| Wilna | | | 29.89 | 759.3 | 70.3 | 21.3 | 56 | SW | 4 | 2 | | | 9 | | | | | Raining | Astronomical Obs. |
| Dorpat | | | 29.93 | 760.3 | 69.6 | 20.9 | 52 | W | 2 | 1 | | | 3 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.97 | 761.3 | 64.9 | 18.3 | 59 | NE | 9 | 4 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.85 | 758.3 | 45.0 | 7.2 | 100 | E | 4 | 2 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.80 | 756.8 | 79.9 | 26.6 | 35 | SE | 11 | 5 | | | 7 | | | | | Solar corona | Physical Cabinet. |
| Nikolaiev | | | 29.72 | 754.9 | 79.9 | 26.6 | 41 | E | 29 | 13 | | | 2 | | | | | | Kurdakof |
| Kertch | | | 29.78 | 756.3 | 75.0 | 23.9 | 63 | ENE | 13 | 6 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.07 | 763.7 | 72.9 | 22.7 | 63 | S | 9 | 4 | | | 2 | | | | | | Meteorological Obs. |
| Lugan | | | 29.87 | 758.7 | 82.4 | 28.0 | 36 | ESE | 13 | 6 | | | 5 | | | | | | Meteorological Obs. |
| Archangel | | | 30.17 | 766.3 | 38.8 | 3.8 | 73 | WNW | 22 | 10 | | | 8 | | | | | | Ogorodnikof. |
| Tiflis | 28.51 | 724.1 | 29.85 | 758.3 | 78.4 | 25.8 | 34 | S | 4 | 2 | | | 3 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.97 | 761.3 | 83.7 | 28.7 | 19 | SE | 2 | 1 | | | 3 | | | | | | Sebastianof. |
| Kasan | | | 29.92 | 760.0 | 68.9 | 20.5 | 47 | WSW | 11 | 5 | | | 3 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischei. |
| Ekaterinburg | 28.74 | 729.9 | 29.63 | 752.7 | 73.0 | 22.8 | 32 | NW | 22 | 10 | | | 3 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.38 | 720.9 | 30.02 | 762.4 | 76.6 | 24.8 | 32 | NNW | 9 | 4 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 29.85 | 758.2 | 61.3 | 16.3 | 69 | Calm | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.53 | 750.0 | 63.0 | 17.2 | 68 | SW | 2 | 1 | | | 3 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 30.4 | — 0.9 | | Calm | 0 | 0 | | | 4 | | | | | | Mossin. |
| Peking, (China) | | | 29.95 | 760.6 | 52.3 | 11.3 | 98 | Calm | 0 | 0 | | | 7 | | | | | Raining | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.93 | 760.3 | 47.1 | 8.4 | 74 | Calm | 0 | 0 | | | 0 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 34.7 | 1.5 | | Calm | 0 | 0 | | | 0 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft. Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 30.13 | 765.4 | 75.7 | 24.3 | 34 | E | 4.5 | 2.00 | | 1 | 0 | WSW | | 0 | 0 | Light clouds | Royal Observatory |
| San Fernando | | | 30.15 | 765.9 | 78.1 | 25.6 | 45 | ESE | 16.3 | 7.3 | | 0 | 0 | | | 0 | 0 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.99 | 761.8 | 76.3 | 24.6 | 82 | E | 14.1 | 6.3 | | 7c | 2cs | | | 0.010 | 0.4 | | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hajaranda | | | 30.19 | 766.8 | 47.8 | 8.8 | 58 | N | | | 2 | | 5 | | | 0 | 0 | | |
| Umea | | | 30.13 | 765.4 | 47.3 | 8.5 | 54 | NE | | | 7 | | 7 | | | 0 | 0 | | |
| Hernosand | | | 30.08 | 764.1 | 47.1 | 8.4 | 50 | NE | | | 6 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 30.02 | 762.4 | 44.2 | 6.8 | 77 | NW | | | 4 | | 10 | | | 0 | 0 | | |
| Wisby | | | 29.98 | 761.5 | 41.4 | 5.2 | 81 | N | | | 4 | | 7 | | | 0.003 | 0.1 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.04 | 763.1 | 38.5 | 3.6 | 90 | NNW | 12.3 | 5.5 | | | 10- | | | 0.002 | 0.04 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.78 | 731.1 | 30.21 | 767.0 | 58.3 | 14.6 | 50 | NNE | | | 3 | | 2 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.78 | 726.0 | 30.21 | 767.2 | 58.5 | 14.7 | 61 | W | | | 1 | | 4 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +6.0 mm; Thermometer, —2.0 cent.; Relative Humidity, —7 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.61 | 752.0 | 68.7 | 20.4 | 65 | N | 11 | 5.5 | | | 10 | | SW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.01 | 762.3 | 80.6 | 27.0 | | SE | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.78 | 756.3 | 71.2 | 21.8 | | NE | | | 1 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 29.94 | 760.4 | 72.5 | 22.5 | | NW | | | 2 | | 2 | | | 0.12 | S. | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.61 | 752.0 | 62.6 | 17.0 | | S | | | 3 | | 10 | | | | | Raining | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.91 | 759.7 | 80.2 | 26.8 | 64 | WSW | | | 3 | | 1c | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.97 | 761.2 | 47.8 | 8.8 | 71 | NE | 3 | 1.3 | | | 6 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.02 | 762.5 | 55 | 12.8 | | SW | 1 | 0.4 | | | 10s | | SW | 0.23 | 5.8 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.95 | 760.7 | 51 | 10.6 | 72 | Calm | 0 | 0 | | 2c | Haze | | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.98 | 761.5 | 51 | 10.6 | 52 | NW | 11 | 4.9 | | 0 | 5s | | | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.96 | 761.0 | 61.9 | 16.6 | 82 | SW | | | 2 | | 10s | | | 0 | 0 | Cloudy | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.00 | 762.0 | 47.5 | 8.6 | 72 | Calm | | | 0 | | | | | 0 | 0 | Threatening | H. A. Johnson. |
| Esquimault, B. C. | | | 29.85 | 758.2 | 50.3 | 10.2 | 86 | W | | | | 3cs | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.96 | 761.0 | 44 | 6.7 | 84 | E | 6 | 2.7 | | | 10n | | | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.95 | 761.7 | 51 | 10.6 | 65 | NW | 2 | 0.9 | | | 10 | | | Inap. | Inap. | Smoky | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.71 | 754.6 | 48 | 8.9 | 85 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | James Stewart. |
| Goderich, Ontario | | | 29.92 | 760.0 | 63.4 | 17.4 | 91 | SW | | | 3 | 5k | 5ns | | | 0 | 0 | Threatening | H. J. Strang, M. A. |
| Granton, Ontario | 28.87 | 733.3 | 29.94 | 760.5 | 62 | 16.7 | 88 | S | | | 1 | 0 | 0 | | | 0.20 | 5.1 | Foggy | James Grant. |
| *Halifax, N. S. | | | 29.98 | 761.5 | 54 | 12.2 | 49 | NW | 5 | 2.2 | | 0 | 2ks | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.99 | 761.7 | 65.7 | 18.7 | 85 | SW | | | 2 | 8ck | 0 | | | 0 | 0 | Bright | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.76 | 755.9 | 41 | 5.0 | 82 | E | | | 2 | | Fog | | | 0 | 0 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 30.03 | 762.7 | 50 | 10.0 | 88 | SE | 5 | 2.2 | | 10es | 0 | | | 0.05 | 1.3 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.92 | 760.0 | 60 | 15.6 | 77 | W | 23 | 10.3 | | | Sm'e | | | 0 | 0 | Smoky | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 29.91 | 759.7 | 62 | 16.7 | 85 | S | 7 | 3.1 | | 5k | 5n | SW | SW | 0.07 | 1.8 | Cloudy | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.02 | 762.5 | 59 | 15.0 | 88 | SW | 9 | 4.0 | | 5c | 0 | SW | | Inap. | Inap. | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.95 | 760.7 | 43.5 | 6.4 | | NW | 10 | 4.5 | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 30.01 | 762.2 | 57 | 13.9 | 93 | SE | 5 | 2.2 | | 5k | 0 | W | | Inap. | Inap. | Fair | M. Payne. |
| *Quebec, Quebec | | | 29.96 | 761.0 | 58 | 14.4 | 61 | Calm | 0 | 0 | | | 10n | | | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.92 | 760.0 | 56 | 13.3 | 81 | Calm | 0 | 0 | | | 10s | | W | 0 | 0 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 30.00 | 762.0 | 52 | 11.1 | 60 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.88 | 758.9 | 65 | 18.3 | 83 | S | 3 | 1.3 | | 2k | 8ks | | S | 0.03 | 0.8 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.90 | 759.4 | 65 | 18.3 | 83 | Calm | 0 | 0 | | 8k | 0 | | | 0.08 | 2.0 | Cloudy | R. J. Cole. |
| Stratford, Ontario | | | 29.90 | 759.4 | 65 | 18.3 | 83 | Calm | 0 | 0 | | | 10s | | | 0.166 | 4.21 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.71 | 729.2 | 29.96 | 761.0 | 60.0 | 15.6 | 99 | SW | 9 | 4.0 | | | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 29.90 | 759.4 | 49 | 9.4 | 58 | N | 10 | 4.5 | | 0 | 0 | | | 0.08 | 2.0 | Foggy | Magnetic Observatory. |
| Windsor, N. S. | | | 29.98 | 761.5 | 58 | 14.4 | 96 | SW | 3 | 1.3 | | | 10n | | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.94 | 760.5 | 50.8 | 10.4 | 67 | S | 1 | 0.4 | | 2c | 0 | N | | 0.26 | 6.6 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.84 | 757.9 | 36.0 | 2.2 | 100 | NE | | | | Fog | Fog | | | 0.01 | 0.3 | Foggy | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft. or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.04 | 763.0 | 58 | 14.4 | 81 | Calm | 0 | 0 | | | Haze | | | 0.07 | 1.8 | Dense haze | |
| Alpena, Mich. | | | 29.82 | 757.4 | 53 | 11.7 | 93 | SE | 3 | 1.3 | | 8ck | 0 | SW | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 30.10 | 764.5 | 59 | 15.0 | 87 | SW | 1 | 0.4 | | 10k | 0 | W | | 0 | 0 | Threatening | |
| Augusta, Ga. | | | 30.31 | 769.9 | 70 | 21.1 | 75 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.12 | 765.0 | 65 | 18.3 | 78 | SE | 4 | 1.8 | | 5k | 5s | W | | Inap | Inap | Cloudy | |
| Barnegat, N. J. | | | 30.09 | 764.3 | 62 | 16.7 | 79 | SW | 8 | 3.6 | | | 10s | | SW | Inap. | Inap | Cloudy | |
| Bismarck, Dakota | 28.07 | 713.0 | 29.68 | 753.9 | 53 | 11.7 | 66 | Calm | 0 | 0 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Boston, Mass. | | | 30.03 | 762.7 | 63 | 17.2 | 51 | W | 10 | 4.5 | | | 10n,hz | | | Inap. | Inap. | Light rain | |
| Breckenridge, Minn. | | | 29.76 | 755.9 | 55 | 12.8 | 87 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 29.98 | 761.5 | 60 | 15.6 | 85 | W | 5 | 2.2 | | 5c | 0 | | | Inap. | Inap | Fair | |
| Burlington, Vt. | | | 30.02 | 762.5 | 61 | 16.1 | 64 | S | 6 | 2.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 30.12 | 765.0 | 67 | 19.4 | 90 | N | 12 | 5.4 | | | 10s | | W | 0.25 | 6.3 | Cloudy | |
| Campo, Cal. | 27.37 | 695.2 | 29.94 | 760.5 | 35 | 1.7 | 52 | Calm | 0 | 0 | | 8k | 0 | | | 0.05 | 1.3 | Fair | |
| Camp Verde, Arizona | | | | | 50 | 10.0 | | N | | | | 2k | 0 | NW | | 0.12 | 3.0 | Fair | |
| Cape Hatteras, N. C. | | | 30.21 | 767.3 | 66 | 18.9 | 78 | SW | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.17 | 766.3 | 68 | 20.0 | 67 | SW | 18 | 8.0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.30 | 769.6 | 68 | 20.0 | 74 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.11 | 764.8 | 63 | 17.2 | 78 | S | 10 | 4.5 | | 8ck | 0 | W | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.31 | 769.9 | 66 | 18.9 | 90 | N | 4 | 1.8 | | 0 | Fog | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.85 | 605.8 | 29.79 | 756.7 | 47 | 8.3 | 71 | E | 12 | 5.4 | | 2ck | 8s | | | 0 | 0 | Cloudy | |
| Chicago, Ill. | | | 29.91 | 759.7 | 65 | 18.3 | 81 | W | 16 | 7.2 | | | 10s | | W | 0.09 | 2.3 | Cloudy | |
| Cincinnati, Ohio | | | 30.04 | 763.0 | 68 | 20.0 | 74 | SW | 7 | 3.1 | | 5k | 5ks | W | W | 0.38 | 9.7 | Cloudy | |
| Cleveland, Ohio | | | 30.00 | 762.0 | 68 | 20.0 | 69 | S | 12 | 5.4 | | 2ck | 2ks | W | SW | 0.25 | 6.3 | Fair | |
| Corsicana, Tex. | | | 30.02 | 762.5 | 70 | 21.1 | 95 | SE | 8 | 3.6 | | | 10s | | SE | 0.27 | 6.9 | Cloudy | |
| Davenport, Iowa | | | 29.94 | 760.5 | 62 | 16.7 | 83 | SW | 6 | 2.7 | | 4ck | 4k | W | W | 0.99 | 25.1 | Cloudy | |
| Denison, Tex. | | | 29.90 | 761.7 | 71 | 21.7 | 84 | SE | 10 | 4.5 | | | 10s | | S | 0 | 0 | Cloudy | |
| Denver, Col. | 24.58 | 624.3 | 29.80 | 756.9 | 50 | 10.0 | 58 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 29.91 | 759.7 | 64 | 17.8 | 60 | SW | 8 | 3.6 | | 0 | 18 | | | 0.10 | 2.5 | Clear | |
| Dodge City, Kan. | 27.25 | 692.1 | 29.44 | 747.8 | 63 | 17.2 | 83 | S | 14 | 6.3 | | | 10s | | S | 0 | 0 | Cloudy | |
| Dubuque, Iowa | | | 29.86 | 758.4 | 64 | 17.8 | 83 | SW | 2 | 0.9 | | 0 | 0 | | | 0.64 | 16.3 | Clear | |
| Duluth, Minn. | | | 29.70 | 754.4 | 51 | 10.6 | 78 | SW | 8 | 3.6 | | 2c | 0 | W | | 0.11 | 2.8 | Clear | |
| Eastport, Me. | | | 29.97 | 761.2 | 51 | 10.6 | 71 | N | 4 | 1.8 | | Haze | Sm'e | | | 0 | 0 | Hazy | |
| Erie, Pa. | | | 29.97 | 761.2 | 65 | 18.3 | 83 | S | 12 | 5.4 | | | 10n | | SW | 0.03 | 0.8 | Light rain | |
| Escanaba, Mich. | | | 29.74 | 755.4 | 55 | 13.3 | 93 | S | 8 | 3.6 | | | 10n | | | 0.03 | 0.8 | Light rain | |
| Florence, Arizona | | | 29.96 | 761.0 | 68 | 20.0 | | SW | | | | 2k | 8s | | | 0 | 0 | Cloudy | |
| Fort Gibson, Indian Ter. | | | 29.97 | 761.2 | 69 | 20.6 | 90 | S | 13 | 5.8 | | | 10s | | SW | 0.08 | 2.0 | Threatening | |
| Ft. St. Michael, Alaska | | | 29.51 | 749.5 | 30 | — 1.1 | 89 | SW | | | 5 | | 10s | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.74 | 730.0 | 29.81 | 757.2 | 69 | 20.6 | 85 | S | 16 | 7.2 | | | 10s | | S | 0.18 | 4.6 | Cloudy | |
| Fort Sully, Dakota | 28.18 | 715.8 | 29.81 | 757.2 | 51 | 10.6 | 93 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.10 | 764.5 | 73 | 22.8 | 85 | SE | 8 | 3.6 | | 0 | 8ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.82 | 757.4 | 57 | 13.9 | 87 | SW | 21 | 9.4 | | | 10s | | | 0.04 | 1.0 | Cloudy | |
| Indianapolis, Ind. | | | 30.02 | 762.5 | 69 | 20.6 | 75 | W | 11 | 4.9 | | 5es | 0 | | | 0.51 | 13.0 | Fair | |
| Indianola, Tex. | | | 30.03 | 762.7 | 76 | 24.4 | 86 | SE | 12 | 5.4 | | 2k | 5ks | S | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.24 | 768.1 | 74 | 23.3 | 55 | NE | 10 | 4.5 | | 2k | 0 | NE | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.89 | 759.2 | 67 | 19.4 | 84 | W | 9 | 4.0 | | | 10s | | W | 0.75 | 19.1 | Cloudy | |
| Key West, Fla. | | | 30.03 | 762.7 | 73.0 | 22.8 | 88 | NE | 19 | 8.5 | | | 10s | | NE | 0.19 | 4.8 | Threatening | |
| Kittyhawk, N. C. | | | 30.27 | 768.8 | 66 | 18.9 | 73 | SW | 20 | 8.9 | | 5c | 0 | | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.24 | 768.1 | 62 | 16.7 | 83 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.79 | 756.7 | 65 | 18.3 | 83 | S | 7 | 3.1 | | 0 | 0 | | | 0.26 | 6.6 | Clear | |
| Leavenworth, Kan. | | | 29.86 | 758.4 | 68 | 20.0 | 90 | S | 10 | 4.5 | | 2es | 5ks | | S | 0.03 | 0.8 | Cloudy | |
| Louisville, Ky. | | | 30.09 | 764.3 | 69 | 20.6 | 79 | S | 8 | 3.6 | | 8k | 2s | S | S | 0.15 | 3.8 | Cloudy | |
| Lynchburg, Va. | | | 30.17 | 766.3 | 67 | 19.4 | 68 | W | 2 | 0.9 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Maricopa Wells, Arizona | | | | | 62 | 16.7 | | W | | | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Marquette, Mich. | | | 29.66 | 753.4 | 65 | 18.3 | 78 | SW | 16 | 7.2 | | | 10s | | | 0.22 | 5.6 | Cloudy | |
| Memphis, Tenn. | | | 30.15 | 765.8 | 73 | 22.8 | 71 | SW | 4 | 1.8 | | 5c | 5s | SW | SW | 0 | 0 | Cloudy | |
| Milwaukee, Wis. | | | 29.86 | 758.4 | 65 | 18.3 | 89 | W | 12 | 5.4 | | 5k | 0 | W | | 0.10 | 2.5 | Fair | |
| Mobile, Ala. | | | 30.21 | 767.3 | 70 | 21.1 | 75 | E | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.26 | 768.6 | 71 | 21.7 | 69 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.08 | 738.6 | 30.10 | 764.5 | 69 | 20.6 | 65 | SW | 5 | 2.2 | | 5c | 5s | W | SW | 0 | 0 | Cloudy | |
| Mt. Washington, N. H. | 23.90 | 607.0 | 30.26 | 768.6 | 49 | 9.4 | 63 | S | 6 | 2.7 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Nashville, Tenn. | | | 30.15 | 765.8 | 76 | 24.4 | 56 | SE | 2 | 0.9 | | 8k | 0 | SW | | 0 | 0 | Fair | |
| New Haven, Conn. | | | 30.06 | 763.5 | 68 | 20.0 | 60 | SW | 5 | 2.2 | | | Haze | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 30.05 | 763.3 | 61 | 16.1 | 71 | NW | 2 | 0.9 | | 2ck | Hz,sm | W | W | 0 | 0 | Hazy | |
| New Orleans, La. | | | 30.14 | 765.5 | 72 | 22.2 | 75 | E | 5 | 2.2 | | 1es | 0 | | | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.03 | 762.7 | 60 | 15.6 | 70 | Calm | 0 | 0 | | | Haze | | | 0 | 0 | Hazy | |
| New York, N. Y. | | | 30.09 | 764.3 | 61 | 16.1 | 82 | SW | 2 | 0.9 | | | 10n | | SW | 0.01 | 0.3 | Light rain | |
| Norfolk, Va. | | | 30.20 | 767.1 | 70.5 | 21.4 | 69 | SW | 12 | 5.4 | | Haze | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.94 | 684.3 | 29.44 | 747.8 | 54 | 12.2 | 76 | SW | 4 | 1.8 | | 5k | 5s | SW | | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.77 | 730.7 | 29.81 | 757.2 | 61 | 16.1 | 82 | S | 1 | 0.4 | | 5c | 0 | W | | 0.23 | 5.8 | Fair | |
| Oswego, N. Y. | | | 30.01 | 762.2 | 64 | 17.8 | 67 | SE | 4 | 1.8 | | | 10s | | W | 0.04 | 1.0 | Cloudy | |
| Pembina, Dakota | | | 29.70 | 754.4 | 53 | 11.7 | 86 | SW | 2 | 0.9 | | 2c | 0 | | | 0.03 | 0.8 | Clear | |
| Philadelphia, Pa. | | | 30.09 | 764.3 | 63 | 17.2 | 83 | SW | 6 | 2.7 | | | 10s | | | Inap. | Inap | Cloudy | |
| Phœnix, Arizona | | | | | 60 | 15.6 | | SE | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.63 | 447.8 | 29.84 | 757.9 | 19 | — 7.2 | 100 | S | 30 | 13.4 | | | Fog | | | 0.04 | 1.0 | Foggy | |
| Pittsburg, Pa. | | | 30.06 | 763.5 | 66 | 18.9 | 73 | SW | 10 | 4.5 | | | 10s | | W | 0.03 | 0.8 | Cloudy | |
| Port Huron, Mich. | | | 29.89 | 759.2 | 61 | 16.1 | 94 | S | 11 | 4.9 | | 0 | 8s | | SW | 0.30 | 7.6 | Cloudy | |
| Portland, Me. | | | 29.97 | 761.2 | 64 | 17.8 | 57 | SW | 4 | 1.8 | | Haze | Haz | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 30.02 | 762.5 | 51 | 10.6 | 78 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.72 | 627.9 | 30.08 | 764.0 | 38 | 3.3 | | Calm | | | | 0 | Sm'e | | | 0 | 0 | Fair | |
| Punta Rassa, Fla. | | | 30.11 | 764.8 | 71 | 21.7 | 71 | NE | 14 | 6.3 | | 0 | 5ks | | E | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 29.98 | 761.5 | 67 | 19.4 | 74 | W | 10 | 4.5 | | 8c | 0 | NW | | 0.01 | 0.3 | Fair | |
| Salt Lake City, Utah | 25.42 | 645.7 | 29.75 | 755.6 | 55 | 12.8 | 38 | SE | 16 | 7.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Sandy Hook, N. J. | | | 30.10 | 764.5 | 60 | 15.6 | 88 | W | 8 | 3.6 | | | 10n | | W | 0.01 | 0.3 | Light rain | |
| San Antonio, Tex. | | | 29.86 | 758.4 | 74 | 23.3 | 76 | SE | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.98 | 761.5 | 53 | 11.7 | 81 | NE | 4 | 1.8 | | 0 | 2s | | NE | Inap. | Inap. | Clear | |
| San Francisco, Cal. | | | 29.93 | 760.2 | 54 | 12.2 | 79 | W | 8 | 3.6 | | | 10ks | | | Inap. | Inap. | Cloudy | |
| Santa Fé, N. M. | 23.12 | 587.2 | 29.66 | 753.4 | 44.5 | 6.9 | 92 | S | 14 | 6.3 | | | 10n | | S | Inap. | Inap. | Light rain | |
| Savannah, Ga. | | | 30.30 | 769.6 | 73 | 22.8 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.21 | 767.3 | 70 | 21.1 | 90 | SE | 2 | 0.9 | | 10es | 0 | SE | | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.33 | 770.4 | 65 | 18.3 | 90 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.07 | 763.8 | 60.5 | 15.8 | 79 | Calm | 0 | 0 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| St. Louis, Mo. | | | 30.01 | 762.2 | 66 | 18.9 | 84 | S | 8 | 3.6 | | | 10s | | | Inap. | Inap. | Cloudy | |
| St. Marks, Fla. | | | 30.22 | 767.6 | 67 | 19.4 | 79 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.73 | 755.1 | 65 | 18.3 | 73 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 56 | 13.3 | | SW | | | | 0 | Haze | | | 0 | 0 | Hazy | |
| Thatcher's Island, Mass. | | | 30.00 | 762.0 | 62 | 16.7 | 50 | NW | 4 | 1.8 | | | | | | 0 | 0 | Dense smoke | |
| Toledo, Ohio | | | 29.94 | 760.5 | 67 | 19.4 | 79 | SW | 14 | 6.3 | | 2es | 2k | | SW | 0.02 | 0.5 | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.48 | 698.0 | 30.03 | 762.7 | 44 | 6.7 | ..... | NW | ..... | ..... | ..... | 2k | 5ks | SE | SE | 0.30 | 7.6 | Clearing | |
| Tybee Island, Ga | ..... | ..... | 30.26 | 768.6 | 71 | 21.7 | 71 | E | 8 | 3.6 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | |
| Vicksburg, Miss | ..... | ..... | 30.20 | 767.1 | 66 | 18.9 | 78 | SE | 4 | 1.8 | ..... | Haze | 0 | ..... | ..... | 0 | 0 | Clear | |
| Virginia City, M. T | 24.14 | 613.1 | 29.62 | 752.3 | 38 | 3.3 | 76 | SE | 1 | 0.4 | ..... | 0 | 0 | ..... | ..... | 0.11 | 2.8 | Clear | |
| Washington, D. C | ..... | ..... | 30.13 | 765.3 | 66 | 18.9 | 78 | S | 5 | 2.2 | ..... | ..... | 10n | ..... | SW | Inap. | Inap. | Light rain | |
| Wickenburg, Arizona | ..... | ..... | ..... | ..... | 49 | 9.4 | ..... | S | ..... | ..... | ..... | ..... | 10s | ..... | S | 0 | 0 | Cloudy | |
| Wilmington, N. C | ..... | ..... | 30.31 | 769.9 | 68 | 20.0 | 74 | SW | 4 | 1.8 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | |
| Wood's Holl, Mass | ..... | ..... | 30.06 | 763.5 | 59 | 15.0 | 70 | SW | 1 | 0.4 | ..... | 0 | Sm'e | ..... | ..... | 0 | 0 | Smoky | |
| Yankton, Dakota | 28.60 | 726.4 | 29.85 | 758.2 | 61 | 16.1 | 82 | Calm | 0 | 0 | ..... | 0 | 0 | ..... | ..... | 0.02 | 0.5 | Clear | |
| Yuma, Arizona | ..... | ..... | ..... | ..... | ..... | ..... | ..... | S | ..... | ..... | ..... | 0 | 0 | ..... | ..... | Inap. | Inap. | Clear | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | ..... | ..... | 30.05 | 763.3 | 76 | 24.4 | 90 | Calm | 0 | 0 | ..... | 0 | 10n | ..... | ..... | 5.16 | 131.1 | ..... | James Gall. |
| Navassa, W. I | ..... | ..... | ..... | ..... | 75 | 23.9 | ..... | NE | ..... | ..... | 4 | ..... | ..... | ..... | ..... | 10.55 | 268.0 | ..... | Dr. G. H. Davison. |
| Clifton, Ja., W. I | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | C. Partridge. |
| Paramaribo, D. Guiana, S. A | ..... | ..... | 30.01 | 762.2 | 81 | 27.2 | 87 | E | ..... | ..... | 2 | 4k | 5ks | E | ..... | 0.025 | 0.63 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A. | 30.07 | 763.7 | ..... | ..... | 79.7 | 26.5 | ..... | E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0 | 0 | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.17 | 639.3 | ..... | ..... | 70.0 | 21.1 | 79 | NE | ..... | ..... | 1 | 5es | 1s | ..... | ..... | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | ..... | ..... | 29.46 | 748.3 | 34.7 | 1.4 | 100 | NW | 15 | 6.7 | ..... | ..... | 10n | ..... | ..... | ..... | ..... | Heavy rain. | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | ..... | ..... | 30.05 | 763.3 | 71 | 21.7 | ..... | NE | ..... | ..... | 6 | ..... | ..... | ..... | ..... | 0.28 | 7.1 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,130.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.6 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet: the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.22 | 767.6 | 74 | 23.3 | 67 | 19.4 | 74 | SW | | | 1 | | 8 | | NW | 0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.02 | 762.5 | 63 | 17.2 | 56.5 | 13.6 | | SW | | | 2 | | 10 | | | 0 | 0 | | | Overcast | |
| Navy Yard, Norfolk, Va | 30.32 | 770.1 | 67 | 19 4 | 67 | 19.4 | 95 | S | 5 | 2.2 | | | 1c | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.34 | 770.6 | | | 71 | 21.7 | 85 | NE | 15 | 6.7 | | | 8 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.07 | 763.8 | 70 | 21.1 | 59 | 15.0 | 70 | NW | | | | | | | | 0 | 0 | | | Very smoky | |
| Naval Hospital, Yokohama, Japan | 29.80 | 756.9 | 64 | 17.8 | 62 | 16.7 | 77 | NNE | | | 2 | | 1c, fg | | | 0.10 | 2.5 | | | Fair | |
| Adams, N. 3° 45′ W. 27° 34′ | 29.98 | 761.5 | 84 | 28.9 | 85 | 29.4 | 96 | SE | | | 1–2 | | 2 | | SE | | | Smooth | | Showery | |
| Alert, N. 31° 53′ E. 141° 17′ | 30.19† | 766.8† | 72 | 22.2 | 73 | 22.8 | 95 | SW | | | 3–6 | | 10 | | SSW | | | Chop'd | SW&E | Drizzling | |
| Alliance, Latakia, Syria | 30.01 | 762.2 | 75 | 23.9 | 74 | 23.3 | 76 | S | | | 2 | | 5 | | S&E | | | Smooth | | Pleasant | |
| Ashuelot, Canton, China | 29.94 | 760.5 | 80 | 26.7 | 81 | 27.2 | 87 | ESE | | | 1 | | 10 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.15 | 765.8 | 52 | 11.1 | 72 | 22.2 | 80 | SE | | | 2 | | 1 | | SE | | | | | Pleasant | |
| Colorado, New York, N. Y | 30.12 | 765.0 | 63 | 17.2 | 63 | 17.2 | 78 | SW | 2 | 0.9 | | | 10 | | | 0.01 | 0.3 | | | Raining | |
| Despatch, N. 37° 25′ W. 19° 07′ | 30.31 | 769.9 | 68 | 20.0 | 70 | 21.1 | 85 | SW | | | 3 | | 6 | | SW | | | Long | NW | Pleasant | |
| Frolic, S. 26° 36′ W. 43° 47′ | 30.17 | 766.3 | | | 72 | 22 2 | 90 | SW | | | 4 | | 4k | | | 0 | 0 | Moderate. | S&W | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.94 | 760.5 | | | 73 | 22.8 | 90 | NE | | | 3 | | 2 | | | 0 | 0 | | | D. clouds | |
| Huron, Puerto Capello, Venezuela. | 30.05 | 763.3 | 80 | 26.7 | 79 | 26.1 | 91 | W | | | 0–1 | | 5 | | | | | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.08 | 764.0 | 72 | 22.2 | 67 | 19.4 | 89 | SSW | | | 1 | | 10 | | | 0 | 0 | | | D. clouds | |
| Lackawana, Acapulco, Mexico | 29.89 | 759.2 | | | 83 | 28.3 | 91 | N&E | | | 0–1 | | 1 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.73 | 755.1 | 77 | 25.0 | 76 | 24.4 | 95 | SW | | | 3 | | 4 | | E | Light | Light | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.54 | 750.3 | 68 | 20.0 | 65 | 18.3 | 78 | S | | | 2 | | 10 | | S | | | | | Cloudy | |
| Monocacy, Shanghai, China | 29.91 | 759.7 | 69 | 20.6 | 62 | 16.7 | 77 | ESE | | | 3 | | 8 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.27 | 768.8 | 66 | 18.9 | 65 | 18.3 | | SSW | | | 3 | | c | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.58 | 776 7 | | | 77 | 25.0 | 65 | E | 4 | 1.8 | | | 2 | | W | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.93 | 760.2 | 80 | 26.7 | 80 | 26 7 | 87 | SW | 4 | 1.8 | | | 4 | | | 0 | 0 | Smooth | | Bright | |
| Ossipee, Port Royal, S. C | 30.33 | 770.4 | 69 | 20.6 | 69 | 20.6 | 90 | NE | | | 1 | | 2 | | NE | | | | | D. clouds | |
| Palos, Shanghai, China | 30.00 | 762.0 | 63 | 17.2 | 62 | 16.7 | 83 | E | | | 3 | | 10 | | E | 0 | 0 | | | Overcast | |
| Plymouth, New Orleans, La | 30.20 | 767.1 | 75 | 23.9 | 70 | 21.1 | 85 | ENE | | | 2 | | 1 | | | 0 | 0 | | | Smoky | |
| Ranger, N. 36° 09′ W. 11° 30′ | 30.40 | 772.1 | | | 64 | 17 8 | 89 | NE | | | 4 | | 1 | | | | | Moderate | N&E | Clear | |
| Richmond, Rio de Janeiro, Brazil | | | | | | | | W | | | | | | | | | | Long | | | |
| Rio Bravo, Matamoras, Mexico | 29.87 | 758.7 | | | 69 | 20.6 | 100 | SE | | | 1 | | 1 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.19 | 766.8 | 69 | 20.6 | 68 | 20.0 | 74 | W | | | 2 | | 9 | | | 0 | 0 | | | Cloudy | |
| St. Louis, League Island, Pa | 30.92 | 762.5 | 64 | 17.8 | 63 | 17 2 | 89 | SW | 4 | 1.8 | | | 8 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, N. 11° 30′ W. 81° 10′ | 29.94 | 760.5 | 83 | 28.3 | 82 | 27.8 | 83 | N | | | 2 | | 1k | | N | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.87 | 758 7 | 70 | 21.1 | 66 | 18.9 | 59 | NNW | | | 3 | | 1 | | | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.65† | 753.1† | 89 | 26.7 | 87 | 30.6 | 80 | SW | 7.2 | 3.2 | | | 7 | | S&E | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.61 | 752.8 | 67 | 19.4 | 68 | 20.0 | 90 | N | | | 2 | | 5 | | SSE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.09 | 764.3 | 66 | 18.9 | 64 | 17.8 | 58 | WNW | 7 | 3.1 | | | | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.36† | 771.1† | 67 | 19.4 | 66 | 18.9 | | SW | | | 1 | | 10 | | | | | | | Thunder | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 24° 07' E. 118° 54' | | | 29.96 | 761.0 | 72 | 22.2 | 100 | NE | | | 3 | | 10s | | | Chop'd | NE | Misty | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colon | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 49° 36' W 11° 49' | W½S | 9.0 | 29.90 | 759.4 | 53.4 | 11.9 | | SSW | | | 5 | | Haze | | | Long | | Hazy | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.13 | 765.3 | 72 | 22.2 | 54 | E | 4 | 1.8 | | 0 | 0 | | | | | Clear | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Collated at the Office of the CHIEF SIGNAL OFFICER OF THE ARMY, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 17, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.17 | 766.3 | 71.6 | 22.1 | 66 | NNW | | | 1 | | 1 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.17 | 766.3 | 64.4 | 18.0 | 75 | E | | | 2 | | 4 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.17 | 766.4 | 67.1 | 19.5 | 73 | NNE | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.18 | 766.6 | 73.4 | 23.0 | | NW | | | 5 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.20 | 767.0 | 78.8 | 26.0 | | E | | | 2 | | 1 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.15 | 765.9 | 88.2 | 31.2 | | N | | | 1 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.14 | 765.6 | 76.5 | 24.7 | | N | | | 1 | | 0 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.20 | 767.1 | 90.1 | 32.3 | | W | | | 2 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.17 | 766.4 | 91.4 | 33.0 | 19 | E | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.21 | 767.4 | 88.7 | 31.5 | | SE | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.60 | 762.0 | 66.4 | 19.1 | 37 | NE | | | 4 | | 7 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.07 | 763.8 | 49.3 | 9.6 | 89 | W | | | 1 | | 10 | | | 0.390 | 9.9 | | Dr. Wierzbiski. |
| Eperies | | | 29.83 | 755.3 | 56.1 | 13.4 | 80 | N | | | 3 | | 10k.s | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | | | 30.09 | 762.1 | 65.3 | 18.5 | 67 | WNW | | | 5 | | 5 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.79 | 731.2 | 29.59 | 751.5 | 61.5 | 16.4 | 83 | NW | | | 3 | | 10 | | | 0.563 | 14.30 | Thunder-storm | Prof. Reissenberger. |
| Kremsmünster | 28.21 | 716.5 | 30.09 | 764.3 | 57.2 | 14.0 | 59 | ENE | | | 1 | | 8 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | 28.76 | 730.4 | 29.79 | 756.7 | 59.7 | 15.4 | 85 | NW | | | 2 | | 9 | | | 0.083 | 2.1 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 30.03 | 762.8 | 68.2 | 20.1 | 54 | WNW | | | 2 | | 1k | | | 0 | 0 | | I.R. Hydrographic Office |
| Szegedin | | | 29.78 | 756.4 | 50.9 | 10.5 | 71 | N | | | 2 | | 10 | | | 0.726 | 18.4 | | Karl Stancel. |
| Trieste | | | 30.05 | 763.2 | 69.8 | 21.0 | 54 | W | | | 1 | | 1 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.04 | 762.9 | 61.2 | 16.2 | 47 | N | | | 3 | | 5 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.57 | 725.6 | 30.01 | 762.2 | 60.3 | 15.7 | 52 | SW | | | 1 | | 10 | | | 0.315 | 8.0 | | Royal Observatory. |
| Brussels | | | 29.98 | 761.6 | 62.2 | 16.8 | 67 | SSW | | | 3 | | 10 | | SSW | 0.213 | 5.40 | Raining | |
| Furnes | | | 29.91 | 759.7 | 57.2 | 14.0 | 88 | SSE | | | 2 | | 10 | | | 0.012 | 0.3 | | |
| Maeseyck | | | 29.85 | 758.2 | 60.4 | 15.8 | 89 | SW | | | 0 | | 10 | | | 0.016 | 0.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.76 | 755.9 | 48.7 | 9.3 | | SE | 13 | 5.8 | | | 9 | | | 0.016 | 0.27 | Misty | William Boswell. |
| Ardrossan | | | 29.68 | 753.9 | 50 | 10.0 | | NNW | | | 2 | | 10 | | | | | Raining | William McNeil. |
| Armagh, Observatory | | | 29.67 | 753.6 | 53.8 | 12.1 | | SE | 2 | 0.9 | | | 10 | | | | | Gloomy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.57 | 751.1 | 51.5 | 10.8 | | ESE | 14 | 6.3 | | | 10 | | | | | Raining | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.70 | 754.4 | 60.0 | 15.6 | | WNW | | | 3 | | 5 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 29.62 | 752.3 | 51.4 | 10.8 | | E | | | 1 | | 10 | | | 0.19 | 4.8 | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 84.0 | 28.9 | | E | | | 3 | | 4? | | | | | Overcast? | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 29.74 | 755.4 | 51.5 | 10.8 | | S | | | 2 | | 10 | | | | | Raining | H. Todd. |
| Cardington | | | 29.72 | 754.9 | 55.0 | 12.8 | | S | | | 4 | | 10 | | | | | Raining | John McLaren. |
| Chatham, School M. E. | | | 29.77 | 756.1 | 53.7 | 12.1 | | SW | | | 2 | | 10 | | | | | Raining | Capt. Fellowes, R. E. |
| Dartmoor | 28.25 | 717.5 | 29.71 | 754.6 | 49.8 | 9.9 | | NW | | | 6 | | 9 | | | | | Showery | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.65 | 753.1 | 53 | 11.7 | | N | | | 3 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.84 | 757.9 | 52 | 11.1 | | SSW | | | 4 | | 9 | | | | | Raining | J. Costello. |
| Eccles, (near Manchester) | | | 29.58 | 751.3 | 52.7 | 11.5 | | SE | 2.5 | 1.1 | | | 10 | | | | | Raining | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.73 | 755.1 | 56.1 | 13.4 | | WNW | | | 6 | | 5 | | | | | Squally | The Staff. |
| Fort Napier, (Natal) | 27.77 | 705.4 | 30.01 | 762.2 | 61.3 | 16.3 | | E | | | 2 | | 10 | | | | | Overcast | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 759.4 | 84 | 28.9 | | E | | | 2 | | 8 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.69 | 753.4 | 58 | 14.4 | | W | | | 2 | | 4 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.15 | 765.8 | 75.0 | 23.9 | | NE | | | 1 | | 0 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.67 | 753.6 | 50.7 | 10.4 | | S | | | 1 | | 10 | | | | | Raining | J. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.86 | 758.4 | 50 | 10.0 | | S | | | 3 | | 8 | | | | | Raining | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.76 | 755.9 | 52.0 | 11.1 | | S | | | 4 | | 10 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 29.74 | 755.4 | 57 | 13.9 | | SSW | | | 6 | | 8 | | | | | Hailing | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.84 | 757.9 | 59 | 15.0 | | W | | | 6 | | 3c | | | 0.85 | 21.6 | Fine | M. P. Moyle. |
| Holyhead | | | 29.63 | 752.6 | 53 | 11.7 | | NW | | | 3 | | 4 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 29.75 | 755.6 | 52.6 | 11.4 | | S | 24 | 10.7 | | | 1csd | | | | | Raining | The Staff. |
| Kingstown | | | 29.65 | 753.1 | 51 | 10.6 | | NNW | | | 4 | | 10 | | | 4bank | 15bm | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.66 | 753.4 | 51.4 | 10.8 | | S | | | 2 | | 10 | | | | | Drizzling | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.08 | 764.0 | 72.6 | 22.6 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.70 | 754.4 | 60 | 15.6 | | W | | | 1 | | 5 | | | | | ½ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.95 | 760.7 | 76.8 | 24.9 | | NE | | | 3 | | 10 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 29.65 | 753.1 | 52.3 | 11.3 | | SSE | | | 6 | | 10n,d | | SE | 0.3.0 | 8.1 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.69 | 751.8 | 50.0 | 10.0 | | S | | | 3 | | 10 | | | | | Raining | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.66 | 753.4 | 53 | 11.7 | | SSE | | | 3 | | 10 | | | | | Drizzling | J. W. Lucas. |
| Plymouth | | | 29.68 | 753.9 | 57.8 | 14.3 | | WNW | | | 4 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.72 | 754.9 | 58 | 14.4 | | NNW | | | 4 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.58 | 751.3 | 51 | 10.6 | | WNW | | | 4 | | 5 | | | | | Hazy | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.78 | 756.4 | 56.4 | 13.6 | | SW | | | 5 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.77 | 756.1 | 50.2 | 10.1 | | SE | 27 | 12.1 | | | 10 | | | | | Foggy | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.57 | 751.1 | 66.6 | 19.2 | | S | | | 1 | | 9 | | | Blank | Blank | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.62 | 752.3 | 53.9 | 12.2 | | SSE | | | 2 | | 10 | | | 0.593 | 15.07 | Raining | W. F. Cooper. |
| Silloth, Rectory | | | 29.63 | 752.6 | 52.7 | 11.5 | 80 | Calm | | | 0 | | 10 | | | 0.185 | 4.70 | Overcast | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.61 | 752.1 | 51.0 | 10.6 | | SE | | | 1 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.66 | 753.4 | 53 | 11.7 | | SW | | | 1 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 29.72 | 754.9 | 53.2 | 11.8 | | S | | | 2 | | 10 | | | | | Raining | Rev. Charles H. Griffith. |
| Thurso | | | 29.71 | 754.6 | 55 | 12.8 | | SE | | | 4 | | 6 | | | | | Hazy | John Trotter. |
| Truro, Royal Institution | | | 29.80 | 756.9 | 58 | 14.4 | | W | | | 7 | | 10 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.80 | 756.9 | 55.4 | 13.0 | | W | 21 | 9.4 | | | 4 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 49 | 9.4 | | N | | | 3 | | 10 | | | 0.10 | 2.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.93 | 760.2 | 61.0 | 16.1 | 100 | NW | 17 | 7.6 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.42 | 747.3 | 66.0 | 18.9 | 88 | | | | 2 | | 9kn | | | 0.30 | 7.6 | Cloudy | Francis Abbott, F.R.A.S. |
| Leith, Restaurig Park | | | 29.70 | 754.4 | 52.2 | 11.2 | | SE | | | 1 | | 10ks | | | | | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.23 | 767.8 | 73.9 | 23.3 | 65 | ESE | 15.7 | 7.0 | | 0 | 7 | | ESE | 0 | 0 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 29.72 | 754.9 | 55.8 | 13.8 | 76 | NW | 5 | 2.2 | | | 10 | | | 0.22 | 5.6 | Threatening | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 29.63 | 752.6 | 50 | 10.0 | | S | | | 4 | | 10 | | | 0.4 | 10. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.88 | 758.9 | 47 | 8.3 | | SSE | | | 6 | | 10 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 5 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 44° 10′, W. 46° 30′ | | | | | 51.0 | 10.6 | | N | | | 2 | | 10 | | | 3 | SW | Raining | Capt. J. E. Moulund. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 17° 25′ W. 57° 25′ | | | 30.10 | 764.5 | 80.0 | 26.7 | | E | | | 5 | | 4 | | | 4 | E | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.18 | 665.0 | | | 70.7 | 21.5 | 86 | NE | | | 2 | | 8cs | | S | 0.1 | 3. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.10 | 764.4 | 54.9 | 12.7 | 58 | S | | | 4 | | 8 | | | | | | |
| Faröe | | | 30.03 | 762.7 | 56.7 | 13.7 | 70 | S | | | 4 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | 29.96 | 760.9 | 43.2 | 6.2 | 66 | S | | | 4 | | 9 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.91 | 759.8 | 42.6 | 5.9 | 83 | E | | | 2 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.81 | 757.1 | 46.6 | 8.1 | 99 | E | | | 2 | | 10 | | | | | | Rain and fog |
| Vestervig | | | 30.02 | 762.5 | 53.2 | 11.8 | 74 | NE | | | 2 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the co operation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.99 | 761.7 | 57.2 | 14 | 86 | SW | | | 1 | | 10kn | | | 0.28 | 7. | Covered | Normal School. |
| Amiens | | | 29.95 | 760.7 | 59.7 | 15.4 | | S | | | 3 | | 8 | | SW | 0 | 0 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 30.12 | 765.1 | 68.7 | 20.4 | 45 | N | | | 1 | | 5 | | W | 0 | 0 | Cloudy | Mr. Giraud. |
| Bar-sur-Seine | | | 30.03 | 762.7 | 65.3 | 18.5 | 43 | SW | | | 2 | | 10n | | SW | 0.004 | 0.1 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.96 | 761.0 | 59.5 | 15.3 | 77 | S | | | 2 | | 10 | | S | 0 | 0 | Covered | Normal School. |
| Besançon | | | 30.15 | 765.8 | 67.1 | 19.5 | 53 | WSW | | | 3 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 30.18 | 766.5 | 65.3 | 18.5 | 67 | S | | | 1 | | 5kn | | N | 0 | 0 | Cloudy | Normal School. |
| Bourges | | | 30.06 | 763.5 | 62.6 | 17.0 | 90 | SSW | | | 6 | | 5 | | NE | 0.031 | 0.8 | Cloudy | Normal School. |
| Brest | | | 29.78 | 756.4 | 58.5 | 14.7 | 80 | WNW | | | 5 | | 9 | | WNW | 0.345 | 8.75 | Squally | Naval Observatory. |
| Carcassonne | | | 30.08 | 764.0 | 77.2 | 25.1 | 54 | W | | | 2 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| Caen | | | 29.84 | 758.0 | 58.6 | 14.8 | 82 | S | | | 4 | | | | N | 0.264 | 6.7 | | Normal School. |
| Chartres | | | 29.95 | 760.6 | 58.8 | 14.9 | 91 | SW | | | 6 | | 9 | | SW | 0.138 | 3.5 | | Normal School. |
| Châlons-sur-Marne | | | 30.02 | 762.0 | 64.4 | 18.0 | 56 | S | | | 3 | | 10ck | | | 0 | 0 | Covered | Normal School. |
| Clermont-Ferrand | | | 30.01 | 762.3 | 68.0 | 20.0 | 47 | SSE | | | 2 | | 10 | | | 0 | 0 | Covered | Puy de Dome Obs'y. |
| Commercy | | | 30.07 | 763.0 | 63.3 | 17.4 | 68 | S | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 30.16 | 766.1 | 69.4 | 20.8 | 29 | NW | | | 2 | | 8 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.10 | 764.6 | 66.6 | 19.2 | 71 | NW | | | 4 | | 10ns | | SE | 0 | 0 | Covered | Normal School. |
| La Roche-sur-Yon | | | 29.99 | 761.7 | 60.1 | 15.6 | 79 | W | | | 6 | | 10 | | | 0.024 | 0.6 | Covered | Normal School. |
| Le Mans | | | 29.99 | 761.8 | 57.6 | 14.2 | 95 | S | | | 2 | | 10 | | | 0.04 | 1. | Covered | Normal School. |
| Lons-Le-Saulnier | | | 30.03 | 762.7 | 64.8 | 18.2 | 57 | SSW | | | 2 | | 5 | | | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 29.89 | 759.1 | 59.7 | 15.4 | 83 | WSW | | | 5 | | 10 | | | 0.465 | 11.8 | Covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.11 | 764.9 | 64.0 | 17.8 | 72 | Calm | | | 0 | | 5 | | E | 0 | 0 | Cloudy | Mr. Marchal. |
| Metz | | | 30.13 | 765.2 | 62.6 | 17.0 | 38 | ESE | | | 2 | | 7 | | ESE | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 30.00 | 761.9 | 67.3 | 19.6 | 62 | S | | | 4 | | 10 | | S | 0 | 0 | Covered | Normal School. |
| Nismes | | | 30.14 | 765.5 | 75.2 | 24 | 61 | S | | | 1 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 29.95 | 760.7 | 60.1 | 15.6 | 85 | SW | | | 1 | | 10 | | W | 0 | 0 | Covered | Normal School. |
| Paris, Observatory | | | 29.98 | 761.5 | 57.2 | 14.0 | 89 | S | | | 2 | | 10kn | | S | 0 | 0 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.05 | 763.2 | 61.5 | 16.4 | 73 | SW | | | 4 | | 10 | | NE | 0.08 | 2. | Covered | Naval Observatory. |
| Rouen | | | 29.91 | 759.8 | 55.0 | 12.8 | 83 | SE | | | 2 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Tarbes | | | 30.10 | 764.5 | 68.0 | 20 | 53 | N | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Villefranche | 28.99 | 736.3 | 30.10 | 764.5 | 67.1 | 19.5 | 81 | NE | | | 2 | | 8 | | W | 0.24 | 6. | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.10 | 764.4 | 69.8 | 21.0 | 57 | W | | | 1 | | 4 | | | 0 | 0 | Cloudy | The Staff. |
| Mont-Louis | 25.00 | 635.1 | 30.32 | 770.1 | 61.9 | 16.6 | 50 | SSW | 13.0 | 5.83 | | | 2 | | W | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.97 | 761.3 | 57.0 | 13.9 | 89 | SSW | | | 2–3 | | 10 | | | 0.094 | 2.4 | | Montsouris Observatory |
| Perpignan | | | 30.10 | 764.5 | 68.2 | 20.1 | 62 | S | 5.6 | 2.50 | | | 1 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.69 | 576.3 | | | 49.5 | 9.7 | | W | | | 3 | | 5 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.98 | 761.6 | 58.5 | 14.7 | 90 | SSE | | | 2 | | 10 | | | 0 | 0 | Covered | E. Renou. |
| Toulouse, Observatory | | | 30.17 | 766.3 | 74.7 | 23.7 | 35 | NNW | | | 1 | | 2 | | | 0 | 0 | | The Staff. |
| Tours | | | 29.98 | 761.4 | 62.10 | 16.7 | 70 | SSW | | | 3 | | 8 | | W | 0.043 | 1.1 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.97 | 761.2 | 60.4 | 15.8 | 71 | S | | | 3 | | 10 | | | 0.122 | 3.09 | Covered | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.01 | 762.2 | 58.8 | 14.9 | 90 | W | 1.8 | 0.8 | | | 10k | | | 0.724 | 18.4 | Covered | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observtions for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.11 | 764.7 | 64.0 | 17.8 | 42 | W | | | 3 | | 3 | SW | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.13 | 765.3 | 63.5 | 17.5 | 44 | NW | | | 1 | | 4 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.13 | 765.3 | 60.6 | 15.9 | 45 | NNE | | | 3 | | 10 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.03 | 762.8 | 66.2 | 19.0 | 45 | NE | | | 1 | | 7 | | | 0.157 | 4.0 | | Albert Senz. |
| Cassel | | | 30.14 | 765.5 | 64.2 | 17.9 | 41 | SE | | | 2 | | 1 | SE | | 0.110 | 2.8 | | Dr. H. Möhl. |
| Crefeld | | | 30.00 | 762.1 | 63.4 | 20.8 | 42 | SE | | | 4 | | 7 | | | 0.118 | 3.0 | | Director Lose. |
| Emden | | | 30.07 | 763.6 | 66.9 | 19.4 | 49 | S | | | 1 | | 5 | | | 0.091 | 2.3 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.12 | 765.1 | 66.4 | 19.1 | 38 | S | | | 1 | | 6 | | | 0.118 | 3.0 | | Physical Society. |
| Friedrichshafen | 28.977 | 735.9? | 30.08? | 763.9? | 62.2 | 16.8 | 46 | SW | | | 2 | | 4 | N | | 0.512 | 13.0 | | M. Wilhelm. |
| Hamburg | | | 30.10 | 764.4 | 61.2 | 16.2 | 58 | SE | | | 2 | | 6k | | | 0 | 0 | Fine | Captain F. Hegemann. |
| Kiel | | | 30.08 | 764.9 | 57.0 | 13.9 | 90 | NE | | | 4 | | 8 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 30.06 | 763.4 | 49.8 | 9.9 | 78 | N | | | 2 | | 5 | | | 0.264 | 6.7 | | Prof. E. Luther. |
| Köslin | | | 30.15 | 765.7 | 54.5 | 12.5 | | NW | | | 2 | | 1 | NE | | 0 | 0 | | H. Müller. |
| Leipsic | | | 30.17 | 766.2 | 61.3 | 16.3 | 50 | ENE | | | 1 | | 5 | | | 0.138 | 3.5 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.07 | 763.7 | 43.5 | 6.4 | | NNW | | | 4 | | 9cs,ks | | | 0 | 0 | | Reinbrecht & Skalweit. |
| Münster | | | 30.04 | 762.9 | 64.4 | 18.0 | 51 | SW | | | | | 4 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 30.13 | 765.4 | 45.3 | 7.4 | 82 | NNE | | | 4 | | 8 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.14 | 765.5 | 60.8 | 16.0 | 47 | NW | | | 5 | | 10 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.06 | 763.5 | 67.8 | 19.9 | 47 | | | | | | 10 | | | 0.126 | 3.2 | | Dr. Schur. |
| Stuttgart | | | 30.08 | 763.9 | 65.1 | 18.4 | 41 | E | | | 1 | | 0? | | | 0.067 | 1.7 | Raining? | Prof. Schoder |
| Treves, (Trier) | | | 29.93 | 760.1 | 66.7 | 19.3 | 40 | S | | | 5 | | 7 | | | 0.268 | 6.8 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.59 | 726.1 | 30.07 | 763.8 | 61.5 | 16.4 | 40 | SW | | | 1 | | 7 | SW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.20 | 767.0 | 52.0 | 11.1 | 61 | N | | | 2 | | 0 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.74 | 755.4 | 75.6 | 24.2 | | NW | | | | | | | | | | | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.27 | 565.6 | 30.10 | 764.6 | 32.5 | 0.3 | 98 | NNW | | | 2 | | 5 | NNW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.24 | 564.8 | 30.00 | 762.1 | 35.1 | 1.7 | | N | | | 1 | | 0 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.09 | 761.9 | 70.3 | 21.3 | 34 | SW | 1.3 | 0.8 | | | 1 | | | 0 | 0 | | Ab. Dem. Morgini. |
| Padua | | | 30.01 | 762.2 | 68.9 | 20.5 | 29 | SSW | 3.3 | 1.7 | | | 1 | NW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.01 | 762.3 | 72.5 | 22.5 | 28 | W | 6.3 | 3.1 | | | 1 | | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.05 | 763.3 | 71.6 | 22.0 | 52 | W | | | 2 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | | | | | | | | | | | | | | | | | | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.98 | 761.6 | 70.2 | 21.2 | 34 | S | | | 4 | | 2 | | | 0 | 0 | | Prof. Giuseppe Cattaneo. |
| Milan | | | 30.02 | 762.4 | 74.5 | 23.6 | 32 | W | | | 2 | | 3 | WNW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.03 | 762.7 | 72.9 | 22.7 | 23 | W | | | 2 | | 8 | | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 30.05 | 763.2 | 71.4 | 21.9 | 33 | SE | 4.3 | 1.9 | | | 9 | E | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.16 | 715.2 | 30.02 | 762.5 | 66.4 | 19.1 | 38 | N | | | 4 | | 6 | NW | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.13 | 765.2 | 66.4 | 19.1 | 75 | SSW | | | 2 | | 10 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.10 | 764.4 | 64.8 | 18.2 | 72 | SW | 4.3 | 1.9 | | | 2 | SW | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.05 | 763.3 | 71.1 | 21.7 | 34 | N | 0.7 | 0.3 | | | 7 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.03 | 762.7 | 71.4 | 21.9 | 40 | SSW | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.08 | 763.9 | 72.5 | 22.5 | 46 | W | | | 2 | | 5 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.05 | 764.2 | 67.8 | 19.9 | 66 | W | 7.8 | 3.3 | | | 9 | NW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.85 | 732.9 | 30.03 | 762.8 | 68.0 | 20.0 | 43 | NW | 2.7 | 1.1 | | | 3 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.54 | 724.8 | 30.06 | 763.5 | 63.7 | 17.6 | 58 | NNE | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.06 | 763.5 | 64.9 | 18.3 | 72 | N | 13.0 | 5.8 | | | 1 | N | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.05 | 763.2 | 66.9 | 19.4 | 46 | NNW | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.07 | 763.8 | 74.5 | 23.6 | 36 | NNW | | | 4 | | 4 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.06 | 763.5 | 73.2 | 22.9 | 41 | W | 7.4 | 3.3 | | | 2 | | | 0 | 0 | | Prof's P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.04 | 763.1 | 74.7 | 23.7 | 41 | WSW | | | 2 | | 1 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.95 | 760.8 | 68.4 | 20.2 | 24 | NNW | 31.1 | 13.9 | | | 0 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.04 | 762.9 | 70.5 | 21.4 | 68 | SW | 3.8 | 1.7 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.08 | 764.1 | 73.8 | 23.2 | 27 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.98 | 761.6 | 74.3 | 23.5 | 44 | Calm | | | 0 | | 8 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.07 | 763.8 | 68.5 | 20.3 | 42 | W | 11.2 | 5.0 | | | 8 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.12 | 714.3 | 30.01 | 762.2 | 66.9 | 19.4 | 32 | NW | | | 6 | | 2 | NE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.98 | 761.4 | 73.8 | 23.2 | 58 | NE | | | 4 | | 5 | NNW | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.08 | 764.0 | 71.6 | 22.0 | 43 | SE | 1.8 | 0.6 | | | 3 | SW | | 0 | 0 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.94 | 760.5 | 63 | 17.2 | 83 | ENE | 4 | 1.8 | | | 10 | | | 0 | 0 | Cloudy | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.17 | 588.5 | 30.19 | 766.9 | 61.7 | 16.5 | 50 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.98 | 761.4 | 56.8 | 13.8 | | S | | | 4 | | | | | 0 | 0 | | |
| Gronlingen | | | 29.96 | 761.0 | 60.8 | 16.0 | | S | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.95 | 760.8 | 59.4 | 15.2 | | SSW | | | 3 | | | | | 0.240 | 6.1 | | |
| Utrecht | | | 29.94 | 760.5 | 62.6 | 17.0 | 51 | SSW | | | 4 | | 8 | | | 0.126 | 3.2 | Very cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.05 | 763.2 | 54.3 | 12.4 | 63 | SW | 6.0 | 2.7 | | | 1 | | | 0 | 0 | | |
| Brône | | | 30.11 | 764.9 | 55.4 | 13.0 | 37 | SSE | 9 | 4 | | | 0 | | | 0 | 0 | | |
| Christiania | | | 30.09 | 764.3 | 47.3 | 8.5 | 74 | ENE | 4 | 2 | | | 10 | | | 0.028 | 0.7 | | |
| Tromsö | | | 30.15 | 765.8 | 44.6 | 7.0 | 61 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna The symbols. cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.03 | 762.8 | 62.6 | 17.0 | 90 | SSE | 4.2 | 1.9 | | | 4 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.13 | 765.4 | 83.3 | 28.5 | 31 | ESE | 3.8 | 1.7 | | | 4 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.17 | 766.3 | 69.1 | 20.6 | 68 | SW | 3.8 | 1.7 | | | 0 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.20 | 767.0 | 74.8 | 23.8 | 46 | SSW | 6.2 | 2.8 | | | 6 | W | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.23 | 767.5 | 66.6 | 19.2 | 73 | SE | 1.3 | 0.6 | | | 3 | | | 0.008 | 0.2 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.00 | 761.9 | 54.5 | 12.5 | 81 | NNW | 16 | 7 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.87 | 758.8 | 64.0 | 17.8 | 77 | NNW | 4 | 2 | | | 9 | | | | | Thunder-storm | Astronomical Obs. |
| Dorpat | | | 29.93 | 760.2 | 63.5 | 17.5 | 63 | NE | 11 | 5 | | | 6 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 30.04 | 763.0 | 55.0 | 12.8 | 72 | ENE | 13 | 6 | | | 8 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.14 | 765.6 | 43.7 | 6.5 | 86 | NE | 13 | 6 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.72 | 755.0 | 74.5 | 23.6 | 52 | E | 11 | 5 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.63 | 752.6 | 73.0 | 22.8 | 66 | SW | 18 | 8 | | | 9 | | | | | | Kurdakof |
| Kertch | | | 29.65 | 753.2 | 73.6 | 23.1 | 78 | SSE | 9 | 4 | | | 3 | | | | | | Lagorio. |
| Moscow | | | 30.01 | 762.2 | 75.4 | 24.1 | 60 | S | 0 | 0 | | | 1 | | | | | | Meteorological Obs. |
| Lugan | | | 29.76 | 755.8 | 81.5 | 27.5 | 37 | ESE | 13 | 6 | | | 3 | | | | | | Meteorological Obs. |
| Archangel | | | 30.23 | 767.7 | 35.6 | 2.0 | 84 | W | 9 | 4 | | | 10 | | | | | Snowing | Ogorodnikof. |
| Tiflis | 28.43 | 722.0 | 29.76 | 755.8 | 82.4 | 28.0 | 40 | E | 4 | 2 | | | 6 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.93 | 760.3 | 82.4 | 28.0 | 21 | ESE | 7 | 3 | | | 3 | | | | | | Sebastianof. |
| Kasan | | | 30.08 | 763.9 | 65.1 | 18.4 | 36 | NE | 4 | 2 | | | 8 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.08 | 738.7 | 30.03 | 762.8 | 48.7 | 9.4 | 50 | NNE | 13 | 6 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.41 | 721.6 | 30.07 | 763.6 | 72.3 | 22.4 | 53 | Calm | 0 | 0 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 29.51 | 749.6 | 75.0 | 23.9 | 21 | WNW | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.40 | 746.7 | 46.9 | 8.3 | 57 | WNW | 13 | 6 | | | 2 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzof. |
| Oorga | | | | | 37.2 | 2.9 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.76 | 755.8 | 49.6 | 9.8 | 75 | Calm | 0 | 0 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.70 | 754.3 | 44.6 | 7.0 | 88 | SE | 11 | 5 | | | 10 | | | | | Raining | |
| Nikolaievsk, on the Amoor | | | | | 37.4 | 3.0 | | Calm | 0 | 0 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 30.08 | 763.9 | 83.8 | 28.8 | 30 | SW | 9.7 | 4.34 | | 3 | 0 | W | | 0 | 0 | Light clouds | Royal Observatory |
| San Fernando | | | 30.16 | 766.1 | 82.8 | 28.2 | 41 | ENE | 13.0 | 5.8 | | 0 | 2 | | ENE | 0 | 0 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.93 | 760.3 | 72.2 | 22.4 | 91 | NNE | 10.1 | 4.5 | | 0 | 10n | | | 0.486 | 12.2 | Covered | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.29 | 769.3 | 48.2 | 9.0 | 48 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 30.25 | 768.3 | | | | ENE | | | 4 | | 3 | | | 0 | 0 | | |
| Hernosand | | | 30.19 | 766.8 | 45.0 | 7.2 | 66 | NE | | | 6 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 30.03 | 763.5 | 42.8 | 6.0 | 85 | WNW | | | 2 | | 10 | | | 0 | 0 | | |
| Wisby | | | 30.04 | 763.1 | 43.2 | 6.2 | 82 | NNW | | | 6 | | 10 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.08 | 763.9 | 40.3 | 4.6 | 86 | N | 8.5 | 3.8 | | | 10 | | N | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.67 | 728.3 | 30.08 | 764.0 | 61.7 | 16.5 | 41 | NE | | | 1 | | 7 | | | 0 | 0 | Halo | The Observatory. |
| Zurich | 28.44 | 722.3 | 30.03 | 762.8 | 67.3 | 19.6 | 51 | SE | | | 1 | | 3 | | | 0.315 | 8.0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +3.2 mm; Thermometer, —0.2 cent.; Relative Humidity, —16 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.63 | 752.7 | 67.5 | 19.7 | 66 | S | 7 | 3.0 | | | 10 | | SW | 0.709 | 18.0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.02 | 762.4 | 78.8 | 26.0 | | SE | | | 3 | | 2 | | | | | | |
| Salonica | | | 29.74 | 755.3 | 72.3 | 22.4 | | N | | | 8 | | 2 | | | | | | B. Stéfanidès. |
| Valona | | | 30.01 | 762.3 | 65.8 | 18.8 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.57 | 751.0 | 73.4 | 23.0 | | S | | | 3 | | 8 | | | Blank | Blank | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.92 | 760.0 | 81.9 | 27.7 | 61 | SW | | | 3 | | 2s | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.02 | 762.5 | 46.8 | 8.2 | 64 | S | 5 | 2.2 | | | 4 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.94 | 760.5 | 60 | 15.6 | | SW | 5 | 2.2 | | | 10s | | SW | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 30.02 | 762.5 | 47 | 8.3 | 69 | E | 8 | 3.6 | | Haz | Haze | | | Inap. | Inap | Hazy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.06 | 763.5 | 49 | 9.4 | 63 | SE | 8 | 3.6 | | 0 | 0 | | | 0.020 | 0.51 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.98 | 761.5 | 63.2 | 17.3 | 85 | SW | | | 3 | | 10s | | | 0.20 | 5.1 | Unsettled | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.05 | 763.3 | 41.8 | 5.4 | 82 | E | | | 3 | | | | | 0 | 0 | Threatening | H. A. Johnson. |
| Esquimault, B. C. | | | 30.06 | 763.5 | 41.1 | 5.1 | 92 | W | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.93 | 760.2 | 45 | 7.2 | 68 | N | 6 | 2.7 | | 5k | 5n | W | W | 0 | 0 | Threatening | J. McWilliams. |
| Fredericton, N. B. | | | 29.98 | 761.5 | 49 | 9.4 | 58 | NE | 8 | 3.6 | | | 10 | | | 0 | 0 | Smoky&hazy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.55 | 750.6 | 46 | 7.8 | 84 | N | 13 | 5.8 | | 0 | 0 | | | 0.020 | 0.51 | Clear | James Stewart. |
| Goderich, Ontario | | | 29.93 | 760.2 | 62.6 | 17.0 | 85 | S | | | 2 | | 10n | | | 0.344 | 8.74 | Light rain | H. J. Strang, M. A. |
| Granton, Ontario | | | 29.94 | 760.5 | 62 | 16.7 | 88 | S | | | 1 | 0 | 0 | | | 0.06 | 1.5 | Cloudy | James Grant. |
| *Halifax, N. S. | 28.86 | 733.0 | 30.01 | 762.2 | 46 | 7.8 | 60 | SE | 12 | 5.4 | | Haze | Sm'e | | | 0.005 | 0.13 | Smoky | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.98 | 761.5 | 67.9 | 19.9 | 77 | SW | | | 1 | 10e | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.04 | 763.0 | 39 | 3.9 | 91 | NE | | | 3 | | 10 | | | 0 | 0 | Dense fog | E. Weedon. |
| *Kingston, Ontario | | | 29.97 | 761.2 | 56 | 13.3 | 92 | SW | 4 | 1.8 | | 10es | 0 | SW | | 0.02 | 0.5 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.85 | 758.2 | 61 | 17.8 | 86 | S | 10 | 4.5 | | Haze | 5s | | W | 0.38 | 9.7 | Fair | C. H. McLeod, C. |
| *Parry Sound, Ontario | | | 29.89 | 759.2 | 63 | 15.6 | 92 | S | 4 | 1.8 | | 2es | 2ks | S | S | 0.90 | 22.9 | Fair | Rev. R. Mosley. |
| Port Dover, Ontario | | | 29.98 | 761.5 | 57 | 13.9 | 87 | S | 3 | 1.3 | | 10k | 0 | SW | | 0 | 0 | Cloudy | H. Morgan. |
| Port Hastings, N. S. | | | 30.07 | 763.8 | 49.1 | 9.5 | | SE | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 29.99 | 761.7 | 56 | 13.3 | 88 | SW | 4 | 1.8 | | | 10ks | | SW | 0.02 | 0.5 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.79 | 756.7 | 48 | 8.9 | 93 | N | 5 | 2.2 | | | 10a | | N | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.88 | 758.9 | 59 | 15.0 | 92 | Calm | 0 | 0 | | | 10s | | NW | 0.58 | 14.7 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 29.97 | 761.2 | 48 | 8.9 | 63 | E | 6 | 2.7 | | | 10 | | | 0 | 0 | Overcast | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.85 | 758.2 | 65 | 18.3 | 84 | Calm | 0 | 0 | | | 10n | | | 0.07 | 1.8 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.89 | 759.2 | 65 | 18.3 | 83 | SE | 3 | 1.3 | | | 10n | | W | 0 | 0 | Threatening | R. J. Cole. |
| Stratford, Ontario | 28.67 | 728.2 | 29.91 | 759.7 | 62.9 | 17.2 | 87 | SW | 11 | 4.9 | | | 10s | | | 0.127 | 3.23 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.10 | 764.5 | 49 | 9.4 | 68 | NE | 8 | 3.6 | | 2k | 0 | SE | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 29.95 | 760.7 | 63 | 17.2 | 81 | S | 1 | 0.4 | | | 8n | | W | Inap. | Inap | Cloudy | Magnetic Observatory. |
| Windsor, N. S. | | | 29.95 | 760.7 | 49.0 | 9.4 | 66 | SE | 10 | 4.5 | | Haze | 0 | | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.94 | 760.5 | 67.0 | 19.4 | 75 | SW | 6 | 2.7 | | | 10s | | | 0.14 | 3.6 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.04 | 763.0 | 42.0 | 5.6 | 91 | NE | | | | Haze | Haze | | | 0.02 | 0.5 | Hazy | John Delany. |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.92 | 760.0 | 72 | 22.2 | 75 | NW | 3 | 1.3 | | 1c | 0 | | | 0.15 | 3.8 | Clear | |
| Alpena, Mich. | | | 29.80 | 756.9 | 57 | 13.9 | 87 | Calm | 0 | 0 | | | 10s | | N | 0 | 0 | Cloudy | |
| Atlantic City, N. J. | | | 30.05 | 763.3 | 74 | 23.3 | 72 | SW | 2 | 0.9 | | 8c | Haze | NW | | 0 | 0 | Cloudy | |
| Augusta, Ga. | | | 30.26 | 768.6 | 71 | 21.7 | 66 | SE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.06 | 763.5 | 73 | 22.8 | 67 | SW | 7 | 3.1 | | 2cs | 2s | NW | | 0.28 | 7.1 | Fair | |
| Barnegat, N. J. | | | 30.03 | 762.7 | 77 | 25.0 | 60 | W | 7 | 3.1 | | 8c | Haze | | | 0.01 | 0.3 | Fair | |
| Bismarck, Dakota | 27.75 | 704.8 | 29.31 | 744.5 | 56 | 13.3 | 87 | Calm | 0 | 0 | | | 10s | | W | 0.25 | 6.3 | Cloudy | |
| Boston, Mass. | | | 29.86 | 758.4 | 68 | 20.0 | 79 | W | 15 | 6.7 | | 2k | 2s | W | W | 0.09 | 2.3 | Fair | |
| Breckenridge, Minn. | | | 29.40 | 746.7 | 60 | 15.6 | 88 | N | 6 | 2.7 | | | 10s | | NE | 0.01 | 0.3 | Cloudy | |
| Buffalo, N. Y. | | | 29.94 | 760.5 | 65 | 18.3 | 73 | SW | 5 | 2.2 | | 2k | 2s | SW | SW | 0 | 0 | Fair | |
| Burlington, Vt. | | | 29.89 | 759.2 | 67 | 19.4 | 64 | N | 4 | 1.8 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.06 | 760.5 | 70 | 21.1 | 75 | S | 6 | 2.7 | | 5ck | 2s | SW | | 0.12 | 3.0 | Fair | |
| Campo, Cal. | 27.35 | 694.7 | 29.92 | 760.0 | 45 | 7.2 | 67 | SW | 9 | 4.0 | | 5k | 10s | W | | 0 | 0 | Fair | |
| Camp Verde, Arizona | | | | | 51 | 10.6 | | Calm | | | | 5k | 0 | W | | 0.03 | 0.8 | Fair | |
| Cape Hatteras, N. C. | | | 30.14 | 765.5 | 66 | 18.9 | 78 | SW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.12 | 765.0 | 73 | 22.8 | 51 | W | 15 | 6.7 | | 2c | Haze | W | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.28 | 767.8 | 67 | 19.4 | 84 | W | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.07 | 763.8 | 64 | 17.8 | 83 | SW | 14 | 6.3 | | 5c | 0 | | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.24 | 768.1 | 68 | 20.0 | 74 | N | 2 | 0.9 | | 1c | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.79 | 604.3 | 29.71 | 755.1 | 45 | 7.2 | 60 | W | 12 | 5.4 | | 0 | 0 | | | 0.21 | 5.3 | Clear | |
| Chicago, Ill. | | | 29.84 | 757.9 | 70 | 21.1 | 85 | SW | 14 | 6.3 | | | 10s | | | 0.46 | 11.7 | Threatening | |
| Cincinnati, Ohio | | | 30.03 | 762.7 | 71 | 21.7 | 71 | SW | 6 | 2.7 | | | 9ks | | W | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 29.99 | 761.7 | 69.5 | 20.8 | 70 | S | 12 | 5.4 | | | 10n | | W | Inap. | Inap. | Light rain | |
| Corsicana, Tex. | | | 30.01 | 762.2 | 70 | 21.1 | 90 | SE | 7 | 3.1 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.79 | 756.7 | 67 | 19.4 | 81 | SW | 14 | 6.3 | | | 10s | | SW | 0.46 | 11.7 | Threatening | |
| Denison, Tex. | | | 29.97 | 761.2 | 70 | 21.1 | 84 | SE | 16 | 7.2 | | | 10s | | S | 0.08 | 2.0 | Cloudy | |
| Denver, Col. | 24.60 | 624.8 | 29.82 | 757.4 | 45 | 7.2 | 60 | S | 4 | 1.8 | | 0 | 0 | | | 0.11 | 2.8 | Clear | |
| Detroit, Mich. | | | 29.92 | 760.0 | 63 | 17.2 | 94 | S | 4 | 1.8 | | | 10s | | W | 0.29 | 7.4 | Cloudy | |
| Dodge City, Kan. | 27.17 | 690.1 | 29.35 | 745.5 | 63 | 17.2 | 88 | SW | 12 | 5.4 | | | 10s | | SW | 0.01 | 0.3 | Cloudy | |
| Dubuque, Iowa | | | 29.69 | 754.1 | 70 | 21.1 | 75 | SW | 12 | 5.4 | | 10k | 0 | SW | | 0.14 | 3.6 | Cloudy | |
| Duluth, Minn. | | | 29.53 | 750.0 | 52 | 11.1 | 86 | NE | 4 | 1.8 | | Haze | 10n | | | 0.14 | 3.6 | Light rain | |
| Eastport, Me. | | | 29.93 | 760.2 | 45 | 7.2 | 75 | E | 16 | 7.2 | | Haze | 10s | | | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 29.95 | 760.7 | 70 | 21.1 | 75 | SW | 12 | 5.4 | | 5cs | 2ks | W | W | 0.52 | 13.2 | Cloudy | |
| Escanaba, Mich. | | | 29.69 | 754.1 | 57 | 13.9 | 87 | S | 16 | 7.2 | | 5k | 0 | S | | 0.09 | 2.3 | Fair | |
| Florence, Arizona | | | 29.86 | 758.4 | 65 | 18.3 | | SW | | | | 5k | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.93 | 760.2 | 69 | 20.6 | 84 | S | 8 | 3.6 | | | 10s | | SW | 0.70 | 17.8 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.79 | 756.7 | 29 | -1.7 | 89 | SW | | | 2 | ck | 8s | S | S | Inap. | Inap. | Fair | |
| Fort Sill, Indian Ter. | 28.79 | 731.3 | 29.74 | 755.4 | 72 | 22.2 | 81 | SE | 16 | 7.2 | | | 10s | | S | 0.58 | 14.7 | Cloudy | |
| Fort Sully, Dakota | 27.90 | 708.6 | 29.48 | 748.8 | 58 | 14.4 | 87 | NW | 6 | 2.7 | | | 10s | | | 0.12 | 3.0 | Cloudy | |
| Galveston, Tex. | | | 30.07 | 763.8 | 74 | 23.3 | 85 | SE | 7 | 3.1 | | 0 | 8ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.82 | 757.4 | 60 | 15.6 | 88 | S | 28 | 12.5 | | | 10s | | W | 1.08 | 27.4 | Cloudy | |
| Indianapolis, Ind. | | | 29.99 | 761.7 | 70 | 21.1 | 79 | S | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 30.03 | 762.7 | 75 | 23.9 | 85 | SE | 9 | 4.0 | | 5cs | 0 | SE | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.17 | 766.3 | 72 | 22.2 | 45 | NE | 4 | 1.8 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 29.76 | 755.9 | 68 | 20.0 | 90 | SW | 12 | 5.4 | | | 10s | | SW | 0.80 | 20.3 | Threatening | |
| Key West, Fla. | | | 29.93 | 760.2 | 72.7 | 22.5 | 88 | NE | 26 | 11.6 | | | 10s | | NE | 0.31 | 7.9 | Threatening | |
| Kittyhawk, N. C. | | | 30.19 | 766.8 | 66 | 18.9 | 68 | SW | 19 | 8.5 | | 1c | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.17 | 766.3 | 65 | 18.3 | 78 | NW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.58 | 751.3 | 70 | 21.1 | 79 | S | 18 | 8.0 | | | 10s | | | 0.18 | 4.3 | Cloudy | |
| Leavenworth, Kan. | | | 29.70 | 754.4 | 70 | 21.1 | 90 | S | 16 | 7.2 | | | 10s | | | 2.40 | 61.0 | Cloudy | |
| Louisville, Ky. | | | 30.07 | 763.8 | 72 | 22.2 | 80 | S | 4 | 1.8 | | 8ck | 2s | SW | S | 0 | 0 | Cloudy | |
| Lynchburg, Va. | | | 30.11 | 764.8 | 73 | 22.8 | 63 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 68 | 20.0 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.63 | 752.6 | 61 | 16.1 | 70 | NE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.11 | 764.8 | 73 | 22.8 | 71 | SW | 4 | 1.8 | | 8cs | Haze | SW | | 0 | 0 | Cloudy | |
| Milwaukee, Wis. | | | 29.79 | 756.7 | 68 | 20.0 | 90 | SW | 10 | 4.5 | | | 10n | | SW | 0.36 | 9.1 | Light rain | |
| Mobile, Ala. | | | 30.16 | 766.1 | 69 | 20.6 | 84 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.18 | 766.9 | 70 | 21.1 | 61 | SE | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.06 | 738.1 | 30.07 | 763.8 | 71 | 21.7 | 71 | SW | 5 | 2.2 | | 0 | 0 | | | 0.17 | 4.3 | Clear | |
| Mt. Washington, N. H. | 23.69 | 601.7 | 30.05 | 763.3 | 42 | 5.6 | 100 | NW | 48 | 21.5 | | | Fog | | | 0.38 | 9.7 | Foggy | |
| Nashville, Tenn. | | | 30.12 | 765.0 | 73 | 22.8 | 71 | Calm | 0 | 0 | | 8ck | Haze | W | | 0.01 | 0.3 | Fair | |
| New Haven, Conn. | | | 29.94 | 760.5 | 76 | 24.4 | 56 | NW | 15 | 6.7 | | 5cs | Haze | | | 0.07 | 1.8 | Fair | |
| New London, Conn. | | | 29.93 | 760.2 | 73 | 22.8 | 63 | NW | 10 | 4.5 | | 1c | 1cs | NW | W | Inap. | Inap. | Clear | |
| New Orleans, La. | | | 30.13 | 765.3 | 71 | 21.7 | 80 | SE | 1 | 0.4 | | 1cs | Sm'e | | SE | 0 | 0 | Clear | |
| Newport, R. I. | | | 29.90 | 759.4 | 68 | 20.0 | 68 | W | 8 | 3.6 | | 2c | 0 | W | | Inap. | Inap. | Clear | |
| New York, N. Y. | | | 30.02 | 762.5 | 68 | 20.0 | 69 | W | 10 | 4.5 | | 8k | 0 | W | | Inap. | Inap. | Fair | |
| Norfolk, Va. | | | 30.15 | 765.8 | 73 | 22.8 | 59 | SW | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.79 | 680.4 | 29.29 | 744.0 | 51 | 10.6 | 79 | W | 18 | 8.0 | | 0 | 0 | | | 0.24 | 6.1 | Clear | |
| Omaha, Neb. | 28.49 | 723.6 | 29.50 | 749.3 | 70 | 21.1 | 89 | SW | 14 | 6.3 | | 2k | 0 | SW | | 0.46 | 11.7 | Clear | |
| Oswego, N. Y. | | | 29.94 | 760.5 | 69 | 20.6 | 62 | W | 12 | 5.4 | | 8cs | 0 | W | | Inap. | Inap. | Cloudy | |
| Pembina, Dakota | | | 29.48 | 748.8 | 48 | 8.9 | 77 | N | 12 | 5.4 | | 2ck | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 30.05 | 763.3 | 72 | 22.2 | 67 | W | 6 | 2.7 | | 8cs | Haze | W | | Inap. | Inap. | Fair | |
| Phœnix, Arizona | | | | | 59 | 15.0 | | S | | | | 0 | 8ks | | S | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.60 | 447.0 | 29.81 | 757.2 | 12 | -11.1 | 70 | SW | 54 | 24.1 | | 0 | 0 | | | 0.17 | 4.3 | Clear | |
| Pittsburgh, Pa. | | | 30.03 | 762.7 | 70 | 21.1 | 70 | SW | 7 | 3.1 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.91 | 759.7 | 61 | 16.1 | 94 | S | 10 | 4.5 | | | 10n | | SW | 0.12 | 3.0 | Light rain | |
| Portland, Me. | | | 29.83 | 758.4 | 56 | 13.3 | 80 | NE | 5 | 2.2 | | 8k | Haze | NW | | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.24 | 767.3 | 45 | 7.2 | 72 | NW | 2 | 0.9 | | 0 | 2c | | | Inap. | Inap. | Fair | |
| Prescott, Arizona | 24.70 | 627.4 | 29.96 | 761.0 | 42 | 5.6 | | Calm | | | | 2k | 2ks | S | | 0.12 | 3.0 | Threatening | |
| Punta Rassa, Fla. | | | 30.02 | 762.5 | 71 | 21.7 | 71 | NE | 18 | 8.0 | | | 10ks | | | 0 | 0 | Cloudy | |
| Rochester, N. Y. | | | 29.93 | 760.2 | 68 | 20.0 | 69 | W | 9 | 4.0 | | 8c | 0 | NW | | 0.05 | 1.3 | Fair | |
| Salt Lake City, Utah | 25.45 | 646.4 | 29.78 | 756.4 | 48 | 8.9 | 42 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.02 | 762.5 | 67 | 19.4 | 74 | W | 12 | 5.4 | | 10c | Haze | W | | 0.02 | 0.5 | Cloudy | |
| San Antonio, Tex. | | | 30.00 | 762.0 | 71 | 21.7 | 85 | SE | 9 | 4.0 | | 5k | 0 | | | 0 | 0 | Fair | |
| San Diego, Cal. | | | 29.90 | 759.4 | 54 | 12.2 | 79 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 29.95 | 760.7 | 52 | 11.1 | 79 | W | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.14 | 587.8 | 29.68 | 753.9 | 41 | 5.0 | 69 | NE | 4 | 1.8 | | 9ck | 2s | SW | SW | Inap. | Inap. | Fair | |
| Savannah, Ga. | | | 30.23 | 767.8 | 69 | 20.6 | 75 | Calm | 0 | 0 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.17 | 766.3 | 71 | 21.7 | 85 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.25 | 768.3 | 67 | 19.4 | 74 | SW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.93 | 760.2 | 76 | 24.4 | 57 | W | 10 | 4.5 | | 1k | 0 | NW | | 0.23 | 5.8 | Clear | |
| St. Louis, Mo. | | | 29.93 | 760.2 | 72 | 22.2 | 76 | S | 12 | 5.4 | | 2c | 5s | | | 0.32 | 8.1 | Fair | |
| St. Marks, Fla. | | | 30.17 | 766.3 | 67 | 19.4 | 68 | E | 6 | 2.7 | | 5c | 0 | | | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.39 | 746.5 | 67 | 19.4 | 90 | SE | 18 | 8.0 | | 5c | 1s | SW | SW | 0.42 | 10.7 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 60 | 15.6 | | Calm | | | | 0 | 5ks | | W | 0 | 0 | Fair | |
| Thatcher's Island, Mass. | | | 29.83 | 757.7 | 67 | 19.4 | 79 | NW | 12 | 5.4 | | 8ck | 0 | NW | | 0 | 0 | Smoky | |
| Toledo, Ohio | | | 29.94 | 760.5 | 69 | 20.6 | 84 | S | 12 | 5.4 | | 5k | 5s | SW | S | Inap. | Inap. | Threatening | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.37 | 695.2 | 29.92 | 760.0 | 55 | 12.8 | ..... | NW | ..... | ..... | ..... | 1c | 2ks | S | S | 0 | 0 | Fair | |
| Tybee Island, Ga | ..... | ..... | 30.20 | 767.1 | 70 | 21.1 | 56 | E | 8 | 3.6 | ..... | 2c | 2ks | ..... | E | 0 | 0 | Fair | |
| Vicksburg, Miss | ..... | ..... | 30.16 | 766.1 | 71 | 21.7 | 79 | S | 1 | 0.4 | ..... | Haze | 0 | ..... | ..... | 0 | 0 | Clear | |
| Virginia City, M. T | 23.93 | 607.8 | 29.41 | 747.0 | 43 | 6.1 | 75 | Calm | 0 | 0 | ..... | 8k | 0 | W | ..... | 0 | 0 | Cloudy | |
| Washington, D. C | ..... | ..... | 30.10 | 764.5 | 71 | 21.7 | 75 | S | 4 | 1.8 | ..... | 0 | Haze | ..... | ..... | Inap. | Inap. | Clear | |
| Wickenburg, Arizona | ..... | ..... | ..... | ..... | 60 | 15.6 | ..... | S | ..... | ..... | ..... | 5cs | 0 | S | ..... | 0.06 | 1.5 | Fair | |
| Wilmington, N. C | ..... | ..... | 30.24 | 768.1 | 66 | 18.9 | 83 | SW | 2 | 0.9 | ..... | 1cs | 0 | ..... | ..... | 0 | 0 | Clear | |
| Wood's Holl, Mass | ..... | ..... | 29.92 | 760.0 | 65 | 18.3 | 78 | W | 12 | 5.4 | ..... | 5cs | 0 | W | ..... | 0 | 0 | Fair | |
| Yankton, Dakota | 28.20 | 716.3 | 29.41 | 747.0 | 62 | 16.7 | 72 | SW | 20 | 8.9 | ..... | 0 | 0 | ..... | ..... | 1.25 | 31.7 | Clear | |
| Yuma, Arizona | ..... | ..... | ..... | ..... | ..... | ..... | ..... | SW | ..... | ..... | ..... | 0 | 5ks | ..... | W | 0 | 0 | Fair | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | ..... | ..... | 30.04 | 763.0 | 79 | 26.1 | 95 | SE | 5 | 2.2 | ..... | 10c | 8n | SE | ..... | 0.22 | 5.6 | ..... | James Gall. |
| Navassa, W. I | ..... | ..... | ..... | ..... | 79 | 26.1 | ..... | SE | ..... | ..... | 5 | ..... | ..... | ..... | ..... | 0 | 0 | ..... | Dr. G. H. Davison. |
| Clifton, Ja., W. I | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | C. Partridge. |
| Paramaribo, D. Guiana, S. A | ..... | ..... | 29.98 | 761.5 | 82 | 27.8 | 83 | E | ..... | ..... | 1 | 3c | 5ks | E | ..... | 0 | 0 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.03 | 762.7 | ..... | ..... | 80.6 | 27.0 | ..... | E | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0 | 0 | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.19 | 639.8 | ..... | ..... | 69.5 | 20.8 | 80 | Calm | ..... | ..... | 0 | 8k | 2ks | ..... | ..... | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | ..... | ..... | 29.63 | 752.6 | 33.0 | 0.6 | 100 | NW | 20 | 8.9 | ..... | ..... | 10n | ..... | ..... | *4.70 | *119.4 | Raining | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | ..... | ..... | 30.02 | 762.5 | 71 | 21.7 | ..... | S | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 0.09 | 2.3 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.6 ft., or 313.3 m.; Medellin, 1,878 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,862.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. * Rain-fall from midnight of the 15th until 9 p. m. of the 16th.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.17 | 766.3 | 75 | 23.9 | 70 | 21.1 | 80 | SW | | | 1 | | 3 | | SW | 0.06 | 1.5 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 30.03 | 762.7 | 65 | 18.3 | 55.5 | 13.1 | | SW | | | 2 | | 10 | | NE | 0 | 0 | | | Cloudy | |
| Navy Yard, Norfolk, Va. | 30.24 | 768.1 | 69 | 20.6 | 68 | 20.0 | 100 | SSW | 2 | 0.9 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.28 | 769.1 | | | 69 | 20.6 | 85 | NE | 12 | 5.4 | | | | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 30.02 | 762.5 | 74 | 23.3 | 72 | 22.2 | 67 | WNW | 5 | 2.2 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.89 | 759.2 | 66 | 18.9 | 64 | 17.8 | 83 | Calm | | | 0 | | 8ks | | SW | 0 | 0 | | | Cloudy | |
| Adams, N. 2° W. 26° | 30.00 | 762.0 | 84 | 28.9 | 82 | 27.8 | 92 | SE | | | 1–2 | | 8 | | E | | | Smooth | E | Showery | |
| Alert, N. 30° 51′, 15″ E. 143° 26′ 45″ | 30.21† | 767.3† | 73 | 22.8 | 75 | 23.9 | 95 | SW | | | 3–4 | | 10 | | SW | | | Long | S&W | D. clouds | |
| Alliance, Latakia, Syria | 29.98 | 761.5 | 75 | 23.9 | 73 | 22.8 | 72 | SSW | | | 2 | | 4 | | S&E | | | Smooth | | Pleasant | |
| Ashuelot, Canton, China | 29.98 | 761.5 | 73 | 22.8 | 74 | 23.3 | 86 | NNW | | | 2 | | 9 | | | | | Smooth | | Hazy | |
| Canonicus, New Orleans, La | 30.11 | 764.8 | 51 | 10.6 | 68 | 20.0 | 84 | Calm | | | 0 | | 2 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.05 | 763.3 | 67 | 19.4 | 74 | 23.3 | 59 | SW | 2 | 0.9 | | | 8 | | | 0 | 0 | | | D. clouds | |
| Despatch, N. 36° 23′ W. 14° 19′ | 30.32 | 770.1 | 68 | 20.0 | 70 | 21.1 | 80 | ENE | | | 2 | | 3 | | E | | | Long | NW | Pleasant | |
| Frolic, S. 23° 23′ W. 43° 09′ | 30.15 | 765.8 | | | 72 | 22.2 | 90 | NW | | | 1 | | 10kn | | | 0 | 0 | Smooth | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.95 | 760.7 | | | 75 | 23.9 | 100 | SSW | | | 1 | | 5 | | | 0 | 0 | | | D. clouds | |
| Huron, Curacao Island, W. I. | 30.08 | 764.0 | 84 | 28.9 | 82.5 | 28.1 | ? | E | | | 5–7 | | 5 | | | | | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.92 | 760.0 | 67 | 19.4 | 61 | 16.1 | 94 | WNW | | | 1 | | 9 | | SE | ¶0.37 | 9.4¶ | | | Hazy | |
| Lackawanna, Acapulco, Mexico | 29.90 | 759.4 | | | 83 | 28.3 | 91 | Calm | | | 0 | | 3 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.74 | 755.4 | 68 | 20.0 | 67 | 19.4 | 95 | WSW | | | 4 | | 9 | | W | Heavy | Heavy | Chop'd | SW | D. clouds | |
| Michigan, Erie, Pa | 29.51 | 749.5 | 71 | 21.7 | 71 | 21.7 | 71 | SW | | | 2 | | 10 | | SW | | | | | Cloudy | |
| Monocacy, Shanghai, China | 29.90 | 759.4 | 62 | 16.7 | 62 | 16.7 | 86 | SSW | | | 2 | | 7 | | SSW | Light | Light | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.18 | 766.6 | 66 | 18.9 | 74 | 23.3 | | SSW | | | 3 | | c,ck | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.50 | 774.7 | | | 77 | 25.0 | 54 | NE | 4 | 1.8 | | | 5 | | | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.96 | 761.0 | 79.5 | 26.4 | 80 | 26.7 | 96 | Calm | 0 | 0 | | | 8 | | | 0.05 | 1.3 | Smooth | | Pleasant | |
| Ossipee, Port Royal, S. C | 30.27 | 768.8 | 70 | 21.1 | 69 | 20.6 | 90 | NNE | | | 1 | | 5 | | ENE | | | | | D. clouds | |
| Palos, Shanghai, China | 30.03 | 762.7 | 63 | 17.2 | 60 | 15.6 | 88 | W | | | 1–2 | | 4 | | W | | | | | Partly cl'dy | |
| Plymouth, New Orleans, La | 30.17 | 766.3 | 75 | 23.9 | 69 | 20.6 | 90 | S&E | | | 1 | | 0 | | | 0 | 0 | | | Misty | |
| Ranger, N. 35° 54′ W. 8° 19′ | 30.34 | 770.6 | | | 69 | 20.6 | 92 | E | | | 3 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.22 | 767.6 | 70.6 | 21.1 | 67.5 | 19.7 | 92 | Calm | | | 0 | | 10 | | | Blank | Blank | | | Threatening | |
| Rio Bravo, Matamoras, Mexico | 29.89 | 759.2 | | | 71 | 21.7 | 90 | SSE | | | 2 | | 8 | | NE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.16 | 766.1 | 74 | 23.3 | 72 | 22.2 | 76 | W | | | 1 | | 2 | | NW to SW | 0.10 | 2.5 | | | Clear | |
| St. Louis, League Island, Pa | 30.00 | 762.0 | 68 | 20.0 | 68 | 20.0 | 95 | SW | 6 | 2.7 | | | 5 | | SW | 0.19 | 4.8 | | | Cloudy | |
| Swatara, San Andres, U. S. C | 29.94 | 760.5 | 82 | 27.8 | 82 | 27.8 | 87 | N | | | 1 | | 5ck | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.92 | 760.0 | 73 | 22.8 | 69 | 20.6 | 75 | W | | | 0–1 | | 10 | | | 0 | 0 | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.79† | 756.7† | 70 | 21.1 | 65 | 18.3 | 100 | ESE | 6.3 | 2.8 | | | 10 | | | 1.9 | 48. | Smooth | | Squally | |
| Vandalia, Constantinople, Turkey | 29.66 | 753.4 | 65 | 18.3 | 61 | 16.1 | 94 | SSW | | | 1 | | 9 | | SW | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.92 | 760.0 | 69 | 20.6 | 70 | 21.1 | 80 | WSW | 9 | 4.0 | | | 7 | | W | 0.07 | 1.8 | | | D. clouds | |
| Wyoming, Washington, D.C. | 30.28† | 769.1† | 70 | 21.1 | 65 | 18.3 | | Calm | | | 0 | | | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 26° 24′ E. 122° 34′ | | | 30.00 | 762.0 | 68 | 20.0 | 95 | NNE | | | 6 | | 10n | | | Long. Moderate | NNE | Raining | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Corona | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

**WHITE STAR LINE MARINE SERIES.** Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

**OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 42° 29′ W. 17° 15′ | W½S | 8.5 | 30.00 | 763.5 | 55.6 | 13.1 | | WNW | | | 4 | | 8 | | WNW | Long | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give a monut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | | | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.14 | 765.5 | 72 | 22.2 | 54 | ENE | 5 | 2 2 | | 8k | 0 | NE | | | | D. clouds | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, tracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 18, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:58 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.09 | 764.3 | 71.6 | 22.0 | 74 | NW | | | 1 | | 3 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.12 | 765.1 | 66.2 | 19.0 | 77 | N | | | 1 | | 5 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.08 | 764.1 | 68.7 | 20.4 | 64 | NNE | | | 3 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.05 | 763.2 | 71.6 | 22.0 | | NE | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Stax | | | 30.08 | 764.0 | 80.6 | 27.0 | | E | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.09 | 764.2 | 90.3 | 32.4 | | NNW | | | 2 | | 1 | | | 0 | 0 | Clear. | Millot. |
| Tebessa | | | 30.08 | 763.9 | 77.4 | 25.2 | | NW | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | | | 84.2 | 29.0 | | NE | | | 2 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.07 | 763.8 | 93.2 | 34.0 | 20 | E | | | 2 | | 2 | | | 0 | 0 | Clear. | Guyot. |
| Biskra | | | 30.07 | 763.7 | 93.7 | 34.3 | | SE | | | 1 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 800? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.77 | 756.2 | 71.2 | 21.8 | 28 | NE | | | 2 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.83 | 758.4 | 55.4 | 13.0 | 80 | NE | | | 1 | | 10 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.75 | 755.6 | 55.0 | 12.8 | 77 | N | | | 2 | | 10k,s | | S | 0.001 | 0.15 | | Julius Mikolik. |
| Gratz | | | 29.78 | 756.5 | 69.8 | 21.0 | 38 | NW | | | 5 | | 5 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.58 | 726.0 | 29.57 | 751.1 | 59.4 | 15.2 | 74 | NW | | | 4 | | 10 | | | 0.312 | 7.95 | | Prof. Reissenberger. |
| Kremsmünster | 28.19 | 716.0 | 29.94 | 760.4 | 53.2 | 11.8 | 94 | Calm | | | 0 | | 10 | | | 0.189 | 4.8 | | Prof. O. Wagner. |
| Lemberg | 28.69 | 726.4 | 29.58 | 751.4 | 66.2 | 19.0 | 86 | SE | | | 2 | | 6 | | | 0.448 | 11.4 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | 29.84 | 758.0 | 70.5 | 21.4 | 42 | WNW | | | 2 | | 2k8 | | | 0 | 0 | | Habzsuda Daniel. |
| Poln | | | 29.70 | 754.3 | 59.4 | 15.2 | 84 | N | | | 1 | | 10 | | | 0.031 | 0.80 | | I.R.Hydrographic Office |
| Szegedin | | | 29.89 | 759.2 | 69.8 | 21.0 | 60 | W | | | 1 | | 2 | | | 0.161 | 4.1 | Raining | Karl Stancel. |
| Trieste | | | 29.82 | 757.3 | 67.3 | 19.6 | 33 | N | | | 3 | | 1 | | | 0 | 0 | | P. Busin. |
| Vienna | | | | | | | | | | | | | | | | | | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.60 | 726.3 | 30.04 | 763.1 | 57.4 | 14.1 | 60 | W | | | 2 | | 9 | | W | 0 | 0 | | Royal Observatory. |
| Brussels | | | 30.00 | 762.0 | 60.6 | 15.9 | 55 | WSW | | | 4 | | 8k | | | 0.031 | 0.80 | | |
| Furnes | | | 30.00 | 762.1 | 57.0 | 14.2 | 72 | W | | | 3 | | 9 | | | 0.248 | 6.3 | | |
| Maeseyck | | | 29.85 | 758.3 | 53.6 | 12.0 | 76 | W | | | 4 | | 8 | | | 0.130 | 3.3 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected (for instrum'tal error and temperature. Inches. | Barometer. Corrected (for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.59 | 751.6 | 50.0 | 10.0 | | W | 12 | 5.4 | | | 9 | | | 0.57 | 14.61 | Raining | William Boswell. |
| Ardrossan | | | 29.6[illegible] | 753.9 | 53 | 11.7 | | W | | | 2 | | 5 | | | | | Showery | William McNeil. |
| Armagh, Observatory | | | 29.81 | 757.2 | 56.2 | 13.4 | | W | 18 | 8.0 | | | 8 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.82 | 757.4 | 53.7 | 12.1 | | WSW | 35 | 15.6 | | | 8 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.96 | 761.0 | 54.4 | 12.4 | | W | | | 5 | | 8 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.80 | 757.0 | 52.3 | 11.3 | | W | | | 2 | | 10 | | | 0.69 | 17.5 | Drizzling | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 83.5 | 28.6 | | E | | | 2 | | 4 | | | | | D clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.94 | 760.5 | 60.0 | 15.6 | | W | | | 2 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.91 | 759.7 | 60.0 | 15.6 | | W | | | 3 | | 5? | | | | | Overcast? | John McLaren. |
| Chatham, School M. E. | | | 29.99 | 761.7 | 61.2 | 16.2 | | SW | | | 2 | | 8 | | | | | Blue sky | Capt. Fellowes, R. E. |
| Dartmoor | 28.66 | 728.0 | 30.15 | 765.8 | 51.0 | 10.6 | | NW | | | 6 | | 4 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.75 | 755.6 | 50 | 10.0 | | W | | | 5 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 30.01 | 762.2 | 55 | 12.8 | | WSW | | | 4 | | 3 | | | | | Showery | J. Costello. |
| Eccles, (near Manchester) | | | 29.82 | 757.4 | 55.5 | 13.1 | | SW | 8.0 | 3.6 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.16 | 766.1 | 57.5 | 14.2 | | W | | | 6 | | 3 | | | | | Squally | The Staff. |
| Fort Napier, (Natal) | 27.72 | 704.1 | 29.93 | 761.0 | 82.2 | 27.9 | | E | | | 2 | | 8 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.94 | 760.5 | 85 | 29.4 | | E | | | 0 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.94 | 760.5 | 55 | 12.8 | | W | | | 5 | | 10 | | | | | Showery | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.10 | 764.5 | 75.3 | 24.1 | | NE | | | 1 | | 0 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.66 | 753.4 | 55.0 | 12.8 | | NW | | | 1 | | 8 | | | | | D. clouds | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.91 | 759.7 | 60 | 15.6 | | W | | | 4 | | 4 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.99 | 761.7 | 61.7 | 16.5 | | WSW | | | 4 | | 6 | | | Blank | Blank | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.16 | 766.1 | 57 | 13.9 | | WSW | | | 5 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.22 | 767.6 | 59 | 15.0 | | W | | | 6 | | 2c | | | 0 | 0 | D. clouds | M. P. Moyle. |
| Holyhead | | | 29.87 | 758.7 | 53 | 11.7 | | W | | | 4 | | 3 | | | | | Showery | John Tilston. |
| Kew, Observatory | | | 29.98 | 761.5 | 59.6 | 15.3 | | WSW | 20 | 8.9 | | | 7k | | | | | Threatening | The Staff. |
| Kingstown | | | 29.88 | 758.4 | 54 | 12.2 | | WNW | | | 6 | | 5 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.99 | 759.4 | 55.6 | 13.1 | | SW | | | 4 | | 8 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.96 | 761.0 | 70.6 | 21.4 | | SW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.56 | 750.8 | 49 | 9.4 | | W | | | 1 | | 10 | | | | | Raining | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.00 | 762.0 | 81.2 | 27.3 | | E | | | 1 | | 9 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.87 | 758.7 | 59.3 | 15.2 | | WSW | | | 5 | | 8ks kd | | W | 0.07 | 1.8 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.89 | 759.2 | 53.5 | 11.9 | | SW | | | 5 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.97 | 761.2 | 58 | 14.4 | | WSW | | | 3 | | 7 | | | | | D. clouds | J. W. Lucas. |
| Plymouth | | | 30.11 | 764.8 | 60.4 | 15.8 | | WNW | | | 4 | | 7 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.06 | 763.5 | 56 | 13.3 | | NNW | | | 6 | | 5 | | | Blank | Blank | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.00 | 762.0 | 53 | 11.7 | | WSW | | | 6 | | 10 | | | | | Overcast | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.17 | 766.3 | 58.6 | 14.8 | | W | | | 5 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.59 | 751.6 | 44.9 | 7.2 | | ENE | 31 | 13.9 | | | 10 | | | | | Raining | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.60 | 751.8 | 62.4 | 16.9 | | SW | | | 1 | | 5 | | | Blank | Blank | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.83 | 757.7 | 56.7 | 13.7 | | WSW | | | 4 | | 8 | | | 0.096 | 2.44 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.73 | 755.1 | 52.2 | 11.2 | 87 | SW | | | 3 | | 5 | | | 0.220 | 5.59 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.81 | 757.2 | 48.6 | 9.2 | | W | | | 4 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.61 | 752.1 | 51 | 10.6 | | NNE | | | 2 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 30.01 | 762.2 | 58.1 | 14.5 | | NW | | | 3 | | 7 | | | | | Squally | Rev. Charles H. Griffith. |
| Thurso | | | 29.53 | 750.0 | 46 | 7.8 | | ENE | | | 2 | | 10 | | | | | Raining | John Trotter. |
| Truro, Royal Institution | | | 30.17 | 766.3 | 58 | 14.4 | | W | | | 8 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.17 | 766.3 | 51.0 | 10.6 | | WNW | 23 | 10.3 | | | 10 | | | | | Showery | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 50 | 10.0 | | W | | | 4 | | 10 | | | 0.10 | 2.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.89 | 759.2 | 62.4 | 16.9 | 84 | WNW | 18 | 8.0 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.31 | 744.5 | 62.5 | 16.9 | 82 | | | | 3 | | 6k | | | 0.04 | 1.0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.68 | 753.9 | 53.0 | 11.7 | | W | | | 5 | | 4k | | | 0.71 | 18.0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.19 | 766.8 | 71.5 | 21.9 | 72 | SE | 21.2 | 9.5 | | 7 | 2 | ESE | ESE | 0.01 | 0.3 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 29.70 | 754.4 | 52.4 | 11.3 | 78 | N | 13 | 5.8 | | | 5 | | | 0.01 | 0.3 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.70 | 754.4 | 51 | 10.6 | | NW | | | 4 | | 10 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.89 | 759.2 | 46 | 7.8 | | E | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 5 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 43° 0′ W. 52° 35′ | | | | | 42.0 | 5.6 | | NNW | | | 4 | | 9 | | | 2 | NNW | Overcast | Capt. J. E. Monland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 16° 55′ W. 59° 40′ | | | 30.06 | 763.5 | 82.0 | 27.8 | | E | | | 4 | | 7 | | | 4 | E | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 70.7 | 21.5 | 82 | SE | | | 2 | | 9s | | SW | 0.5 | 13. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.95 | 760.7 | 54.3 | 12.4 | 61 | SE | | | 2 | | 2 | | | | | | |
| Faröe | | | 29.79 | 756.7 | 53.6 | 12.0 | 98 | S | | | 4 | | 10 | | | | | Raining | |
| Godthaab, (Greenland) | | | 29.70 | 754.4 | 36.9 | 2.7 | 82 | SSW | | | 7 | | 10 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.17 | 766.4 | 45.1 | 7.3 | 80 | E | | | 2 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.96 | 761.0 | 47.1 | 8.4 | 91 | ENE | | | 2 | | 10 | | | | | | |
| Vestervig | | | 29.82 | 757.4 | 52.9 | 11.6 | 94 | ESE | | | 7 | | 10 | | | | | Raining | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.25 | 768.3 | 57.2 | 14 | 95 | NW | | | 2 | | 10n | | NW | 0.16 | 4. | Covered | Normal School. |
| Amiens | | | 30.07 | 763.8 | 61.9 | 16.6 | | NW | | | 3 | | 5 | | WNW | 0.29 | 7.4 | Cloudy | Normal School. |
| Avignon, Normal School | | | 30.08 | 764.0 | 73.4 | 23 | 44 | N | | | 2 | | 2 | | NW | 0 | 0 | Partly cl'dy. | Mr. Giraud. |
| Bar-sur-Seine | | | | | | | | | | | | | | | | | | | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.12 | 765.1 | 61.7 | 16.5 | 54 | W | | | 3 | | 8 | | WNW | 0.35 | 9. | Very cloudy | Normal School. |
| Besançon | | | 30.24 | 768.1 | 60.4 | 15.8 | 52 | W | | | 4 | | 5 | | W | 0.307 | 7.8 | Cloudy | Normal School. |
| Bourg en Bresse | | | 30.30 | 769.6 | 63.9 | 17.7 | 71 | W | | | 2 | | 5kn | | E | 0.047 | 1.2 | Cloudy | Normal School. |
| Bourges | | | 30.01 | 762.2 | 59.0 | 15.0 | 80 | SE | | | 6 | | 5 | | N | 0.098 | 2.5 | Cloudy | Normal School. |
| Brest | | | 30.19 | 766.8 | 60.6 | 15.9 | 64 | W | | | 4 | | 5k | | W | 0.046 | 1.26 | | Naval Observatory. |
| Carcassonne | | | 30.21 | 767.3 | 69.1 | 20.6 | 59 | NW | | | 2 | | 5 | | SE | 0 | 0 | Partly cl'dy. | Normal School. |
| Caen | | | 30.15 | 765.8 | 61.5 | 16.4 | 58 | SW | | | 2 | | 10 | | E | | | Raining | Normal School. |
| Chartres | | | 30.16 | 766.1 | 61.7 | 16.5 | 81 | WSW | | | 2 | | 8 | | WSW | 0.337 | 8.5 | | Normal School. |
| Châlons-sur-Marne | | | 30.11 | 764.9 | 59.0 | 15.0 | 58 | NW | | | 3 | | 8k | | SE | 0.146 | 3.7 | Very cloudy | Normal School. |
| Clermont-Ferrand | | | 30.15 | 765.8 | 65.3 | 18.5 | 49 | W | | | 3 | | 5 | | W | 0 | 0 | Cloudy | Puy de Dome Obs'y |
| Commercy | | | 30.05 | 763.2 | 55.9 | 13.3 | 73 | W | | | 2 | | 5 | | W | 0.130 | 3.3 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 30.08 | 764.0 | 68.2 | 20.1 | 32 | NW | | | 6 | | 2 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.07 | 763.6 | 63.3 | 17.4 | 72 | N | | | 6 | | 8kn | | SW | 0.01 | 0.30 | Very cloudy | Normal School. |
| La Roche-sur-Yon | | | 30.23 | 767.7 | 61.3 | 16.3 | 69 | W | | | 2 | | 8 | | E | 0.06 | 1.6 | Very cloudy | Normal School. |
| Le Mans | | | 30.21 | 767.2 | 59.2 | 15.1 | 56 | NW | | | 2 | | 5 | | NW | 0.26 | 6.7 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.05 | 763.2 | 62.4 | 16.9 | 44 | SW | | | 1 | | 5 | | ENE | 0.26 | 6.6 | Cloudy | Normal School. |
| Lorient | | | 30.27 | 768.9 | 60.1 | 15.6 | 80 | W | | | 4 | | 2 | | NW | 0 | 0 | ¼ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.21 | 767.2 | 62.1 | 16.7 | 61 | SW | | | 2 | | 5 | | E | 0.02 | 0.6 | Cloudy | Mr. Marchal. |
| Metz | | | 30.17 | 766.3 | 59.7 | 13.7 | 64 | SW | | | 4 | | 10 | | | 0.134 | 3.4 | Covered | M. A. Schuster. |
| Mirecourt | | | 30.14 | 765.6 | 59.4 | 15.2 | 63 | NW | | | 2 | | 5 | | E | 0.08 | 2. | Slightly cl'dy | Normal School. |
| Nismes | | | 30.11 | 764.8 | 76.6 | 24.8 | 35 | NW | | | 6 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.21 | 767.4 | 59.7 | 15.4 | 78 | W | | | 2 | | 5 | | W | 0.08 | 2 | Cloudy | Normal School. |
| Paris, Observatory | | | 30.14 | 765.5 | 60.3 | 15.7 | 46 | W | | | 3 | | 8ck | | W | 0.086 | 2.18 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.30 | 769.5 | 67.1 | 19.5 | 48 | NW | | | 3 | | 1 | | SE | 0 | 0 | Clear | Naval Observatory. |
| Rouen | | | 30.08 | 764.1 | 58.8 | 14.9 | 61 | WNW | | | 6 | | 5 | | W | 0.358 | 9.1 | Cloudy | Normal School. |
| Tarbes | 29.21 | 742.0 | 30.29 | 769.3 | 67.0 | 19.8 | 67 | W | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Villefranche | | | 30.23 | 767.8 | 62.6 | 17 | 84 | NW | | | 3 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.85 | 758.2 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.02 | 762.6 | 72.1 | 22.3 | 35 | NW | | | 4-6 | | 2 | | | Inap | Inap. | Partly cl'dy | The Staff. |
| Mont-Louis | 25.01 | 635.3 | 30.33 | 770.3 | 57.0 | 13.9 | 50 | NNW | 18.0 | 8.33 | | | 2 | | W | 0.071 | 1.8 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.13 | 765.3 | 60.4 | 15.8 | 48 | WNW | | | 3 | | 10 | | W | 0.047 | 1.2 | | Montsouris Observatory |
| Perpignan | | | 30.15 | 765.7 | 72.3 | 22.4 | 47 | N | 28.0 | 12.50 | | | 1 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.71 | 576.9 | | | 45.0 | 7.2 | | N | | | 1 | | 8 | | | 0.100 | 2.7 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.14 | 765.5 | 60.4 | 15.8 | 58 | W | | | 2 | | 10 | | | 0.234 | 5.7 | Cloudy | E. Renou. |
| Toulouse, Observatory | | | 30.22 | 767.5 | 63.7 | 17.6 | 61 | NW | | | 3 | | 5 | | | 0.091 | 2.3 | | The Staff. |
| Tours | | | 30.21 | 767.3 | 61.3 | 16.3 | 59 | WNW | | | 2 | | 8 | | NW | 0.059 | 1.5 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.15 | 765.7 | 60.4 | 15.8 | 55 | NW | | | 2 | | 9 | | | 0.011 | 0.28 | Very cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.90 | 759.4 | 61.2 | 16.2 | 88 | SSE | 7.8 | 3.5 | | | 7k | | | 0 | 0 | Cloudy | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7: no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observtions for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.00 | 761.9 | 56.8 | 13.8 | 78 | W | | | 4 | | 10 | W | | 0.118 | 3.0 | Raining | Prof. T. Hoh. |
| Berlin | | | 29.90 | 759.5 | 68.9 | 20.5 | 45 | S | | | 3 | | 8 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.93 | 760.3 | 62.6 | 17.0 | 44 | NNE | | | 2 | | 4 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.02 | 762.5 | 61.5 | 16.4 | 52 | SW | | | 5 | | 10 | | | 0.079 | 2.0 | | Albert Senz. |
| Cassel | | | 30.04 | 763.0 | 56.5 | 13.6 | 65 | NNW | | | 5 | | 10 | S | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.95 | 760.7 | 63.5 | 17.5 | 53 | W | | | 4 | | 6 | | | 0.236 | 6.0 | | Director Lose. |
| Emden | | | 29.94 | 760.4 | 57.2 | 14.0 | 62 | W | | | 3 | | 0 | | | 0.122 | 3.1 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.03 | 762.8 | 62.6 | 17.0 | 53 | WNW | | | 2 | | 7 | | | 0.126 | 3.2 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.2? | 30.08? | 764.0? | 58.8 | 14.9 | 64 | WSW | | | 6 | | 6 | WNW | | 0.059 | 1.5 | Light rain | M. Wilhelm. |
| Hamburg | | | 29.98 | 758.9 | 54.5 | 12.5 | 90 | SW | | | 6 | | 10 | | | 0.098 | 2.5 | Raining | Captain F. Hegemann. |
| Kiel | | | 29.84 | 757.9 | 56.8 | 13.8 | 90 | WSW | | | 2 | | 10 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.97 | 761.2 | 51.8 | 11.0 | 70 | N | | | 2 | | 4 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 29.98 | 761.6 | 61.5 | 16.4 | | NE | | | 2 | | 0 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.89 | 759.3 | 65.3 | 18.5 | 49 | WSW | | | 1 | | 10 | SW | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.03 | 762.8 | 49.6 | 9.8 | | NW | | | 4 | | 2c,cs | SSW | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.91 | 759.6 | 59.0 | 15.0 | 71 | W | | | | | 2 | | | 0.118 | 3.0 | | Prof. E. Reis. |
| Neufahrwasser | | | 30.04 | 763.0 | 45.1 | 7.3 | 78 | NNE | | | 1 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.97 | 761.1 | 62.2 | 16.8 | 43 | N | | | 3 | | 1 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.10 | 764.6 | 62.2 | 16.8 | 52 | WNW | | | 2 | | 10 | W | | 0.327 | 8.3 | | Dr. Schur. |
| Stuttgart | | | 30.03 | 762.8 | 59.0 | 15.0 | 55 | W | | | 2 | | 9 | W | | 0.024 | 0.6 | | Prof. Schoder |
| Treves, (Trier) | | | 29.93 | 760.3 | 61.3 | 16.3 | 57 | W | | | 6 | | 10 | | | 0.008 | 0.2 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.48 | 723.4 | 29.99 | 761.7 | 53.2 | 11.8 | 83 | WNW | | | 3 | | 10 | | | 0.114 | 2.9 | Raining | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.99 | 761.7 | 64.2 | 17.9 | 50 | SE | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.69 | 754.2 | 76.3 | 24.6 | | NW | | | | | k | | | | | | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.18 | 563.3 | 30.01 | 762.3 | 33.3 | 0.7 | 99 | W | | | 6 | | 7 | WNW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.16 | 562.8 | 29.93 | 760.1 | 36.5 | 2.5 | | NNE | | | 1 | | 10 | | | 0.015 | 0.3 | | Signora Ernesta Manfredi. |
| Udine | | | 29.82 | 757.4 | 71.1 | 21.7 | 47 | SW | 2.5 | 1.1 | | | 3 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 29.82 | 757.4 | 72.3 | 22.4 | 40 | W | 5.6 | 2.5 | | | 10 | N | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.83 | 757.6 | 74.5 | 23.5 | 38 | SW | 6.9 | 3.1 | | | 5 | E | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.8[illegible] | 759.3 | 72.7 | 22.6 | 42 | E | | | 1 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.56 | 725.3 | 29.85 | 758.1 | 72.7 | 22.6 | 42 | W | | | 4 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.86 | 758.4 | 73.9 | 23.3 | 23 | N | | | 8 | | 3 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.84 | 758.0 | 70.9 | 26.6 | 35 | WNW | | | 2 | | 3 | NW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.85 | 758.3 | 73.9 | 23.3 | 39 | W | | | 2 | | 1 | | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.87 | 758.6 | 73.8 | 23.2 | 39 | WSW | 3.1 | 1.4 | | | 1 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.01 | 711.4 | 29.87 | 758.7 | 69.3 | 20.7 | 34 | NW | | | 4 | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.98 | 761.4 | 63.0 | 17.2 | 77 | E | | | 6 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.92 | 760.0 | 65.7 | 18.7 | 63 | SW | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.87 | 758.7 | 73.2 | 22.9 | 42 | NW | 3.8 | 1.7 | | | 2 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.84 | 758.0 | 73.4 | 23.0 | 47 | WNW | | | 4 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.91 | 759.8 | 71.6 | 22.0 | 51 | NW | | | 2 | | 3 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.9[illegible] | 759.9 | 68.4 | 20.2 | 64 | WSW | 2.5 | 1.1 | | | 10 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.71 | 729.2 | 29.89 | 759.1 | 63.9 | 17.7 | 63 | NW | 1.8 | 0.8 | | | 10 | N | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.37 | 720.5 | 29.89 | 759.2 | 67.5 | 19.7 | 43 | SW | | | 2 | | 3 | | | 0 | 0 | | Prof. P. Sernieri. |
| Pesaro | | | 29.87 | 758.6 | 66.7 | 19.3 | 55 | ENE | 6.3 | 2.8 | | | 2 | W | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.85 | 758.3 | 68.4 | 20.2 | 43 | SE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.90 | 759.5 | 73.8 | 23.2 | 38 | WNW | | | 2 | | 6 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.99 | 759.4 | 73.6 | 23.1 | 39 | W | 5.6 | 2.5 | | | 1 | WNW | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 29.91 | 759.7 | 73.2 | 22.9 | 57 | WSW | | | 4 | | 2 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.84 | 757.9 | 71.2 | 21.8 | 24 | NNE | 18.1 | 8.1 | | | 3 | N | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.94 | 760.4 | 70.9 | 21.6 | 65 | SW | 6.9 | 3.1 | | | 7 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.98 | 761.5 | 67.1 | 19.5 | 63 | N | | | 4 | | 6 | N | | 0 | 0 | | Prof. A. Pacinotti. |
| Girgento, (Sicily) | | | 29.86 | 758.4 | 73.4 | 23.0 | 55 | S | | | 2 | | 3 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | | | | | | | | | | | | | | | | | Prof. G. Cacciatore. |
| Caltanissetta | 28.00 | 711.3 | 29.89 | 759.2 | 68.5 | 20.3 | 32 | NW | | | 8 | | 2 | NE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.00 | 761.9 | 70.7 | 21.5 | 63 | NE | | | 2 | | 6 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.95 | 760.8 | 72.1 | 22.3 | 41 | SW | 1.3 | 0.6 | | | 2 | ESE | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.94 | 760.5 | 60 | 15.6 | 88 | E | 1 | 0.4 | | | 10 | | | 0.91 | 23.1 | Cloudy | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.7 | 30.11 | 764.7 | 57.0 | 14.4 | 64 | W | 0.1 | 0.05 | | 0 | 0 | | | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.07 | 762.8 | 54.9 | 12.7 | | WNW | | | 4 | | | | | 0.165 | 4.2 | | |
| Groningen | | | 29.87 | 758.8 | 57.6 | 14.2 | | NW | | | 4 | | | | | 0.161 | 4.1 | | |
| Helder | | | 29.93 | 760.2 | 54.9 | 12.7 | | SW | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 29.91 | 760.5 | 62.8 | 17.1 | 34 | W | | | 4 | | 5 | | | 0.055 | 1.4 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.55 | 758.2 | 60.8 | 16.0 | 43 | NW | 1.3 | 0.6 | | | 1 | | | 0 | 0 | | |
| Brönö | | | 29.97 | 761.1 | 48.9 | 9.4 | 59 | NNW | 9 | 4 | | | 8 | | | 0 | 0 | | |
| Christiania | | | 29.99 | 761.7 | 52.5 | 11.4 | 55 | SSW | 2 | 1 | | | 10 | | | 0.039 | 1.0 | | |
| Tromsö | | | 29.98 | 761.6 | 40.3 | 4.6 | 76 | NE | 11 | 5 | | | 0 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna The symbols. cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.22 | 767.5 | 62.2 | 16.8 | 94 | SE | 4.9 | 2.2 | | | 9 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.10 | 764.5 | 83.7 | 28.7 | 34 | N | 6.3 | 2.8 | | | 3 | WNW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.13 | 765.2 | 74.7 | 23.7 | 35 | SW | 4.3 | 1.9 | | | 0 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.17 | 766.4 | 74.5 | 23.6 | 52 | N | 11.2 | 5.0 | | | 3 | WSW | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.24 | 768.1 | 63.7 | 17.6 | 94 | SE | 3.1 | 1.4 | | | 10 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.91 | 759.8 | 48.6 | 9.2 | 86 | N | 11 | 5 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.87 | 758.6 | 55.6 | 13.1 | 81 | N | 13 | 6 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.96 | 761.0 | 51.6 | 10.9 | 72 | NW | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.89 | 759.1 | 45.1 | 7.3 | 88 | WNW | 18 | 8 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.86 | 758.5 | 36.5 | 2.5 | 100 | N | 7 | 3 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.54 | 750.3 | 78.3 | 25.7 | 31 | E | 11 | 5 | | | 9 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.54 | 750.3 | 71.6 | 22.0 | 59 | SW | 18 | 8 | | | 6 | | | | | | Kurdukof. |
| Kertch | | | 29.65 | 753.1 | 64.2 | 17.9 | 90 | SSE | 11 | 5 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.88 | 759.0 | 79.3 | 26.3 | 46 | SSW | 0 | 0 | | | 5 | | | | | | Meteorological Obs. |
| Lugan | | | 29.64 | 752.8 | 72.5 | 22.5 | 61 | SE | 9 | 4 | | | 8 | | | | | | Meteorological Obs. |
| Archangel | | | 30.08 | 764.1 | 43.7 | 6.5 | 61 | ENE | 7 | 3 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.29 | 718.6 | 29.63 | 752.6 | 77.0 | 25.0 | 52 | S | 4 | 2 | | | 9 | | | | | Thunder-storm. | Physical Observatory. |
| Astrakhan | | | 29.74 | 755.4 | 81.5 | 27.5 | 39 | ESE | 16 | 7 | | | 8 | | | | | | Sebastianof. |
| Kasan | | | 29.95 | 760.6 | 66.9 | 19.4 | 54 | NE | 4 | 2 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 29.15 | 740.4 | 30.09 | 764.3 | 54.5 | 12.5 | 38 | SW | 2 | 1 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.42 | 721.8 | 30.06 | 763.4 | 77.0 | 25.0 | 54 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.60 | 751.8 | 39.4 | 4.1 | 80 | NE | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.67 | 753.5 | 38.5 | 3.6 | 52 | NW | 9 | 4 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 45.9 | 7.7 | | | | | | | 1 | | | | | | Mossin. |
| Peking, (China) | | | 29.61 | 752.1 | 65.5 | 18.6 | 60 | Calm | 0 | 0 | | | 6 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.56 | 750.9 | 44.6 | 7.0 | 87 | SE | 13 | 6 | | | 3 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 36.9 | 2.7 | | SE | 16 | 7 | | | 10 | | | | | Raining | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 30.08 | 764.0 | 81.9 | 27.7 | 41 | NE | 4.5 | 2.00 | | 1 | 1 | NE | | 0 | 0 | Light clouds | Royal Observatory |
| San Fernando | | | 30.08 | 764.1 | 89.8 | 32.1 | 28 | ENE | 5.8 | 2.6 | | 0 | 2 | | E | 0 | 0 | | Naval Observatory |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.95 | 760.6 | 76.1 | 24.5 | 86 | S | 4.7 | 2.1 | | 1ck | 0 | | | 0.05 | 1.3 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.21 | 767.4 | 38.8 | 3.8 | 64 | SE | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 30.02 | 762.5 | 42.3 | 5.7 | 74 | NE | | | 2 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 30.00 | 762.1 | 43.2 | 6.2 | 82 | NE | | | 2 | | 10 | | | 0.039 | 1.0 | Raining | |
| Stockholm | | | 29.98 | 761.6 | 51.4 | 10.8 | 71 | NW | | | 4 | | 7 | | | 0 | 0 | | |
| Wisby | | | 30.02 | 762.4 | 40.6 | 4.8 | 87 | WNW | | | 6 | | 3 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.00 | 762.0 | 47.7 | 8.7 | 70 | NNW | 7.8 | 3.5 | | | 8 | | | 0.002 | 0.05 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimet'r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.72 | 729.4 | 30.12 | 765.0 | 63.0 | 17.2 | 50 | S | ..... | ..... | 1 | ..... | 8 | ..... | ..... | 0.213 | 5.4 | Cloudy | The Observatory. |
| Zurich | 28.48 | 723.3 | 30.10 | 764.4 | 59.5 | 15.3 | 53 | W | ..... | ..... | 2 | ..... | 5 | ..... | ..... | 0.138 | 3.5 | Bright | The Observatory. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +4.2 mm; Thermometer, +0.3 cent.; Relative Humidity, —7 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | ..... | ..... | 29.65 | 753.0 | 63.1 | 17.3 | 81 | SSW | 10 | 4.5 | ..... | ..... | 10 | ..... | WSW | 0.126 | 3.2 | ..... | The Observatory |
| Fao, (Persian Gulf) | ..... | ..... | 30.03 | 764.2 | 80.6 | 27.0 | ..... | SE | ..... | ..... | 1 | ..... | 0 | ..... | ..... | ..... | ..... | ..... | |
| Salonica | ..... | ..... | 29.69 | 754.2 | 71.1 | 21.7 | ..... | NW | ..... | ..... | 8 | ..... | 5 | ..... | ..... | Blank | Blank | ..... | B. Stéfanidès. |
| Valona | ..... | ..... | 29.87 | 758.6 | 67.6 | 19.8 | ..... | NW | ..... | ..... | 2 | ..... | 2 | ..... | ..... | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | ..... | ..... | 29.57 | 751.0 | 71.6 | 22.0 | ..... | SE | ..... | ..... | 3 | ..... | 10 | ..... | ..... | Blank | Blank | ..... | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | ..... | ..... | 29.90 | 759.5 | 78.1 | 25.6 | 55 | WSW | ..... | ..... | 3 | ..... | 3c,ks | ..... | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | ..... | ..... | 29.88 | 758.9 | 47.8 | 8.8 | 91 | NE | 5 | 2.2 | ..... | ..... | 10 | ..... | ..... | ..... | ..... | ..... | Hon. J. Ferguson. |
| Brockville, Ontario | ..... | ..... | 29.89 | 759.2 | 68 | 20.0 | ..... | SW | 9 | 4.0 | ..... | ..... | 8n | ..... | SW | 0.08 | 2.0 | Threatening | W. R. Bigg. |
| *Chatham, N. B. | ..... | ..... | 29.96 | 759.4 | 53 | 11.7 | 76 | S | 13 | 5.8 | ..... | ..... | 10ks | ..... | SW | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | ..... | ..... | 30.00 | 762.0 | 45 | 7.2 | 81 | S | 9 | 4.0 | ..... | ..... | 10s | ..... | ..... | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | ..... | ..... | 29.82 | 757.4 | 71.1 | 21.7 | 77 | SW | ..... | ..... | 3 | 5cs | 0 | NW | ..... | Inap. | Inap. | Fair | James Smith, M. A. |
| Dalhousie, N. B. | ..... | ..... | 29.92 | 760.0 | 41.7 | 5.4 | 94 | Calm | ..... | ..... | 0 | ..... | ..... | ..... | ..... | 0 | 0 | Threatening | H. A. Johnson. |
| Esquimault, B. C. | ..... | ..... | 30.28 | 769.1 | 39.6 | 4.2 | 87 | N | ..... | ..... | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | ..... | ..... | 29.84 | 757.9 | 41 | 5.0 | 91 | Calm | 0 | 0 | ..... | ..... | Fog | ..... | ..... | Inap. | Inap. | Foggy | J. McWilliams. |
| Fredericton, N. B. | ..... | ..... | 30.08 | 764.0 | 51 | 10.6 | 76 | SW | 4 | 1.8 | ..... | ..... | 10 | ..... | ..... | 0 | 0 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | ..... | ..... | 30.01 | 762.2 | 44 | 6.7 | 92 | N | 2 | 0.9 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | James Stewart. |
| Goderich, Ontario | ..... | ..... | 29.97 | 761.2 | 59.7 | 15.4 | 78 | S | ..... | ..... | 3 | 5k | 3s | SW | ..... | 0 | 0 | Unsettled | H. J. Strang, M. A |
| Granton, Ontario | 28.88 | 733.5 | 29.93 | 760.2 | 74 | 23.3 | 72 | W | ..... | ..... | 3 | 1cs | 0 | ..... | ..... | 0.26 | 6.6 | Clear | James Grant. |
| *Halifax, N. S. | ..... | ..... | 30.04 | 763.0 | 41 | 5.0 | 91 | SE | 5 | 2.2 | ..... | ..... | 10n | ..... | ..... | 0 | 0 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | ..... | ..... | 29.96 | 761.0 | 74.5 | 23.6 | 59 | S | ..... | ..... | 4 | 6ck | 0 | ..... | ..... | 0 | 0 | Bright | Geo. Dickson, M. A. |
| Heart's Content, N. F. | ..... | ..... | 30.05 | 763.3 | 41 | 5.0 | 69 | N | ..... | ..... | 1 | 0 | 0 | ..... | ..... | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | ..... | ..... | 29.93 | 761.0 | 56 | 13.3 | 89 | SW | 14 | 6.3 | ..... | 8cs | 2s | SW | SW | 0 | 0 | Cloudy | S. Woods, M. A |
| *Montreal, Quebec | ..... | ..... | 29.84 | 757.9 | 70 | 21.1 | 82 | SW | 15 | 6.7 | ..... | 0 | 5ks | ..... | SW | 0 | 0 | Fair | C. H. McLeod, C. |
| *Parry Sound, Ontario | ..... | ..... | 29.82 | 757.4 | 62 | 16.7 | 89 | SW | 11 | 4.9 | ..... | 2ck | 5ks | SW | SW | 0.04 | 1.0 | Fair | Rev. R. Mosley |
| Port Dover, Ontario | ..... | ..... | 29.98 | 761.5 | 66 | 18.9 | 79 | SW | 16 | 7.2 | ..... | 5ck | 0 | SW | ..... | 0.01 | 0.3 | Fair | H. Morgan. |
| Port Hastings, N. S. | ..... | ..... | 30.05 | 763.3 | 47.1 | 8.4 | ..... | Calm | 0 | 0 | ..... | ..... | ..... | ..... | ..... | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | ..... | ..... | 30.01 | 762.2 | 58 | 14.4 | 87 | SW | 11 | 4.9 | ..... | 2c | 0 | W | ..... | 0.06 | 1.5 | Clear | M. Payne. |
| *Quebec, Quebec | ..... | ..... | 29.84 | 757.9 | 56 | 13.3 | 81 | Calm | 0 | 0 | ..... | ..... | Fog | ..... | ..... | 0 | 0 | Foggy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | ..... | ..... | 29.74 | 755.4 | 62 | 16.7 | 94 | SW | 2 | 0.9 | ..... | ..... | 10s | ..... | SW | 0 | 0 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | ..... | ..... | 30.02 | 762.5 | 47 | 8.3 | 85 | S | 7 | 3.1 | ..... | ..... | 10 | ..... | ..... | 0.545 | 13.85 | Pleasant | G. Murdoch, C. E. |
| *Saugeen, Ontario | ..... | ..... | 29.84 | 757.9 | 69 | 20.6 | 77 | SW | 12 | 5.4 | ..... | 10k | 0 | SW | ..... | Inap. | Inap. | Cloudy | K. Stewart. |
| Stayner, Ontario | ..... | ..... | 29.82 | 757.4 | 73 | 22.8 | 74 | W | 13 | 5.8 | ..... | ..... | 10ks | ..... | W | 0.09 | 2.3 | Cloudy | R. J. Cole. |
| Stratford, Ontario | ..... | ..... | 29.91 | 759.7 | 70.7 | 21.5 | 84 | SW | 14 | 6.3 | ..... | 2cs | 2s | W | ..... | 0.166 | 4.21 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.69 | 728.7 | 30.06 | 763.5 | 41 | 5.0 | 92 | SW | 8 | 3.6 | ..... | 10cs | 2s | W | S | 0 | 0 | Cloudy | T. C. Hill. |
| *Toronto, Ontario | ..... | ..... | 29.92 | 760.0 | 61 | 16.1 | 87 | S | 2 | 0.9 | ..... | 5ck | 2s | W | ..... | 0.48 | 12.2 | Fair | Magnetic Observatory. |
| Windsor, N. S. | ..... | ..... | 29.98 | 761.5 | 48.8 | 9.3 | 79 | S | 8 | 3.6 | ..... | ..... | 10n | ..... | ..... | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | ..... | ..... | 29.92 | 760.0 | 74.4 | 23.6 | 73 | W | 16 | 7.2 | ..... | 4k | 0 | ..... | ..... | 0 | 0 | Fair | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | ..... | ..... | 30.13 | 765.3 | 47.0 | 8.3 | 70 | NE | ..... | ..... | ..... | 10k | 10s | ..... | ..... | 0 | 0 | Fair | John Delany |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.97 | 761.2 | 72 | 22.2 | 67 | W | 4 | 1.8 | | 8ck | 0 | W | | 0.41 | 10.4 | Fair | |
| Alpena, Mich. | | | 29.86 | 758.4 | 70 | 21.1 | 48 | W | 20 | 8.9 | | 5c | 0 | W | | Inap. | Inap. | Fair | |
| Atlantic City, N. J. | | | 30.09 | 764.3 | 66 | 18.9 | 78 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.26 | 768.6 | 67 | 19.4 | 74 | SE | 2 | 0.9 | | 8cs | Haze | | | 0 | 0 | Fair | |
| Baltimore, Md. | | | 30.11 | 764.8 | 74 | 23.3 | 76 | Calm | 0 | 0 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Barnegat, N. J. | | | 30.07 | 763.8 | 77 | 25.0 | 77 | SW | 7 | 3.1 | | 0 | 0 | | | 0.15 | 3.8 | Clear | |
| Bismarck, Dakota | 28.07 | 713.0 | 29.67 | 753.6 | 55 | 12.8 | 80 | E | 8 | 3.6 | | 8c | 2s | E | E | 0.09 | 2.3 | Cloudy | |
| Boston, Mass. | | | 30.02 | 762.5 | 50.5 | 10.3 | 89 | SE | 3 | 1.3 | | | Fog | | | 0 | 0 | Foggy | |
| Breckenridge, Minn. | | | 29.83 | 757.7 | 54 | 12.2 | 93 | E | 5 | 2.2 | | | 10s | | | 0.27 | 6.9 | Cloudy | |
| Buffalo, N. Y. | | | 29.97 | 761.2 | 59 | 15.0 | 82 | W | 12 | 5.4 | | 1c | 0 | W | | Inap. | Inap. | Clear | |
| Burlington, Vt. | | | 29.92 | 760.0 | 71 | 21.7 | 75 | SW | 10 | 4.5 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 30.10 | 764.5 | 70 | 21.1 | 75 | S | 2 | 0.9 | | 1c | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.36 | 694.9 | 29.93 | 760.2 | 48 | 8.9 | 85 | SW | 4 | 1.8 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Camp Verde, Arizona | | | | | 48 | 8.9 | | SE | | | | | 10s | | | 0.37 | 9.4 | Threatening | |
| Cape Hatteras, N. C. | | | 30.17 | 766.3 | 68 | 20.0 | 74 | SW | 15 | 6.7 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.15 | 765.8 | 76 | 24.4 | 52 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.27 | 768.8 | 67 | 19.4 | 84 | W | 6 | 2.7 | | 8c | 0 | | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.10 | 764.5 | 68 | 20.0 | 79 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.22 | 767.6 | 66 | 18.9 | 78 | N | 7 | 3.1 | | 2cs | 5s | | E | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 23.60 | 599.4 | 29.54 | 750.3 | 45 | 7.2 | 85 | S | 8 | 3.6 | | 1ck | 0 | S | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.94 | 760.5 | 70 | 21.1 | 85 | SW | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Cincinnati, Ohio | | | 30.09 | 764.3 | 69 | 20.6 | 75 | SE | 3 | 1.3 | | 0 | 1s | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.04 | 763.6 | 74 | 23.3 | 59 | SW | 14 | 6.3 | | 5c | 0 | W | | 0.05 | 1.3 | Fair | |
| Corsicana, Tex. | | | 29.94 | 760.5 | 69 | 20.6 | 84 | SE | 8 | 3.6 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.95 | 760.7 | 70 | 21.1 | 84 | SW | 6 | 2.7 | | 7k | 0 | SW | | 0.01 | 0.3 | Fair | |
| Denison, Tex. | | | 29.92 | 760.0 | 68 | 20.0 | 84 | SE | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| Denver, Col. | 24.32 | 617.7 | 29.54 | 750.3 | 50 | 10.0 | 45 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.97 | 761.2 | 70 | 21.1 | 75 | SW | 6 | 2.7 | | 1cs | 0 | | | 0.05 | 1.3 | Clear | |
| Dodge City, Kan. | 27.16 | 689.8 | 29.34 | 745.2 | 61 | 16.1 | 94 | SE | 12 | 5.4 | | | 10n | | SE | 1.07 | 27.2 | Light rain | |
| Dubuque, Iowa | | | 29.92 | 760.0 | 71 | 21.7 | 85 | W | 5 | 2.2 | | | 10s | | W | 0.08 | 2.0 | Cloudy | |
| Duluth, Minn. | | | 29.86 | 758.4 | 60 | 15.6 | 88 | SW | 2 | 0.9 | | 5c | 0 | W | | 0.56 | 14.2 | Fair | |
| Eastport, Me. | | | 30.00 | 762.0 | 47 | 8.3 | 85 | S | 6 | 2.7 | | | Fog | | | 0 | 0 | Foggy | |
| Erie, Pa. | | | 29.99 | 761.7 | 73 | 22.8 | 67 | SW | 16 | 7.2 | | 5ck | 0 | SW | | 0.24 | 6.1 | Fair | |
| Escanaba, Mich. | | | 29.89 | 759.2 | 65 | 18.3 | 63 | W | 10 | 4.5 | | 0 | 8s | | W | 0 | 0 | Cloudy | |
| Florence, Arizona | | | 29.91 | 759.7 | 63 | 17.2 | | S | | | | 8ck | 2s | SW | SW | 0 | 0 | Cloudy | |
| Fort Gibson, Indian Ter. | | | 29.92 | 760.0 | 70 | 21.1 | 79 | SE | 7 | 3.1 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.94 | 760.5 | 30 | —1.1 | 89 | S | | | 2 | 0 | 8ks | | | Inap | Inap. | Cloudy | |
| Fort Sill, Indian Ter. | 28.62 | 726.9 | 29.67 | 753.6 | 70 | 21.1 | 79 | SE | 24 | 10.7 | | 2k | 5s | SW | SE | 0.14 | 3.6 | Cloudy | |
| Fort Sully, Dakota | 27.99 | 710.9 | 29.58 | 751.3 | 58 | 14.4 | 87 | NE | 8 | 3.6 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Galveston, Tex. | | | 30.02 | 762.5 | 73 | 22.8 | 85 | SE | 9 | 4.0 | | 10c,k | 0 | SE | | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.98 | 761.5 | 58 | 14.4 | 87 | SW | 9 | 4.0 | | | Fog | | SW | 0 | 0 | Foggy | |
| Indianapolis, Ind. | | | 30.08 | 764.0 | 74 | 23.3 | 63 | S | 5 | 2.2 | | 1c | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 29.95 | 760.7 | 75 | 23.9 | 81 | S | 16 | 7.2 | | | 10ks | | SE | 0 | 0 | Threatening | |
| Jacksonville, Fla. | | | 30.10 | 764.5 | 73 | 22.8 | 85 | NE | 14 | 6.3 | | | 10n | | NE | Inap. | Inap. | Light rain | |
| Keokuk, Iowa | | | 29.93 | 760.2 | 70 | 21.1 | 84 | SW | 5 | 2.2 | | 5k | 5s | SW | SW | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 29.92 | 760.0 | 76.0 | 24.4 | 81 | S | 6 | 2.7 | | 0 | 1s | | | 0.03 | 0.8 | Clear | |
| Kittyhawk, N. C. | | | 30.20 | 767.1 | 67 | 19.4 | 74 | SW | 20 | 8.9 | | 2c | 0 | W | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.19 | 766.8 | 68 | 20.0 | 79 | W | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.91 | 759.7 | 67 | 19.4 | 90 | SW | 12 | 5.4 | | | 10n | | SW | 0.13 | 3.3 | Light rain | |
| Leavenworth, Kan. | | | 29.85 | 758.2 | 70 | 21.1 | 79 | S | 6 | 2.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| Louisville, Ky. | | | 30.12 | 765.0 | 72 | 22.2 | 71 | S | 2 | 0.9 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.15 | 765.8 | 74 | 23.3 | 63 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 69 | 20.6 | | S | | | | 8ck | 0 | | | 0.08 | 2.0 | Cloudy | |
| Marquette, Mich. | | | 29.80 | 756.9 | 66 | 18.9 | 68 | W | 12 | 5.4 | | 5c | 0 | | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.08 | 764.0 | 75 | 23.9 | 63 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.95 | 760.7 | 69 | 20.6 | 84 | SW | 3 | 1.3 | | | 10s | | SW | Inap. | Inap. | Cloudy | |
| Mobile, Ala. | | | 30.10 | 764.5 | 67 | 19.4 | 84 | S | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.16 | 766.1 | 70 | 21.1 | 54 | E | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.11 | 739.4 | 30.12 | 765.0 | 73 | 22.8 | 67 | Calm | 0 | 0 | | 1c | 0 | W | | 0.09 | 2.3 | Clear | |
| Mt. Washington, N. H. | 23.84 | 605.5 | 30.20 | 767.1 | 47 | 8.3 | 100 | NW | 36 | 16.1 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn. | | | 30.13 | 765.3 | 74 | 23.3 | 63 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.02 | 762.5 | 77 | 25.0 | 60 | SW | 5 | 2.2 | | 2cs | Fog | | | 0.03 | 0.8 | Fair | |
| New London, Conn. | | | 30.01 | 762.2 | 74 | 23.3 | 68 | Calm | 0 | 0 | | 2cs | Haze | NW | | 0 | 0 | Fair | |
| New Orleans, La. | | | 30.06 | 763.5 | 73 | 22.8 | 67 | SE | 1 | 0.4 | | 1c | Sm'e | | NE | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.01 | 762.2 | 62 | 16.7 | 70 | NW | 2 | 0.9 | | 7c | 0 | NW | | 0 | 0 | Fair | |
| New York, N. Y. | | | 30.06 | 763.5 | 69 | 20.6 | 79 | W | 8 | 3.6 | | 2cs | Sm'e | W | | 0.08 | 2.0 | Fair | |
| Norfolk, Va. | | | 30.16 | 766.1 | 75.5 | 24.2 | 54 | W | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.74 | 679.2 | 29.17 | 740.9 | 61 | 16.1 | 76 | SE | 24 | 10.7 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.71 | 729.2 | 29.74 | 755.4 | 66 | 18.9 | 90 | S | 3 | 1.3 | | | 10n | | S | 0.30 | 7.6 | Light rain | |
| Oswego, N. Y. | | | 29.94 | 760.5 | 73 | 22.8 | 71 | SW | 8 | 3.6 | | 5cs | 2ks | NW | | 0.11 | 2.8 | Fair | |
| Pembina, Dakota | | | 29.92 | 760.0 | 42 | 5.6 | 83 | N | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 30.08 | 764.0 | 74 | 23.3 | 72 | NW | 2 | 0.9 | | 0 | Haze | | | 0.25 | 6.3 | Clear | |
| Phœnix, Arizona | | | | | 57 | 13.9 | | W | | | | 0 | 8ks | | SW | 0 | 0 | Threatening | |
| Pike's Peak, Col. | 17.40 | 422.0 | 29.60 | 751.8 | 11 | —11.7 | 100 | SW | 34 | 15.2 | | | Fog | | | 0.11 | 2.8 | Light snow | |
| Pittsburgh, Pa. | | | 30.08 | 764.0 | 72 | 22.2 | 67 | W | 8 | 3.6 | | 2c | 0 | W | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 29.93 | 760.2 | 68 | 20.0 | 79 | S | 12 | 5.4 | | 5c | 0 | NW | | 0.47 | 11.9 | Fair | |
| Portland, Me. | | | 29.90 | 761.7 | 49 | 9.4 | 78 | SE | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.35 | 770.9 | 39 | 3.9 | 91 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.57 | 624.1 | 29.93 | 760.2 | 40 | 4.4 | | SW | | | | | 10n | | SW | 0.37 | 9.4 | Light rain | |
| Punta Rassa, Fla. | | | 29.94 | 760.5 | 74 | 23.3 | 90 | SE | 14 | 6.3 | | 0 | 5ks | | | 1.26 | 32.0 | Fair | |
| Rochester, N. Y. | | | 29.91 | 759.7 | 75 | 23.9 | 64 | W | 14 | 6.3 | | 5c | 0 | NW | | 0.10 | 2.5 | Fair | |
| Salt Lake City, Utah | 25.44 | 646.2 | 29.77 | 756.1 | 35 | 1.7 | 100 | NW | 1 | 0.4 | | | 10n | | | 0.31 | 7.9 | Light snow | |
| Sandy Hook, N. J. | | | 30.05 | 763.5 | 72 | 22.2 | 75 | W | 6 | 2.7 | | 0 | Haze | | | 0.05 | 1.3 | Clear | |
| San Antonio, Tex. | | | 29.64 | 752.8 | 73 | 22.8 | 76 | SE | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.95 | 761.0 | 59 | 15.0 | 70 | S | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.90 | 759.4 | 53 | 11.7 | 83 | NW | 2 | 0.9 | | Haze | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.05 | 585.5 | 29.59 | 751.6 | 36 | 2.2 | 85 | S | 4 | 1.8 | | | 10s | | S | 0.26 | 6.6 | Cloudy | |
| Savannah, Ga. | | | 30.19 | 766.8 | 66 | 18.9 | 84 | NE | 7 | 3.1 | | 10cs | 0 | E | | 0 | 0 | Cloudy | |
| Shreveport, La. | | | 30.05 | 764.3 | 70 | 21.1 | 90 | Calm | 0 | 0 | | 5c | 0 | | | 0 | 0 | Fair | |
| Smithville, N. C. | | | 30.26 | 768.6 | 66 | 18.9 | 90 | Calm | 0 | 0 | | 8c | 0 | | | 0 | 0 | Fair | |
| Springfield, Mass. | | | 30.01 | 762.2 | 76 | 24.4 | 66 | SW | 2 | 0.9 | | 9ck | 0 | W | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.05 | 763.3 | 71 | 21.7 | 80 | S | 8 | 3.6 | | 2c | 5s | | | 0 | 0 | Cloudy | |
| St. Marks, Fla. | | | 30.06 | 763.5 | 69 | 20.6 | 79 | E | 12 | 5.4 | | 5k | 2s | E | E | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.82 | 757.4 | 62 | 16.7 | 88 | SE | 1 | 0.4 | | 5c | 2s | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 63 | 17.2 | | S | | | | 2ck | 2s | | | 0 | 0 | Fair | |
| Thatcher's Island, Mass. | | | 30.02 | 762.5 | 48 | 8.9 | 92 | Calm | 0 | 0 | | | | | | 0 | 0 | Dense fog | |
| Toledo, Ohio | | | 30.00 | 762.0 | 77 | 25.0 | 65 | SW | 13 | 5.8 | | 2c | 0 | SW | | Inap. | Inap | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper 0—10 | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.44 | 697.0 | 29.99 | 761.7 | 54 | 12.2 | | SE | | | | 2c | 0 | S | | 0 | 0 | Fair | |
| Tybee Island, Ga | | | 30.17 | 766.3 | 69 | 20.6 | 84 | NE | 20 | 8.9 | | | 10ks | | E | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 30.19 | 764.5 | 70 | 21.1 | 75 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.21 | 614.9 | 29.69 | 754.1 | 32 | 0.0 | 89 | E | 4 | 1.8 | | | 10n | | NE | 0.42 | 10.7 | Light snow | |
| Washington, D. C | | | 30.13 | 765.3 | 74 | 23.3 | 76 | S | 4 | 1.8 | | 2c | 5m'n | NW | | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 48 | 8.9 | | S | | | | | 10s | | S | 0.15 | 3.8 | Threatening | |
| Wilmington, N. C | | | 30.25 | 768.3 | 65 | 18.3 | 83 | Calm | 0 | 0 | | 8c | 0 | W | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 30.02 | 762.5 | 62 | 16.7 | 66 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.50 | 723.9 | 29.72 | 754.9 | 65 | 18.3 | 84 | SE | 10 | 4.5 | | | 10s | | S | 0.03 | 0.8 | Cloudy | |
| Yuma, Arizona | | | | | | | | SW | | | | 8k | 0 | | | Inap. | Inap. | Fair | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.05 | 763.3 | 77 | 25.0 | 86 | SE | 9 | 4.0 | | 0 | 10m | | | 1.83 | 46.5 | | James Gall. |
| Nassau, W. I | | | | | 77 | 25.0 | | E | | | 3 | | | | | 2.65 | 67.3 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.98 | 761.5 | 81 | 27.2 | 87 | E | | | 2 | 2 | 5ks | E | | 0.41 | 10.41 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.07 | 763.6 | | | 80.3 | 27.0 | | E | | | | | | | | 0.38 | 9.75 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.18 | 639.6 | | | 70.8 | 21.6 | 75 | Calm | | | 0 | 3ck | 1ks | | | 0.01 | 0.3 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.08 | 764.0 | 26.0 | — 3.3 | 94 | NE | 10 | 4.5 | | 4ck | 0 | NE | | *1.50 | *38.1 | Fair | J. Fortescue, W. V |
| Honolulu, Oahu, H. I | | | 30.03 | 763.5 | 71 | 21.7 | | SW | | | 3 | | | | | 0.90 | 22.9 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67[illegible] feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,[illegible] ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 1,[illegible] ft., or 1,486.9 m.; Mt. Washington, 6,985 ft., or 1,91[illegible] m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,15[illegible] ft., or 4,31[illegible] m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.468 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.86 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.38 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. * Rain-fall from 9 p. m. of the 16th until 3 p. m. of the 17th.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md. | 30.22 | 767.6 | 78 | 25.6 | 73 | 22.8 | 85 | Calm | | | 0 | | 1 | | | 0 | 0 | | | Hazy | |
| Navy Yard, Mare Island, Cal. | 29.96 | 761.0 | 64 | 17.8 | 62 | 16.7 | | NNW | | | 6 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Norfolk, Va. | 30.25 | 768.3 | 68 | 20.0 | 68 | 20.0 | 90 | SW | 2 | 0.9 | | | 18 | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.20 | 767.1 | | | 68 | 20.0 | 84 | NNE | 10 | 4.5 | | | 3 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.91 | 759.7 | 74 | 23.3 | 52 | 11.1 | 86 | | | | | | 10 | | | 0 | 0 | | | Cloudy | |
| Naval Hospital, Yokohama, Japan | 29.80 | 756.9 | 64 | 17.8 | 61 | 16.1 | 89 | E | | | 3 | | 10kd | | ESE | 1.57 | 39.9 | | | Cloudy | |
| Adams, N. 0° 21′ W. 26° 4′ | 30.03 | 762.7 | 83 | 28.3 | 83 | 28.3 | 87 | SE | | | 4 | | 2 | | SE | 0 | 0 | Moderate. | SE | D. clouds | |
| Alert, N. 30° 25′ 32″ E. 144° 58′ | 30.26† | 768.6† | 74 | 23.3 | 75 | 23.9 | 100 | SSW | | | 2 | | 0 | | | | | Long | S&W | Blue sky | |
| Alliance, Mersin, Karamania | 29.98 | 761.5 | 73 | 22.8 | 71.5 | 21.9 | 60 | SSW | | | 2 | | 9 | | | | | Smooth | SSW | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.96 | 761.0 | 76 | 24.4 | 72 | 22.2 | 90 | E | | | 2 | | 10 | | | | | Smooth | | Raining | |
| Canonicus, New Orleans, La. | 30.09 | 764.3 | 52 | 11.1 | 71 | 21.7 | 75 | Calm | | | 0 | | 0 | | | | | | | Clear | |
| Colorado, New York, N. Y. | 30.10 | 764.5 | 68 | 20.0 | 77 | 25.0 | 65 | SSW | 4 | 1.8 | | | 4 | | | 0.21 | 5.3 | | | D. clouds | |
| Despatch, N. 36° 00′ W. 9° 43′ | 30.22 | 767.6 | 69 | 20.6 | 72 | 22.2 | 95 | NE | | | 5 | | 2 | | NE | | | Moderate | NE | Hazy | |
| Frolic, Rio de Janeiro, Brazil | 30.16 | 766.1 | 71 | 21.7 | 73 | 22.8 | 90 | N | | | 1 | | 10kn | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.98 | 761.5 | | | 73 | 22.8 | 95 | SW | | | 1 | | 2 | | | 0 | 0 | | | D. clouds | |
| Huron, Curacao Island, W. I. | 30.11 | 764.8 | 82 | 27.8 | 83 | 28.3 | 96 | E | | | 2–4 | | 6 | | W | | | | | Squally | |
| Kearsarge, Nagasaki, Japan | 30.05 | 763.3 | 64 | 17.8 | 59 | 15.0 | 94 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Pleasant | |
| Lackawanna, Acapulco, Mexico | 29.90 | 759.4 | | | 81 | 27.2 | 87 | Calm | | | 0 | | 1 | | | | | Smooth | | Hazy | |
| Marion, Smyrna, Turkey | 29.76 | 755.9 | 69 | 20.6 | 67 | 19.4 | 95 | E | | | 1 | | 9 | | E | Heavy | Heavy | Smooth | | D. clouds | |
| Michigan, Erie, Pa. | 29.56 | 750.8 | 73 | 22.8 | 73 | 22.8 | 63 | SW | | | 3 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.80 | 756.9 | 65 | 18.3 | 65 | 18.3 | 94 | SSE | | | 2 | | 5 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Norfolk, Va. | 30.24 | 768.1 | 70 | 21.1 | 72 | 22.2 | | W | | | 1 | | c | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C. | 30.42 | 772.7 | | | 67 | 19.4 | 84 | NE | 12 | 5.4 | | | 8 | | SW | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 30.02 | 762.5 | 76.5 | 24.7 | 77 | 25.0 | 91 | NNW | 7 | 3.1 | | | 10 | | N | 1.42 | 36.1 | Smooth | | Misty | |
| Ossipee, Port Royal, S. C. | 30.23 | 767.8 | 68 | 20.0 | 67 | 19.4 | 84 | NE | | | 3 | | 10 | | ESE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.95 | 760.7 | 66 | 18.9 | 64 | 17.8 | 83 | SSE | | | 2 | | 5 | | S | | | | | Cloudy | |
| Plymouth, New Orleans, La. | 30.10 | 764.5 | 76 | 24.4 | 69 | 20.6 | 85 | N&E | | | 1 | | 0 | | | 0 | 0 | | | Foggy | |
| Ranger, Gibraltar Bay | 30.27 | 768.8 | | | 73 | 22.8 | 95 | E | | | 2 | | 9 | | | | | Smooth | | Cloudy | |
| Richmond, Rio de Janeiro, Brazil | 30.22 | 767.6 | 69.5 | 20.8 | 67.5 | 19.7 | 92 | Calm | | | 0 | | 10 | | | 0 | 0 | | | Overcast | |
| Rio Bravo, Matamoras, Mexico | 29.82 | 757.4 | | | 71 | 21.7 | 95 | SE | | | 5 | | 3 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md. | 30.22 | 767.6 | 78 | 25.6 | 75 | 23.9 | 72 | Calm | | | 0 | | 2 | | | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa. | 30.01 | 762.2 | 66 | 18.9 | 65 | 18.3 | 100 | SW | 8 | 3.6 | | | 3 | | SW | 0 | 0 | | | Fair | |
| Swatara, San Andres, U. S. C. | 29.94 | 760.5 | 82 | 27.8 | 83 | 28.3 | 87 | N | | | 1 | | 9k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.85 | 758.2 | 70 | 21.1 | 67 | 19.4 | 74 | E | | | 2 | | 10 | | | Blank | Blank | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.80† | 756.9† | 66 | 18.9 | 62 | 16.7 | 100 | ESE | 7.2 | 3.2 | | | 7 | | S&W | 2.3 | 58. | Smooth | | Raining | |
| Vandalia, Constantinople, Turkey | 29.70 | 754.4 | 62 | 16.7 | 60 | 15.6 | 94 | SW | | | 1 | | 7 | | SW | | | | | D. clouds | |
| Wabash, Boston, Mass. | 30.03 | 762.7 | 54 | 12.2 | 54 | 12.2 | 87 | ESE | 6 | 2.7 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C. | 30.29† | 769.4† | 72 | 22.2 | 69 | 20.6 | | Calm | | | 0 | | | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 28° 17′ E. 126° 31′ | | | 29.96 | 761.0 | 69 | 20.6 | 90 | NE | | | 3 | | 4cs | | | Moderate | N to ENE | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 48° 57′ W. 22° 42′ | W¾8 | 9.0 | 30.30 | 769.6 | 54.5 | 12.5 | | SSW | | | 3 | | | | | Tranq'l | | Blue sky | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give a monut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.09 | 764.3 | 73 | 22.8 | 81 | ENE | 6 | 2.7 | | | 108 | | NE | | | Overcast | Capt. James Jorgensen. |

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 19, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.99 | 761.7 | 74.1 | 23.4 | 62 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.03 | 762.7 | 65.5 | 18.6 | 67 | NE | | | 3 | | 3 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.98 | 761.4 | 70.9 | 21.6 | 70 | NW | | | 3 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.94 | 760.1 | 77.0 | 25.0 | | NW | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.95 | 760.6 | 78.8 | 26.0 | | S | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.97 | 761.1 | 84.2 | 29.0 | | N | | | 3 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.98 | 761.5 | 68.9 | 20.5 | | N | | | 2 | | 0 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | | | 84.9 | 29.4 | | N | | | 1 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 29.69 | 761.8 | 89.6 | 32.0 | 22 | E | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.95 | 760.8 | 93.7 | 34.3 | 24 | NE | | | 1 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.66 | 753.4 | 67.5 | 19.7 | 40 | SW | | | 3 | | 10 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.72 | 754.8 | 48.2 | 9.0 | 92 | W | | | 1 | | 10 | | | 1.158 | 29.4 | | Dr. Wierzbiski. |
| Eperies | | | 29.58 | 751.4 | 53.2 | 11.8 | 78 | NW | | | 4 | | 10k,s | | S | 0.28 | 7.25 | | Julius Mikolik. |
| Gratz | | | 29.75 | 755.7 | 62.4 | 16.9 | 59 | NW | | | 6 | | 6 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.53 | 724.7 | 29.40 | 746.8 | 57.2 | 14.0 | 86 | NW | | | 1 | | 10 | | | 1.267 | 32.95 | Raining | Prof. Reissenberger. |
| Kremsmünster | 28.02 | 711.8 | 29.86 | 758.5 | 49.6 | 9.8 | 76 | WNW | | | 3 | | 10 | | | 0.47 | 12.0 | | Prof. C. Wagner. |
| Lemberg | 28.52 | 724.3 | 29.46 | 748.2 | 58.6 | 14.8 | 63 | NW | | | 2 | | 10 | | | 0.63 | 16.0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | 29.70 | 754.4 | 66.7 | 19.3 | 61 | WNW | | | 2 | | 8ks | | | 0.07 | 1.78 | | Habzsuda Daniel. |
| Pola | | | 29.52 | 749.7 | 56.3 | 13.5 | 65 | Calm | | | 0 | | 10 | | | 0.27 | 7.00 | | I.R. Hydrographic Office |
| Szegedin | | | 29.72 | 755.0 | 68.7 | 20.4 | 71 | N | | | 1 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.77 | 756.1 | 55.8 | 13.2 | 59 | NW | | | 4 | | 10 | | | 0.05 | 1.3 | | P. Busin. |
| Vienna | | | | | | | | | | | | | | | | | | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.47 | 723.2 | 29.96 | 760.9 | 46.2 | 7.9 | 87 | SW | | | 1 | | 10 | | | 0.331 | 8.4 | | Royal Observatory. |
| Brussels | | | 29.88 | 758.9 | 52.0 | 11.1 | 84 | SW | | | 2 | | 9n | | WSW | 0.366 | 9.36 | Raining | |
| Furnes | | | 29.86 | 758.5 | 55.6 | 13.1 | 85 | WSW | | | 2 | | 10 | | | 0.012 | 0.3 | | |
| Maeseyck | | | 29.78 | 756.3 | 53.8 | 12.1 | 76 | SW | | | 4 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.04 | 763.0 | 46.4 | 8.0 | | ENE | 18 | 8.0 | | | 7 | | | 0.330 | 8.38 | D. clouds | William Boswell. |
| Ardrossan | | | 30.00 | 762.0 | 57 | 13.9 | | NE | | | 2 | | 6 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.06 | 763.5 | 57.1 | 13.9 | | N | 13 | 5.8 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.82 | 757.4 | 51.7 | 10.9 | | NW | 22 | 9.8 | | | 9 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.12 | 765.0 | 58.0 | 14.4 | | NW | | | 4 | | 8 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.78 | 756.4 | 50.1 | 10.1 | | N | | | 1 | | 10 | | | 0.09 | 2.3 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 84.5 | 29.2 | | NE | | | 4 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.78 | 756.4 | 52.0 | 11.1 | | NW | | | 1 | | 10 | | | | | Raining | H. Todd. |
| Cardington | | | 29.79 | 756.7 | 51.0 | 10.6 | | W | | | 3 | | 10 | | | | | Raining | John McLaren. |
| Chatham, School M. E. | | | 29.76 | 755.9 | 49.7 | 9.8 | | W | | | 1 | | 10 | | | | | Raining | Capt. Fellowes, R. E. |
| Dartmoor | 28.50 | 723.9 | 29.99 | 761.7 | 46.8 | 8.2 | | W | | | 6 | | 8 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.01 | 762.2 | 55 | 12.8 | | N | | | 5 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.81 | 757.2 | 51 | 10.6 | | W | | | 3 | | 9 | | | | | Raining | J. Costello. |
| Eccles, (near Manchester) | | | 29.78 | 756.4 | 50.9 | 10.5 | | WSW | 3.0 | 1.3 | | | 10 | | | | | Raining | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.04 | 763.0 | 55.6 | 13.1 | | WNW | | | 6 | | 8 | | | | | Squally | The Staff. |
| Fort Napier, (Natal) | 27.48 | 698.0 | 29.71 | 754.6 | 89.0 | 31.7 | | E | | | 2 | | 10 | | | | | Overcast | Pvt. G. Sabnon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 760.2 | 88 | 31.1 | | N | | | 3 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.11 | 765.5 | 54 | 12.2 | | NW | | | 4 | | 9 | | | | | Gloomy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.02 | 762.5 | 75.6 | 24.2 | | E | | | 2 | | 1 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.99 | 761.7 | 54.8 | 12.7 | | NE | | | 1 | | 9 | | | | | Gloomy | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.79 | 756.7 | 51 | 10.6 | | S | | | 2 | | 5 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.79 | 756.7 | 53.4 | 11.9 | | W | | | 2 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 30.09 | 762.0 | 55 | 12.8 | | WNW | | | 5 | | 8 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.13 | 765.3 | 58 | 14.4 | | W | | | 7 | | 4c | | | 0 | 0 | Fair | M. P. Moyle. |
| Holyhead | | | 29.94 | 760.5 | 52 | 11.1 | | NNW | | | 6 | | 4 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 29.79 | 756.7 | 53.2 | 11.8 | | W | 12 | 5.4 | | | 9 | | | | | Raining | The Staff. |
| Kingstown | | | 30.02 | 762.5 | 55 | 12.8 | | N | | | 5 | | 8 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.75 | 755.6 | 51.8 | 11.0 | | W | | | 2 | | 6 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.79 | 756.7 | 70.2 | 21.2 | | NW | | | 1 | | 4k | | | | | D. clouds | Corpl. P. Bravis, A. H. C. |
| Nairn | | | 30.08 | 764.0 | 49 | 9.4 | | E | | | 2 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.05 | 763.3 | 79.0 | 26.1 | | NE | | | 1 | | 10 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 29.80 | 756.9 | 51.0 | 10.6 | | NNW | | | 2 | | 10d | | NNW | 0.085 | 2.16 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.77 | 756.1 | 49.6 | 9.8 | | NW | | | 3 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.77 | 756.1 | 53 | 11.7 | | W | | | 2 | | 7 | | | | | D. clouds | J. W. Lucas. |
| Plymouth | | | 29.98 | 761.5 | 56.8 | 13.8 | | NW | | | 6 | | 7 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.12 | 765.0 | 56 | 13.3 | | NNW | | | 6 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.94 | 760.5 | 52 | 11.1 | | NW | | | 6 | | 10 | | | | | Overcast | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.02 | 762.5 | 56.8 | 13.8 | | W | | | 6 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.08 | 764.0 | 46.7 | 8.2 | | NE | 22 | 9.8 | | | 10 | | | | | Misty | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.52 | 749.8 | 70.2 | 21.2 | | SW | | | 1 | | 6 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.82 | 757.4 | 51.0 | 10.6 | | NW | | | 2 | | 10 | | | 0.109 | 2.77 | Raining | W. F. Cooper. |
| Stilloth, Rectory | | | 29.92 | 760.0 | 54.2 | 12.3 | 74 | NW | | | 3 | | 4 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.84 | 757.9 | 49.0 | 9.4 | | NE | | | 2 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.16 | 766.1 | 52 | 11.1 | | NNE | | | 5 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 29.81 | 757.2 | 55.3 | 13.5 | | W | | | 1 | | 7 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 30.09 | 764.3 | 47 | 8.3 | | NNE | | | 3 | | 10 | | | | | Foggy | John Trotter. |
| Truro, Royal Institution | | | 29.93 | 761.0 | 57 | 13.9 | | W | | | 8 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.25 | 768.3 | 54.9 | 12.7 | | NNW | 24 | 10.7 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 49 | 9.4 | | NW | | | 4 | | 10 | | | 0.22 | 5.6 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.88 | 758.9 | 69.8 | 16.0 | 96 | NNW | 19 | 8.5 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.14 | 740.1 | 63.0 | 17.2 | 88 | N | | | 3 | | 7kn | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.04 | 763.0 | 47.0 | 8.3 | | NE | | | 4 | | 10s | | | 0.36 | 9.1 | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.13 | 765.3 | 72.0 | 22.2 | 75 | SE | 11.3 | 5.1 | | 0 | 8 | | SE | 0.02 | 0.5 | Raining | C. Meldrum. |
| Melbourne, Observatory | | | 29.69 | 753.4 | 49.9 | 9.9 | 76 | NW | 14 | 6.3 | | | 6 | | | 0.20 | 5.1 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.18 | 766.6 | 51 | 10.6 | | N | | | 6 | 10 | 5 | N | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.16 | 766.1 | 47 | 8.3 | | E | | | 4 | 5 | 7 | N | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 42° 45′ W. 59° 5′ | | | | | 45.0 | 7.2 | | SSE | | | 2 | | 10 | | | 1 | E | Rain & fog | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 16° 40′ W. 62° 0′ | | | 30.05 | 763.3 | 81.0 | 27.2 | | E | | | 4 | | 2 | | | 4 | E | Blue sky | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 70.7 | 21.5 | 91 | NE | | | 3 | | 1cs | | NE | | | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinctio between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.96 | 761.0 | 51.6 | 10.9 | 81 | SE | | | 4 | | 10 | | | | | | |
| Fanöe | | | 29.87 | 758.8 | 57.9 | 14.4 | 63 | WSW | | | 2 | | 3 | | | | | | |
| Godthaab, (Greenland) | | | 30.13 | 765.4 | 38.3 | 3.5 | 88 | NE | | | 2 | | 10 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.30 | 769.7 | 43.7 | 6.5 | 81 | E | | | 4 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 30.28 | 769.1 | 44.2 | 6.8 | 76 | NNE | | | 4 | | 10 | | | | | | |
| Vestervig | | | 29.93 | 760.1 | 46.8 | 8.2 | 94 | ESE | | | 4 | | 10 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alengon | | | 30.09 | 764.3 | 57.2 | 14 | 71 | NW | | | 4 | | 8kn | | NW | 0.024 | 0.6 | Very cloudy | Normal School. |
| Amiens | | | 29.89 | 759.3 | 57.6 | 14.2 | | WSW | | | 4 | | 8 | | WSW | 0 | 0 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.98 | 761.4 | 68.7 | 20.4 | 39 | N | | | 4 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.03 | 762.7 | 57.9 | 14.4 | 32 | W | | | 4 | | 8n | | W | 0 | 0 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ't ory. |
| Beauvais | | | 29.97 | 761.1 | 54.7 | 12.6 | 64 | WNW | | | 3 | | 10 | | WNW | 0.29 | 0.75 | Covered | Normal School. |
| Besançon | | | 30.10 | 764.6 | 59.0 | 15 | 56 | SSW | | | 4 | | 2 | | W | 0.078 | 0.7 | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 30.13 | 765.3 | 61.3 | 16.3 | 66 | W | | | 4 | | 2kn | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges | | | 30.11 | 764.8 | 57.2 | 14.0 | 78 | SW | | | 6 | | 10 | | NE | 0.059 | 1.5 | Covered | Normal School. |
| Brest | | | 30.10 | 764.4 | 57.4 | 14.1 | 71 | W | | | 3–4 | | 7 | | W | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 30.17 | 766.3 | 60.8 | 16 | 50 | W | | | 2 | | 5 | | E | 0 | 0 | Partly cl'dy | Normal School. |
| Caen | | | 29.97 | 761.3 | 55.0 | 12.8 | 86 | W | | | 4 | | | | E | 0.177 | 4.5 | | Normal School. |
| Chartres | | | 29.97 | 761.3 | 55.9 | 13.3 | 98 | W | | | 4 | | 9 | | W | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 29.95 | 760.8 | 59.4 | 15.2 | 54 | SSW | | | 2 | | 5k | | SE | 0.020 | 0.5 | Cloudy | Normal School. |
| Clermont-Ferrand | | | 30.03 | 762.8 | 61.0 | 16.1 | 49 | W | | | 3 | | 5 | | W | 0 | 0 | Cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.95 | 760.8 | 55.0 | 12.8 | 64 | W | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.97 | 761.2 | 65.8 | 18.8 | 25 | NW | | | 6 | | 2 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.03 | 762.8 | 60.3 | 15.7 | 45 | NW | | | 8 | | 5n | | SE | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 30.15 | 765.9 | 61.5 | 16.4 | 50 | NW | | | 4 | | 8 | | SE | 0 | 0 | Very cloudy | Normal School. |
| Le Mans | | | 30.08 | 764.0 | 55.8 | 13.2 | 58 | SW | | | 2 | | 8 | | W | 0 | 0 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.00 | 761.9 | 57.7 | 14.3 | 63 | W | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 30.15 | 765.8 | 59.4 | 15.2 | 48 | WNW | | | 3 | | 8 | | NW | 0 | 0 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.17 | 766.3 | 58.3 | 14.6 | 65 | E | | | 6 | | 5 | | NE | 0.04 | 1. | Cloudy | Mr. Marchal. |
| Metz | | | 30.03 | 762.8 | 56.5 | 13.6 | 62 | SW | | | 2 | | 8k | | SW | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.98 | 761.6 | 55.8 | 13.2 | 64 | NW | | | 2 | | 5 | | SE | 0 | 0 | Cloudy | Normal School. |
| Nismes | | | 30.02 | 762.6 | 70.5 | 21.4 | 44 | N | | | 6 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.04 | 763.0 | 58.3 | 14.6 | 65 | W | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 29.97 | 761.3 | 55.2 | 12.9 | 67 | W | | | 3 | | 9ck | | W | 0 | 0 | Almost cov'd | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.18 | 766.5 | 65.7 | 18.7 | 52 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Naval Observatory. |
| Rouen | | | 29.95 | 760.8 | 54.1 | 12.3 | 77 | WSW | | | 3 | | 10 | | | 0.087 | 2.1 | Covered | Normal School. |
| Tarbes | | | 30.21 | 767.4 | 60.1 | 15.6 | 56 | NW | | | 1 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Villefranche | 29.14 | 740.1 | 30.07 | 763.7 | 59.0 | 15 | 73 | NW | | | 4 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.85 | 758.2 | 83.1 | 28.4 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.91 | 759.8 | 67.5 | 19.7 | 32 | NW | | | 6 | | 0 | | | 0 | 0 | Clear | The Staff. |
| Mont-Louis | | | 30.20 | 767.1 | 53.8 | 12.1 | 55 | SE | 13.4 | 5.83 | | | 2 | | W | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | 24.89 | 632.1 | 29.97 | 761.1 | 54.9 | 12.7 | 72 | W | | | 2 | | 10 | | W | 0.024 | 0.6 | | Montsouris Observatory |
| Perpignan | | | 30.06 | 763.4 | 63.3 | 17.4 | 46 | N | 35.4 | 15.83 | | | 1 | | W | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | | | | | 38.8 | 3.8 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | 22.58 | 573.4 | | | | | | | | | | | 10 | | | | | Showery | E. Renou. |
| Toulouse, Observatory | | | 29.97 | 761.3 | 54.1 | 12.3 | 70 | WSW | | | 1 | | 8 | | | 0 | 0 | | The Staff |
| Tours | | | 30.03 | 762.8 | 56.8 | 13.8 | 57 | NW | | | 3 | | 9 | | WNW | 0.035 | 0.9 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.07 | 763.7 | 59.4 | 15.2 | 55 | WNW | | | 1 | | 10 | | | 0.019 | 0.48 | Showery | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.98 | 761.5 | 52.5 | 11.4 | 75 | NW | | | 4 | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J |
| | | | 29.76 | 756.0 | 64.8 | 18.2 | 90 | S | 3.1 | 1.4 | | | | | | | | | |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 358 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.3 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.91 | 759.8 | 59.9 | 15.5 | 42 | N | | | 2 | | 4 | N | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.92 | 759.9 | 59.0 | 15.0 | 47 | N | | | 2 | | 10 | | | 0.256 | 6.5 | Raining | Prof. Arndt. |
| Breslau | | | 29.82 | 757.3 | 60.4 | 15.8 | 36 | N | | | 6 | | 10 | | | 0 | 0 | | Royal University Ob'y. |
| Carlsruhe | | | 29.91 | 759.8 | 60.1 | 15.6 | 53 | SW | | | 3 | | 5 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.94 | 760.4 | 59.9 | 15.5 | 53 | N | | | 2 | | 8 | NW | | 0.110 | 2.8 | | Dr. H. Möhl. |
| Crefeld | | | 29.86 | 758.5 | 62.2 | 16.8 | 55 | SW | | | 3 | | 7 | | | 0.039 | 1.0 | | Director Lose. |
| Emden | | | 29.86 | 758.4 | 60.3 | 15.7 | 69 | SW | | | 1 | | 5 | | | 0.016 | 0.4 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.93 | 760.1 | 63.5 | 17.5 | 33 | SW | | | 1 | | 4 | | | 0.012 | 0.3 | | Physical Society. |
| Friedrichshafen | 28.99? | 736.4? | 30.09? | 762.1? | 54.9 | 12.6 | 69 | WNW | | | 3 | | 8 | W | | 0.016 | 0.4 | Light rain | M. Wilhelm. |
| Hamburg | | | 29.89 | 759.2 | 57.7 | 14.3 | 55 | S | | | 4 | | 10n | | | 0.063 | 1.6 | Raining | Captain F. Hegemann. |
| Kiel | | | 29.89 | 759.3 | 56.8 | 13.8 | 85 | NE | | | 3 | | 5 | | | 0.098 | 2.5 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.82 | 757.3 | 52.3 | 11.3 | 70 | N | | | 5 | | 5 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 29.91 | 759.7 | 57.0 | 13.9 | | N | | | 4 | | 4 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.93 | 760.2 | 58.6 | 14.8 | 62 | N | | | 2 | | 8 | | | 0.130 | 3.3 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.91 | 759.6 | 55.2 | 12.9 | | NE | | | 5 | | 6c.cs | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.84 | 758.0 | 57.7 | 14.3 | 58 | SW | | | | | 2 | | | 0 | 0 | Thunder, lightn'g | Prof. E. Heis. |
| Neufahrwasser | | | 29.92 | 760.0 | 44.4 | 6.9 | 83 | N | | | 4 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.80 | 756.9 | 60.4 | 15.8 | 57 | NNW | | | 3 | | 7 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.96 | 761.0 | 60.1 | 15.6 | 36 | WNW | | | 2 | | 2 | W | | 0.268 | 6.8 | | Dr. Schur. |
| Stuttgart | | | 29.92 | 759.9 | 54.7 | 13.7 | 49 | W | | | 2 | | 8 | W | | 0.110 | 2.8 | | Prof. Schoder |
| Treves, (Trier) | | | 29.83 | 757.7 | 51.4 | 10.8 | 94 | SW | | | 6 | | 7 | | | 0.197 | 5.0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.41 | 721.5 | 29.89 | 759.3 | 56.5 | 13.6 | 47 | WNW | | | 1 | | 7 | W | | 0.268 | 6.8 | Heavy Rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.01 | 762.2 | 50.7 | 10.4 | 79 | NE | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |
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NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.60 | 751.9 | 70.9 | 21.6 | | SW | | | | | | | | | | Cloudy | Dr. J. F. J. Schmidt. |
| | | | | | | | | | | | | | | | | | | | |
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NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |
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## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. (1—10.) | Clouds. Amount. Up'er (0—10.) | Clouds. Amount. Low'r (0—10.) | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.04 | 559.9 | 29.88 | 758.9 | 30.9 | — 0.6 | 87 | WNW | | | 4 | | 4 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.01 | 559.0 | 29.78 | 756.3 | 35.1 | 1.7 | | N | | | 2 | | 5 | S | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.68 | 753.8 | 69.4 | 20.8 | 31 | SW | 1.3 | 0.6 | | | 10 | | | 0.189 | 4.8 | | Ab. Dem. Morgini. |
| Padua | | | 29.67 | 753.7 | 69.8 | 21.0 | 20 | N | 3.8 | 1.7 | | | 1 | | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.72 | 754.9 | 74.7 | 23.7 | 20 | S | 5.6 | 2.5 | | | 2 | S | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.71 | 754.7 | 73.2 | 22.9 | 48 | E | | | 1 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.42 | 721.9 | 29.71 | 754.7 | 72.0 | 22.2 | 15 | S | | | 2 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.77 | 756.1 | 70.2 | 21.2 | 16 | N | | | 8 | | 3 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.73 | 755.2 | 76.1 | 24.5 | 21 | N | | | 2 | | 1 | N | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.74 | 755.3 | 73.0 | 22.8 | 15 | SW | | | 4 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.77 | 756.1 | 68.7 | 20.4 | 30 | WSW | 3.1 | 1.4 | | | 1 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 27.90 | 708.6 | 29.76 | 755.9 | 65.5 | 18.6 | 23 | NNE | | | 4 | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.83 | 757.7 | 68.2 | 20.1 | 54 | SSW | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.74 | 755.5 | 72.0 | 22.2 | 20 | N | 3.1 | 1.4 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.75 | 755.6 | 70.9 | 21.6 | 26 | NW | 9.8 | 4.4 | | | 1 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.70 | 754.4 | 71.6 | 22.0 | 50 | WNW | | | 6 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.75 | 755.7 | 68.0 | 20.0 | 38 | N | | | 2 | | 10 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.75 | 755.7 | 69.1 | 20.6 | 59 | SW | 6.1 | 3.1 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.54 | 724.8 | 29.71 | 754.7 | 70.3 | 21.3 | 38 | W | 0.7 | 0.3 | | | 5 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.24 | 717.3 | 29.76 | 756.0 | 64.0 | 17.8 | 60 | NE | | | 2 | | 6 | | | 0.213 | 5.4 | | Prof. P. Serpieri. |
| Ancona | | | 29.74 | 755.3 | 65.8 | 18.8 | 71 | N | 23.6 | 10.3 | | | 2 | N | | 0.024 | 0.6 | | Prof. Luigi Guidi. |
| Grosseto | | | 29.72 | 754.8 | 68.4 | 20.2 | 51 | E | | | 4 | | 1 | S | | 0 | 0 | | Prof. F. DeBosis. |
| Rome | | | 29.74 | 755.4 | 73.8 | 23.2 | 38 | NNW | | | 6 | | 3 | WNW | | 0 | 0 | | Avv. P. Ponticelli. |
| Naples, O. U. | | | 29.73 | 755.1 | 74.7 | 23.7 | 45 | W | 11.9 | 5.3 | | | 2 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Lecce | | | 29.75 | 755.7 | 75.2 | 24.0 | 59 | SSE | | | 4 | | 9 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Cosenza | | | 29.68 | 753.8 | 70.5 | 21.4 | 42 | WNW | 23.7 | 10.6 | | | 3 | W | | 0 | 0 | | Prof. C. DeHorga. |
| Cagliari | | | 29.76 | 755.9 | 71.2 | 21.8 | 65 | SW | 5.6 | 2.5 | | | 8 | | | 0 | 0 | | Prof. F. D. Conti. |
| Riposto, (Sicily) | | | 29.83 | 757.6 | 67.1 | 19.5 | 43 | N | | | 6 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Palermo | | | 29.80 | 756.8 | 75.6 | 24.2 | 45 | N | | | 2 | | 4 | | | 0 | 0 | | Prof. F. Cafiero. |
| Caltanissetta | | | 29.77 | 756.2 | 71.4 | 21.9 | 41 | WNW | 21.7 | 9.7 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Syracuse | 27.85 | 707.4 | 29.74 | 755.3 | 67.3 | 19.6 | 38 | NW | | | 6 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.987 | 761.4 | 71.2 | 21.8 | 59 | NE | | | 4 | | 8 | NW | | 0 | 0 | | Prof. V. Giuliano. |
| | | | 29.70 | 756.7 | 68.7 | 20.4 | 60 | WSW | 3.8 | 1.7 | | | 10 | SSW | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 550 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.00 | 762.0 | 64 | 17.8 | 89 | E | 1 | 0.4 | | 5ck | | S | | 0 | 0 | Fair | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.3 | 30.08 | 764.1 | 57.2 | 14.0 | 78 | W | 0.1 | 0.04 | | 3c | 3c | | | 0.126 | 3.2 | Foggy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.87 | 758.8 | 52.9 | 11.6 | | WNW | | | 4 | | | | | 0.138 | 3.5 | | |
| Groningen | | | 29.82 | 757.3 | 57.6 | 13.9 | | S | | | 2 | | | | | 0.555 | 14.1 | | |
| Helder | | | 29.84 | 757.9 | 54.9 | 12.7 | | WSW | | | 2 | | | | | 0.024 | 0.6 | | |
| Utrecht | | | 29.82 | 757.3 | 56.7 | 13.7 | 62 | SW | | | 3 | | 8 | | | 0.055 | 1.4 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.00 | 762.0 | 57.6 | 14.2 | 67 | SW | 6.5 | 2.9 | | | 4 | | | 0 | 0 | | |
| Brönö | | | 30.08 | 764.0 | 48.2 | 9.0 | 73 | NNE | 18 | 8 | | | 2 | | | 0 | 0 | | |
| Christiania | | | 30.02 | 762.4 | 59.0 | 15.0 | 50 | NE | 4 | 2 | | | 9 | | | 0 | 0 | | |
| Tromsö | | | 29.98 | 761.6 | 45.7 | 7.6 | 61 | SSW | 4 | 2 | | | 9 | | | 0.071 | 1.8 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.15 | 765.7 | 65.1 | 18.4 | 92 | SSE | 1.8 | 0.8 | | | 8 | | | 0.024 | 0.6 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.96 | 761.0 | 82.4 | 28.0 | 32 | NW | 7.4 | 3.3 | | | 3 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.05 | 763.4 | 73.6 | 23.1 | 62 | SW | 6.3 | 2.8 | | | 0 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.02 | 762.6 | 77.0 | 25.0 | 48 | N | 15.0 | 6.7 | | | 3 | WSW | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.18 | 766.5 | 66.9 | 19.4 | 79 | SE | 1.8 | 0.8 | | | 2 | | | 0.016 | 0.4 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild. Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.71 | 754.6 | 50.0 | 10.0 | 87 | N | 16 | 7 | | | 10 | | | | | Raining | Astronomical Obs. |
| Wilna | | | 29.70 | 754.3 | 59.2 | 15.1 | 74 | N | 11 | 5 | | | 7 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.00 | 761.9 | 47.1 | 8.4 | 70 | NNE | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.99 | 761.7 | 45.1 | 7.3 | 78 | W | 7 | 3 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.07 | 763.8 | 45.3 | 7.4 | 69 | N | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.52 | 749.8 | 63.9 | 17.7 | 87 | SE | 7 | 3 | | | 10 | | | | | Raining | Physical Cabinet. |
| Nikolaiev | | | 29.59 | 751.5 | 69.4 | 20.8 | 62 | SW | 22 | 10 | | | 2 | | | | | | Kurdakof |
| Kerteh | | | 29.65 | 753.1 | 68.4 | 20.2 | 82 | SSE | 7 | 3 | | | 2 | | | | | | Lagorio. |
| Moscow | | | 29.79 | 756.7 | 73.0 | 23.1 | 51 | SSW | 7 | 3 | | | 3 | | | | | | Meteorological Obs. |
| Lugan | | | 29.53 | 750.0 | 60.8 | 16.0 | 95 | SSW | 9 | 4 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.84 | 758.0 | 37.4 | 3.0 | 83 | N | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.28 | 718.3 | 29.60 | 751.8 | 89.7 | 30.4 | 19 | SW | 4 | 2 | | | 4 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.64 | 752.8 | 81.9 | 27.7 | 40 | NE | 11 | 5 | | | 7 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.82 | 757.4 | 76.6 | 24.8 | 31 | S | 9 | 4 | | | 0 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 28.98 | 736.2 | 29.89 | 759.3 | 70.0 | 21.1 | 28 | SW | 11 | 5 | | | 5 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.23 | 718.3 | 29.88 | 758.9 | 83.5 | 28.6 | 30 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.07 | 763.7 | 47.8 | 8.8 | 26 | NW | 9 | 4 | | | 3 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.87 | 758.7 | 42.1 | 5.6 | 69 | NW | 2 | 1 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 55.2 | 12.9 | | Calm | 0 | 0 | | | 4 | | | | | | Mossin. |
| Peking, (China) | | | 29.68 | 753.8 | 67.5 | 19.7 | 45 | Calm | 13 | 6 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.69 | 754.2 | 46.9 | 8.3 | 88 | SE | 9 | 4 | | | 6 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 38.3 | 3.5 | | Calm | 0 | 0 | | | 10 | | | | | Raining | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.97 | 761.2 | 77.9 | 25.5 | 30 | NE | 5.2 | 2.33 | | 3 | 0 | W | | 0 | 0 | Light clouds | Royal Observatory. |
| San Fernando | | | 30.00 | 762.0 | 81.1 | 27.7 | 38 | ESE | 16.1 | 7.2 | | 1 | 1 | W | NE | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.00 | 762.1 | 78.5 | 25.7 | 84 | Calm | 0 | 0 | | 6c | 0 | | | 0 | 0 | | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparsanda | | | 30.11 | 764.9 | 47.5 | 8.6 | 43 | E | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 30.13 | 765.4 | 47.8 | 8.8 | 47 | S | | | 2 | | 3 | | | 0 | 0 | | |
| Hernosand | | | 30.08 | 764.0 | 53.2 | 11.8 | 54 | Calm | | | 0 | | 1 | | | 0 | 0 | | |
| Stockholm | | | 30.03 | 762.8 | 50.7 | 10.4 | 48 | ENE | | | 4 | | 3 | | | 0 | 0 | | |
| Wisby | | | 30.01 | 762.2 | 39.6 | 4.2 | 80 | NE | | | 6 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.04 | 763.0 | 55.0 | 12.8 | 40 | NE | 7.2 | 3.2 | | | 5 | SW | NE | 0.001 | 0.02 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.61 | 726.6 | 30.04 | 762.9 | 53.4 | 11.9 | 57 | NW | ..... | ..... | 6 | ..... | 6 | ..... | ..... | 0 | 0 | Cloudy | The Observatory. |
| Zurich | 28.37 | 720.5 | 30.00 | 762.1 | 53.0 | 12.0 | 68 | SE | ..... | ..... | 1 | ..... | 7 | ..... | ..... | 0.177 | 4.5 | Drizzling | The Observatory. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +1.4 mm; Thermometer, —5.1 cent.; Relative Humidity, 0 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | ..... | ..... | 29.76 | 756.0 | 67.5 | 19.7 | 62 | WNW | 4 | 2.0 | ..... | ..... | 7 | ..... | SW | 0.134 | 3.4 | ..... | The Observatory. |
| Fao, (Persian Gulf) | ..... | ..... | 29.95 | 760.6 | 82.4 | 28.0 | ..... | SW | ..... | ..... | 3 | ..... | 5 | ..... | ..... | ..... | ..... | ..... | |
| Salonica | ..... | ..... | 29.58 | 751.2 | 73.0 | 22.8 | ..... | NW | ..... | ..... | 3 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | B. Stéfanidès. |
| Valona | ..... | ..... | 29.74 | 755.3 | 70.2 | 21.2 | ..... | W | ..... | ..... | 1 | ..... | 2 | ..... | ..... | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | ..... | ..... | 29.55 | 750.5 | 73.4 | 23.0 | ..... | SE | ..... | ..... | 2 | ..... | 8 | ..... | ..... | ..... | ..... | ..... | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | ..... | ..... | 29.84 | 757.8 | 79.0 | 26.1 | 54 | SW | ..... | ..... | 3 | ..... | 2c,k | ..... | SW | 0 | 0 | D. clouds | Pro.. C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | ..... | ..... | 29.86 | 758.4 | 52.4 | 11.3 | 77 | NE | 15 | 6.7 | ..... | ..... | 3 | ..... | ..... | ..... | ..... | ..... | Hon. J. Ferguson. |
| Brockville, Ontario | ..... | ..... | 30.01 | 762.2 | 70 | 21.1 | ..... | W | 1 | 0.4 | ..... | 0 | 5s | ..... | W | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | ..... | ..... | 29.82 | 757.4 | 52 | 11.1 | 86 | N | 12 | 5.4 | ..... | 5c | 5ks | N | N | 0.37 | 9.4 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island. | ..... | ..... | 29.72 | 754.9 | 40 | 4.4 | 95 | N | 25 | 11.2 | ..... | ..... | 10n | ..... | ..... | 0.517 | 13.08 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | ..... | ..... | 29.87 | 761.2 | 69.4 | 20.8 | 71 | W | ..... | ..... | 1 | 10k | 0 | ..... | ..... | 0 | 0 | Cloudy | James Smith, M. A. |
| Dalhousie, N. B. | ..... | ..... | 29.85 | 758.2 | 53.8 | 12.1 | 73 | NW | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 0.06 | 1.5 | Bright | H. A. Johnson. |
| Esquimault, B. C. | ..... | ..... | 29.91 | 759.7 | 50.3 | 10.2 | 75 | W | ..... | ..... | ..... | 10cs | 0 | ..... | ..... | 0.01 | 0.3 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | ..... | ..... | 30.02 | 762.5 | 39 | 3.9 | 100 | Calm | 0 | 0 | ..... | 5k | 5n | E | E | 0.03 | 0.8 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | ..... | ..... | 29.85 | 758.2 | 53 | 11.7 | 74 | N | 10 | 4.5 | ..... | ..... | 10 | ..... | ..... | 0.240 | 6.10 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | ..... | ..... | 29.96 | 761.0 | 45 | 7.2 | 92 | NE | 13 | 5.8 | ..... | 5k | 5ks | SE | ..... | 0 | 0 | Cloudy | James Stewart. |
| Goderich, Ontario | ..... | ..... | 30.08 | 764.0 | 70.9 | 21.6 | 61 | Calm | ..... | ..... | 0 | 9ck | 0 | W | ..... | 0 | 0 | Fair | H. J. Strang, M. A |
| Granton, Ontario | ..... | ..... | 30.08 | 764.0 | 67 | 19.4 | 74 | Calm | ..... | ..... | 0 | 0 | 0 | ..... | ..... | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 29.01 | 736.8 | 30.08 | 764.0 | 67 | 19.4 | 74 | Calm | ..... | ..... | 0 | 0 | 0 | ..... | ..... | 0 | 0 | Clear | James Grant. |
| Hamilton, Ontario | ..... | ..... | 29.54 | 750.3 | 51 | 10.6 | 93 | N | 10 | 4.5 | ..... | ..... | 10n | ..... | ..... | 0.499 | 12.68 | Light rain | F. Allison, M. A. |
| Heart's Content, N. F. | ..... | ..... | 30.11 | 764.8 | 71.9 | 22.2 | 52 | S | ..... | ..... | 3 | 0 | 0 | ..... | ..... | 0 | 0 | Clear | Geo. Dickson, M. A. |
| *Kingston, Ontario | ..... | ..... | 29.80 | 756.9 | 43 | 6.1 | 83 | SW | ..... | ..... | 2 | ..... | 10 | ..... | ..... | 0 | 0 | Foggy | E. Weedon. |
| *Montreal, Quebec | ..... | ..... | 30.05 | 763.3 | 68 | 20.0 | 72 | NW | 5 | 2.2 | ..... | 0 | 0 | ..... | ..... | 0.14 | 3.6 | Clear | S. Woods, M. A |
| *Parry Sound, Ontario | ..... | ..... | 29.96 | 761.0 | 63 | 18.9 | 76 | NE | 8 | 3.6 | ..... | 0 | 8ks | ..... | NE | 0.04 | 1.0 | Fair | C. H. McLeod, C. E. |
| Port Dover, Ontario | ..... | ..... | 30.07 | 763.8 | 59 | 15.0 | 84 | SW | 1 | 0.4 | ..... | 2cs | 2ks | W | W | 0 | 0 | Fair | Rev. R. Mosley. |
| Port Hastings, N. S. | ..... | ..... | 30.08 | 764.0 | 66 | 18.9 | 69 | N | 5 | 2.2 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | H. Morgan. |
| Port Stanley, Ontario | ..... | ..... | 29.61 | 752.1 | 40.3 | 4.6 | ..... | NW | 5 | 2.2 | ..... | 0 | 0 | ..... | ..... | 0.30 | 7.6 | Fine | Peter Grant |
| *Quebec, Quebec | ..... | ..... | 30.07 | 763.8 | 69 | 20.6 | 75 | E | 1 | 0.4 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | M. Payne. |
| *Rockliffe, Ontario | ..... | ..... | 30.00 | 762.0 | 48 | 8.9 | 93 | NE | 3 | 1.3 | ..... | ..... | 10n | ..... | NE | 0.44 | 11.2 | Cloudy | Capt. Ashe, R. N. |
| St. John, N. B. | ..... | ..... | 30.06 | 763.5 | 65 | 18.3 | 82 | W | 4 | 1.8 | ..... | 5c | 2s | SW | NW | 0 | 0 | Fair | W. H. McIntyre. |
| *Saugeen, Ontario | ..... | ..... | 29.77 | 756.1 | 50 | 10.0 | 85 | N | 16 | 7.2 | ..... | ..... | 10 | ..... | ..... | 0.500 | 12.70 | ..... | G. Murdoch, C. E. |
| Stayner, Ontario | ..... | ..... | 30.07 | 763.8 | 57 | 13.9 | 80 | Calm | 0 | 0 | ..... | 0 | Sm'c | ..... | ..... | 0 | 0 | Clear | K. Stewart. |
| Stratford, Ontario | ..... | ..... | 30.05 | 763.3 | 67 | 19.4 | 59 | NW | 1 | 0.4 | ..... | 5c | 0 | NW | ..... | 0 | 0 | Fair | R. J. Cole. |
| *Sydney, C. B. | 28.82 | 732.0 | 30.07 | 763.8 | 63.9 | 17.7 | 64 | Calm | 0 | 0 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Toronto, Ontario | ..... | ..... | 29.95 | 753.1 | 44 | 6.7 | 90 | N | 5 | 2.2 | ..... | ..... | 10n | ..... | ..... | 0.46 | 11.7 | Light rain | T. C. Hill. |
| Windsor, N. S. | ..... | ..... | 30.08 | 764.0 | 67 | 19.4 | 61 | N | 7 | 3.1 | ..... | 2c | 0 | ..... | ..... | 0 | 0 | Clear | Magnetic Observatory. |
| Woodstock, Ontario | ..... | ..... | 29.58 | 751.3 | 50.0 | 10.0 | 96 | N | 16 | 7.2 | ..... | ..... | 10n | ..... | ..... | 0.53 | 13.5 | Fair | Prof. John E. Oram. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | ..... | ..... | 30.06 | 763.5 | 67.2 | 19.6 | 66 | Calm | 0 | 0 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | Clear | J. Montgomery. |
| ..... | ..... | ..... | 29.86 | 758.4 | 59.0 | 10.0 | 65 | SW | ..... | ..... | ..... | 10k | 10s | ..... | ..... | 0 | 0 | Fair | John Delany. |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.91 | 759.7 | 69 | 20.6 | 75 | W | 4 | 1.8 | | 0 | 0 | | | 0.46 | 11.7 | Clear | |
| Alpena, Mich. | | | 30.06 | 763.5 | 60 | 15.6 | 76 | Calm | 0 | 0 | | 5ck | Sm'e | W | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 29.99 | 761.7 | 77 | 25.0 | 59 | N | 8 | 3.6 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Augusta, Ga. | | | 30.16 | 766.1 | 74 | 23.3 | 76 | SE | 2 | 0.9 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Baltimore, Md. | | | 30.02 | 762.5 | 81 | 27.2 | 59 | NW | 4 | 1.8 | | 2c | 2s | NW | NW | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 29.96 | 761.0 | 74 | 23.3 | 50 | NW | 14 | 6.3 | | 10c | Haze | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.90 | 708.6 | 29.50 | 749.3 | 49 | 9.4 | 100 | NE | 12 | 5.4 | | | 10n | | | 0.79 | 20.1 | Light rain | |
| Boston, Mass. | | | 29.83 | 757.7 | 73 | 22.8 | 54 | NW | 20 | 8.9 | | 1ck | 1s | NW | | 0.03 | 0.8 | Clear | |
| Breckenridge, Minn. | | | 29.60 | 751.8 | 62 | 16.7 | 93 | SE | 12 | 5.4 | | | 10n | | SE | 0.13 | 3.3 | Light rain | |
| Buffalo, N. Y. | | | 30.07 | 763.8 | 55 | 12.8 | 87 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.95 | 760.7 | 64 | 17.8 | 78 | N | 7 | 3.1 | | | 10s | | N | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 30.04 | 763.0 | 68 | 20.0 | 79 | SE | 3 | 1.3 | | 8c | 0 | | | 0 | 0 | Fair | |
| Campo, Cal. | 27.51 | 698.7 | 30.08 | 764.0 | 47 | 8.3 | 77 | NE | 2 | 0.9 | | 0 | 0 | | | 0.27 | 6.9 | Clear | |
| Camp Verde, Arizona | | | | | 45 | 7.2 | | Calm | | | | 0 | 0 | | | 0.93 | 23.6 | Clear | |
| Cape Hatteras, N. C. | | | 30.03 | 762.7 | 70 | 21.1 | 75 | W | 14 | 6.3 | | 8cs | 0 | W | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.04 | 763.0 | 78 | 25.6 | 46 | W | 12 | 5.4 | | 2c | Haze | W | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.15 | 765.8 | 68 | 20.0 | 90 | W | 8 | 3.6 | | 4k | 2s | | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.99 | 761.7 | 67 | 19.4 | 74 | W | 16 | 7.2 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.16 | 766.1 | 73 | 22.8 | 85 | NE | 5 | 2.2 | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| Cheyenne, Wyoming | 23.71 | 602.2 | 29.65 | 753.1 | 45 | 7.2 | 48 | SW | 8 | 3.6 | | | 10s | | | 0.03 | 0.8 | Cloudy | |
| Chicago, Ill. | | | 29.96 | 761.0 | 72 | 22.2 | 67 | SW | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Cincinnati, Ohio | | | 30.02 | 762.5 | 71 | 21.7 | 75 | E | 2 | 0.9 | | 5k | Sm'e | SW | | 0 | 0 | Fair | |
| Cleveland, Ohio | | | 30.05 | 763.3 | 73 | 22.8 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 29.93 | 760.2 | 66 | 18.9 | 84 | S | 1 | 0.4 | | 5cs | 0 | SE | | Inap. | Inap. | Fair | |
| Davenport, Iowa | | | 29.92 | 760.0 | 70 | 21.1 | 71 | S | 1 | 0.4 | | 7cs | 0 | S | | 0 | 0 | Fair | |
| Denison, Tex. | | | 29.92 | 760.0 | 69 | 20.6 | 74 | S | 2 | 0.9 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Denver, Col. | 24.49 | 622.0 | 29.71 | 754.6 | 47 | 8.3 | 48 | S | 4 | 1.8 | | 0 | 5s | | SW | 0.07 | 1.8 | Fair | |
| Detroit, Mich. | | | 30.02 | 762.5 | 75 | 23.9 | 64 | E | 3 | 1.3 | | 8cs | Haze | | | Inap. | Inap. | Fair | |
| Dodge City, Kan. | 27.16 | 689.8 | 29.39 | 746.5 | 53 | 11.7 | 93 | S | 14 | 6.3 | | 0 | 2s | | S | 0.56 | 14.2 | Clear | |
| Dubuque, Iowa | | | 29.87 | 758.7 | 71 | 21.7 | 71 | S | 5 | 2.2 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.85 | 758.2 | 51 | 10.6 | 93 | NE | 10 | 4.5 | | | Fog | | | 2.31 | 58.7 | Foggy | |
| Eastport, Me. | | | 29.75 | 755.9 | 55 | 12.8 | 73 | N | 20 | 8.9 | | 5k | 0 | N | | 0.65 | 16.5 | Fair | |
| Erie, Pa. | | | 30.01 | 763.0 | 67 | 19.4 | 79 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 29.98 | 761.5 | 57 | 13.9 | 87 | S | 4 | 1.8 | | | Fog | | | 0.15 | 3.8 | Dense fog | |
| Florence, Arizona | | | 30.10 | 764.5 | 61 | 16.1 | | E | | | | 0 | 0 | | | 0.31 | 7.9 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.88 | 758.9 | 66 | 18.9 | 84 | SE | 6 | 2.7 | | 5ck | 0 | SW | | Inap. | Inap. | Fair | |
| Ft. St. Michael, Alaska | | | 30.02 | 762.5 | 32 | 0.0 | 90 | SE | | | 5 | 5ckh | 0 | S | | 1.18 | 30.0 | Fair | |
| Fort Sill, Indian Ter. | 28.70 | 729.0 | 29.79 | 756.7 | 60 | 15.6 | 81 | S | 10 | 4.5 | | 8k | 0 | S | | Inap. | Inap. | Cloudy | |
| Fort Sully, Dakota | 27.91 | 708.9 | 29.49 | 749.0 | 58 | 14.4 | 87 | SE | 24 | 10.7 | | 0 | 8ks | | SE | 0.15 | 3.8 | Fair | |
| Galveston, Tex. | | | 29.99 | 761.7 | 72 | 22.2 | 85 | E | 6 | 2.7 | | 0 | 5ks | | SE | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.99 | 761.7 | 72 | 22.2 | 75 | S | 5 | 2.2 | | 0 | 5s | | SW | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.03 | 762.7 | 73 | 22.8 | 67 | SE | 4 | 1.8 | | 6c,cs | 0 | W | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 29.96 | 761.0 | 73 | 22.8 | 85 | E | 14 | 6.3 | | 2cs | 0 | SE | | 0.01 | 0.3 | Clear | |
| Jacksonville, Fla. | | | 30.10 | 764.5 | 74 | 23.3 | 90 | NE | 7 | 3.1 | | | 10n | | NE | 0.11 | 2.8 | Light rain | |
| Keokuk, Iowa | | | 29.86 | 758.4 | 72 | 22.2 | 75 | S | 11 | 4.9 | | 5c | Haze | S | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.00 | 762.0 | 79.7 | 26.4 | 86 | E | 7 | 3.1 | | 5c | 2s | SE | E | 0.05 | 1.3 | Cloudy | |
| Kittyhawk, N. C. | | | 30.06 | 763.5 | 70 | 21.1 | 70 | W | 22 | 9.8 | | 5c | 0 | | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.14 | 765.5 | 66 | 18.9 | 68 | S | 2 | 0.9 | | 1c | 0 | NW | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.81 | 757.2 | 72 | 22.2 | 75 | S | 11 | 4.9 | | | 10s | | S | 0.03 | 0.8 | Cloudy | |
| Leavenworth, Kan. | | | 29.80 | 756.9 | 68 | 20.0 | 69 | S | 8 | 3.6 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Louisville, Ky. | | | 30.04 | 763.0 | 74 | 23.3 | 76 | S | 2 | 0.9 | | 8c | Sm'e | SW | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.06 | 763.5 | 75 | 23.9 | 56 | Calm | 0 | 0 | | 1c | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 50 | 10.0 | | SW | | | | 0 | 0 | | | 0.33 | 8.4 | Clear | |
| Marquette, Mich. | | | 29.97 | 761.2 | 50 | 10.0 | 78 | NW | 1 | 0.4 | | | 10s | | | 0.31 | 7.9 | Cloudy | |
| Memphis, Tenn. | | | 30.03 | 762.7 | 75 | 23.9 | 56 | SE | 4 | 1.8 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 30.00 | 762.0 | 60 | 15.6 | 88 | SE | 4 | 1.8 | | | 10s, fg | | | 0 | 0 | Cloudy | |
| Mobile, Ala. | | | 30.03 | 762.7 | 76 | 24.4 | 81 | E | 14 | 6.3 | | 5c,k | 2ks | W,E | E | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.09 | 764.3 | 75 | 23.9 | 72 | E | 10 | 4.5 | | 8ck | 0 | E | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.04 | 737.6 | 30.05 | 763.3 | 73 | 22.8 | 71 | Calm | 0 | 0 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 23.78 | 604.0 | 30.14 | 765.5 | 41 | 5.0 | 100 | NW | 15 | 6.7 | | | Fog | | | 0.96 | 24.4 | Foggy | |
| Nashville, Tenn. | | | 30.08 | 764.0 | 73 | 22.8 | 54 | SE | 3 | 1.3 | | 2c | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.90 | 759.4 | 70 | 26.1 | 43 | N | 15 | 6.7 | | 0 | Haze | | | Inap. | Inap. | Clear | |
| New London, Conn. | | | 29.84 | 757.9 | 75 | 23.9 | 51 | NW | 13 | 5.8 | | 2cs | Haze | N | | 0.36 | 9.1 | Fair | |
| New Orleans, La. | | | 29.99 | 761.7 | 74 | 23.3 | 85 | SE | 10 | 4.5 | | | 10ks | | SE | 0.15 | 3.8 | Threatening | |
| Newport, R. I. | | | 29.82 | 757.4 | 71 | 21.7 | 56 | NW | 10 | 4.5 | | 5c | 0 | NW | | Inap. | Inap. | Fair | |
| New York, N. Y. | | | 29.95 | 760.7 | 73 | 22.8 | 46 | NW | 12 | 5.4 | | 5cs | Sm'e | NW | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.06 | 763.5 | 78 | 25.6 | 53 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.77 | 680.0 | 29.23 | 742.4 | 55 | 12.8 | 80 | SE | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.68 | 728.5 | 29.72 | 754.9 | 62 | 16.7 | 88 | S | 10 | 4.5 | | | 10ks | | S | 1.28 | 32.5 | Cloudy | |
| Oswego, N. Y. | | | 30.04 | 763.0 | 59 | 15.0 | 69 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.78 | 756.4 | 50.7 | 10.3 | 75 | N | 16 | 7.2 | | | 10s | | N | 0 | 0 | Cloudy | |
| Philadelphia, Pa. | | | 30.00 | 762.0 | 76 | 24.4 | 45 | NE | 14 | 6.3 | | 8cs | Haze | | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 52 | 11.1 | | N | | | | 2k | 0 | W | | Inap. | Inap. | Fair | |
| Pike's Peak, Col. | 17.51 | 444.7 | 29.72 | 754.9 | 10 | −12.2 | 80 | W | 36 | 16.1 | | 2c | 0 | W | | 0.08 | 2.0 | Fair | |
| Pittsburgh, Pa. | | | 30.04 | 763.0 | 70 | 21.1 | 79 | W | 1 | 0.4 | | 5c | Fog | NW | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 30.07 | 763.8 | 51 | 10.6 | 86 | NE | 5 | 2.2 | | 2c | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.84 | 757.9 | 65 | 18.3 | 68 | NE | 20 | 8.9 | | 8k | 0 | NE | | 0.42 | 10.7 | Cloudy | |
| Portland, Oregon | | | 30.04 | 763.0 | 51 | 10.6 | 65 | S | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.77 | 629.2 | 30.13 | 765.3 | 25 | −3.9 | 88 | Calm | | | | 0 | 0 | | | 0.80 | 20.3 | Clear | |
| Punta Rassa, Fla. | | | 30.03 | 762.7 | 74 | 23.3 | 72 | Calm | 0 | 0 | | 8cs | 0 | | | 0 | 0 | Cloudy | |
| Rochester, N. Y. | | | 30.03 | 762.7 | 67 | 19.4 | 59 | W | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.55 | 649.0 | 29.88 | 758.9 | 43 | 6.1 | 75 | E | 1 | 0.4 | | | 10s | | | 0.44 | 11.2 | Cloudy | |
| Sandy Hook, N. J. | | | 29.96 | 761.0 | 68 | 20.0 | 69 | W | 15 | 6.7 | | 10c | Haze | NW | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.79 | 756.7 | 73 | 22.8 | 85 | SE | 6 | 2.7 | | | 10ks | | SE | 0.04 | 1.0 | Cloudy | |
| San Diego, Cal. | | | 30.10 | 764.5 | 58 | 14.4 | 87 | NE | 4 | 1.8 | | | 10s | | NE | 0.03 | 0.8 | Cloudy | |
| San Francisco, Cal. | | | 29.98 | 761.5 | 53 | 11.7 | 79 | SW | 8 | 3.6 | | Haze | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.15 | 588.0 | 29.69 | 754.1 | 36.7 | 2.5 | 95 | SW | 16 | 7.2 | | | 10n | | | 0.24 | 6.1 | Light rain | |
| Savannah, Ga. | | | 30.14 | 765.5 | 72 | 22.2 | 90 | E | 10 | 4.5 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Shreveport, La. | | | 30.05 | 763.3 | 74 | 23.3 | 63 | Calm | 0 | 0 | | 10cs | 0 | | | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.17 | 766.3 | 70 | 21.1 | 93 | W | 3 | 1.3 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 29.89 | 759.2 | 75.7 | 24.2 | 51 | N | 8 | 3.6 | | 1c | 0 | NW | | Inap. | Inap. | Clear | |
| St. Louis, Mo. | | | 29.97 | 761.2 | 74 | 23.3 | 76 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.07 | 763.8 | 73 | 22.8 | 90 | SE | 5 | 2.2 | | | 10s | | SE | 0 | 0 | Cloudy | |
| St. Paul, Minn. | | | 29.71 | 754.6 | 68 | 20.0 | 84 | SE | 14 | 6.3 | | | 10s | | S | 0.32 | 8.1 | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 44 | 6.7 | | Calm | | | | Haze | 0 | | | 0.29 | 7.4 | Hazy | |
| Thatcher's Island, Mass. | | | 29.82 | 757.4 | 59 | 15.0 | 81 | N | 12 | 5.4 | | 1k | 0 | N | | 0 | 0 | Clear | |
| Toledo, Ohio | | | 30.04 | 763.0 | 78 | 25.6 | 69 | E | 1 | 0.4 | | 2c | Haze | SW | | 0 | 0 | Hazy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.60 | 701.0 | 30.16 | 766.1 | 45 | 7.2 | | S | | | | 0 | 0 | | | 0.11 | 2.8 | Clear | |
| Tybee Island, Ga | | | 30.12 | 765.0 | 71 | 21.7 | 95 | E | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 30.05 | 763.3 | 73 | 22.8 | 71 | SE | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Virginia City, M. T | 24.26 | 614.7 | 29.68 | 753.9 | 34 | 1.1 | 69 | SW | 4 | 1.8 | | | 10ks | | | 0.08 | 2.0 | Cloudy | |
| Washington, D. C | | | 30.04 | 763.0 | 77 | 25.0 | 69 | S | 4 | 1.8 | | 10c,cs | Sm'e | SW | | 0 | 0 | Cloudy | |
| Wickenburg, Arizona | | | | | 41 | 6.7 | | W | | | | | 10s | | SE | 0.25 | 6.3 | Cloudy | |
| Wilmington, N. C | | | 30.16 | 766.1 | 66 | 18.9 | 90 | SW | 6 | 2.7 | | 10cs | 0 | W | | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 29.82 | 757.4 | 71 | 21.7 | 62 | NW | 17 | 7.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.46 | 722.9 | 29.70 | 754.4 | 61 | 16.1 | 82 | SE | 12 | 5.4 | | 0 | 1s | | SE | 0.07 | 1.8 | Clear | |
| Yuma, Arizona | | | | | | | | W | | | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.16 | 766.1 | 76 | 24.4 | 76 | Calm | 0 | 0 | | 10c | 8n | SE | | 2.03 | 51.6 | | James Gall. |
| Navassa, W. I | | | | | 79 | 26.1 | | E | | | 3 | | | | | 0.20 | 5.1 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.97 | 761.2 | 82 | 27.8 | 83 | E | | | 2 | 5k | 7ks | E | | 0.57 | 14.48 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.0 | 762.6 | | | 82.0 | 27.8 | | E | | | | | | | | 0.059 | 1.5 | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.22 | 640.6 | | | 67.7 | 19.7 | 84 | Calm | | | 0 | 8cs,k | 2s | | | 0.14 | 3.6 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.28 | 769.1 | 24.0 | − 4.4 | 94 | NE | 6 | 2.7 | | 4c | 3s | NE | NE | 0 | 0 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.10 | 764.5 | 71 | 21.7 | | Var. | | | 3 | | | | | 0.62 | 15.7 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,136 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.14 | 765.5 | 82 | 27.8 | 79 | 26.1 | 58 | WNW | | | 2 | | 3 | | WNW | 0 | 0 | | | Hazy | |
| Navy Yard, Mare Island, Cal. | 30.01 | 762.2 | 62 | 16.7 | 56 | 13.3 | | SE | | | 5 | | 2 | | NNE | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va | 30.14 | 765.5 | 73 | 22.8 | 73 | 22.8 | 95 | WSW | 5 | 2.2 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.18 | 766.6 | | | 74 | 23.3 | 90 | NE | 16 | 7.2 | | | 10 | | W | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.90 | 759.4 | 74 | 23.3 | 72 | 22.2 | 54 | NW | 4 | 1.8 | | | | | S | 0.04 | 1.0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.90 | 759.4 | 67 | 19.4 | 64 | 17.8 | 89 | Calm | | | 0 | | 10ks | | E | 0 | 0 | | | Threatening | |
| Adams, S. 2° 4′ W. 27° 20′ | 29.98 | 761.5 | 82 | 27.8 | 83 | 28.3 | 87 | ESE | | | 3 | | 1 | | SE | 0 | 0 | Moderate. | SE | D. clouds | |
| Alert, N. 30° 01′ 39″ E. 146° 40′ | 30.20† | 769.4† | 76 | 24.4 | 76 | 24.4 | 95 | SE | | | 0–1 | | 2 | | S | | | Long | S | Hazy | |
| Alliance, N. 35° 15′ E. 35° 24′ | 29.90 | 759.4 | 73 | 22.8 | 70 | 21.1 | 70 | SSW | | | 4 | | 7 | | E | | | Smooth | S&W | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.83 | 757.7 | 82 | 27.8 | 81 | 27.2 | 83 | WSW | | | 4 | | 10 | | WSW | | | Smooth | | Thunder-storm | |
| Canonicus, New Orleans, La | 30.00 | 762.0 | 53 | 11.7 | 73 | 22.8 | 60 | E | | | 2 | | 8 | | S&E | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.01 | 762.2 | 66 | 18.9 | 76 | 24.4 | 91 | NW | 13 | 5.8 | | | 7 | | | 0 | 0 | | | D. clouds | |
| Despatch, N. 39° 00′ W. 6° 12′ | 30.03 | 762.7 | 68 | 20.0 | 69 | 20.6 | 75 | E | | | 6 | | 2 | | E | | | Moderate. | E | Hazy | |
| Frolic, Rio de Janeiro, Brazil | 30.10 | 764.5 | 61 | 16.1 | 69 | 20.6 | 95 | N | | | 1 | | 10n | | | Blank | Blank | | | Misty | |
| ‡Gettysburg, Genoa, Italy | 29.84 | 757.9 | | | 74 | 23.3 | 90 | NNE | | | 2 | | 1 | | | 0 | 0 | | | D. clouds | |
| Huron, Curacao Island, W. I | 30.12 | 765.0 | 82 | 27.8 | 82 | 27.8 | 83 | E | | | 3–5 | | 4 | | E | | | | | Squally | |
| Kearsarge, Nagasaki, Japan | 29.93 | 760.2 | 68 | 20.0 | 67 | 19.4 | 89 | NE | | | 1 | | 10 | | NE | 0 | 0 | | | Cloudy | |
| Lackawanna, Acapulco, Mexico | 29.95 | 760.7 | | | 80 | 26.7 | 91 | Calm | | | 0 | | 4 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.64 | 752.8 | 70 | 21.1 | 69 | 20.6 | 85 | SW | | | 3 | | 9 | | NE | Heavy | Heavy | Chop'd | SW | D. clouds | |
| Michigan, Erie, Pa | 29.69 | 751.8 | 70 | 21.1 | 68 | 20.0 | 65 | ENE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.66 | 753.4 | 70 | 21.1 | 70 | 21.1 | 100 | SSE | | | 0–1 | | 2 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Norfolk, Va | 30.13 | 765.3 | 73 | 22.8 | 75 | 23.9 | | S | | | 2 | | k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.39 | 771.9 | | | 72 | 22.2 | 90 | E | 7 | 3.1 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Omaha, Guayaquil, Ecuador | 30.00 | 762.0 | 81 | 27.2 | 80 | 26.7 | 91 | Calm | 0 | 0 | | | 8 | | N | 0 | 0 | Smooth | | Hazy | |
| Ossipee, Port Royal, S. C | 30.21 | 767.3 | 72 | 22.2 | 72 | 22.2 | 100 | SE | | | 1 | | 10 | | SE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.80 | 756.9 | 73 | 22.8 | 70 | 21.1 | 80 | S | | | 2 | | 1 | | S | | | | | Clear | |
| Plymouth, New Orleans, La | 30.05 | 763.3 | 77 | 25.0 | 73 | 22.8 | 95 | E | | | 1 | | 9 | | W | 0.1 | 3. | | | Cloudy | |
| Ranger, Gibraltar Bay | 30.24 | 768.1 | | | 66 | 18.9 | 92 | ENE | | | 1–4 | | 9 | | S&W | | | Smooth | | Squally | |
| Richmond, Rio de Janeiro, Brazil | 30.05 | 763.3 | 70.6 | 21.1 | 67.5 | 19.7 | 95 | NW | | | 2 | | 10 | | | Light | Light | | | Overcast | |
| Rio Bravo, Matamoras, Mexico | 29.78 | 756.4 | | | 70 | 21.1 | 95 | SE | | | 1 | | 8 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.12 | 765.0 | 80 | 26.7 | 78 | 25.6 | 65 | Calm | | | 0 | | 6 | | | 0 | 0 | | | Hazy | |
| St. Louis, League Island, Pa | 29.57 | 761.2 | 66 | 18.9 | 68 | 20.0 | 90 | NW | 9 | 4.0 | | | 9 | | WSW | 0 | 0 | | | Cloudy | |
| Swatara, San Andres, U. S. C | 29.94 | 760.5 | 81 | 27.2 | 81 | 27.2 | 91 | ENE | | | 1 | | 10k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.90 | 759.4 | 72 | 22.2 | 71 | 21.7 | 80 | N&E | | | 1 | | 9 | | | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.69† | 754.1† | 68 | 20.0 | 70 | 21.1 | 87 | SSW | 8.1 | 3.6 | | | 6 | | S&W | 1.3 | 33. | Smooth | | Raining | |
| Vandalia, Constantinople, Turkey | 29.61 | 752.1 | 64 | 17.8 | 62 | 16.7 | 94 | SSE | | | 1 | | 2 | | SE | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.90 | 759.4 | 71 | 21.7 | 72 | 22.2 | 67 | NNW | 16 | 7.2 | | | 1 | | | 0.01 | 0.3 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.16† | 766.1† | 76 | 24.4 | | | | SW | | | 1 | | | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 39° 18′ E. 139° 56′ | | | 29.80 | 756.9 | 72 | 22.2 | 100 | ENE | | | 3 | | 10n | | | Smooth | | Raining | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 48° 20′ W. 29° 0′ | W¾S | 10.5 | 29.80 | 756.9 | 56.8 | 13.8 | | S | | | 5 | | Haze | | SW | Rough | | Raining | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 37° 23′ W. 69° 20′ | E¼N | | 29.68 | 758.9 | 74.8 | 23.8 | | NNW | | | 6 | | 0 | | | Light | | Clear | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give a monut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.06 | 763.5 | 74 | 23.3 | 90 | ENE | 8 | 3 6 | | | 10d | | NE | | | Overcast | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 20, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.90 | 759.5 | 70.5 | 21.4 | 63 | NW | | | 1 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 29.95 | 760.7 | 64.0 | 17.8 | 76 | NE | | | 3 | | 1 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.95 | 760.7 | 69.1 | 20.6 | 72 | N | | | 3 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.93 | 760.2 | 71.6 | 22.0 | | SW | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.93 | 760.3 | 78.8 | 26.0 | | S | | | 2 | | 2 | | | 0 | 0 | Clear. | Husson. |
| Saida | | | 29.83 | 757.7 | 84.9 | 29.4 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.95 | 760.8 | 73.2 | 22.9 | | NNW | | | 1 | | 2 | | | 0 | 0 | C'ear | Bourgeois. |
| Geriville | | | 29.94 | 760.4 | 81.2 | 29.0 | 19 | S | | | 2 | | 4 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.92 | 760.0 | 87.8 | 31.0 | 19 | E | | | 2 | | 2 | | | 0 | 0 | Clear. | Guyot. |
| Biskra | | | 29.90 | 759.5 | 90.1 | 32.3 | 25 | NW | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.61 | 752.1 | 60.8 | 16.0 | 64 | NE | | | 1 | | 8 | | | 0.217 | 5.5 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.61 | 752.1 | 50.0 | 10.0 | 79 | W | | | 1 | | 10 | | | 0.187 | 4.7 | | Dr. Wlerzbiski. |
| Eperies | | | 29.50 | 749.4 | 57.7 | 14.3 | 77 | Calm | | | 0 | | 10ns | | S | 0.22 | 5.7 | | Julius Mikolik. |
| Gratz | 28.38 | 720.9 | 29.59 | 751.6 | 62.8 | 17.1 | 70 | NW | | | 4 | | 8 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.11 | 714.0 | 29.49 | 749.1 | 58.3 | 14.6 | 79 | NW | | | 1 | | 8 | | | 0.22 | 5.65 | Rainy | Prof. Reissenberger. |
| Kremsmünster | 28.35 | 720.2 | 29.70 | 754.3 | 47.8 | 8.8 | 83 | W | | | 4 | | 10 | | | 0.307 | 7.8 | | Prof. C. Wagner. |
| Lemberg | | | 29.47 | 748.4 | 65.5 | 18.6 | 76 | SE | | | 1 | | 5 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.63 | 752.6 | 61.2 | 16.2 | 61 | NNW | | | 2 | | 10ks | | | 0.31 | 7.94 | | I.R. Hydrographic Office |
| Szegedin | | | 29.54 | 750.4 | 57.2 | 14.0 | 64 | Calm | | | 0 | | 10 | | | 0.05 | 1.35 | | Karl Stancel. |
| Trieste | | | 29.66 | 753.3 | 66.4 | 19.1 | 74 | SW | | | 1 | | 10 | | | 0.09 | 2.4 | | P. Busin. |
| Vienna | | | 29.65 | 753.1 | 50.7 | 10.4 | 76 | NW | | | 2 | | 10 | | | 0.35 | 8.9 | Raining | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.37 | 720.6 | 29.83 | 757.7 | 53.8 | 12.1 | 76 | SW | | | 1 | | 8 | | | 0.012 | 0.3 | | Royal Observatory. |
| Brussels | | | 29.90 | 759.4 | 56.7 | 13.7 | 66 | ENE | | | 1 | | 9 | | NE, ENE | 0.678 | 24.8 | Thunder-storm | |
| Furnes | | | | | | | | NNW | | | 2 | | 9 | | | 0.677 | 17.2 | | |
| Maeseyck | | | 29.76 | 755.9 | 60.9 | 16.1 | 92 | NNE | | | 2 | | 10 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.32 | 770.1 | 49.0 | 9.4 | | N | 19 | 8.5 | | | 7 | | | 0.010 | 0.25 | D. clouds | William Roswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 30.33 | 770.4 | 55.0 | 12.8 | | ENE | 6 | 2.7 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.22 | 767.6 | 51.8 | 11.0 | | NE | 19 | 8.5 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.31 | 769.9 | 52.1 | 11.2 | | NNE | | | 1 | | 7 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0.09 | 2.3 | | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 85.2 | 29.6 | | NE | | | 2 | | 4? | | | | | Overcast? | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.10 | 764.5 | 51.0 | 10.6 | | N | | | 3 | | 10 | | | | | Showery | H. Todd. |
| Cardington | | | 30.12 | 765.0 | 51.4 | 10.8 | | N | | | 3 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.22 | 767.6 | 51.2 | 10.7 | | NW | | | 2 | | 8 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 29.70 | 729.0 | 30.20 | 767.1 | 48.0 | 8.9 | | NE | | | 6 | | 6 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.29 | 769.4 | 57 | 13.9 | | N | | | 3 | | 2 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.02 | 762.5 | 51 | 10.6 | | NE | | | 5 | | 7 | | | | | Gloomy | J. Costello. |
| Eccles, (near Manchester) | | | 30.19 | 766.8 | 49.8 | 9.9 | | NNE | 1.8 | 0.8 | | | 10 | | | | | Raining | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.20 | 767.1 | 56.0 | 13.3 | | NNW | | | 3 | | 5 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.55 | 699.8 | 29.7[illegible] | 756.4 | 82.0 | 27.8 | | E | | | 1 | | 9 | | | | | Overcast | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.91 | 759.7 | 87 | 30.6 | | W | | | 2 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.27 | 768.8 | 56 | 13.3 | | N | | | 1 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.86 | 758.4 | 72.6 | 22.6 | | E | | | 2 | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.39 | 769.9 | 51.6 | 10.9 | | NE | | | 1 | | 2 | | | | | Blue sky | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.05 | 763.3 | 50 | 10.0 | | N | | | 4 | | 6 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.08 | 764.0 | 51.2 | 10.7 | | NNE | | | 3 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 30.11 | 764.8 | 53 | 11.7 | | NNW | | | 4 | | 8 | | | | | D. clouds | Dr. S. L. Hoskins, F.R.S. |
| Helston | | | 30.25 | 768.3 | 60 | 15.6 | | N | | | 4 | | 3c | | | 0 | 0 | D. clouds | M. P. Moyle. |
| Holyhead | | | 30.26 | 768.6 | 52 | 11.1 | | N | | | 4 | | 4 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.09 | 764.3 | 51.2 | 10.7 | | N | 19 | 8.5 | | | 10 | | | | | Threatening | The Staff. |
| Kingstown | | | 30.32 | 770.1 | 50 | 10.0 | | NNE | | | 3 | | 2 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.16 | 766.1 | 48.9 | 9.4 | | NW | | | 3 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.83 | 757.7 | 65.2 | 18.4 | | NW | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.37 | 771.4 | 51 | 10.6 | | E | | | 1 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.02 | 762.5 | 80.2 | 26.8 | | NE | | | 1 | | 10 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 30.18 | 766.6 | 48.7 | 9.3 | | NNW | | | 5 | | 10k.c | | NNE | 0.049 | 1.2 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.17 | 766.3 | 47.9 | 8.8 | | NNE | | | 2–3 | | 10 | | | | | Drizzling | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.13 | 765.3 | 52 | 11.1 | | N | | | 4 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 30.16 | 766.1 | 58.0 | 14.4 | | NE | | | 3 | | 7 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.28 | 769.1 | 59 | 15.0 | | S | | | 3 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.09 | 764.3 | 55.8 | 13.2 | | N | | | 6 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.40 | 772.1 | 48.8 | 9.3 | | NNE | 18 | 8.0 | | | 1 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.64 | 752.8 | 57.2 | 14.0 | | SW | | | 1 | | 10 | | | | | Raining | Sergt. W. H. Lyne. |
| Sheffield | | | 30.15 | 765.8 | 48.0 | 8.9 | | NE | | | 3 | | 10 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.28 | 769.1 | 53.2 | 11.8 | 70 | E | | | 3 | | 4 | | | 0.060 | 1.52 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.22 | 767.6 | 47.2 | 8.4 | | NE | | | 2 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.38 | 771.6 | 50 | 10.0 | | ENE | | | 3 | | 10 | | | | | Overcast | John Smith. |
| Stratfield Turgiss | | | 30.12 | 765.0 | 51.9 | 11.1 | | NE | | | 2 | | 9 | | | | | Squally | Rev. Charles H. Griffith. |
| Thurso | | | 30.35 | 770.9 | 48 | 8.9 | | N | | | 2 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.18 | 766.6 | 60 | 15.6 | | N | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.30 | 769.6 | 57.5 | 14.2 | | N | 19 | 8.5 | | | 5 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 52 | 11.1 | | NNE | | | 4 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.24 | 768.1 | 58.8 | 14.9 | 61 | S | 21 | 9.4 | | 0 | 6 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.51 | 749.5 | 60.0 | 15.6 | 81 | N | | | 3 | | 6k | | | 0.08 | 2.0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.33 | 770.4 | 52.2 | 11.2 | | NE | | | 2 | | 6k | | | 0.03 | 0.8 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.14 | 765.5 | 74.6 | 23.7 | 76 | E | 14.0 | 6.3 | | 0 | 4 | | E | 0.14 | 3.6 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.85 | 758.2 | 53.2 | 11.8 | 83 | N | 12 | 5.4 | | | 10 | | NW | 0.01 | 0.3 | Dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.41 | 772.4 | 49 | 9.4 | | NNE | | | 4 | 0 | 0 | N | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.37 | 771.4 | 46 | 7.8 | | N | | | 4 | 5 | 3 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 5 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.02 m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 42° 15′ W. 66° 5′ | | | | | 41.0 | 5.0 | | Calm | | | 0 | | 6 | | | 0 | | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| ~~S. S. QuangLe~~ | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 16° 40′ W. 64° 35′ | | | 29.96 | 761.0 | 82.0 | 27.8 | | E | | | 5 | | 6 | | | 5 | E | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.17 | 664.7 | | | 69.8 | 21.0 | 95 | NE | | | 1 | | 9cs | | | *1.9 | *48. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. * Amount of rain-fall on the 19th and 20th.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.80 | 756.3 | 51.6 | 10.9 | 57 | NE | | | 4 | | 10 | | | | | | |
| Faröe | | | 29.91 | 760.4 | 58.8 | 14.9 | 41 | NE | | | 6 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | 29.83 | 757.6 | 42.6 | 5.9 | 53 | Calm | | | 0 | | 0 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.42 | 773.7 | 46.2 | 7.9 | 84 | NW | | | 2 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.51 | 774.9 | 46.4 | 8.0 | 71 | E | | | 2 | | 7 | | | | | | |
| Vestervig | | | 30.02 | 762.5 | 56.8 | 13.8 | 76 | NE | | | 6 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.00 | 762.0 | 55.4 | 13 | 93 | NNE | | | 6 | | 8s | | N | 0.28 | 7. | Very cloudy | Normal School. |
| Amiens | | | 29.91 | 759.8 | 57.2 | 14.0 | | WSW | | | 3 | | 8 | | SW | 0.299 | 7.6 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.82 | 757.4 | 63.1 | 17.3 | 49 | NNE | | | 2 | | 8 | | NW | 0 | 0 | Very cloudy | Mr. Giraud. |
| Bar-sur-Seine | | | 29.84 | 757.8 | 59.2 | 15.1 | 56 | NE | | | 2 | | 8kn | | NE | 0.339 | 8.6 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.93 | 760.1 | 56.3 | 13.5 | 70 | NNE | | | 2 | | 8 | | NE | 0.374 | 9.5 | Very cloudy | Normal School. |
| Besançon | | | 29.90 | 759.4 | 54.3 | 12.4 | 70 | NW | | | 4 | | 8 | | SW | 0.217 | 5.5 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.94 | 760.5 | 51.3 | 10.7 | 86 | SW | | | 2 | | 8kn | | | 0.47 | 12. | Very cloudy | Normal School. |
| Bourges | | | 29.90 | 759.4 | 51.8 | 11.0 | 78 | WSW | | | 2 | | 10 | | E | 0.24 | 6. | Covered | Normal School. |
| Brest | | | 30.09 | 764.3 | 55.2 | 12.9 | 72 | NE | | | 4 | | 9k | | NE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 29.95 | 760.7 | 60.8 | 16 | 53 | W | | | 2 | | 5 | | E | 0 | 0 | Partly cl'dy. | Normal School. |
| Caen | | | 30.02 | 762.6 | 53.2 | 11.8 | 80 | NW | | | 6 | | | | S | 0.138 | 3.5 | | Normal School. |
| Chartres | | | 29.89 | 759.2 | 55.2 | 12.9 | 81 | N | | | 6 | | 8 | | NNW | 0.16 | 4. | | Normal School. |
| Châlons-sur-Marne | | | 29.85 | 758.1 | 55.0 | 12.8 | 77 | N | | | 2 | | 8kn | | S | 0.520 | 13.2 | Very cloudy | Normal School. |
| Clermont-Ferrand | | | 29.84 | 758.0 | 59.0 | 15.0 | 64 | W | | | 3 | | 8 | | W | 0.130 | 3.3 | Very cloudy | Puy de Dome Obs'y |
| Commercy | | | 29.80 | 756.9 | 55.9 | 13.3 | 62 | E | | | 2 | | 5 | | E | 0.264 | 6.7 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.82 | 757.4 | 58.1 | 14.5 | 42 | NW | | | 6 | | 8 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.86 | 758.5 | 56.7 | 13.7 | 71 | NW | | | 3 | | 10kn | | NW | 0.20 | 5. | Covered | Normal School. |
| La Roche-sur-Yon | | | 30.02 | 762.6 | 62.2 | 16.8 | 56 | N | | | 2 | | 8 | | S | 0 | 0 | Very cloudy | Normal School. |
| Le Mans | | | 29.98 | 761.4 | 52.5 | 11.4 | 80 | NE | | | 4 | | 8 | | N | 0.094 | 2.4 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.76 | 755.8 | 54.7 | 12.6 | 66 | E | | | 2 | | 5 | | | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 30.13 | 765.2 | 57.6 | 14.2 | 69 | N | | | 4 | | 5 | | N | 0 | 0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.92 | 760.0 | 51.3 | 10.7 | 90 | N | | | 2 | | 10 | | | 0.110 | 2.8 | Covered | Mr. Marchal. |
| Metz | | | 29.91 | 759.6 | 53.3 | 13.5 | 53 | NE | | | 2 | | 2k | | NE | 0.098 | 2.5 | | M. A. Schuster. |
| Mirecourt | | | 29.90 | 761.0 | 56.1 | 13.4 | 78 | NW | | | 2 | | 5 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes | | | 29.82 | 757.4 | 60.1 | 20.6 | 43 | W | | | 6 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 29.84 | 758.0 | 56.1 | 13.4 | 75 | NW | | | 5 | | 5 | | W | 0.04 | 1. | Cloudy | Normal School. |
| Paris, Observatory | | | 29.80 | 759.1 | 57.2 | 14.0 | 58 | NNE | | | 2 | | 9k | | NE | 0.431 | 11.02 | Almost cov'd | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.02 | 762.6 | 64.8 | 18.2 | 52 | WSW | | | 4 | | 10 | | ENE | 0 | 0 | Covered | Naval Observatory. |
| Rouen | | | 29.97 | 761.2 | 57.0 | 13.9 | 69 | NW | | | 3 | | 10 | | N | 0.295 | 7.5 | Covered | Normal School. |
| Tarbes | | | 29.97 | 761.2 | 57.0 | 13.9 | 69 | NW | | | 3 | | 10 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Villefranche | 29.10 | 739.2 | 30.17 | 766.4 | 63.5 | 17.5 | 59 | SW | | | 2 | | 2 | | W | 0 | 0 | Covered | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.80 | 757.0 | 79.5 | 26.4 | | | | | 1 | | 10 | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.79 | 756.6 | 61.5 | 16.4 | 32 | NW | | | 4 | | 5 | | | 0.010 | 0.25 | Partly cl'dy | The Staff. |
| Mont-Louis | 24.74 | 628.5 | 30.06 | 763.5 | 52.0 | 11.1 | 27 | NNW | 14.9 | 6.66 | | | 2 | | W | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.88 | 759.0 | 59.0 | 15.0 | 69 | N | | | 3 | | 8 | | N | 0.457 | 11.6 | | Montsouris Observatory |
| Perpignan | | | 29.92 | 759.9 | 63.9 | 17.7 | 30 | NW | 22.4 | 10.00 | | | 1 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.44 | 570.0 | | | 30.9 | — 0.6 | | NW | | | 3 | | 5 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.88 | 759.0 | 56.8 | 13.8 | 65 | N | | | 2 | | 10 | | | 0.386 | 9.8 | Showery | E. Renou. |
| Toulouse, Observatory | | | 30.30 | 769.7 | 49.8 | 9.9 | 100 | WNW | | | 3 | | 8 | | | 0.043 | 1.1 | Raining | The Staff |
| Tours | | | 29.94 | 760.4 | 59.0 | 15.0 | 64 | NE | | | 4 | | 7 | | N | 0.165 | 4.2 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.75 | 755.6 | 54.3 | 12.4 | 81 | N | | | 3 | | 8 | | | 0.317 | 8.04 | Showery | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.94 | 760.5 | 60.8 | 16.0 | 92 | E | 8.3 | 3.7 | | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 133. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.81 | 757.1 | 56.3 | 13.5 | 62 | N | | | 6 | | 8 | N | | 0.03 | 1.0 | Raining | Prof. T. Hoh. |
| Berlin | | | 29.78 | 756.4 | 44.2 | 6.8 | 87 | NE | | | 3 | | 10 | | | 0.138 | 3.5 | Light rain | Prof. Arndt. |
| Breslau | | | 29.67 | 753.7 | 46.4 | 8.0 | 83 | WNW | | | 3 | | 10 | | | 0.70 | 17.9 | | Royal University Obs'ry. |
| Carlsruhe | | | 29.76 | 755.8 | 60.8 | 16.0 | 49 | NE | | | 1 | | 2 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.95 | 760.8 | 51.8 | 11.0 | 56 | N | | | 4 | | 10 | NW | | 0.047 | 1.2 | | Dr. H. Möhl. |
| Crefeld | | | 29.84 | 758.0 | 56.8 | 13.8 | 78 | N | | | 3 | | 8 | | | 0.157 | 4.0 | Raining | Director Lose. |
| Emden | | | 29.97 | 761.1 | 54.7 | 12.6 | 59 | NNE | | | 3 | | 6 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.80 | 757.0 | 64.9 | 18.3 | 35 | NNE | | | 4 | | 8 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.97? | 735.9? | 29.78? | 756.3? | 57.7 | 14.3 | 52 | NNW | | | 5 | | 4 | NE | | 0.110 | 2.8 | | M. Wilhelm. |
| Hamburg | | | 29.91 | 759.8 | 50.0 | 10.0 | 69 | NE | | | 3 | | 10ks | | | 0 | 0 | | Captain F. Hegemann. |
| Kiel | | | 29.92 | 759.9 | 52.0 | 11.1 | 95 | NF | | | 5 | | 10 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.66 | 753.4 | 58.6 | 14.8 | 84 | NE | | | 2 | | 9 | | | 0.417 | 10.6 | | Prof. E. Luther. |
| Köslin | | | 29.72 | 755.0 | 42.8 | 6.0 | | NE | | | 4 | | 4 | | | 0.34 | 8.7 | | H. Müller. |
| Leipsic | | | 29.83 | 757.6 | 42.1 | 5.8 | 100 | NNW | | | 2 | | 10 | NW | | 0.08 | 2.2 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.73 | 755.2 | 52.3 | 11.3 | | ENE | | | 6 | | 10n | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.89 | 759.3 | 57.0 | 13.9 | 46 | NE | | | | | 3 | | | 0.05 | 1.5 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.70 | 754.3 | 46.2 | 7.9 | 98 | NNE | | | 3 | | 10 | | | 0.69 | 17.6 | | A. Lothes. |
| Posen | | | 29.65 | 753.1 | 48.9 | 9.4 | 92 | NNW | | | 2 | | 10 | | | 0.46 | 11.8 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.81 | 757.2 | 59.4 | 15.2 | 48 | ENE | | | 1 | | 7 | | | 0.00 | 0.2 | | Dr. Schur. |
| Stuttgart | | | 29.77 | 756.1 | 61.7 | 16.5 | 38 | N | | | 1 | | 4 | S | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.71 | 754.5 | 60.1 | 15.6 | 49 | WNW | | | 5 | | 6 | | | 0.09 | 2.3 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.26 | 717.7 | 29.76 | 755.8 | 50.5 | 10.4 | 73 | NE | | | 1 | | 9 | | | Inap. | Inap. | Light rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.94 | 760.5 | 47.5 | 8.6 | 66 | NE | | | 4 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.69 | 754.0 | 74.7 | 23.7 | | W | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Allpore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 21.89 | 556.0 | 29.72 | 755.0 | 30.4 | — 0.9 | 10 | NE | | | 1 | | 10 | NNE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 21.87 | 555.4 | 29.63 | 752.7 | 34.2 | 1.2 | | NNE | | | 2 | | 6 | SSW | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.58 | 751.4 | 68.4 | 20.2 | 41 | SW | 2.7 | 1.1 | | | 5 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 29.56 | 751.5 | 65.8 | 18.8 | 45 | S | 6.9 | 3.1 | | | 2 | N | | 0.796 | 20.2 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.60 | 751.8 | 66.4 | 19.1 | 31 | S | 8.1 | 3.6 | | | 3 | E | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.61 | 752.1 | 69.8 | 21.0 | 46 | SE | | | 2 | | 4 | | | 0.079 | 2.0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.30 | 718.8 | 29.55 | 751.6 | 69.1 | 20.6 | 18 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.60 | 751.7 | 68.4 | 20.2 | 10 | N | | | 6 | | 6 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.59 | 751.6 | 73.6 | 23.1 | 10 | N | | | 1 | | 2 | SW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.61 | 752.2 | 67.6 | 19.8 | 22 | NE | | | 2 | | 8 | SW | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.63 | 752.6 | 65.5 | 18.6 | 29 | SSE | 2.5 | 1.1 | | | 6 | NE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 27.76 | 705.0 | 29.67 | 752.3 | 61.5 | 16.4 | 18 | W | | | 4 | | 5 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.65 | 753.5 | 68.5 | 20.3 | 24 | S | | | 2 | | 4 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.63 | 752.6 | 67.3 | 19.6 | 30 | SE | 6.9 | 3.1 | | | 8 | NE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.61 | 752.2 | 67.1 | 19.5 | 26 | N | 4.9 | 2.2 | | | 10 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.61 | 752.2 | 66.6 | 19.2 | 37 | WSW | | | 6 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.63 | 752.7 | 68.0 | 20.0 | 32 | NE | | | 4 | | 5 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.63 | 752.4 | 66.7 | 19.3 | 46 | WSW | 9.8 | 4.4 | | | 4 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.41 | 721.7 | 29.59 | 751.9 | 65.1 | 18.4 | 35 | NE | 0.7 | 0.3 | | | 5 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.13 | 714.4 | 29.65 | 753.1 | 54.5 | 12.5 | 86 | NE | | | 2 | | 10 | | | 0.429 | 10.9 | | Prof. P. Serpieri. |
| Pesaro | | | 29.65 | 753.1 | 57.7 | 14.3 | 83 | NW | 9.8 | 4.4 | | | 10 | E | | 0.609 | 15.4 | | Prof. Luigi Guidi. |
| Ancona | | | 29.66 | 753.4 | 63.9 | 17.7 | 60 | SE | | | 4 | | 5 | S | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.61 | 752.0 | 72.0 | 22.2 | 33 | SSW | | | 6 | | 4 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.6 | 752.4 | 70.5 | 21.4 | 44 | W | 14.3 | 6.4 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 29.67 | 753.6 | 71.2 | 21.8 | 57 | SW | | | 2 | | 7 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.72 | 754.9 | 62.2 | 16.8 | 72 | SSW | 12.5 | 5.6 | | | 9 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.71 | 754.5 | 67.6 | 19.8 | 71 | SW | 4.9 | 2.2 | | | 8 | | | 0.222 | 5.7 | | Prof. F. D. Conti. |
| Cagliari | | | 29.75 | 755.6 | 68.0 | 20.0 | 36 | NW | | | 6 | | 1 | NW | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.77 | 756.1 | 75.2 | 24.0 | 45 | N | | | 4 | | 1 | | | 0 | 0 | | Pref. F. Cafiero. |
| Palermo | | | 29.71 | 754.7 | 69.3 | 20.7 | 50 | W | 8.1 | 3.6 | | | 5 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.79 | 705.9 | 29.68 | 753.8 | 66.4 | 19.1 | 29 | NW | | | 6 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.67 | 759.6 | 69.8 | 21.0 | 65 | NE | | | 4 | | 4 | NW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.69 | 754.1 | 68.5 | 20.3 | 48 | SW | 3.1 | 1.4 | | | 3 | NW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.89 | 759.2 | 56.5 | 13.6 | 100 | SE | 4 | 1.8 | | | 10n | | | 0.99 | 25.1 | Raining | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.06 | 585.8 | 30.06 | 763.5 | 59.0 | 15.0 | 72 | NW | 0.0 | 0.01 | | 3s | 3s | | | 0.142 | 3.6 | Foggy | Mariano Bárcena. |
| | | | | | | | | | | | | | | | | | | | Vicente Reyes. |
| | | | | | | | | | | | | | | | | | | | Miguel Perez. |
| | | | | | | | | | | | | | | | | | | | (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.95 | 760.6 | 57.2 | 14.0 | | NNE | | | 5 | | | | | 0.213 | 5.4 | | |
| Groningen | | | 29.89 | 759.3 | 52.7 | 11.5 | | NE | | | 4 | | | | | 0.114 | 2.9 | | |
| Helder | | | 29.97 | 761.3 | 53.6 | 12.0 | | NNE | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 29.89 | 759.3 | 58.5 | 14.7 | 29 | NNE | | | 4 | | 5 | | | 0.008 | 0.2 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.11 | 764.8 | 59.4 | 15.2 | 64 | W | 8.1 | 3.6 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.33 | 770.4 | 42.4 | 5.8 | 73 | WNW | 18 | 8 | | | 9 | | | 0.012 | 0.3 | | |
| Christiania | | | 30.10 | 764.5 | 62.4 | 16.9 | 24 | NE | 9 | 4 | | | 2 | | | 0 | 0 | | |
| Tromsö | | | 30.17 | 766.4 | 37.4 | 3.0 | 90 | NE | 9 | 4 | | | 10 | | | 0.039 | 1.0 | Rain & snow | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.13 | 765.3 | 66.9 | 19.4 | 92 | ESE | 4.3 | 1.9 | | | 3 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.89 | 759.2 | 80.6 | 27.0 | 28 | NNE | 8.1 | 3.6 | | | 1 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.02 | 762.6 | 71.6 | 22.0 | 74 | SW | 3.1 | 1.4 | | | 1 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.89 | 759.2 | 77.5 | 25.3 | 40 | NE | 9.8 | 4.4 | | | 0 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.15 | 765.8 | 66.2 | 19.0 | 92 | SW | 2.5 | 1.1 | | | 10 | | | 0.063 | 1.6 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| NAVAL SERIES. VESSELS. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.57 | 751.0 | 63.5 | 17.5 | 73 | SE | 11 | 5 | | | 7 | | | | | | Astronomical Obs. |
| Wilna | | | 29.62 | 752.4 | 64.4 | 18.0 | 88 | ENE | 9 | 4 | | | 9 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.94 | 760.4 | 49.3 | 9.6 | 75 | NE | 9 | 4 | | | 10 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 30.02 | 762.6 | 45.1 | 7.3 | 67 | NE | 13 | 6 | | | 3 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.10 | 764.5 | 46.4 | 8.0 | 57 | N | 7 | 3 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 29.52 | 749.9 | 68.0 | 20.0 | 67 | E | 9 | 4 | | | 9 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.61 | 752.1 | 72.3 | 22.4 | 56 | SW | 7 | 3 | | | 8 | | | | | | Kurdakof |
| Kertch | | | 29.65 | 753.0 | 70.5 | 21.4 | 76 | SSE | 7 | 3 | | | 4 | | | | | | Lagorio. |
| Moscow | | | 29.72 | 754.9 | 68.5 | 20.3 | 73 | NNW | 9 | 4 | | | 6 | | | | | Light rain | Meteorological Obs. |
| Lugan | | | 29.51 | 749.6 | 72.7 | 22.6 | 53 | SSE | 9 | 4 | | | 8 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 30.19 | 766.7 | 40.8 | 4.9 | 68 | E | 9 | 4 | | | 0 | | | | | | Ogorodnikof. |
| Tiflis | 28.26 | 717.7 | 29.59 | 751.6 | 79.2 | 26.2 | 52 | Calm | 0 | 0 | | | 9 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.61 | 752 0 | 88.5 | 31.4 | 35 | S | 4 | 2 | | | 0 | | | | | | Sebastianof. |
| Kasan | | | 29.81 | 757.1 | 67.6 | 19.8 | 61 | S | 16 | 7 | | | 8 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 28.94 | 735.1 | 29.86 | 758.5 | 64.6 | 18.1 | 51 | SW | 31 | 14 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.41 | 721.5 | 30.02 | 762.5 | 82.2 | 27.9 | 30 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.10 | 764.5 | 56.3 | 13.5 | 36 | SW | 0 | 0 | | | 5 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.71 | 754.5 | 53.6 | 12.0 | 36 | SW | 13 | 6 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 49.1 | 9.5 | | NW | 9 | 4 | | | 4 | | | | | | Mossin. |
| Peking, (China) | | | 29.63 | 752.5 | 72.9 | 22.7 | 59 | NNE | 18 | 8 | | | 5 | | | | | Lightning | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.69 | 754.1 | 49.1 | 9.5 | 86 | Calm | 0 | 0 | | | 7 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.87 | 758.8 | 74.3 | 23.5 | 22 | NE | 7.4 | 3.33 | | 0 | 0 | | | 0 | 0 | Clear | Royal Observatory. |
| San Fernando | | | 29.87 | 758.6 | 77.2 | 25.1 | 57 | WNW | 4.9 | 2.2 | | 0 | 5 | | SE | 0 | 0 | | Naval Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.97 | 761.2 | 78.4 | 25.8 | 82 | Calm | 0 | 0 | | 3c | k | | | 0.008 | 0.2 | Cloudy | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.12 | 765.0 | 41.7 | 5.4 | 63 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.87 | 758.6 | 55.8 | 13.2 | 53 | Calm | | | 0 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 30.13 | 765.4 | 53.6 | 12.0 | 52 | SSW | | | 2 | | 5 | | | 0 | 0 | | |
| Stockholm | | | 30.05 | 763.3 | 50.0 | 10.0 | 55 | NE | | | 7 | | 0 | | | 0 | 0 | | |
| Wisby | | | 29.97 | 761.3 | 41.4 | 5.2 | 75 | NE | | | 6 | | 10 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.09 | 764.3 | 53.6 | 12.0 | 39 | NE | 15.9 | 7.1 | | | 1 | SW | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low' 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.35 | 720.1 | 29.78 | 757.3 | 54.3 | 12.4 | 64 | SSW | | | 4 | | 7 | | | 0.264 | 6.7 | Cloudy | The Observatory. |
| Zurich | 28.22 | 716.7 | 29.85 | 758.2 | 55.8 | 13.2 | 65 | W | | | 2 | | 8 | | | 0.288 | 7.2 | Cloudy | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, —5.2 mm; Thermometer, —4.8 cent.; Relative Humidity, +7 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0–10. | Up'er 0–10. | Low' 0–10. | Upper. From— | Lower. From— | Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.67 | 753.7 | 68.2 | 20.1 | 65 | WSW | 27 | 12.0 | | | 10 | | WSW | 0.094 | 2.4 | Raining | The Observatory. |
| Fao, (Persian Gulf) | | | 30.01 | 762.3 | 86.0 | 30.0 | | SE | | | 3 | | 5 | | | | | | |
| Salonica | | | 29.70 | 754.3 | 72.0 | 22.7 | | NW | | | 3 | | 5 | | | | | | B. Stéfanidès. |
| Valona | | | 29.73 | 755.2 | 67.5 | 19.7 | | W | | | 2 | | 10 | | | 0 | 0 | Covered | A. Bertrand. |
| Varna | | | 29.57 | 751.0 | 69.8 | 21.0 | | SE | | | 3 | | 5 | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.95 | 760.6 | 80.4 | 26.9 | 55 | WSW | | | 2 | | 0 | | | 0 | 0 | Blue sky | Pro. C. V. A. Van Dyck |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0–10. | Up'er 0–10. | Low' 0–10. | Upper. From— | Lower. From— | Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.92 | 760.0 | 58 | 14.4 | | Calm | 0 | 0 | | | 10s | | SW | 0.02 | 0.5 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.87 | 758.7 | 49 | 9.4 | 53 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.86 | 758.4 | 44 | 6.7 | 43 | N | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.87 | 758.7 | 61.5 | 16.4 | 81 | SW | | | 1 | | 10s | | | 0.03 | 0.8 | Unsettled | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.78 | 756.4 | 48.6 | 9.2 | 67 | NW | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C. | | | 29.93 | 760.2 | 45.3 | 7.4 | 100 | E | | | | | 10n | | | 0.41 | 10.4 | Rainy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.00 | 762.0 | 40 | 4.4 | 82 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 29.89 | 759.2 | 52.0 | 11.1 | 60 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.67 | 753.6 | 59 | 15.0 | 98 | SE | 12 | 5.4 | | 5k | 5k | S | S | 1.130 | 28.70 | Heavy rain | James Stewart. |
| Goderich, Ontario | | | 29.87 | 758.7 | 72.2 | 22.3 | 69 | Calm | | | 0 | 3ck | 2s | NW | | 0 | 0 | Fair | H. J. Strang, M. A |
| Granton, Ontario | | | 29.86 | 758.4 | 71 | 21.7 | 71 | Calm | | | 0 | cs | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 28.83 | 732.3 | 29.94 | 760.5 | 62 | 16.7 | 82 | SE | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.99 | 759.4 | 66 | 18.9 | 65 | NW | 3 | 1.3 | | 10c | 0 | | | 0 | 0 | Fair | H. Morgan. |
| Heart's Content, N. F. | | | | | | | | | | | | | | | | | | | Peter Grant |
| *Kingston, Ontario | | | 29.91 | 759.7 | 70 | 21.1 | 59 | E | 2 | 0.9 | | 5c | 0 | W | | 0 | 0 | Fair | M. Payne. |
| *Montreal, Quebec | | | 29.94 | 760.5 | 50 | 10.0 | 39 | NE | 36 | 16.1 | | 5c | 0 | NE | | 0 | 0 | Fair | Capt. Ashe, R. N. |
| *Parry Sound, Ontario | | | 29.96 | 761.0 | 65 | 18.3 | 83 | E | 4 | 1.8 | | 5c | 2ks | N | N | 0 | 0 | Fair | W. H. McIntyre. |
| Port Dover, Ontario | | | 29.87 | 758.7 | 48 | 8.9 | 56 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| Port Hastings, N. S. | | | 29.87 | 758.7 | 68 | 20.0 | 74 | Calm | 0 | 0 | | 8k | 0 | | | 0 | 0 | Cloudy | K. Stewart. |
| Port Stanley, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| *Quebec, Quebec | 28.66 | 728.0 | 29.80 | 759.2 | 68.2 | 20.1 | 76 | W | 3 | 1.3 | | 3cs | 0 | NW | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Rockliffe, Ontario | | | 29.76 | 755.9 | 42 | 5.6 | 48 | N | 11 | 4.9 | | 2k | 0 | NW | | 0.11 | 2.8 | Clear | T. C. Hill. |
| St. John, N. B. | | | 29.94 | 760.5 | 65 | 18.3 | 73 | Calm | 0 | 0 | | 8ck | 0 | W | | 0 | 0 | Fair | Magnetic Observatory |
| *Saugeen, Ontario | | | 29.86 | 758.4 | 71 | 21.7 | 71 | Calm | 0 | 0 | | 7k | 0 | | | 0 | 0 | Clear | Prof. John E. Oram. |
| Stayner, Ontario | | | 29.83 | 757.7 | 46.5 | 8.1 | 73 | NW | 6 | 2.7 | | 3c | 0 | | | 0.16 | 4.1 | Fair | J. Montgomery. |
| Stratford, Ontario | | | 29.89 | 759.2 | 70.3 | 21.3 | 70 | NW | 2 | 0.9 | | | | | | | | | |
| *Sydney, C. B. | | | | | | | | | | | | | | | | | | | |
| *Toronto, Ontario | | | 29.57 | 751.1 | 40.0 | 4.4 | 82 | NW | | | | 10k | 10s | | | 0.32 | 8.1 | Cloudy | John Delany |
| Windsor, N. S. | | | | | | | | | | | | | | | | | | | |
| Woodstock, Ontario | | | | | | | | | | | | | | | | | | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | | | | | | | | | | | | | | | | | |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.87 | 758.7 | 70 | 21.1 | 71 | SW | 4 | 1.8 | | 0 | 8ks | | W | 0 | 0 | Fair | |
| Alpena, Mich. | | | 29.92 | 760.0 | 51 | 10.6 | 86 | SE | 2 | 0.9 | | 1ck | 0 | W | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.91 | 759.7 | 67 | 19.4 | 79 | SW | 4 | 1.8 | | 10c | Haze | W | | 0 | 0 | Cloudy | |
| Augusta, Ga. | | | 30.03 | 762.7 | 70 | 21.1 | 90 | S | 3 | 1.3 | | | 10s | | S | 0 | 0 | Cloudy | |
| Baltimore, Md. | | | 29.90 | 759.4 | 74 | 23.3 | 81 | Calm | 0 | 0 | | 2ck | Sm'e | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 29.89 | 759.2 | 76 | 24.4 | 60 | SW | 4 | 1.8 | | 8c | 0 | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.83 | 706.9 | 29.42 | 747.3 | 77 | 25.0 | 77 | SW | 10 | 4.5 | | 0 | 5s | | SW | 0.91 | 23.1 | Fair | |
| Boston, Mass. | | | 29.83 | 757.7 | 70.5 | 21.4 | 68 | E | 2 | 0.9 | | 9ck | Haze | | | 0 | 0 | Cloudy | |
| Breckenridge, Minn. | | | 29.59 | 751.6 | 55 | 12.8 | 87 | S | 4 | 1.8 | | | 10ks | | S | 0.05 | 1.3 | Cloudy | |
| Buffalo, N. Y. | | | 29.90 | 759.4 | 67 | 19.4 | 60 | NE | 11 | 4.9 | | 2c | Haze | W | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 29.86 | 758.4 | 65 | 18.3 | 73 | W | 2 | 0.9 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Cairo, Ill. | | | 29.84 | 757.9 | 75 | 23.9 | 76 | S | 12 | 5.4 | | 2ck | 0 | SW | | 0 | | Fair | |
| Campo, Cal. | 27.40 | 696.0 | 29.97 | 761.2 | 55 | 12.8 | 86 | N | 3 | 1.3 | | | Fog | | | 0 | 0 | Foggy | |
| Camp Verde, Arizona | | | | | 59 | 10.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.90 | 759.4 | 72 | 22.2 | 80 | NW | 10 | 4.5 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Cape Henry, Va. | | | 29.92 | 760.0 | 80 | 26.7 | 55 | W | 11 | 4.9 | | 2c | Haze | | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.01 | 762.2 | 67 | 19.4 | 100 | W | 12 | 5.4 | | | Fog | | | 0 | 0 | Foggy | |
| Cape May, N. J. | | | 29.90 | 759.4 | 69 | 20.6 | 75 | S | 3 | 1.3 | | 5ck | Haze | NW | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.04 | 763.0 | 77 | 25.0 | 86 | S | 2 | 0.9 | | 0 | 8ks | | S | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 23.86 | 606.0 | 29.80 | 756.9 | 42 | 5.6 | 75 | NW | 8 | 3.6 | | 1ck | 0 | NW | | 0.05 | 1.3 | Clear | |
| Chicago, Ill. | | | 29.78 | 756.4 | 70 | 21.1 | 75 | SW | 6 | 2.7 | | 0 | 8s | | SW | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.84 | 757.9 | 73 | 22.8 | 76 | Calm | 0 | 0 | | | 10n | | | 0.05 | 1.3 | Light rain | |
| Cleveland, Ohio | | | 29.88 | 758.9 | 73 | 22.8 | 67 | SE | 4 | 1.8 | | 1c | 0 | NW | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 29.83 | 757.7 | 67 | 19.4 | 90 | S | 6 | 2.7 | | 2cs | 0 | | | Inap. | Inap. | Clear | |
| Davenport, Iowa | | | 29.67 | 753.6 | 72 | 22.2 | 75 | SE | 15 | 6.7 | | 4ck | 0 | SE | | 0 | 0 | Fair | |
| Denison, Tex. | | | 29.80 | 756.9 | 68 | 20.0 | 84 | SW | 7 | 3.1 | | 0 | 0 | | | 0.20 | 5.1 | Clear | |
| Denver, Col. | 24.64 | 625.8 | 29.86 | 758.4 | 48 | 6.1 | 59 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.83 | 757.7 | 69 | 20.6 | 65 | SW | 1 | 0.4 | | 5ck | 0 | | | 0 | 0 | Fair | |
| Dodge City, Kan. | 27.18 | 690.4 | 29.42 | 747.3 | 50 | 10.0 | 78 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.67 | 753.6 | 69 | 20.6 | 75 | S | 4 | 1.8 | | 5cs | 0 | S | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.81 | 757.2 | 46 | 7.8 | 100 | NE | 6 | 2.7 | | | 10n | | | 0.13 | 3.3 | Light rain | |
| Eastport, Me. | | | 29.85 | 758.2 | 49 | 9.4 | 77 | NE | 4 | 1.8 | | 8k | 0 | W | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.84 | 757.9 | 74 | 23.3 | 72 | SE | 4 | 1.8 | | 2ck | 2cs | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.82 | 757.4 | 57 | 13.9 | 75 | E | 2 | 0.9 | | 5c | 0 | E | | 0 | 0 | Fair | |
| Florence, Arizona | | | 29.90 | 759.4 | 66 | 18.9 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.76 | 755.9 | 67 | 19.4 | 79 | S | 7 | 3.1 | | 0 | 0 | | | 0.43 | 10.9 | Clear | |
| Ft. St. Michael, Alaska | | | 29.58 | 751.3 | 39 | 3.9 | 82 | Var. | | | 9 | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.72 | 729.5 | 29.81 | 757.2 | 60 | 15.6 | 88 | Calm | 0 | 0 | | 0 | 0 | | | 0.95 | 24.1 | Clear | |
| Fort Sully, Dakota | 27.99 | 710.9 | 29.62 | 752.3 | 46 | 7.8 | 76 | NW | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 29.92 | 760.0 | 73 | 22.8 | 90 | W | 3 | 1.3 | | 0 | 8ks | | S | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.80 | 756.9 | 71 | 21.7 | 71 | SE | 1 | 0.4 | | 5ck | | SW | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.92 | 760.0 | 77 | 25.0 | 72 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 29.82 | 757.4 | 77 | 25.0 | 60 | SE | 4 | 1.8 | | 1ck | 2s | SW | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.01 | 762.2 | 75 | 23.9 | 90 | Calm | 0 | 0 | | | 10s | | | 0.06 | 1.5 | Cloudy | |
| Keokuk, Iowa | | | 29.69 | 754.8 | 70 | 21.1 | 90 | SE | 17 | 7.6 | | 5k | 5s | SE | E | 0 | 0 | Threatening | |
| Key West, Fla. | | | 29.97 | 761.2 | 29.0 | — 1.7 | 82 | SE | 7 | 3.1 | | 2cs | 2s | SE | SE | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 29.97 | 761.2 | 73 | 22.8 | 76 | W | 16 | 7.2 | | 8c | 0 | | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 29.95 | 760.7 | 70 | 21.1 | 75 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.67 | 753.6 | 68 | 20.0 | 79 | S | 1 | 0.4 | | 5k | 0 | | | 0 | 0 | Fair | |
| Leavenworth, Kan. | | | 29.52 | 749.8 | 61 | 16.1 | 82 | S | 22 | 9.8 | | 5k | 5ks | S | SW | 0.43 | 10.9 | Threatening | |
| Louisville, Ky. | | | 29.85 | 758.2 | 78 | 25.6 | 69 | SW | 6 | 2.7 | | 2ck | 0 | SW | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 29.91 | 759.7 | 75 | 23.9 | 68 | Calm | 0 | 0 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Maricopa Wells, Arizona | | | | | 67 | 19.4 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.82 | 757.4 | 50 | 10.0 | 71 | NE | 1 | 0.4 | | 5c | 0 | | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 29.88 | 758.9 | 79 | 26.1 | 74 | S | 5 | 2.2 | | 1c | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.82 | 757.4 | 59 | 15.0 | 76 | E | 2 | 0.9 | | 10ks | Sm'e | SW | | 0 | 0 | Cloudy | |
| Mobile, Ala. | | | 30.00 | 762.0 | 76 | 24.4 | 81 | SE | 3 | 1.3 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Montgomery, Ala. | | | 29.98 | 761.5 | 77.5 | 25.3 | 77 | S | 3 | 1.3 | | 2c | 2k | | SE | 0 | 0 | Fair | |
| Morgantown, W. Va. | 28.88 | 733.5 | 29.88 | 758.9 | 72 | 22.2 | 75 | Calm | 0 | 0 | | 10c | 0 | W | | 0 | 0 | Cloudy | |
| Mt. Washington, N. H. | 23.70 | 602.0 | 30.06 | 763.5 | 42 | 5.6 | 100 | NW | 30 | 13.4 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn. | | | 29.91 | 759.7 | 75 | 23.9 | 76 | SE | 3 | 1.3 | | 10ck | 0 | S | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 29.86 | 758.4 | 70 | 21.1 | 70 | Calm | 0 | 0 | | Haze | Fog | | | 0 | 0 | Fair | |
| New London, Conn. | | | 29.89 | 758.4 | 63 | 17.2 | 78 | SW | 4 | 1.8 | | 5cs | Fog | W | | 0 | 0 | Fair | |
| New Orleans, La. | | | 29.96 | 761.0 | 71 | 21.7 | 92 | SE | 4 | 1.8 | | 2k | Fog | S | | 0.07 | 1.8 | Foggy | |
| Newport, R. I. | | | 29.84 | 757.9 | 61 | 16.1 | 76 | SW | 2 | 0.9 | | 5cs | 5ks | | NW | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 29.89 | 759.2 | 72 | 22.2 | 49 | NW | 8 | 3.6 | | 8cs | Sm'e | NW | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 29.94 | 760.5 | 82 | 27.8 | 55 | SW | 6 | 2.7 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.84 | 681.7 | 29.35 | 745.5 | 49 | 9.4 | 64 | W | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.38 | 720.8 | 29.40 | 746.7 | 61 | 16.1 | 88 | E | 16 | 7.2 | | | 10s | | E | 0.58 | 14.7 | Cloudy | |
| Oswego, N. Y. | | | 29.95 | 760.7 | 53 | 11.7 | 82 | NW | 2 | 0.9 | | | 10n | | NW | 0.02 | 0.5 | Light rain | |
| Pembina, Dakota | | | 29.61 | 752.1 | 60 | 15.6 | 82 | SE | 6 | 2.7 | | 10ck | 0 | | | 1.19 | 30.2 | Cloudy | |
| Philadelphia, Pa. | | | 29.90 | 759.4 | 73 | 22.8 | 58 | NE | 4 | 1.8 | | 5c | Haze | NW | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 64 | 17.8 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.63 | 447.8 | 29.84 | 757.9 | 13 | —10.6 | 100 | W | 28 | 12.5 | | 5c | | W | | 0.11 | 2.8 | Drift'g snow | |
| Pittsburgh, Pa. | | | 29.87 | 758.7 | 69 | 20.6 | 79 | Calm | 0 | 0 | | 5c | Sm'e | NW | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.86 | 758.4 | 59 | 15.0 | 81 | NE | 8 | 3.6 | | 5k | 8s,hz | | | 0 | 0 | Hazy | |
| Portland, Me. | | | 29.80 | 756.9 | 63 | 17.2 | 83 | W | 8 | 3.6 | | | 10n | | | 0.13 | 3.3 | Light rain | |
| Portland, Oregon | | | 30.09 | 764.3 | 43 | 6.1 | 91 | S | 8 | 3.6 | | | 10s | | | 0.35 | 8.9 | Cloudy | |
| Prescott, Arizona | 24.79 | 629.6 | 30.15 | 765.8 | 36 | 2.2 | 99 | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.88 | 758.9 | 78 | 25.6 | 82 | E | 8 | 3.6 | | 0 | 2ks | | | 1.94 | 49.3 | Clear | |
| Rochester, N. Y. | | | 29.91 | 759.7 | 63 | 17.2 | 62 | NE | 11 | 4.9 | | 8k | Haz | N | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.45 | 646.4 | 29.78 | 756.4 | 48 | 8.9 | 62 | SE | 6 | 2.7 | | 2c | 0 | NE | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.89 | 759.2 | 66 | 18.9 | 78 | W | 10 | 4.5 | | 5c | 2ck | | W | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.89 | 759.9 | 73 | 22.8 | 80 | SE | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.02 | 762.5 | 60 | 15.6 | 88 | N | 4 | 1.8 | | | 10s | | N | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.97 | 761.2 | 49 | 9.4 | 63 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.16 | 588.2 | 29.70 | 754.4 | 38.5 | 3.6 | 75 | NE | 2 | 0.9 | | 0 | 1s | | | 0.20 | 5.1 | Clear | |
| Savannah, Ga. | | | 30.02 | 762.5 | 78 | 25.6 | 82 | S | 3 | 1.3 | | | 10s | | SE | Inap. | Inap. | Clearing | |
| Shreveport, La. | | | 29.95 | 760.7 | 75 | 23.9 | 86 | S | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.03 | 762.7 | 71 | 21.7 | 90 | W | 7 | 3.1 | | | 10s | | | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 29.85 | 758.2 | 70 | 21.1 | 70 | S | 2 | 0.9 | | 8c | 0 | NW | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.74 | 755.4 | 75 | 23.9 | 77 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.00 | 762.0 | 74 | 23.3 | 90 | SE | 1 | 0.4 | | | 10s | | | 0.07 | 1.8 | Cloudy | |
| St. Paul, Minn. | | | 29.63 | 752.6 | 67 | 19.4 | 79 | SE | 6 | 2.7 | | 2c | 5s | | | 0.07 | 1.8 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 51 | 10.6 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 29.83 | 757.7 | 62 | 16.7 | 88 | Calm | 0 | 0 | | 10k | 0 | N | | 0 | 0 | Cloudy | |
| Toledo, Ohio | | | 29.84 | 757.9 | 73 | 22.8 | 71 | E | 5 | 2.2 | | 8ck | Haze | | | 0 | 0 | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Upper 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.56 | 700.0 | 30.10 | 764.5 | 55 | 12.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.00 | 762.0 | 73 | 22.8 | 95 | SE | 4 | 1.8 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 29.94 | 760.5 | 71.5 | 21.9 | 85 | S | 10 | 4.5 | | 0 | 2s | | S | 0 | 0 | Clear | |
| Virginia City, M. T | 24.13 | 612.9 | 29.61 | 752.1 | 37 | 2.8 | 80 | SE | 11 | 4.9 | | 5k | 5s | SE | SE | Inap. | Inap. | Cloudy | |
| Washington, D. C | | | 29.89 | 759.2 | 76 | 24.4 | 72 | S | 1 | 0.4 | | 5k | Haze | S | | 0 | 0 | Hazy | |
| Wickenburg, Arizona | | | | | 50 | 10.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.02 | 762.5 | 71 | 21.7 | 90 | W | 8 | 3.6 | | | 10s | | W | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 29.87 | 758.7 | 61 | 16.1 | 77 | SW | 6 | 2.7 | | 0 | 5s | | NW | 0 | 0 | Fair | |
| Yankton, Dakota | 28.37 | 720.6 | 29.60 | 751.8 | 58 | 14.4 | 84 | W | 15 | 6.7 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Yuma, Arizona | | | | | | | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.10 | 764.5 | 77 | 25.0 | 82 | Calm | 0 | 0 | | 8c | 8n | SE | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 79 | 26.1 | | ENE | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.94 | 760.5 | 82 | 27.8 | 83 | E | | | 2 | | 8ks | | | 0.74 | 18.7 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 29.98 | 761.6 | | | 82.6 | 27.8 | | E | | | | | | | | 0.51 | 13.0 | Raining | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.18 | 639.6 | | | 67.5 | 19.7 | 82 | Calm | | | 0 | 6es | 2ks | | | 0.23 | 5.8 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.33 | 770.4 | 39.5 | 4.2 | 82 | NE | 18 | 8.0 | | 2c | 2s | E | E | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.10 | 764.5 | 71 | 21.7 | | NE | | | 4 | | | | | 2.50 | 63.5 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67: feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m., Fort Sill 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 1,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.00 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.02 | 762.5 | 78 | 25.6 | 75 | 23.9 | 86 | S | | | 1 | | 4 | | NW | 0 | 0 | | | Hazy | |
| Navy Yard, Mare Island, Cal. | 30.02 | 762.5 | 56 | 13.3 | 52 | 11.1 | | SE | | | 4 | | 1 | | NE | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va. | 30.11 | 764.8 | 76 | 24.4 | 76 | 24.4 | 91 | SW | 1 | 0.4 | | | 2cs | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.12 | 765.0 | | | 72 | 22.2 | 95 | ESE | 4 | 1.8 | | | 10 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.95 | 760.7 | 70 | 21.1 | 65 | 18.3 | 84 | SSE | 1 | 0.4 | | | | | | 0 | 0 | | | Cloudy | |
| Naval Hospital, Yokohama, Japan | 29.74 | 755.4 | 63.5 | 17.5 | 59.5 | 15.3 | 94 | ESE | | | 3 | | 10kn | | SSE | 1.40 | 35.6 | | | Cloudy | |
| Adams, S. 4° 30′ N. 28° 57′ | 29.98 | 761.5 | 82 | 27.8 | 82 | 27.8 | 100 | Var. | | | 3–4 | | 3 | | | 0 | 0 | Moderate. | E | D. clouds | |
| Alert, N. 29° 37′ 11″ E. 146° 10′ 15″ | 30.25† | 768.3‡ | 74 | 23.3 | 75 | 23.9 | 95 | SE | | | 3 | | 1 | | S | | | Long | S | D. clouds | |
| Alliance, Tripoli, Syria | 30.03 | 762.7 | 73 | 22.8 | 72 | 22.2 | 67 | W | | | 2 | | 4 | | S&E | | | | | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.99 | 759.4 | 78 | 25.6 | 76 | 24.4 | 82 | ESE | | | 2 | | 10 | | | | | Smooth | | Raining | |
| Canonicus, New Orleans, La | 29.97 | 761.2 | 51 | 10.6 | 70 | 21.1 | 95 | SE | | | 1 | | 3 | | S&E | | | | | Light fog | |
| Colorado, New York, N. Y | 29.95 | 760.7 | 66 | 18.9 | 74 | 23.3 | 86 | NW | 2 | 0.9 | | | 5 | | | 0 | 0 | | | D. clouds | |
| Despatch, Cadiz, Spain | 29.97 | 761.2 | 70 | 21.1 | 70 | 21.1 | 85 | SSW | | | 2 | | 3 | | E | | | Smooth | | Pleasant | |
| Frolic, Rio de Janeiro, Brazil | 29.91 | 759.7 | 75 | 23.9 | 77 | 25.0 | 86 | NW | | | 2 | | 1ck | | | | | | | Showery | |
| ‡Gettysburg, Genoa, Italy | 29.89 | 759.2 | | | 70 | 21.1 | 95 | NW | | | 1 | | 3 | | | 0 | 0 | | | D. clouds | |
| Hartford, Matanzas, Cuba, W. I. | 30.21 | 767.3 | 81 | 27.2 | 79 | 26.1 | 78 | Calm | 0 | 0 | | | 6 | | | 0.06 | 1.57 | | | Pleasant | |
| Huron, Curacao Island, W. I. | 30.03 | 762.7 | 82 | 27.8 | 82 | 27.8 | 83 | E | | | 2–4 | | 8 | | WNW | | | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.00 | 762.0 | 68 | 20.0 | 68 | 20.0 | 84 | Calm | | | 0 | | 6 | | NE | 0 | 0 | | | Pleasant | |
| Lackawanna, Acapulco, Mexico | 29.89 | 759.2 | | | 82 | 27.8 | 70 | ENE | | | 0–1 | | 7 | | NNE | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 29.73 | 755.1 | 69 | 20.6 | 71 | 21.7 | 75 | SSW | | | 3 | | 7 | | SSW | Heavy | Heavy | Chop'd | S | D. clouds | |
| Michigan, Erie, Pa | 29.44 | 747.8 | 74 | 23.3 | 72 | 22.2 | 76 | NE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Shanghai, China | 29.81 | 757.2 | 70 | 21.1 | 65 | 18.3 | 100 | E | | | 2 | | 10 | | E | 0 | 0 | | | Blue sky | |
| Monongahela, Norfolk, Va | 30.03 | 762.7 | 76 | 24.4 | 75 | 23.9 | | SW | | | 3 | | c | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.27 | 768.8 | | | 74 | 23.3 | 95 | Calm | 0 | 0 | | | 9 | | NE | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.98 | 761.5 | 77 | 25.0 | 76.5 | 24.7 | 91 | N | 1 | 0.4 | | | 9 | | | 0.13 | 3.3 | Smooth | | Cloudy | |
| Ossipee, Port Royal, S. C | 30.08 | 764.0 | 75 | 23.9 | 75 | 23.9 | 90 | Calm | | | 0 | | 10 | | SSE | | | | | D. clouds | |
| Palos, Shanghai, China | 30.00 | 762.0 | 68 | 20.0 | 65 | 18.3 | 89 | SE | | | 1 | | 0 | | | | | | | Clear | |
| Plymouth, Off South Pass, La | 30.10 | 764.5 | 76 | 24.4 | 76 | 24.4 | 86 | NE | | | 1 | | 2 | | S&W | 0 | 0 | Moderate | E | Clear | |
| Ranger, Gibraltar Bay | 30.12 | 765.0 | | | 67 | 19.4 | 89 | Calm | | | 0 | | 6 | | | | | Smooth | | Cloudy | |
| Richmond, Rio de Janeiro, Brazil | 29.94 | 760.5 | 81.0 | 27.2 | 80.5 | 26.9 | 78 | NW | | | 2 | | 0 | | | 0 | 0 | | | Hazy | |
| Rio Bravo, Matamoras, Mexico | 29.75 | 755.6 | | | 67 | 19.4 | 95 | SE | | | 1 | | 9 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.00 | 762.0 | 77 | 25.0 | 75 | 23.9 | 77 | S | | | 1 | | 6 | | | 0 | 0 | | | Hazy | |
| St. Louis, League Island, Pa | 29.83 | 758.4 | 71 | 21.7 | 70 | 21.1 | 75 | ENE | 3 | 1.3 | | | 6 | | NW | 0 | 0 | | | Cloudy | |
| Swatara, San Andres, U. S. C | 29.99 | 759.4 | 82 | 27.8 | 82 | 27.8 | 87 | ENE | | | 1 | | 4k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.80 | 756.9 | 69 | 20.6 | 65 | 18.3 | 84 | ESE | | | 2 | | 10 | | | | | Smooth | | Heavy rain | |
| Trenton, Smyrna, Turkey | 29.75† | 755.6‡ | 66 | 18.9 | 71 | 21.7 | 95 | S | 11.3 | 5.1 | | | 5 | | S&E | 2.7 | 69. | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.71 | 754.6 | 65 | 18.3 | 66 | 18.9 | 84 | WSW | | | 1–3 | | 10 | | SW | | | | | Squally | |
| Wabash, Boston, Mass | 29.88 | 758.9 | 66 | 18.9 | 69 | 20.6 | 75 | NW | 4 | 1.8 | | | 7 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.02 | 762.5† | 76 | 24.4 | | | | Calm | | | 0 | | 7 | | WNW | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 32° 42′ E. 134° 59′ | | | 29.91 | 759.7 | 70 | 21.1 | 95 | SE | | | 1 | | 5ck | | | Moderate | SE | Hazy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colon | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

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| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 47° 11′ W. 34° 17′ | W by S ⅛ S | 9.5 | 29.91 | 759.7 | 59.8 | 13.8 | | WSW | | | 5 | | k | | WSW | Rough | | D. clouds | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 38° 9′ W. 63° 22′ | E by N | | 29.77 | 756.1 | 61.2 | 16.2 | | N | | | 6 | | k | | N | Moderate. | | Clear | Capt. A. Jaeger. |
| S. S. Ulio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give a monut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
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| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 29.98 | 761.5 | 77 | 25.0 | 91 | E | 3 | 1.3 | | | Fog | | | | | Foggy | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 21, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.89 | 759.3 | 70.9 | 21.6 | 69 | NNW | | | 4 | | 6 | | | 0 | 0 | Fair | Michel. |
| Algiers | | | 29.97 | 761.2 | 63.7 | 17.6 | 83 | NE | | | 3 | | 5 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.49 | 749.7 | 67.3 | 19.6 | 64 | N | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.00 | 761.9 | 69.8 | 21.0 | | N | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.97 | 761.1 | 77.0 | 25.0 | | ESE | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.82 | 757.3 | 77.4 | 25.2 | | N | | | 3 | | 6 | | | 0 | 0 | Fair | Millot. |
| Tebessa | | | 29.93 | 760.3 | 71.4 | 21.9 | | SE | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 29.84 | 758.0 | 84.2 | 29.0 | | SE | | | 3 | | 5 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.85 | 758.2 | 86.0 | 30.0 | 20 | E | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.91 | 759.6 | 87.3 | 30.7 | 25 | SE | | | 2 | | 10 | | | Inap. | Inap. | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.77 | 756.1 | 59.0 | 15.0 | 69 | SW | | | 2 | | 7 | | | 0.138 | 3.5 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.75 | 755.6 | 52.2 | 11.2 | 85 | W | | | 1 | | 10 | | | 0.208 | 6.8 | | Dr. Wierzbiski. |
| Eperies | | | 29.64 | 752.8 | 58.6 | 14.8 | 77 | N | | | 1 | | 10k,s | | | 0 | 0 | | Julius Mikolik. |
| Gratz | | | 29.74 | 755.3 | 61.7 | 16.5 | 59 | NW | | | 2 | | 8 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.52 | 724.3 | 29.65 | 753.1 | 53.4 | 11.9 | 84 | WNW | | | 2 | | 10 | | | 0.17 | 4.55 | Rainy | Prof. Reissenberger. |
| Kremsmünster | 28.25 | 717.5 | 29.85 | 758.2 | 49.6 | 9.8 | 70 | WSW | | | 2 | | 10 | | | 0.03 | 0.8 | | Prof. C. Wagner. |
| Lemberg | 28.51 | 724.1 | 29.56 | 750.7 | 63.7 | 17.6 | 76 | NW | | | 2 | | 5 | | | 0.16 | 4.3 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.78 | 756.4 | 64.0 | 17.8 | 65 | WNW | | | 1 | | 7cks | | | 0.068 | 1.76 | | I.R. Hydrographic Office |
| Szegedin | | | 29.71 | 754.5 | 55.0 | 12.8 | 62 | Calm | | | 0 | | 10 | | | 0 | 0 | | Karl Stancel. |
| Triesto | | | 29.81 | 757.1 | 71.1 | 21.7 | 55 | SW | | | 1 | | 10 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 29.80 | 756.9 | 54.7 | 12.6 | 58 | NNW | | | 3 | | 10 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.49 | 723.7 | 29.97 | 761.2 | 49.5 | 9.7 | 79 | NW | | | 1 | | 10 | | | 0.122 | 3.1 | | |
| Brussels | | | 30.01 | 762.3 | 51.3 | 10.7 | 86 | NNE | | | 0 | | 10 | | NNE | 0.203 | 7.45 | Light rain | Royal Observatory. |
| Furnes | | | 30.07 | 763.6 | 53.8 | 12.1 | 94 | NW | | | 2 | | 8 | | | 0 | 0 | | |
| Maeseyck | | | 29.84 | 758.0 | 50.9 | 10.5 | 82 | NNW | | | 6 | | 10 | | | 0.21 | 5.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Lower 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.46 | 773.7 | 45.9 | 7.7 | | NNE | 23 | 10.3 | | | 9 | | | 0 | 0 | Overcast | William Boswell. |
| Ardrossan | | | 30.38 | 771.6 | 54 | 12.2 | | WSW | | | 2 | | 6 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.42 | 772.7 | 52.7 | 11.5 | | NE | 7 | 3.1 | | | 10 | | | | | Overcast | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.32 | 770.1 | 53.0 | 11.7 | | NE | 15 | 6.7 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.37 | 771.4 | 59.0 | 15.0 | | ENE | | | 1 | | 3 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.35 | 770.9 | 48.1 | 8.9 | | NE | | | 1 | | 9 | | | 0.02 | 0.5 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 84 | 28.9 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.22 | 767.6 | 52.0 | 11.1 | | N | | | 3 | | 10 | | | | | Raining | H. Todd. |
| Cardington | | | 30.23 | 767.8 | 51.0 | 10.6 | | N | | | 4 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.13 | 765.3 | 56.2 | 13.4 | | NW | | | 2 | | 8 | | | | | Blue sky | Capt. Fellowes, R. E. |
| Dartmoor | | | | | | | | | | | | | | | | | | | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.39 | 771.9 | 53 | 11.7 | | NNE | | | 3 | | 3 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.10 | 764.5 | 55 | 12.8 | | NNE | | | 4 | | 7 | | | | | Gloomy | J. Costello. |
| Eccles, (near Manchester) | | | 30.31 | 769.9 | 51.1 | 10.6 | | NE | 3.0 | 1.3 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.27 | 768.8 | 53.0 | 11.7 | | N | | | 2 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.80 | 706.1 | 30.04 | 763.0 | 57.9 | 14.4 | | SE | | | 2 | | 10 | | | | | Overcast | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.84 | 757.9 | 87 | 30.6 | | W | | | 2 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.32 | 770.1 | 57 | 13.9 | | NE | | | 1 | | 6 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.84 | 758.4 | 67.2 | 19.6 | | E | | | 4 | | 5 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.38 | 771.6 | 54.3 | 12.4 | | E | | | 1 | | 3 | | | | | Blue sky | J. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.15 | 765.8 | 52 | 11.1 | | NNE | | | 4 | | 6 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.19 | 766.8 | 51.8 | 11.0 | | NNE | | | 4 | | 10 | | | | | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 30.21 | 767.3 | 53 | 11.7 | | NNE | | | 2 | | 5 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.39 | 769.4 | 55 | 12.8 | | N | | | 4 | | 6k | | | 0 | 0 | Fair | M. P. Moyle. |
| Holyhead | | | 30.34 | 770.6 | 53 | 11.7 | | NE | | | 3 | | 4 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.20 | 767.1 | 53.2 | 11.8 | | N | 21 | 9.4 | | | 10 | | | | | Overcast | The Staff. |
| Kingstown | | | 30.40 | 772.1 | 51 | 10.6 | | NE | | | 4 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.28 | 769.1 | 48.9 | 9.4 | | NE | | | 3 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.95 | 760.7 | 67.6 | 19.4 | | W | | | 1 | | 8 | | | | | Overcast | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.48 | 774.2 | 50 | 10.0 | | ENE | | | 2 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.00 | 762.0 | 78.2 | 25.7 | | SE | | | 1 | | 8 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.20 | 767.4 | 51.0 | 10.6 | | N | | | 5 | | 10k | | N | 0.009 | 0.2 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.28 | 769.1 | 48.8 | 9.3 | | NNE | | | 4 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.23 | 767.8 | 54 | 12.2 | | N | | | 3 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 30.24 | 768.1 | 57.2 | 14.0 | | NE | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.35 | 770.9 | 56 | 13.3 | | SE | | | 3 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.29 | 769.4 | 56 | 13.3 | | NNE | | | 2 | | 7 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.19 | 766.8 | 60.0 | 15.6 | | NNE | | | 4 | | 2 | | | | | ¼ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.53 | 775.4 | 46.8 | 8.2 | | N | 20 | 8.9 | | | 9 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.72 | 754.9 | 59.4 | 15.2 | | SW | | | 3 | | 8 | | | | | Raining | Sergt. W. H. Lyne. |
| Sheffield | | | 30.39 | 769.6 | 48.2 | 9.0 | | NE | | | 4 | | 10 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.37 | 771.4 | 52.0 | 11.4 | 66 | E | | | 4 | | 2 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.33 | 770.4 | 49.2 | 9.6 | | NE | | | 2 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.59 | 774.7 | 59 | 10.0 | | ENE | | | 2 | | 0 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.21 | 767.3 | 54.1 | 12.3 | | N | | | 1 | | 10 | | | | | Overcast | Rev. Charles H. Griffith. |
| Thurso | | | 30.49 | 774.4 | 46 | 7.8 | | N | | | 3 | | 9 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 30.25 | 768.3 | 54 | 12.2 | | N | | | 7 | | 6 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 30.33 | 770.4 | 59.4 | 15.2 | | NW | 13 | 5.8 | | | 4 | | | | | D. clouds | The Staff. |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 48 | 8.9 | | NNE | | | 4 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.35 | 770.9 | 59.1 | 15.1 | 60 | SSE | 27 | 12.1 | | 6 | 8 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.12 | 739.6 | 61.0 | 16.1 | 87 | N | | | 3 | | 3k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.45 | 773.4 | 50.0 | 10.0 | | E | | | 3 | | 2ck | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.16 | 766.1 | 75.0 | 23.9 | 67 | ESE | 16.2 | 7.3 | | 0 | 2 | | E | 0.06 | 1.5 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 29.61 | 752.1 | 58.6 | 14.8 | 71 | N | 10 | 4.5 | | | 8 | | | 0.07 | 1.8 | Rain-squalls | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 30.16 | 773.7 | 48 | 8.9 | | NE | | | 4 | 5 | 5 | NE | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.49 | 774.4 | 44 | 6.7 | | N | | | 4 | 5 | 7 | N | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Moulind. |
| Ship Camperdown | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. Quangle | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 16° 45′ W. 66° 45′ | 4 | E | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.15 | 664.2 | | | 67.6 | 19.8 | 98 | SE | | | 1 | | 10cs | | SE | 0.6 | 15. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.00 | 762.1 | 52.2 | 11.2 | 48 | E | | | 2 | | 10 | | | | | |
| Fanöe | | | 30.02 | 762.5 | 58.1 | 14.5 | 53 | NE | | | 6 | | 9 | | | | | |
| Godthaab, (Greenland) | | | 30.18 | 766.6 | 43.9 | 6.6 | 81 | NE | | | 2 | | 9 | | | | | |
| Stykkisholm, (Iceland) | | | 30.59 | 777.0 | 49.1 | 9.5 | 76 | SW | | | 2 | | 8 | | | | | |
| Thorshavn, (Faröe) | | | 30.50 | 776.1 | 51.6 | 10 9 | 56 | N | | | 2 | | 3 | | | | | |
| Vestervig | | | 30.15 | 765.8 | 51.8 | 11.0 | 70 | NE | | | 6 | | 6 | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.14 | 765.6 | 55.4 | 13 | 67 | N | | | 4 | | 8n | | N | 0.110 | 2.8 | Very cloudy | Normal School. |
| Amiens | | | 30.00 | 762.1 | 56.1 | 13.4 | | E | | | 4 | | 8 | | NE | 0.205 | 5.2 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.92 | 759 9 | 68.0 | 20 | 40 | N | | | 6 | | 0 | | | 0 | 0 | Clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.03 | 762.8 | 54.9 | 12 7 | 61 | N | | | 2 | | 8n | | NE | 0.031 | 0.8 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.10 | 764.4 | 55.9 | 13.3 | 71 | NNW | | | 2 | | 8 | | N | 0.246 | 6.25 | Very cloudy | Normal School. |
| Besançon | | | 30.07 | 763 8 | 57.2 | 14 | 60 | NW | | | 2 | | 2 | | N | 0.24 | 6. | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 30.07 | 763.6 | 57.9 | 14.4 | 68 | NW | | | 2 | | 0 | | | 0.12 | 3. | Clear | Normal School. |
| Bourges | | | 30.02 | 762.5 | 54.0 | 12.2 | 90 | W | | | 4 | | 10 | | NE | 0 | 0 | Covered | Normal School. |
| Brest | | | 30.16 | 766.0 | 53.8 | 12.1 | 61 | NNE | | | 4 | | 9k | | NNE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 30.07 | 763.6 | 60.8 | 16 | 50 | W | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Caen | | | 30.15 | 765.8 | 55.8 | 13.2 | 70 | NNW | | | 2 | | 10 | | S | | | Light rain | Normal School. |
| Chartres | | | 30.07 | 763 8 | 58.1 | 14.5 | 69 | N | | | 4 | | 4 | | N | 0.138 | 3.5 | | Normal School. |
| Châlons-sur-Marne | | | 30.02 | 762.5 | 57.0 | 13.9 | 73 | N | | | 2 | | 10kn | | S | 0.071 | 1.8 | Covered | Normal School. |
| Clermont-Ferrand | | | 30.02 | 762.5 | 56 8 | 13.8 | 80 | NW | | | 2 | | 8 | | | 0.110 | 2.8 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 30.00 | 762.0 | 49.1 | 9.5 | 84 | NW | | | 2 | | 10 | | NW | 0 | 0 | Covered | Normal School. |
| Commune de Gréasque* | | | 29.91 | 759.6 | 65 3 | 18.5 | 35 | W | | | 2 | | 5 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.00 | 762.1 | 57.9 | 14 4 | 81 | NNE | | | 4 | | 5kn | | SE | 0.08 | 2. | Raining | Normal School. |
| La Roche-sur-Yon | | | 30.19 | 766 7 | 57.9 | 14.4 | 65 | NW | | | 2 | | 5 | | SE | 0 | 0 | Cloudy | Normal School. |
| Le Mans | | | 30.09 | 764.2 | 56.5 | 13.6 | 98 | NNE | | | 2 | | 5 | | NE | 0.20 | 5. | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.00 | 762.0 | 58.1 | 14.5 | 58 | | | | | | 5 | | | 0.272 | 6.90 | Heavy rain | Normal School. |
| Lorient | | | 30.21 | 767.4 | 56.5 | 13.6 | 52 | NE | | | 3 | | 10 | | N | 0 | 0 | Covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.09 | 764.2 | 58.6 | 14.8 | 86 | Calm | | | 0 | | 5 | | SE | 0.268 | 6.8 | Cloudy | Mr. Marchal. |
| Metz | | | 30.06 | 763.4 | 54.5 | 12.5 | 76 | WNW | | | 3 | | 10 | | W | 0 | 0 | Covered | M. A. Schuster. |
| Mirecourt | | | 30.05 | 763.2 | 55 2 | 12.9 | 75 | NE | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes | | | 29.97 | 761.1 | 68.4 | 20.2 | 65 | N | | | 6 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.07 | 763.8 | 57.2 | 14 | 67 | W | | | 2 | | 2 | | NNW | 0.16 | 4. | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.07 | 763.8 | 54.7 | 12.6 | 63 | NW | | | 2 | | 9k | | NW | 0.107 | 2.73 | Almost cov'd | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.12 | 765.1 | 59.4 | 15.2 | 62 | WNW | | | 3 | | 5 | | ESE | 0 | 0 | ½ covered | Naval Observatory. |
| Rouen | | | 30.13 | 765.2 | 56.3 | 13.5 | 64 | NNW | | | 4 | | 5 | | N | 0.118 | 3.0 | Cloudy | Normal School. |
| Tarbes | 28.93 | 734.9 | 30.00 | 762.0 | 55.4 | 13 | 90 | SW | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Villefranche | | | | | | | | | | | | | | | | | | | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.80 | 756.8 | 81.0 | 27.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.80 | 757.0 | 66.7 | 19.3 | 38 | NW | | | 3–4 | | 2 | | | 0 | 0 | Partly cl'dy | The Staff. |
| Mont-Louis | | | 30.14 | 765.6 | 45.5 | 7.5 | 53 | ESE | 5.6 | 2.50 | | | 6 | | WNW | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | 24.83 | 630.6 | 30.07 | 763.6 | 55.6 | 13 1 | 69 | NNW | | | 2–3 | | 8 | | NNW | 0.075 | 1.9 | | Montsouris Observatory |
| Perpignan | | | 30.03 | 762.7 | 63.1 | 17.3 | 48 | NW | 16.8 | 7.50 | | | 2 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.48 | 571.0 | | | 33.8 | 1.0 | | N | | | 1 | | 10 | | | 0 | 0 | Cloudy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.07 | 763.6 | 56.7 | 13.7 | 67 | NNW | | | 2 | | 9 | | | 0 | 0 | Covered | E. Renou. |
| Toulouse, Observatory | | | 30.13 | 765.3 | 58.5 | 14.7 | 53 | NW | | | 3 | | 8 | | | 0 | 0 | | The Staff |
| Tours | | | 30.11 | 764.9 | 59.2 | 15.1 | 52 | NW | | | 2 | | 9 | | N | 0.287 | 7.3 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.08 | 764.1 | 59.0 | 15.0 | 61 | N | | | 2 | | 9 | | | 0.210 | 5.32 | Very cloudy | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.00 | 762.0 | 62.4 | 16.9 | 91 | ESE | 15.4 | 6.9 | | | 2ks | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.88 | 758.9 | 51.8 | 11.0 | 63 | N | | | 3 | | 10 | | | 0.020 | 0.5 | | Prof. T. Hoh. |
| Berlin | | | 29.88 | 759 0 | 50.5 | 10.3 | 84 | N | | | 1 | | 10 | | | 0.004 | 0.1 | | Prof. Arndt. |
| Breslau | | | 29.83 | 757.6 | 52.3 | 11.3 | 73 | NW | | | 3 | | 10 | | | 0.016 | 0.4 | | Royal University Obs'y. |
| Carlsruhe | | | 29.93 | 760.3 | 52.9 | 11.6 | 76 | SW | | | 3 | | 10 | | | 0.394 | 10.0 | | Albert Senz. |
| Cassel | | | 29.97 | 761.1 | 48.6 | 9.2 | 81 | N | | | 7 | | 10 | NW | | 0.295 | 7.5 | | Dr. H. Möhl. |
| Crefeld | | | 29.93 | 760.3 | 50.9 | 10.5 | 78 | N | | | 4 | | 10 | | | 0.118 | 3.0 | | Director Lose. |
| Emden | | | 30.02 | 762.5 | 48.7 | 9.3 | 90 | NE | | | 5 | | 10 | | | 0.091 | 2.3 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.96 | 761.0 | 53.2 | 11.8 | 66 | N | | | 0 | | 9 | | | 0.004 | 0.1 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.2? | 29.95 | 760.6? | 56.1 | 13 4 | 73 | SSW | | | 2 | | 10 | NW | | 0 024 | 0.6 | Raining | M. Wilhelm. |
| Hamburg | | | 29.95 | 760.8 | 43 9 | 6.6 | 93 | NE | | | 7 | | 10n | | | 0.157 | 4.0 | Raining | Captain F. Hegemann. |
| Kiel | | | 30.00 | 762.0 | 48.7 | 9.3 | 97 | NE | | | 5 | | 10 | | | 0.327 | 8.3 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.73 | 755.1 | 61.7 | 16.5 | 79 | NE | | | 2 | | 5 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | 29.88 | 758.9 | 44.4 | 6.9 | | Calm | | | 0 | | 4 | | | 0.317 | 8.0 | | H. Muller. |
| Leipsic | | | 29.90 | 759.5 | 48.6 | 9 2 | 79 | W | | | 1 | | 10 | WNW | | 0.244 | 6.2 | | Prof. Brahms. |
| Memel, Naval School | | | 29.82 | 757.3 | 54.5 | 12 5 | | NE | | | 4 | | 10ks | | | | | Squally | Reinbrecht & Skalweit. |
| Münster | | | 29.90 | 759.4 | 51.1 | 10.6 | 62 | N | | | | | 1 | | | 0.059 | 1.5 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.82 | 757.3 | 45.1 | 7.3 | 96 | N | | | 4 | | 10 | | | 0.028 | 0.7 | Misty | A. Lothes. |
| Posen | | | 29.83 | 757.7 | 53.4 | 11.9 | 90 | NW | | | 6 | | 10 | | | 0 020 | 0.5 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.98 | 761.5 | 52.9 | 11.6 | 71 | NW | | | 2 | | 10 | | | 0.004 | 0.1 | Raining | Dr. Schur. |
| Stuttgart | | | 29.91 | 759.8 | 54.0 | 12.2 | 57 | NW | | | 1 | | 10 | SW | | Inap. | Inap. | Light rain | Prof. Schoder |
| Treves, (Trier) | | | 29.84 | 758 0 | 52.7 | 11 5 | 75 | NW | | | 4 | | 10 | | | 0.028 | 0.7 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.36 | 720.3 | 29.88 | 758 9 | 46.4 | 8.0 | 75 | WNW | | | 1 | | 10 | WSW | | Inap. | Inap. | Light rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.00 | 762.1 | 44.4 | 6.9 | 85 | NE | | | 6 | | 10 | | | 0.146 | 3.7 | | E. F Schätz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.85 | 758.2 | 72.9 | 22.7 | | S | | | Strong | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. U'per 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall, or melted snow in the past 24 hours. Inches. | Rain-fall, or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.03 | 559.5 | 29.842 | 758.02 | 32.0 | 0.0 | 92 | W | | | 2 | | 10 | NE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 21.96 | 557.8 | 29.699 | 754.03 | 35.0 | 2.0 | | NNE | | | 1 | | 5 | WSW | | 0 | 0 | | Signora Ernesta Mantredi. |
| Udine | | | 29.78 | 756.5 | 54.3 | 12.7 | 77 | N | 1.3 | 0.6 | | | 10 | | | 1.831 | 46.5 | | Ab. Dem. Morgini. |
| Padua | | | 29.75 | 755.7 | 64.0 | 18.1 | 78 | N | 6.3 | 3.1 | | | 6 | N | | 1.028 | 26.1 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.76 | 755.8 | 68.4 | 20.2 | 45 | SW | 11.3 | 5.0 | | | 4 | E | | 0.291 | 7.4 | | Cont. Alm. Da Schio. |
| Verona | | | 29.75 | 755.7 | 68.7 | 20.4 | 40 | SE | | | 2 | | 10 | | | 0 | 0 | | Dott. S. Bertoncelli. |
| Bergamo | 28.47 | 723.0 | 29.77 | 756.2 | 68.4 | 20.0 | 35 | SE | | | 2 | | 7 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.74 | 755.4 | 69.4 | 20.8 | 19 | N | | | 6 | | 3 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.77 | 756.1 | 71.4 | 21.9 | 40 | SW | | | 1 | | 8 | NE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.76 | 755.9 | 72.0 | 22.2 | 27 | W | | | 4 | | 6 | SW | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | 27.95 | 709.9 | 29.79 | 756.6 | 63.0 | 17.2 | 19 | WNW | | | 6 | | 3 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | | | 29.78 | 756.3 | 69.1 | 20.6 | 33 | ESE | 4.4 | 2.2 | | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.85 | 758.3 | 66.4 | 19.1 | 43 | SW | | | 6 | | 4 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.82 | 757.5 | 65.1 | 18.4 | 53 | S | 4.3 | 1.9 | | | 6 | NE | | 0.140 | 3.7 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.78 | 756.4 | 68.2 | 20.1 | 38 | E | 1.3 | 0.6 | | | 7 | S | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.78 | 756.3 | 70.3 | 21.3 | 47 | SE | | | 2 | | 4 | | | 0.094 | 2.4 | | Prof. P. Pigorini. |
| Florence | | | 29.82 | 757.4 | 66.2 | 19.0 | 45 | NE | | | 2 | | 9 | | | 0.268 | 6.8 | | Cav. F. Meucci. |
| Leghorn | | | 29.81 | 757.2 | 66.0 | 18.9 | 54 | WNW | 4.4 | 2.2 | | | 5 | NW | | 0.012 | 0.3 | | Prof. P. Monte. |
| Siena | 28.01 | 720.8 | 29.80 | 757.0 | 53.4 | 11.9 | 72 | NE | 3.1 | 1.4 | | | 10 | E | | 0.016 | 0.4 | | Prof. L. Toscani. |
| Urbino | 28.27 | 718.0 | 29.80 | 756.9 | 55.9 | 13.3 | 78 | SE | | | 2 | | 10 | | | 0.571 | 14.5 | | Prof. P. Serpieri. |
| Pesaro | | | 29.82 | 757.4 | 59.9 | 15.5 | 69 | N | 19.3 | 8.6 | | | 2 | N | | 0.270 | 7.0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.82 | 757.3 | 63.0 | 17.2 | 77 | NNE | | | 4 | | 2 | | | 0.169 | 4.3 | | Prof. F. DeBosis. |
| Grosseto | | | 29.82 | 757.3 | 63.0 | 17.2 | 60 | NNE | | | 2 | | 6 | | | 0.098 | 2.5 | | Avv. P. Ponticelli. |
| Rome | | | 29.82 | 757.5 | 67.0 | 19.8 | 48 | W | 11.3 | 5.0 | | | 1 | | | 0.047 | 1.2 | | Prof's P. Secchi & L. Respighi. |
| Naples, O. U. | | | 29.95 | 760.8 | 68.4 | 20.2 | 43 | W | | | 4 | | 7 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.82 | 757.5 | 67.0 | 19.8 | 39 | WNW | 23.7 | 10.6 | | | 3 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.89 | 759.3 | 67.8 | 19.9 | 65 | SE | 9.8 | 4.4 | | | 6 | | | 0.047 | 1.2 | | Prof. F. D. Conti. |
| Cagliari | | | 29.88 | 759.0 | 68.0 | 20.0 | 36 | N | | | 4 | | 1 | NW | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.85 | 758.3 | 65.7 | 18.6 | 71 | E | | | 2 | | 10 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.87 | 758.7 | 69.3 | 20.7 | 42 | W | 8.1 | 3.6 | | | 4 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 27.96 | 710.1 | 29.86 | 758.5 | 68.7 | 20.3 | 25 | W | | | 4 | | 4 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.84 | 758.0 | 69.3 | 20.7 | 70 | NE | | | 4 | | 6 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.89 | 759.1 | 65.7 | 18.6 | 48 | SSW | 7.4 | 3.3 | | | 6 | SE | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. U'per 0—10. | Low'r 0—10. | Clouds. Direction. Upper. From— | Lower From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.09 | 764.3 | 61.5 | 16.4 | 91 | Calm | 0 | 0 | | | 10s | | | 0.304 | 7.72 | Cloudy | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. U'per 0—10. | Low'r 0—10. | Clouds. Direction. Upper. From— | Lower From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.04 | 585.3 | 30.03 | 762.8 | 59.0 | 15.0 | 77 | W | 1.9 | 0.83 | | 10k | 10k | W | W | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. U'per 0—10. | Low'r 0—10. | Clouds. Direction. Upper. From— | Lower From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.07 | 763.6 | 55.8 | 13.2 | | NE | | | 5 | | | | | 0 | 0 | | |
| Groningen | | | 29.94 | 760.4 | 48.9 | 9.4 | | NE | | | 4 | | | | | 0.055 | 1.4 | | |
| Helder | | | 30.03 | 762.8 | 49.8 | 9.9 | | NNE | | | 5 | | | | | 0.051 | 1.3 | | |
| Utrecht | | | 29.97 | 761.2 | 51.8 | 11.0 | 74 | NNE | | | 4 | | 10 | | | 0.075 | 1.9 | Dull | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. U'per 0—10. | Low'r 0—10. | Clouds. Direction. Upper. From— | Lower From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.22 | 767.5 | 56.5 | 13.6 | 56 | W | 10.5 | 4.7 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.31 | 769.8 | 44.8 | 7.1 | 44 | N | 9 | 4 | | | 6 | | | 0 | 0 | | |
| Christiania | | | 30.21 | 767.2 | 57.6 | 14.2 | 20 | NE | 7 | 3 | | | 0 | | | 0 | 0 | | |
| Tromsö | | | 30.33 | 770.4 | 36.0 | 2.2 | 84 | NE | 9 | 4 | | | 5 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.15 | 765.9 | 63.5 | 17.5 | 92 | SE | 4.0 | 2.2 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.84 | 757.9 | 76.0 | 24.8 | 28 | NE | 11.9 | 5.3 | | | 2 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.01 | 762.3 | 70.3 | 21.3 | 69 | S | 2.5 | 1.1 | | | 1 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.87 | 758.6 | 73.2 | 22.9 | 30 | NE | 19.9 | 8.9 | | | 0 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.17 | 766.2 | 74.1 | 23.4 | 69 | Calm | 0 | 0 | | | 5 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'dr. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.63 | 752.6 | 66.9 | 19.4 | 80 | WNW | 4 | 2 | | | 9 | | | | | | Astronomical Obs. |
| Wilna | | | 29.60 | 751.8 | 70.7 | 21.5 | 59 | N | 11 | 5 | | | 6 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.92 | 760.0 | 54.5 | 12.5 | 49 | NNE | 13 | 6 | | | 7 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.97 | 761.2 | 53.2 | 11.8 | 44 | NE | 13 | 6 | | | 1 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.07 | 763.7 | 49.1 | 9.5 | 55 | N | 13 | 6 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 29.44 | 747.8 | 69.3 | 20.7 | 73 | E | 4 | 2 | | | 9 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.63 | 752.6 | 70.2 | 21.2 | 63 | SW | 34 | 15 | | | 8 | | | | | | Kurdakof |
| Kertch | | | 29.82 | 757.4 | 69.1 | 20.6 | 65 | SSW | 16 | 7 | | | 1 | | | | | | Lagorio. |
| Moscow | | | 29.63 | 752.6 | 64.6 | 18.1 | 83 | NNW | 7 | 3 | | | 7 | | | | | | Meteorological Obs. |
| Lugan | | | 29.58 | 751.4 | 63.0 | 17.2 | 76 | SW | 9 | 4 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 30.05 | 763.2 | 43.0 | 6.1 | 57 | NW | 27 | 12 | | | 5 | | | | | | Ogorodnikof. |
| Tiflis | 28.49 | 723.6 | 29.85 | 758.3 | 72.0 | 22.2 | 36 | NW | 45 | 20 | | | 5 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.72 | 754.9 | 84.6 | 28.9 | 27 | NW | 9 | 4 | | | 8 | | | | | | Sebastianof. |
| Kasan | | | 29.61 | 752.1 | 78.4 | 25.8 | 28 | SSE | 4 | 2 | | | 0 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 28.89 | 733.7 | 29.82 | 757.3 | 58.3 | 14.6 | 82 | SE | 4 | 2 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.41 | 721.6 | 30.04 | 763.0 | 79.0 | 26.1 | 35 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.11 | 764.9 | 58.1 | 14.5 | 63 | Calm | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.82 | 757.4 | 40.3 | 4.6 | 45 | WNW | 9 | 4 | | | 2 | | | Blank | Blank | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 32.9 | 0.5 | | NW | 11 | 5 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.88 | 759.0 | 69.1 | 20.6 | 68 | Calm | 0 | 0 | | | 5 | | | | | Thunder-storm. | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.03 | 762.8 | 57.9 | 14.4 | 66 | Calm | 0 | 0 | | | 0 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 39.2 | 4.0 | | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet: Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.91 | 759.8 | 70.2 | 21.2 | 29 | NE | 11.2 | 5.00 | | 1 | 0 | SW | | 0 | 0 | Light clouds | Royal Observatory. |
| San Fernando | | | 29.84 | 757.8 | 78.3 | 25.7 | 39 | ESE | 17.0 | 7.6 | | 0 | 2 | | E | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.96 | 760.9 | 77.2 | 25.1 | 85 | Calm | 0 | 0 | | 0 | 0 | | | 0.661 | 16.8 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.27 | 768.9 | 42.4 | 5.8 | 94 | N | | | 6 | | 5 | | | 0 | 0 | | |
| Umea | | | 30.29 | 769.4 | 47.1 | 8.4 | 45 | E | | | 4 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 30.27 | 768.9 | 46.8 | 8.2 | 62 | SE | | | 2 | | 7 | | | 0 | 0 | | |
| Stockholm | | | 30.12 | 765.1 | 50.0 | 10.0 | 54 | NNE | | | 6 | | 0 | | | 0 | 0 | | |
| Wisby | | | 30.02 | 762.6 | 42.4 | 5.8 | 73 | NE | | | 6 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.17 | 766.3 | 49.5 | 9.7 | 34 | NNE | 17.9 | 8.0 | | | 0 | | | 0.002 | 0.05 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.56 | 725.3 | 29.98 | 761.5 | 54.3 | 12.4 | 61 | N | | | 2 | | 8 | | | 0.059 | 1.5 | Cloudy | The Observatory. |
| Zurich | 28.32 | 719.4 | 29.96 | 761.0 | 54.0 | 12.2 | 64 | W | | | 2 | | 8 | | | 0 | 0 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —0.1 mm; Thermometer, —5.0 cent.; Relative Humidity, +4 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.77 | 756.2 | 65.5 | 18.6 | 72 | SSW | 17 | 7.5 | | | 10 | | SW | 0.354 | 9.0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.00 | 762.0 | 84.2 | 29.0 | | SE | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.81 | 757.2 | 73.8 | 23.2 | | SW | | | 2 | | 5 | | | 0.00 | Blank | | B. Stéfanidès. |
| Valona | | | 29.91 | 759.8 | 69.4 | 20.8 | | SW | | | 2 | | 5 | | | 2.56 | 65. | Cloudy | A. Bertrand. |
| Varna | | | 29.84 | 758.0 | 68.0 | 20.0 | | SE | | | 2 | | 10 | | | | | Thunder-storm | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 30.09 | 764.2 | 76.1 | 24.5 | 56 | N | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 26.74 | 755.4 | 51.9 | 11.1 | 40 | NW | 8 | 3.6 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.74 | 756.7 | 58 | 14.4 | | N | 1 | 0.4 | | | 10s | | N | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.76 | 755.9 | 49 | 9.4 | 50 | NW | 14 | 6.3 | | 2c | 0 | NW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island. | | | 29.74 | 755.4 | 47 | 8.3 | 44 | NW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.80 | 756.9 | 52.9 | 11.6 | 70 | E | | | 3 | | 9s | | | Inap. | Inap. | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.80 | 756.9 | 48.7 | 9.3 | 44 | W | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| *Esquimault, B. C. | | | 29.90 | 759.4 | 48.3 | 9.1 | 93 | W | | | | 9cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.89 | 759.2 | 40 | 4.4 | 80 | Calm | 0 | 0 | | 0 | 2s | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 29.85 | 758.2 | 49.7 | 9.8 | 38 | NW | 7 | 3.1 | | 2 | 0 | | | 0 | 0 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.75 | 755.6 | 48 | 8.9 | 85 | N | 13 | 5.8 | | 5k | 5ks | N | N | 0.870 | 22.10 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.71 | 754.6 | 63.5 | 17.5 | 94 | SW | | | 2 | | 10n | | | 0.300 | 7.77 | Foggy | H. J. Strang, M. A |
| Granton, Ontario | | | 29.69 | 754.1 | 68 | 20.0 | 84 | SW | | | 1 | 0 | 0 | | | 0.10 | 2.5 | Clear | James Grant. |
| *Halifax, N. S. | 28.65 | 727.7 | 29.73 | 755.9 | 59 | 10.6 | 41 | NW | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.74 | 755.4 | 61.9 | 16.6 | 83 | W | | | 2 | 8ck | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Hearr's Content, N. F. | | | 29.31 | 744.5 | 40 | 4.4 | 82 | W | | | 3 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.80 | 756.9 | 58 | 14.4 | 79 | NE | 6 | 2.7 | | | 10ks | | | Inap | Inap | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.85 | 758.2 | 53 | 11.7 | 74 | NE | 8 | 3.6 | | 10pz | 7s | | | 0 | 0 | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.70 | 754.4 | 60 | 15.6 | 92 | SE | 11 | 4.9 | | 5k | 5ks | W | W | 0.44 | 11.2 | Cloudy | Rev. R. Mosley. |
| Port Dover, Ontario | | | 29.73 | 755.1 | 62 | 16.7 | 94 | S | 3 | 1.3 | | 10k | 0 | S | | 0.10 | 2.5 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.60 | 751.8 | 40.2 | 4.6 | | NW | | | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.73 | 755.1 | 64 | 17.8 | 92 | NW | 5 | 2.2 | | 8k | 0 | W | | 0.03 | 0.8 | Fair | M. Payne. |
| *Quebec, Quebec | | | 29.91 | 759.7 | 51 | 10.6 | 73 | NE | 2 | 0.9 | | 8k | 2ks | NE | NE | 0 | 0 | Fair | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.70 | 756.7 | 52 | 11.1 | 86 | E | 8 | 3.6 | | | 8s | | SE | 0.08 | 2.0 | Heavy rain. | W. H. McIntyre. |
| St. John, N. B. | | | 29.85 | 758.2 | 48 | 8.9 | 43 | N | 10 | 4.5 | | 5 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.66 | 753.4 | 61 | 16.1 | 83 | Calm | 0 | 0 | | 8's8 | 0 | | | 0.10 | 2.5 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.64 | 752.6 | 70 | 21.1 | 79 | E | 5 | 2.2 | | 8c | 0 | W | | 0.23 | 5.8 | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.46 | 722.9 | 29.69 | 754.1 | 65.2 | 18.4 | 95 | SW | 8 | 3.6 | | 2c | 1s | NW | | 0.42 | 10.7 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.56 | 750.8 | 47 | 8.3 | 51 | NW | 15 | 6.7 | | 5k | 0 | NW | | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.72 | 754.9 | 56 | 13.3 | 87 | NE | 3 | 1.3 | | 5ck | 8s | W | W | 0.04 | 1.0 | Cloudy | Magnetic Observatory |
| Windsor, N. S. | | | 29.75 | 755.6 | 47.8 | 8.8 | 44 | NW | 15 | 6.7 | | 2c | 6 | NW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.70 | 754.4 | 67.4 | 19.7 | 92 | W | 9 | 4.0 | | 3c | 0 | | | 0.40 | 10.2 | Fair | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.41 | 747.0 | 41.0 | 6.7 | 68 | S | | | | 10k | 10s | | | 0 | 0 | Cloudy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. (1—10) | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.87 | 758.7 | 65 | 18.3 | 73 | W | 4 | 1.8 | | 0 | 8ks | | NW | 0 | 0 | Fair | |
| Alpena, Mich. | | | 29.62 | 752.3 | 58 | 14.4 | 93 | SE | 3 | 1.3 | | 0 | 1ks | | SE | 0.51 | 13.0 | Clear | |
| Atlantic City, N. J. | | | 29.76 | 755.9 | 65 | 18.3 | 90 | SE | 2 | 0.9 | | 5k | 2s | NW | | 0.38 | 9.7 | Threatening | |
| Augusta, Ga. | | | 29.90 | 759.4 | 80 | 26.7 | 78 | S | 2 | 0.9 | | 5ck | 2ks | SW | S | 0 | 0 | Fair | |
| Baltimore, Md. | | | 29.77 | 756.1 | 73 | 22.8 | 76 | NE | 4 | 1.8 | | 5k | 5s | | | Inap. | Inap. | Cloudy | |
| Barnegat, N. J. | | | 29.76 | 755.9 | 60 | 15.6 | 88 | NE | 6 | 2.7 | | 10ck | Haze | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.01 | 711.4 | 29.62 | 752.3 | 47 | 8.3 | 85 | NE | 15 | 6.7 | | | 10s | | NE | 0.05 | 1.3 | Threatening | |
| Boston, Mass. | | | 29.91 | 759.7 | 56 | 10.0 | 86 | NE | 6 | 2.7 | | | 10s | | NW | Inap. | Inap. | Cloudy | |
| Breckenridge, Minn. | | | 29.43 | 747.5 | 54 | 12.2 | 93 | N | 26 | 11.6 | | | 10n | | N | 1.17 | 29.7 | Light rain | |
| Buffalo, N. Y. | | | 29.68 | 753.9 | 64 | 17.8 | 89 | W | 5 | 2.2 | | | 10s | | SW | Inap. | Inap. | Cloudy | |
| Burlington, Vt. | | | 29.84 | 757.9 | 57 | 13.9 | 63 | Calm | 0 | 0 | | 5c | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 29.84 | 757.9 | 71 | 21.7 | 85 | Calm | 0 | 0 | | 0 | Haze | | | 0.09 | 2.3 | Clear | |
| Campo, Cal. | 27.31 | 693.7 | 29.88 | 758.9 | 51 | 10.6 | 86 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 51 | 10.6 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.78 | 756.4 | 70 | 21.1 | 90 | SW | 15 | 6.7 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Cape Henry, Va. | | | 29.74 | 755.4 | 80 | 26.7 | 70 | W | 15 | 6.7 | | 2c | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 29.87 | 758.7 | 71 | 21.1 | 95 | SW | 18 | 8.0 | | | Fog | | | 0 | 0 | Foggy | |
| Cape May, N. J. | | | 29.76 | 755.9 | 67 | 19.4 | 84 | Calm | 0 | 0 | | 5cs | 0 | W | | 0.61 | 15.5 | Fair | |
| Charleston, S. C. | | | 29.92 | 760.0 | 77 | 25.0 | 82 | S | 5 | 2.2 | | | 10s | | S | 0 | 0 | Cloudy | |
| Cheyenne, Wyoming | 23.94 | 608.1 | 29.88 | 758.9 | 39 | 3.9 | 91 | N | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.67 | 753.6 | 65 | 18.3 | 68 | SW | 9 | 4.0 | | 0 | 0 | | | 0.52 | 13.2 | Clear | |
| Cincinnati, Ohio | | | 29.73 | 755.1 | 72 | 22.2 | 80 | Calm | 0 | 0 | | 1ck | Sm'e | SW | | 0.02 | 0.5 | Clear | |
| Cleveland, Ohio | | | 29.76 | 755.9 | 68 | 20.0 | 74 | S | 10 | 4.5 | | 2k | 2s | W | W | 0.11 | 2.8 | Fair | |
| Corsicana, Tex. | | | 29.88 | 758.9 | 71 | 21.7 | 85 | S | 8 | 3.6 | | 5cs | 0 | S | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 29.69 | 754.1 | 62 | 16.7 | 77 | SW | 11 | 4.9 | | 0 | 0 | | | 0.19 | 4.8 | Clear | |
| Denison, Tex. | | | 29.84 | 757.9 | 73 | 22.8 | 75 | SW | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.72 | 627.9 | 29.94 | 760.5 | 46 | 7.8 | 69 | Calm | 0 | 0 | | 0 | 5s | | | 0 | 0 | Fair | |
| Detroit, Mich. | | | 29.69 | 754.1 | 66 | 18.9 | 90 | SW | 4 | 1.8 | | 0 | 0 | | | 0.10 | 2.5 | Clear | |
| Dodge City, Kan. | 27.26 | 692.4 | 29.46 | 748.3 | 60 | 15.6 | 88 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.60 | 751.8 | 61 | 16.1 | 70 | SW | 8 | 3.6 | | 0 | 0 | | | 2.17 | 55.1 | Clear | |
| Duluth, Minn. | | | 29.35 | 745.5 | 45 | 7.2 | 92 | NE | 18 | 8.0 | | | 10n | | | 1.64 | 41.7 | Light rain | |
| Eastport, Me. | | | 29.86 | 758.4 | 52 | 11.1 | 59 | NW | 2 | 0.9 | | 8c | 0 | NW | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.68 | 753.9 | 72 | 22.2 | 80 | SW | 10 | 4.5 | | 8cs | 0 | W | | 0.12 | 3.0 | Cloudy | |
| Escanaba, Mich. | | | 29.55 | 750.6 | 57 | 13.9 | 87 | S | 9 | 4.0 | | 5k | 2s | S | S | 0.22 | 5.6 | Fair | |
| Florence, Arizona | | | 29.84 | 757.9 | 62 | 16.7 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.82 | 757.4 | 69 | 20.6 | 75 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.75 | 755.6 | 35 | 1.7 | 90 | SW | | | 3 | | 10ks | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.68 | 728.5 | 29.76 | 755.9 | 65 | 18.3 | 57 | S | 4 | 1.8 | | 0 | 0 | | | 1.88 | 47.8 | Clear | |
| Fort Sully, Dakota | 28.12 | 714.2 | 29.75 | 755.6 | 50 | 10.0 | 86 | NW | 18 | 8.0 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 29.96 | 761.0 | 74 | 23.3 | 81 | S | 4 | 1.8 | | 3c,k | 0 | W,S | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.66 | 753.4 | 60 | 15.6 | 76 | SW | 16 | 7.2 | | 0 | 0 | | | 0.75 | 19.1 | Clear | |
| Indianapolis, Ind. | | | 29.92 | 760.0 | 78 | 25.6 | 73 | SE | 4 | 1.8 | | 2k | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 29.75 | 755.6 | 71 | 21.7 | 80 | S | 3 | 1.3 | | 0 | 0 | | | 0.25 | 6.3 | Clear | |
| Jacksonville, Fla. | | | 29.93 | 760.2 | 77 | 25.0 | 82 | E | 6 | 2.7 | | 8k | 0 | NW | | 0.05 | 1.3 | Cloudy | |
| Keokuk, Iowa | | | 29.68 | 753.9 | 69 | 20.6 | 75 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.96 | 761.0 | 81.0 | 27.2 | 78 | Calm | 0 | 0 | | 2cs | 1ks | SE | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 29.81 | 757.2 | 74 | 23.3 | 85 | SW | 16 | 7.2 | | 8c | 0 | E | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 29.85 | 758.2 | 72 | 22.2 | 80 | S | 4 | 1.8 | | 1ck | 0 | SW | | 0.01 | 0.3 | Clear | |
| LaCrosse, Wis. | | | 29.50 | 749.3 | 59 | 15.0 | 70 | SW | 16 | 7.2 | | 0 | 0 | | | 0.73 | 18.5 | Clear | |
| Leavenworth, Kan. | | | 29.75 | 755.6 | 68 | 20.0 | 55 | NW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 29.77 | 756.1 | 76 | 24.4 | 72 | W | 5 | 2.2 | | 0 | 0 | | | 0.61 | 15.5 | Clear | |
| Lynchburg, Va. | | | 29.76 | 755.9 | 79 | 26.1 | 54 | W | 2 | 0.9 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Maricopa Wells, Arizona | | | | | 68 | 20.0 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.47 | 748.5 | 62 | 16.7 | 71 | S | 8 | 3.6 | | 2k | 0 | SW | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 29.87 | 758.7 | 77 | 25.0 | 76 | SW | 4 | 1.8 | | 0 | 2ks | | SW | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 29.67 | 753.6 | 59 | 15.0 | 70 | SW | 13 | 5.8 | | 0 | 0 | | | 0.23 | 5.8 | Clear | |
| Mobile, Ala. | | | 29.96 | 761.0 | 71 | 21.7 | 95 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| Montgomery, Ala. | | | 29.93 | 760.2 | 75 | 23.9 | 74 | W | 8 | 3.6 | | 2c | Haze | W | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.74 | 730.0 | 29.73 | 755.1 | 70 | 21.1 | 75 | SW | 4 | 1.8 | | 0 | 5s | | SW | 0.44 | 11.2 | Fair | |
| Mt. Washington, N. H. | 23.69 | 610.7 | 30.05 | 763.3 | 39 | 3.9 | 81 | NW | 18 | 8.0 | | 8c | 0 | NW | | 0.36 | 9.1 | Fair | |
| Nashville, Tenn. | | | 29.83 | 757.7 | 80 | 26.7 | 66 | W | 4 | 1.8 | | 2k | 0 | SW | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.81 | 757.9 | 66 | 18.9 | 64 | E | 10 | 4.5 | | Haz | Haze | | | 0 | 0 | Clear | |
| New London, Conn. | | | 29.84 | 758.4 | 61 | 16.1 | 82 | E | 9 | 4.0 | | 1ck | 2ks | W | E | 0 | 0 | Fair | |
| New Orleans, La. | | | 29.95 | 760.7 | 75 | 23.9 | 79 | W | 4 | 1.8 | | 1cs | 2k | W | NW | 0.01 | 0.3 | Fair | |
| Newport, R. I. | | | 29.88 | 758.9 | 59 | 15.0 | 70 | E | 10 | 4.5 | | | 10ks | | NW | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 29.80 | 755.9 | 64 | 17.8 | 67 | NE | 15 | 6.7 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 29.77 | 755.1 | 79 | 26.1 | 73 | SW | 10 | 4.5 | | 5c,hz | 0 | | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.97 | 685.0 | 29.50 | 749.3 | 49 | 9.4 | 73 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.65 | 727.7 | 29.69 | 754.1 | 56 | 13.3 | 68 | W | 8 | 3.6 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Oswego, N. Y. | | | 29.74 | 755.4 | 66 | 18.9 | 59 | SE | 10 | 4.5 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Pembina, Dakota | | | 29.69 | 754.1 | 48 | 8.9 | 85 | N | 16 | 7.2 | | | 10s | | N | 0.12 | 3.0 | Cloudy | |
| Philadelphia, Pa. | | | 29.76 | 755.9 | 70 | 21.1 | 79 | E | 6 | 2.7 | | 8k | Fog | | | 0.08 | 2.0 | Cloudy | |
| Phœnix, Arizona | | | | | 62 | 16.7 | | NE | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.71 | 449.8 | 29.92 | 760.0 | 19 | −7.2 | 85 | SW | 42 | 18.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Pittsburgh, Pa. | | | 29.71 | 754.6 | 69 | 20.6 | 84 | SW | 5 | 2.2 | | | 10s | | W | 0.03 | 0.8 | Cloudy | |
| Port Huron, Mich. | | | 29.67 | 753.6 | 66 | 18.9 | 90 | SW | 9 | 4.0 | | Haze | 0 | | | 0.14 | 3.6 | Clear | |
| Portland, Me. | | | 29.92 | 760.0 | 52 | 11.1 | 66 | E | 4 | 1.8 | | 5c | Haze | | | 0.05 | 1.3 | Fair | |
| Portland, Oregon | | | 29.99 | 761.7 | 44 | 6.7 | 92 | S | 1 | 0.4 | | | 10n | | | 0.10 | 2.5 | Light rain | |
| Prescott, Arizona | 24.66 | 626.4 | 30.02 | 762.5 | 45 | 7.2 | 85 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.96 | 761.0 | 82 | 27.8 | 70 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.68 | 753.9 | 68 | 20.0 | 74 | SW | 4 | 1.8 | | | 10s | | W | Inap. | Inap. | Threatening | |
| Salt Lake City, Utah | 25.41 | 645.4 | 29.74 | 755.4 | 48 | 8.9 | 62 | NW | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Sandy Hook, N. J. | | | 29.80 | 756.9 | 62 | 16.7 | 83 | NE | 12 | 5.4 | | 10ck | Haze | W | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.78 | 756.4 | 73 | 22.8 | 85 | Calm | 0 | 0 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.91 | 759.7 | 57 | 13.9 | 76 | SW | 6 | 2.7 | | 0 | 8s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.91 | 759.7 | 59 | 10.0 | 90 | NW | 8 | 3.6 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.19 | 589.0 | 29.74 | 755.4 | 47 | 8.3 | 48 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 29.92 | 760.0 | 81 | 27.2 | 74 | S | 5 | 2.2 | | 5c | 2ks | NW | S | Inap. | Inap. | Fair | |
| Shreveport, La. | | | 29.98 | 761.5 | 74 | 23.3 | 81 | S | 3 | 1.3 | | 1c | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 29.90 | 759.4 | 73 | 22.8 | 85 | SW | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 29.88 | 758.9 | 60 | 15.6 | 78 | N | 8 | 3.6 | | | 10s | | N | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 29.80 | 756.9 | 70 | 21.1 | 57 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 29.95 | 760.7 | 74 | 23.3 | 81 | N | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.32 | 744.7 | 56 | 13.3 | 80 | S | 16 | 7.2 | | | 10s | | | 1.10 | 27.9 | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 56 | 13.3 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass. | | | 29.93 | 760.2 | 49 | 9.4 | 77 | NE | 8 | 3.6 | | 10k | 0 | NW | | 0 | 0 | Cloudy | |
| Toledo, Ohio | | | 29.71 | 754.6 | 70 | 21.1 | 84 | SW | 7 | 3.1 | | 2k | 0 | SW | | 0.31 | 7.9 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tucson, Arizona | 27.39 | 696.7 | 29.94 | 760.5 | 55 | 12.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.91 | 759.7 | 75 | 23.9 | 90 | S | 4 | 1.8 | | 2ck | 8ks | | S | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 29.94 | 760.5 | 78 | 25.6 | 77 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.05 | 610.9 | 29.53 | 750.0 | 37 | 2.8 | 80 | SE | 8 | 3.6 | | | 10n | | E | 0.27 | 6.9 | Light rain | |
| Washington, D. C | | | 29.76 | 755.9 | 71 | 21.7 | 79 | N | 4 | 1.8 | | 2ck | 5ks | W | W | 0.81 | 20.6 | Clearing | |
| Wickenburg, Arizona | | | | | 50 | 10.0 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.88 | 758.9 | 74 | 23.3 | 81 | SW | 10 | 4.5 | | 2ck | 8ks | W | SW | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 29.90 | 759.4 | 54 | 12.2 | 73 | E | 10 | 4.5 | | 2c | 0 | NW | | 0 | 0 | Fair | |
| Yankton, Dakota | 28.43 | 722.1 | 29.67 | 753.6 | 55 | 12.8 | 68 | W | 24 | 10.7 | | 2c | 0 | NW | | 1.05 | 26.7 | Fair | |
| Yuma, Arizona | | | | | | | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.09 | 764.3 | 77 | 25.0 | 72 | Calm | 0 | 0 | | 10c | 8n | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 79 | 26.1 | | NE | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 29.92 | 760.0 | 82 | 27.8 | 87 | E | | | 1 | 8ks | 10n | E | | 0.500 | 12.70 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | 82.4 | 28.0 | | E | | | | | | | | 0 | 0 | Cloudy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 29.98 | 761.6 | | | 65.0 | 18.3 | 87 | Calm | | | 0 | | 10n | | | 1.82 | 46.2 | Light rain | Thomas Herran. |
| York Factory, B. A | 25.22 | 640.6 | | | 48.5 | 9.2 | 93 | NE | 10 | 4.5 | | 2c | 0 | E | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.42 | 772.7 | 71 | 21.7 | | NE | | | 4 | | | | | 0.90 | 22.9 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | 30.08 | 764.0 | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67; feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,480 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,185 ft., or 1,565.2 m.; Fodge City, 2,486 ft., or 757.8 m., Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,159.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.51 in.; Tucson 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.90 | 759.4 | 80 | 26.7 | 72 | 22.2 | 85 | NW | | | 1 | | 7 | | NW | 0.01 | 0.3 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.95 | 760.7 | 56 | 13.3 | 52 | 11.1 | | W | | | 1 | | 10 | | | 0 | 0 | | | Cloudy | |
| Navy Yard, Norfolk, Va. | 29.86 | 758.4 | 76 | 24.4 | 76 | 24.4 | 95 | SSW | 5 | 2.2 | | | 1c | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.08 | 764.0 | | | 72 | 22.2 | 90 | NNW | 2 | 0.9 | | | 5 | | SE | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.98 | 761.5 | 57 | 13.9 | 57 | 13.9 | 69 | NW | 1 | 0.4 | | | | | | 0 | 0 | | | Cloudy | |
| Naval Hospital. Yokohama, Japan | 29.97 | 761.2 | 65 | 18.3 | 62.5 | 16.9 | 88 | NE | | | 1 | | 10ks | | SW | 0 | 0 | | | Cloudy | |
| Adams, S. 7° 10′ W. 30° 15′ | 29.95 | 760.7 | 83 | 28.3 | 83 | 28.3 | 87 | ESE | | | 4 | | 6 | | SE | 0 | 0 | Moderate. | SE | D. clouds | |
| Alert, N. 29° 27′ 35″ E. 144° 29′ 30″ | 30.21† | 767.3† | 74 | 23.3 | 76 | 24.4 | 95 | SE | | | 3 | | 4 | | SSE | | | Moderate. | SSE | D. clouds | |
| Alliance, N. 34° 17′ 20″ E. 35° 36′ | 30.17 | 766.3 | 76 | 24.4 | 73.5 | 23.1 | 63 | W | | | 0–1 | | 0 | | | | | Long | SW | Hazy | |
| Ashuelot, Hong-Kong, China | 29.89 | 759.2 | 77 | 25.0 | 74 | 23.3 | 90 | E | | | 5 | | Fog | | | | | Smooth | | Rain and fog | |
| Canonicus, New Orleans, La. | 29.96 | 761.0 | 53 | 11.7 | 72 | 22.2 | 85 | WNW | | | 1 | | 2 | | W | | | | | Fair | |
| Colorado, New York, N. Y. | 29.85 | 758.2 | 60 | 15.6 | 67 | 19.4 | 84 | NE | 3 | 1.3 | | | 9 | | | | | | | D. clouds | |
| Despatch, Cadiz, Spain | 29.91 | 759.7 | 72 | 22.2 | 74 | 23.3 | 72 | SE | | | 5–6 | | 1 | | ESE | | | Smooth | | Pleasant | |
| Frolic, Rio de Janeiro, Brazil | 30.03 | 762.7 | 73 | 22.8 | 69 | 20.6 | 90 | SW | | | 0–1 | | 8n | | | Blank | Blank | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.85 | 758.2 | | | 71 | 21.7 | 95 | ENE | | | 1 | | 9 | | | Blank | Blank | | | D. clouds | |
| Hartford, Matanzas, Cuba, W. I. | 30.23 | 767.8 | 80 | 26.7 | 77 | 25.0 | 91 | Var. | 1.2 | 0.5 | | | 1 | | | | | | | Pleasant | |
| Huron, Curacao Island, W. I. | 30.04 | 763.0 | 83 | 28.3 | 83 | 28.3 | 79 | E | | | 4 | | 9 | | ESE | | | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.14 | 765.5 | 70 | 21.1 | 70 | 21.1 | 85 | E | | | 1 | | 0 | | | 0 | 0 | | | Hazy | |
| Lackawana, N. 17° 20′ W. 101° 38′ | 29.85 | 758.2 | | | 83 | 28.3 | 79 | W | | | 1–2 | | 10 | | E | | | Long | W | D. clouds | |
| Marion, Smyrna, Turkey | 29.91 | 759.7 | 72 | 22.2 | 72 | 22.2 | 54 | S | | | 6 | | 6 | | N | 0 | 0 | Chop'd | S | D. clouds | |
| Michigan, Erie, Pa. | 29.26 | 743.2 | 74 | 23.3 | 73 | 22.8 | 72 | SW | | | 1 | | 2 | | SW | | | | | Fair | |
| Monocacy, Shanghai, China | 29.93 | 760.2 | 66 | 18.9 | 64 | 17.8 | 89 | SE | | | 2 | | 2 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Norfolk, Va. | 29.85 | 758.2 | 76 | 24.4 | 78 | 25.6 | | SW | | | 2 | | c | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.16 | 766.1 | | | 75 | 23.9 | 90 | S | 12 | 5.4 | | | 6 | | NE | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.97 | 761.2 | 78 | 25.6 | 77 | 25.0 | 93 | Calm | 0 | 0 | | | 7 | | | 0 | 0 | Smooth | | Pleasant | |
| Ossipee, Port Royal, S. C. | 29.96 | 761.0 | 75 | 23.9 | 75 | 23.9 | 90 | S | | | 1 | | 8 | | | | | | | D. clouds | |
| Palos, Shanghai, China | 30.04 | 763.0 | 67 | 19.4 | 63 | 17.2 | 83 | SE | | | 3 | | 0 | | | | | | | Clear | |
| Plymouth, Pensacola, Fla. | 30.00 | 762.0 | 76 | 24.4 | 72 | 22.2 | 95 | SSW | | | 1 | | 4 | | N | 0 | 0 | | | Misty | |
| Ranger, Gibraltar Bay | 30.14 | 765.5 | | | 67 | 19.4 | 89 | ESE | | | 2 | | 8 | | | | | Smooth | | Cloudy | |
| Richmond, Rio de Janeiro, Brazil | 30.03 | 762.7 | 71.0 | 21.7 | 69.5 | 20.8 | 90 | Calm | | | 0 | | 10 | | | Blank | Blank | | | Overcast | |
| Rio Bravo, Matamoras, Mexico | 29.77 | 756.1 | | | 68 | 20.0 | 95 | SE | | | 1 | | 8 | | NE | | | | | D. clouds | |
| Santee, Annapolis, Md. | 29.86 | 758.4 | 77 | 25.0 | 73 | 22.8 | 81 | N | | | 0–1 | | 9 | | | 0 | 0 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.71 | 754.6 | 72 | 22.2 | 71 | 21.7 | 80 | ENE | 3 | 1.3 | | | 8 | | E | 0.28 | 7.1 | | | Cloudy | |
| Swatara, San Andres, U. S. C. | 29.90 | 759.4 | 82 | 27.8 | 82 | 27.8 | 87 | ENE | | | 1 | | 5k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 30.04 | 763.0 | 70 | 21.1 | 69 | 20.6 | 80 | ESE | | | 1 | | 10 | | | Light | Light | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.88† | 758.9† | 68 | 20.0 | 74 | 23.3 | 86 | SE | 20.7 | 13.3 | | | 8 | | | 0.7 | 18. | Smooth | | Squally | |
| Vandalia, Constantinople, Turkey | 29.83 | 757.7 | 68 | 20.0 | 65 | 18.3 | 84 | SW | | | 1–3 | | 10 | | WSW | | | | | Raining | |
| Wabash, Boston, Mass. | 29.93 | 760.2 | 55 | 12.8 | 51 | 10.6 | 86 | NE | 7 | 3.1 | | | 10 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C. | 29.91† | 759.7† | 74 | 23.3 | | | | Calm | | | 0 | | 5 | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | CHARACTER. | DIRECTION FROM— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** Furnished by the coöperation of ——————, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 34° 49′ E. 139° 23′ | | | 30.10 | 764.5 | 68 | 20.0 | 90 | NE | | | 3 | | 1ks | | | Smooth | | P. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 45° 34′ W. 39° 56′ | WSW | 11.0 | 29.52 | 749.8 | 59.0 | 15.0 | | ESE | | | 6 | | k | | SSE | Rough | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 39° 24′ W. 56° 26′ | ENE ½E | | 29.78 | 756.4 | 55.6 | 13.1 | | NW | | | 5 | | kn | | N | High | | Overcast | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give a monut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, Brunswick, Ga. | | | 29.88 | 758.9 | 78 | 25.6 | 86 | S | 3 | 1 3 | | 0 | 5d | | S | | | Cloudy | Capt. James Jorgensen. |

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto. pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 22, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.95 | 760.7 | 67.1 | 19.5 | 81 | N | | | 2 | | 6 | | | 0 | 0 | Fair | Michel. |
| Algiers | | | 30.01 | 762.2 | 61.0 | 17.8 | 81 | NNE | | | 3 | | 6 | | | 0.059 | 1.5 | Fair | Peter. |
| La Calle | | | 29.96 | 761.0 | 63.3 | 17.4 | 76 | ENE | | | 4 | | 8 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.01 | 762.3 | 69.8 | 21.0 | | NE | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.95 | 760.7 | 71.6 | 22.0 | | NNE | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saïda | | | 29.90 | 759.5 | 74.7 | 23.7 | | N | | | 4 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.93 | 760.2 | 63.3 | 17.4 | | E | | | 2 | | 7 | | | 0 | 0 | Cloudy | Bourgeois. |
| Geriville | | | 29.87 | 758.8 | 77.0 | 25.0 | 26 | SE | | | 5 | | 6 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.87 | 758.7 | 75.2 | 24.0 | 13 | E | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.94 | 760.4 | 87.4 | 30.8 | 23 | SE | | | 3 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saïda is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.92 | 760.0 | 60.3 | 15.7 | 63 | SW | | | 4 | | 5 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.88 | 758.9 | 49.6 | 9.8 | 92 | WNW | | | 2 | | 10 | | | 0.88? | 22.4 | | Dr. Wierzbiski. |
| Eperies | | | 29.76 | 755.9 | 54.7 | 12.6 | 83 | NW | | | 4 | | 10n | | | 0.296 | 7.52 | | Julius Mikolik. |
| Gratz | | | 29.76 | 755.9 | 54.7 | 12.6 | 83 | NW | | | 3 | | 9 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.70 | 728.9 | 29.92 | 760.0 | 61.4 | 18.6 | 59 | WNW | | | 4 | | 9 | | | 0.039 | 1.00 | | Prof. Reissenberger. |
| Kremsmünster | 28.37 | 720.3 | 29.76 | 756.0 | 54.7 | 12.6 | 78 | NW | | | 1 | | 10 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | 28.64 | 727.5 | 29.98 | 761.5 | 53.2 | 11.8 | 67 | WNW | | | 3 | | 8 | | | 0.031 | 0.8 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | 29.58 | 751.3 | 57.2 | 14.0 | 90 | NW | | | | | | | | | | | Habzanda Daniel. |
| Pola | | | 30.00 | 762.0 | 66.6 | 19.2 | 64 | WSW | | | 1 | | 1ks | | | 0 | 0 | | I.R. Hydrographic Office |
| Szegedin | | | 29.84 | 758.0 | 64.1 | 16.7 | 70 | NW | | | 3 | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.02 | 762.4 | 68.0 | 20.0 | 62 | W | | | 1 | | 1 | | | 0.008 | 0.2 | | P. Busin. |
| Vienna | | | 29.94 | 760.4 | 59.9 | 15.5 | 55 | W | | | 4 | | 5 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.57 | 725.7 | 30.05 | 763.2 | 48.7 | 9.3 | 82 | W | | | 1 | | 10 | | | 0.016 | 0.4 | | |
| Brussels | | | 30.09 | 764.2 | 48.6 | 9.2 | 90 | NNW | | | 1 | | 10n | | NNE | 0.079 | 2.0 | Raining | Royal Observatory. |
| Furnes | | | | | | | | | | | | | | | | | | | |
| Marseyck | | | 29.93 | 760.2 | 49.1 | 9.7 | 76 | NE | | | 2 | | 10 | | | 0.091 | 2.3 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.42 | 772.7 | 44.4 | 6.9 | | NNE | 19 | 8.5 | | | 9 | | | 0 | 0 | Overcast | William Boswell. |
| Ardrossan | | | 30.38 | 771.6 | 54 | 12.2 | | NW | | | 2 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.41 | 772.4 | 53.3 | 11.8 | | NE | 9 | 4.0 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bideston, (Liverpool Obs.) | | | 30.33 | 770.4 | 49.1 | 9.5 | | N | 7 | 3.1 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.37 | 771.4 | 53.8 | 12.1 | | ENE | | | 1 | | 9 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.31 | 769.9 | 48.1 | 8.9 | | NE | | | 3 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.97 | 761.2 | 84.8 | 29.3 | | NE | | | 2 | | 4? | | | | | Overcast? | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.24 | 768.1 | 47.0 | 8.3 | | NNE | | | 3 | | 10 | | | Blank | Blank | Overcast | H. Todd. |
| Cardington | | | 30.27 | 768.8 | 48.0 | 8.9 | | NE | | | 5 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.19 | 766.8 | 50.7 | 10.4 | | NE | | | 2 | | 8 | | | Blank | Blank | Squally | Capt. Fellowes, R. E. |
| Dartmoor | 28.77 | 730.7 | 30.28 | 769.1 | 45.4 | 7.4 | | NW | | | 6 | | 7 | | | | | Squally | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.30 | 771.9 | 55 | 12.8 | | ENE | | | 4 | | 2 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.14 | 765.5 | 49 | 9.4 | | NNE | | | 5 | | 7 | | | | | Raining | J. Costello. |
| Eccles, (near Manchester) | | | 30.32 | 770.1 | 49.1 | 9.5 | | NE | 4.5 | 2.1 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.28 | 769.1 | 51.0 | 10.6 | | ENE | | | 2 | | 10 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.89 | 708.4 | 30.13 | 765.3 | 57.9 | 14.4 | | SE | | | 2 | | 10 | | | | | Overcast | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.92 | 760.0 | 89 | 31.7 | | E | | | 2 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.32 | 770.1 | 57 | 13.9 | | NE | | | 1 | | 5 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.91 | 759.7 | 66.0 | 18.9 | | NE | | | 4 | | 5 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.36 | 771.1 | 53.0 | 11.7 | | E | | | 2 | | 6 | | | | | D. clouds | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.21 | 767.3 | 47 | 8.3 | | NNE | | | 5 | | 7 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.22 | 767.6 | 51.3 | 10.7 | | NNE | | | 4 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 30.18 | 766.6 | 49 | 9.4 | | NE | | | 2 | | 10 | | | | | Showery | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.29 | 769.4 | 57 | 13.9 | | NE | | | 4 | | 6k | | | 0 | 0 | Gloomy | M. P. Moyle. |
| Holyhead | | | 30.33 | 770.4 | 51 | 10.6 | | ENE | | | 4 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.22 | 767.6 | 50.3 | 10.2 | | NNE | 21 | 9.4 | | | 10kd | | | | | Threatening | The Staff. |
| Kingstown | | | 30.38 | 771.6 | 48 | 8.9 | | NE | | | 4 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.29 | 769.4 | 46.3 | 7.9 | | NE | | | 3 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.97 | 761.2 | 67.4 | 19.7 | | NE | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.13 | 772.9 | 50 | 10.0 | | ENE | | | 1 | | 5 | | | | | ½ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.99 | 761.7 | 84.0 | 28.9 | | E | | | 1 | | 9 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.33 | 770.4 | 47.8 | 8.8 | | NNE | | | 4 | | 10k | | N | 0 | 0 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.30 | 769.6 | 44.6 | 7.0 | | NNE | | | 3 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.25 | 768.3 | 48 | 8.9 | | N | | | 3 | | 10 | | | | | Gloomy | J. W. Lucas. |
| Plymouth | | | 30.26 | 768.9 | 51.5 | 10.8 | | NE | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.33 | 770.4 | 55 | 12.8 | | SE | | | 3 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.30 | 769.6 | 54 | 12.2 | | Calm | | | 0 | | 10 | | | | | Hazy | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.17 | 766.3 | 51.5 | 10.8 | | NNW | | | 3 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.47 | 773.9 | 45.4 | 7.4 | | N | 22 | 9.8 | | | 4 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.80 | 756.9 | 67.0 | 19.4 | | WSW | | | 2 | | 2 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 30.32 | 770.1 | 46.0 | 7.8 | | NE | | | 1 | | 10 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.36 | 771.1 | 51.3 | 10.7 | 73 | E | | | 3 | | 7 | | | 0 | 0 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 30.32 | 770.1 | 49.7 | 9.8 | | NE | | | 2 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.47 | 773.9 | 47 | 8.3 | | NE | | | 2 | | 5 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.24 | 768.1 | 50.4 | 10.2 | | NE | | | 2 | | 10 | | | | | Squally | Rev. Charles H. Griffith. |
| Thurso | | | 30.15 | 773.4 | 49 | 9.4 | | NNE | | | 4 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.29 | 769.4 | 55 | 12.8 | | NE | | | 8 | | 6 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 30.34 | 770.6 | 57.0 | 13.9 | | NE | 19 | 8.5 | | | 10 | | | | | Hazy | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 49 | 9.4 | | NE | | | 4 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.12 | 765.0 | 60.0 | 15.6 | 54 | SW | 21 | 9.4 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.52 | 749.8 | 60.0 | 15.6 | 81 | W | | | 2 | | 9k | | | 0.04 | 1.0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.43 | 772.9 | 48.8 | 9.3 | | E | | | 3 | | 7k | | | 0 | 0 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.11 | 764.8 | 75.7 | 24.3 | 62 | ENE | 9.2 | 4.1 | | 1 | 1 | NW | ENE | 0 | 0 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 29.68 | 753.9 | 54.0 | 12.2 | 91 | NNW | 7 | 3.1 | | | 10 | | | 0.11 | 2.8 | Showery | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.48 | 774.2 | 47 | 8.3 | | NE | | | 4 | 3 | 0 | NE | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.41 | 772.4 | 42 | 5.6 | | N | | | 6 | 4 | 7 | N | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,460 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | Capt. A. T. Miller. |
| Barque Celeste | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 16° 45′ W. 68° 30′ | 3 | ESE | D. clouds | Capt. Jas. J. Price. |

NOTE.—The origina's give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower c ouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.17 | 664.7 | | | 70.2 | 21.2 | 98 | NE | | | 1 | | 10s | | S | 0.14 | 3.6 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.07 | 763.6 | 51.6 | 10.9 | 65 | S | | | 2 | | 1 | | | | | | |
| Fanöe | | | 30.03 | 762.7 | 59.7 | 15.4 | 44 | NW | | | 6 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 30.37 | 771.1 | 47.5 | 8.6 | 68 | ENE | | | 4 | | 3 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.44 | 773.2 | 50.7 | 10.4 | 84 | S | | | 6 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.51 | 775.7 | 48.6 | 9.2 | 70 | E | | | 4 | | 5 | | | | | | |
| Vestervig | | | 30.08 | 764.0 | 55.8 | 13.2 | 64 | NW | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.17 | 766.3 | 55.4 | 13 | 80 | NE | | | 2 | | 5km | | E | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 30.07 | 763.8 | 51.8 | 11.0 | | NNE | | | 4 | | 8 | | NE | 0.031 | 0.8 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 30.01 | 762.2 | 70.3 | 21.3 | 32 | NW | | | 3 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.08 | 764.1 | 54.1 | 12.3 | 69 | W | | | 2 | | 10 | | W | 0.051 | 1.3 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.10 | 764.4 | 52.7 | 11.5 | 81 | NE | | | 2 | | 10 | | NNE | 0.08 | 2. | Covered | Normal School. |
| Besançon | | | 30.16 | 766.0 | 60.1 | 15.6 | 64 | E | | | 3 | | 2 | | SW | 0.008 | 0.2 | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 30.15 | 765.8 | 63.9 | 17.7 | 80 | W | | | 4 | | 5k | | NW | 0.256 | 6.5 | Cloudy | Normal School. |
| Bourges | | | 30.08 | 764.0 | 57.6 | 14.2 | 78 | NW | | | 3 | | 5 | | E | 0.146 | 3.7 | Cloudy | Normal School. |
| Brest | | | 30.14 | 765.6 | 53.4 | 11.9 | 61 | NE | | | 4 | | 9k | | NE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 30.04 | 762.9 | 67.5 | 19.7 | 41 | W | | | 2 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| Caen | | | 30.15 | 765.8 | 51.4 | 10.8 | 81 | NW | | | 4 | | 10 | | S | 0.295 | 7.5 | Light rain | Normal School. |
| Chartres | | | 30.06 | 763.5 | 53.4 | 11.9 | 87 | N | | | 3 | | 9 | | NW | 0.031 | 0.8 | | Normal School. |
| Châlons-sur-Marne | | | 30.07 | 763.8 | 51.3 | 10.7 | 77 | WSW | | | 3 | | 10k | | | 0.020 | 0.5 | Covered | Normal School. |
| Clermont-Ferrand | | | 30.04 | 763.0 | 61.9 | 16.6 | 63 | NE | | | 2 | | 5 | | NW | 0.024 | 0.6 | Cloudy | Puy de Dome Obs'y. |
| Commercy | | | 30.06 | 763.4 | 53.1 | 11.7 | 69 | W | | | 2 | | 10 | | W | 0 | 0 | Covered | Normal School. |
| Commune de Gréasque* | | | 30.04 | 763.0 | 69.4 | 20.8 | 27 | W | | | 2 | | 2 | | W | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.02 | 762.6 | 60.1 | 15.6 | 48 | NW | | | 2 | | 2ck | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon | | | 30.16 | 766.1 | 54.0 | 12.2 | 76 | NW | | | 2 | | 5 | | SE | 0.094 | 2.4 | Cloudy | Normal School. |
| Le Mans | | | 30.12 | 765.0 | 54.3 | 12.4 | 69 | N | | | 2 | | 8 | | N | 0.033 | 0.85 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.03 | 762.8 | 56.7 | 13.7 | 69 | NNE | | | 2 | | 5 | | E | 0.31 | 8. | Cloudy | Normal School. |
| Lorient | | | 30.19 | 766.8 | 52.5 | 11.4 | 61 | NNE | | | 3 | | 10 | | | 0.016 | 0.4 | Covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.17 | 766.3 | 58.6 | 14.8 | 70 | Calm | | | 0 | | 10 | | | 0.087 | 2.2 | Cover d | Mr. Marchal. |
| Metz | | | 30.14 | 765.5 | 51.6 | 10.9 | 72 | WNW | | | 2 | | 10 | | WSW | 0.098 | 2.5 | Covered | M. A. Schuster. |
| Mirecourt | | | 30.19 | 766.7 | 56.8 | 13.8 | 81 | NE | | | 2 | | 10 | | S | 0 | 0 | Covered | Normal School. |
| Nismes | | | 30.03 | 762.8 | 68.0 | 20 | 50 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Orleans | | | 30.12 | 765.1 | 55.4 | 13 | 79 | NW | | | 2 | | 5 | | NNW | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 30.08 | 764.0 | 51.8 | 11.0 | 88 | NW | | | 1 | | 10k | | NW | Inap. | Inap. | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.13 | 765.2 | 69.8 | 21.0 | 49 | NW | | | 2 | | 1 | | SE | 0 | 0 | Clear | Naval Observatory. |
| Rouen | | | 30.08 | 764.1 | 52.2 | 11.2 | 75 | N | | | 2 | | 10 | | N | 0.035 | 0.9 | Covered | Normal School. |
| Tarbes | 29.02 | 737.2 | 30.10 | 764.4 | 62.6 | 17 | 80 | W | | | 1 | | 5 | | E | 0.12 | 3. | Cloudy | Normal School. |
| Villefranche | | | 30.07 | 763.8 | 59.9 | 15.5 | 78 | N | | | 2 | | 8 | | E | 0 | 0 | Very cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.81 | 757.9 | 82.8 | 28.2 | | | | | | | | | | | | | L'Abbé Marchésl. |
| Marseilles, Observatory | | | 29.98 | 761.5 | 63.5 | 17.5 | 56 | W | | | 2 | | 0 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 24.85 | 631.3 | 30.17 | 766.3 | 46.8 | 8.2 | 70 | NE | 16.8 | 7.50 | | | 8 | | SSW | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.07 | 763.6 | 51.4 | 10.8 | 79 | NW | | | 2 | | 10 | | NW | 0.012 | 0.3 | Sprinkling | Montsouris Observatory |
| Perpignan | | | 30.04 | 762.9 | 66.9 | 19.4 | 40 | N | 7.4 | 3.33 | | | 5 | | SW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.48 | 571.1 | | | 35.6 | 2.0 | | N | | | 2 | | 9 | | | 0 | 0 | Cloudy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.07 | 763.8 | 54.1 | 12.3 | 76 | SW | | | 0-1 | | 10 | | | 0.004 | 0.1 | Covered | E. Renou. |
| Toulouse, Observatory | | | 30.12 | 765.0 | 63.3 | 17.4 | 34 | NNW | | | 3 | | 5 | | | 0 | 0 | | The Staff |
| Tours | | | 30.10 | 764.4 | 60.6 | 15.9 | 50 | W | | | 2 | | 10 | | N | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.08 | 764.0 | 51.8 | 11.0 | 86 | NNW | | | 1 | | 10 | | | 0.057 | 1.45 | Showery | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.91 | 759.7 | 67.3 | 19.6 | 76 | SSE | 17.1 | 8.0 | | | 10k | | | 0 | 0 | Covered | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Grésque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.3 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.04 | 763.0 | 55.0 | 12.8 | 62 | NW | | | 5 | | 10 | | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.02 | 762.5 | 50.2 | 10.1 | 76 | N | | | 1 | | 10 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.97 | 761.2 | 48.4 | 9.1 | 83 | NW | | | 4 | | 10 | | | 0.094 | 2.4 | | Royal University Obs'ty. |
| Carlsruhe | | | 30.04 | 762.9 | 55.4 | 13.0 | 73 | SW | | | 3 | | 10 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.11 | 764.7 | 48.4 | 9.1 | 79 | N | | | 7 | | 10 | NW | | 0.150 | 3.8 | | Dr. H. Möhl. |
| Crefeld | | | 30.05 | 763.2 | 48.7 | 9.3 | 83 | N | | | 3 | | 10 | | | | | Light rain | Director Lose. |
| Emden | | | 30.12 | 765.0 | 59.4 | 15.2 | 54 | N | | | 3 | | 1 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.07 | 763.8 | 58.6 | 14.8 | 54 | SW | | | 1 | | 10 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.982 | 736.22 | 30.042 | 762.92 | 58.1 | 14.5 | 67 | WSW | | | 3 | | 3 | SSW | | 0.024 | 0.6 | Light rain | M. Wilhelm. |
| Hamburg | | | 30.18 | 764.0 | 55.4 | 13.0 | 51 | NE | | | 4 | | 5ck | | | 0.059 | 1.5 | Fine | Captain F. Hegemann. |
| Kiel | | | 30.09 | 764.2 | 53.6 | 12.0 | 79 | N | | | 4 | | 7 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.89 | 759.2 | 57.7 | 14.3 | 48 | NE | | | 5 | | 0 | | | 0.016 | 0.4 | | Prof. E. Luther. |
| Köslin | | | 30.02 | 762.4 | 55.2 | 12.9 | | N | | | 4 | | 2 | | | 0.031 | 0.8 | | H. Müller. |
| Leipsic | | | 30.06 | 763.4 | 45.7 | 7.6 | 89 | NW | | | 2 | | 10 | NW | | 0.071 | 1.8 | Sprinkling | Prof. Bruhns. |
| Memel, Naval School | | | 29.97 | 761.2 | 57.9 | 14.4 | | NE | | | 4 | | 0 | | | | | Squally | Reinbrecht & Skalweit. |
| Münster | | | 29.89 | 759.3 | 54.1 | 12.3 | 97 | N | | | | | 3 | | | 0.453 | 11.5 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.96 | 760.9 | 49.5 | 9.7 | 69 | N | | | 3 | | 1 | | | 0.059 | 1.5 | | A. Lothes. |
| Posen | | | 29.96 | 760.9 | 50.5 | 10.3 | 84 | NNW | | | 5 | | 10 | | | Inap | Inap | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.06 | 763.4 | 57.4 | 14.1 | 75 | | | | | | 10 | | | 0.012 | 0.3 | | Dr. Schur. |
| Stuttgart | | | 30.00 | 762.0 | 55.4 | 13.0 | 64 | NW | | | 1 | | 10 | W | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.93 | 760.2 | 54.5 | 12.5 | 71 | W | | | 5 | | 10 | | | Inap. | Inap. | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.51 | 724.1 | 30.02 | 762.4 | 52.5 | 11.4 | 66 | WNW | | | 1 | | 10 | W | | | | Raining | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.13 | 765.3 | 52.9 | 11.6 | 53 | NE | | | 2 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.98 | 761.4 | 75.2 | 24.0 | | W | | | | | | | | | | ¾ cloudy | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.15 | 562.5 | 29.96 | 761.0 | 32.7 | 0.4 | 90 | WNW | | | 2 | | 9 | NW | | 3.150* | 80.0* | | Prof. Giovanni Clodig. |
| Stelvio | 22.13 | 562.1 | 29.85 | 758.3 | 36.7 | 2.6 | | E | | | 2 | | 5 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.95 | 760.8 | 64.8 | 18.2 | 61 | SW | 4.3 | 1.9 | | | 8 | | | 0.118 | 2.9 | | Ab. Dom. Morgiut. |
| Padua | | | 29.9 | 760.8 | 64.8 | 18.2 | 65 | SE | 8.1 | 3.6 | | | 8 | W | | 0.44 | 11.3 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.96 | 760.9 | 62.6 | 17.0 | 46 | NNW | 8.1 | 3.6 | | | 3 | E | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.93 | 760.2 | 69.8 | 21.0 | 46 | E | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.64 | 727.5 | 29.95 | 760.7 | 68.9 | 20.5 | 33 | SW | | | 2 | | 5 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.92 | 759.9 | 65.7 | 18.7 | 34 | SW | | | 6 | | 5 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.95 | 760.7 | 75.4 | 24.1 | 39 | SW | | | 4 | | 5 | SW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.94 | 760.4 | 72.0 | 22.2 | 38 | E | | | 2 | | 5 | W | | 0 | 0 | | Prof. Gio. Cantoni |
| Moncalieri | | | 29.93 | 760.3 | 69.1 | 20.6 | 47 | ESE | 6.3 | 2.8 | | | 4 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.04 | 712.3 | 29.92 | 759.9 | 64.6 | 18.1 | 46 | NW | | | 4 | | 2 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.00 | 762.4 | 66.2 | 19.0 | 61 | SSW | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.0 | 762.6 | 65.1 | 18.4 | 55 | S | 8.7 | 3.9 | | | 0 | | | 0 | 0 | | Prof. G. M Garibaldi. |
| Piacenza | | | 29.97 | 761.1 | 68.4 | 20.2 | 70 | NW | 1.3 | 0.6 | | | 5 | S | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.9 | 760.0 | 70.3 | 21.3 | 49 | WSW | | | 4 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.02 | 762.5 | 69.8 | 21.0 | 43 | W | | | 2 | | 3 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.0 | 762.1 | 66.6 | 19.2 | 63 | W | 6.3 | 2.8 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.74 | 731.3 | 29.98 | 761.5 | 65.7 | 18.7 | 46 | NE | | | | | 5 | SW | | 0.10 | 0.2 | | Prof. L. Toscani. |
| Urbino | 28.46 | 722.8 | 29.99 | 761.7 | 62.2 | 16.8 | 62 | ENE | | | 2 | | 8 | | | 0.09 | 2.5 | | Prof. P. Sernieri. |
| Pesaro | | | 30.00 | 762.1 | 63.9 | 17.7 | 62 | SE | | | | | 8 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.00 | 761.9 | 66.2 | 19.0 | 56 | SE | | | 4 | | 2 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.0 | 762.7 | 68.7 | 20.4 | 54 | SSE | | | 4 | | 4 | NW | | 0.15 | 3.8 | | Avv. P. Ponticelli. |
| Rome | | | 30.0 | 762.6 | 72.0 | 22.2 | 45 | SSW | 6.9 | 3.1 | | | 3 | N | | 0 | 0 | | Prof's P. Secchi & L. Respighi. |
| Naples, O. U | | | 30.06 | 763.4 | 70.9 | 21.6 | 48 | SW | | | 4 | | 6 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.05 | 763.2 | 66.6 | 19.2 | 53 | E | 6.3 | 2.8 | | | 3 | | | 0 | 0 | | Prof. C. DeHorgi. |
| Cosenza | | | 30.02 | 762.8 | 69.1 | 20.6 | 66 | NE | 6.3 | 2.8 | | | 6 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.97 | 761.3 | 69.8 | 21.0 | 57 | W | | | 2 | | 5 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.03 | 762.7 | 69.6 | 20.9 | 57 | E | | | 2 | | 5 | S | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.00 | 761.9 | 66.0 | 18.9 | 61 | E | 6.9 | 3.1 | | | 9 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.04 | 712.2 | 29.97 | 760.6 | 64.3 | 20.7 | 35 | E | | | 4 | | 10 | S | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.98 | 761.0 | 68.0 | 20.0 | 74 | E | | | 4 | | 10 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.08 | 764.0 | 67.1 | 19.5 | 51 | ESE | 0.7 | 0.3 | | | 5 | W | | 0 | 0 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.12 | 765.0 | 58 | 14.4 | 84 | NE | 7 | 3.1 | | 4c | 2s | SW | N | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.7 | 30.10 | 764.6 | 56.8 | 13.8 | 78 | W | 0.9 | 0.40 | | 5c | 5c | NE | NE | 0.287 | 7.3 | Foggy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.13 | 765.2 | 51.3 | 12.4 | | NE | | | 4 | | | | | 0.106 | 2.7 | | |
| Groningen | | | 30.06 | 763.5 | 51.7 | 12.6 | | N | | | 2 | | | | | 0.004 | 0.1 | | |
| Helder | | | 30.13 | 765.3 | 51.4 | 10.8 | | N | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 30.07 | 763.6 | 54.1 | 12.3 | 41 | NNE | | | 4 | | 8 | | | 0.059 | 1.5 | Very cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.15 | 765.7 | 52.8 | 11.4 | 43 | N | 17.2 | 7.7 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.25 | 768.4 | 44.6 | 7.0 | 49 | WNW | 9 | 4 | | | 8 | | | 0 | 0 | | |
| Christiania | | | 30.15 | 765.9 | 50.9 | 10.7 | 63 | ENE | 4 | 2 | | | 10 | | | 0 | 0 | | |
| Tromsö | | | 30.36 | 771.1 | 39.2 | 4.0 | 69 | NE | 4 | 2 | | | 5 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.07 | 763.8 | 65.1 | 18.4 | 93 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | Misty | Dr. J. A. Sampaio |
| Campo Major | | | 29.89 | 759.1 | 78.4 | 25.8 | 40 | NNW | 2.5 | 1.1 | | | 8 | NNW | | 0 | 0 | Solar halo | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.03 | 762.8 | 69.6 | 20.9 | 59 | SW | 6.9 | 3.1 | | | 2 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.92 | 760.0 | 72.0 | 22.2 | 52 | SSW | 7.4 | 3.3 | | | 1 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.12 | 765.0 | 68.7 | 20.4 | 83 | ESE | 3.8 | 1.7 | | | 3 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.77 | 756.1 | 63.5 | 17.5 | 55 | NW | 16 | 7 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 29.73 | 755.2 | 62.4 | 16.9 | 52 | NNE | 16 | 7 | | | 5 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.92 | 760.0 | 53.1 | 11.7 | 45 | NE | 13 | 6 | | | 0 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.97 | 761.1 | 48.7 | 9.3 | 48 | NE | 16 | 7 | | | 0 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.08 | 764.1 | 46.9 | 8.3 | 69 | NE | 13 | 6 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.35 | 745.4 | 65.7 | 18.7 | 82 | SSE | 7 | 3 | | | 9 | | | | | Raining | Physical Cabinet. |
| Nikolaiev | | | 29.46 | 748.3 | 65.5 | 18.6 | 66 | SW | 13 | 6 | | | 8 | | | | | | Kurdakof |
| Kertch | | | 29.62 | 752.3 | 65.3 | 18.5 | 77 | SW | 16 | 7 | | | 7 | | | | | | Lagorio. |
| Moscow | | | 29.57 | 751.1 | 52.7 | 11.5 | 92 | NW | 9 | 4 | | | 10 | | | | | Raining | Meteorological Obs. |
| Lugan | | | 29.47 | 748.5 | 61.0 | 16.1 | 80 | S | 4 | 2 | | | 8 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 30.08 | 764.0 | 34.5 | 1.4 | 72 | NNW | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.34 | 719.7 | 29.66 | 753.4 | 84.2 | 29.0 | 22 | E | 4 | 2 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.67 | 753.7 | 77.5 | 25.3 | 39 | SSW | 20 | 9 | | | 7 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.29 | 744.0 | 73.2 | 22.9 | 43 | S | 11 | 5 | | | 7 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.96 | 760.9 | 64.2 | 17.9 | 83 | W | 11 | 5 | | | 3 | | | | | | Tschernischef. |
| Ekaterinburg | 28.57 | 725.6 | 29.48 | 748.9 | 59.0 | 15.0 | 76 | ESE | 2 | 1 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.67 | 753.5 | 92.8 | 38.8 | 29 | WNW | 4 | 2 | | | 3 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.26 | 717.9 | 29.89 | 759.1 | 79.5 | 26.4 | 47 | Calm | 0 | 0 | | | 6 | | | | | | Michelson. |
| Barnaul | | | 29.91 | 759.6 | 72.9 | 22.7 | 23 | SW | 0 | 0 | | | 5 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.83 | 757.6 | 47.3 | 8.5 | 55 | W | 2 | 1 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzof. |
| Oorga | | | | | 46.6 | 8.1 | | Calm | 0 | 0 | | | 1 | | | | | | Mossin. |
| Peking, (China) | | | 29.89 | 759.1 | 63.7 | 17.6 | 88 | Calm | 0 | 0 | | | 1 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 30.11 | 764.9 | 45.9 | 7.7 | 98 | SE | 4 | 2 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 41.4 | 5.2 | | E | 2 | 1 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 419 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.89 | 759.3 | 73.6 | 23.1 | 39 | E | 6.0 | 2.67 | | 1 | 0 | S | | 0 | 0 | Light clouds | Royal Observatory. |
| San Fernando | | | 29.93 | 760.1 | 73.6 | 23.1 | 46 | ESE | 20.4 | 9.1 | | 1 | 5 | NW | SW | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.98 | 761.6 | 80.2 | 26.8 | 78 | Calm | 0 | 0 | | 3ck | 0 | | | 0 | 0 | | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.27 | 768.9 | 42.1 | 5.6 | 46 | NE | | | 4 | | 7 | | | 0 | 0 | | |
| Umea | | | 30.25 | 768.8 | 38.1 | 3.4 | 70 | NE | | | 6 | | 10 | | | | | Snowing | |
| Hernosand | | | 30.23 | 767.7 | 40.8 | 4.9 | 56 | N | | | 2 | | 10 | | | 0 | 0 | | |
| Stockholm | | | 30.00 | 764.2 | 49.8 | 9.9 | 68 | NE | | | 6 | | 4 | | | 0 | 0 | | |
| Wisby | | | 30.07 | 763.7 | 41.7 | 5.4 | 78 | NNE | | | 4 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.13 | 765.4 | 49.6 | 9.8 | 42 | N | 14.8 | 6.6 | | | 3 | | NNE | 0.001 | 0.0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.61 | 726.8 | 30.04 | 762.9 | 56.1 | 13.4 | 50 | NNW | | | 3 | | 4 | | | 0 | 0 | Clouds | The Observatory. |
| Zurich | 28.41 | 721.7 | 30.03 | 762.8 | 60.1 | 15.6 | 54 | NW | | | 1 | | 8 | | | 0 | 0 | Cloudy | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +1.4 mm; Thermometer, —4.1 cent.; Relative Humidity, —6 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.83 | 757.7 | 68.9 | 20.5 | 58 | WSW | 16 | 7.0 | | | 3 | | WSW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.94 | 760.5 | 77.0 | 25.0 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 29.93 | 760.3 | 72.1 | 22.3 | | NE | | | 1 | | 2 | | | | | | B. Stéfanidès. |
| Valona | | | 30.10 | 764.5 | 69.4 | 20.8 | | W | | | 1 | | 2 | | | 0.47 | 12. | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.67 | 753.5 | 64.4 | 18.0 | | NW | | | 8 | | 5 | | | Blank | Blank | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.92 | 759.9 | 84.9 | 29.4 | 43 | WNW | | | 2 | | 0 | | | 0 | 0 | Blue sky | Pro. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.56 | 750.8 | 49.8 | 9.9 | 51 | NE | 10 | 4.5 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.60 | 751.8 | 43 | 6.1 | | NE | 5 | 2.2 | | | 10n | | NE | 0.29 | 7.4 | Light rain | W. R. Bigg. |
| *Chatham, N. B. | | | 29.55 | 750.6 | 52 | 11.1 | 47 | NW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.58 | 751.3 | 45 | 7.2 | 70 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.57 | 751.1 | 53.1 | 11.7 | 82 | E | | | 1 | | 10n | | | 0.05 | 1.3 | Light rain | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.59 | 751.6 | 50.7 | 10.4 | 43 | W | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C. | | | 29.91 | 759.7 | 51.3 | 10.7 | 79 | W | | | | 10cs | 0 | | | 0.02 | 0.5 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.65 | 753.1 | 41 | 5.0 | 74 | NW | 3 | 1.3 | | 0 | 2s | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 29.61 | 752.1 | 52.5 | 11.4 | 51 | Calm | 0 | 0 | | 10 | 0 | | | 0 | 0 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.22 | 767.6 | 46 | 7.8 | 84 | E | 4 | 1.8 | | 5k | 5ks | NE | NE | 0.120 | 3.05 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.53 | 750.0 | 54.9 | 12.3 | 95 | Calm | | | 0 | | 10n | | | 0.331 | 8.41 | Drizzling | H. J. Strang, M. A. |
| Granton, Ontario | | | 29.55 | 751.6 | 57 | 13.9 | 94 | W | | | 1 | | 10n | | | 0.18 | 4.6 | Raining | James Grant. |
| *Halifax, N. S. | 28.48 | 723.4 | 29.55 | 750.6 | 54 | 12.2 | 43 | NW | 4 | 1.8 | | 5k | 0 | NW | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.68 | 753.9 | 57.9 | 14.4 | 84 | SW | | | 1 | | 10n | | | Inap. | Inap. | Raining | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.34 | 745.7 | 41 | 5.0 | 74 | W | | | 2 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.64 | 751.8 | 55 | 12.8 | 81 | NE | 15 | 6.7 | | 2cs | 8ks | | NE | 0.40 | 10.2 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.61 | 751.8 | 55 | 12.8 | 70 | NE | 12 | 5.4 | | 8ks | 11uze | NE | | 0.11 | 2.8 | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.63 | 752.6 | 53 | 11.7 | 90 | NE | 21 | 10.7 | | 2k | 8ks | NE | NE | 0 | 0 | Cloudy | Rev. R. Mosley. |
| Port Dover, Ontario | | | 29.58 | 751.3 | 60 | 15.6 | 88 | W | 7 | 3.1 | | | 10n | | W | Inap. | Inap. | Threatening | H. Morgan. |
| Port Hastings, N. S. | | | 29.57 | 751.1 | 49.1 | 9.5 | | NW | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 29.60 | 751.8 | 58 | 14.4 | 90 | W | 4 | 1.8 | | | Fog | | W | 0.05 | 1.3 | Foggy | M. Payne. |
| *Quebec, Quebec | | | 29.64 | 752.8 | 53 | 11.7 | 54 | NE | 15 | 6.7 | | 2k | 0 | NE | | 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.71 | 754.6 | 52 | 11.1 | 86 | NE | 2 | 0.9 | | | 10s | | NE | 0.31 | 7.9 | Light rain | W. H. McIntyre. |
| St. John, N. B. | | | 29.61 | 752.1 | 52 | 11.1 | 66 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | Dull | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.59 | 751.6 | 53 | 11.7 | 89 | N | 2 | 0.9 | | | 10ks | | | 0.04 | 1.0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.57 | 751.1 | 52 | 11.1 | 89 | NW | 6 | 2.7 | | | 10n | | NW | 0 | 0 | Cloudy | R. J. Cole. |
| Stratford, Ontario | | | 29.54 | 750.8 | 56.9 | 13.8 | 97 | NW | 4 | 1.8 | | | 10n | | | 0.24 | 6.1 | Rainy | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.31 | 719.1 | 29.54 | 750.3 | 49 | 9.4 | 62 | W | 7 | 3.1 | | 5k | 0 | NW | | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.58 | 751.3 | 51 | 10.6 | 96 | E | 2 | 0.9 | | | Fog | | | 0.39 | 9.9 | Heavy rain | Magnetic Observatory. |
| Windsor, N. S. | | | 29.53 | 750.0 | 52.0 | 11.1 | 54 | NW | 9 | 4.0 | | 5c | 0 | NW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.65 | 753.1 | 59.9 | 15.5 | 96 | W | 3 | 1.3 | | | 10s | | | 0.28 | 7.1 | Cloudy | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.45 | 748.0 | 44.0 | 6.7 | 76 | SW | | | | 10k | 10s | | | 0.04 | 1.0 | Cloudy | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.51 | 749.5 | 63 | 17.2 | 83 | Calm | 0 | 0 | | 0 | 8ks | | W | 0.27 | 6.9 | Fair | |
| Alpena, Mich. | | | 29.73 | 755.1 | 49 | 9.4 | 85 | N | 12 | 5.4 | | | 10s | | N | 0.06 | 1.5 | Cloudy | |
| Atlantic City, N. J. | | | 29.63 | 752.6 | 65 | 18.3 | 90 | SW | 6 | 2.7 | | 0 | 5s | | W | 0.10 | 2.5 | Fair | |
| Augusta, Ga. | | | 29.83 | 759.2 | 82 | 27.8 | 59 | NW | 6 | 2.7 | | 2c | 0 | | | Inap. | Inap. | Clear | |
| Baltimore, Md. | | | 29.64 | 752.8 | 73 | 22.8 | 71 | W | 8 | 3.6 | | 2k | Haze | W | | 0.82 | 20.8 | Fair | |
| Barnegat, N. J. | | | 29.59 | 751.6 | 70 | 21.1 | 79 | W | 9 | 4.0 | | 0 | 0 | | | 0.14 | 3.6 | Clear | |
| Bismarck, Dakota | 28.38 | 720.8 | 30.05 | 763.3 | 45 | 7.2 | 86 | NE | 4 | 1.8 | | | 10s | | NE | Inap. | Inap. | Cloudy | |
| Boston, Mass. | | | 29.55 | 750.6 | 58 | 14.4 | 87 | SW | 9 | 4.0 | | | 10s, fg | | SW | 0.08 | 2.0 | Threatening | |
| Breckenridge, Minn. | | | 30.05 | 763.3 | 48 | 8.9 | 92 | N | 9 | 4.0 | | | 10s | | N | 0.17 | 4.3 | Cloudy | |
| Buffalo, N. Y. | | | 29.53 | 750.0 | 59 | 15.0 | 88 | W | 4 | 1.8 | | | 10s | | SW | 0.02 | 0.5 | Cloudy | |
| Burlington, Vt. | | | 29.56 | 750.8 | 55 | 12.8 | 93 | N | 8 | 3.6 | | | 10n | | N | 0.81 | 20.6 | Light rain | |
| Cairo, Ill. | | | 29.88 | 758.9 | 70 | 21.1 | 75 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.37 | 695.2 | 29.94 | 760.5 | 42 | 5.6 | 83 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 60 | 15.6 | | Calm | | | | Haze | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.69 | 754.1 | 73 | 22.8 | 81 | W | 10 | 4.5 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 29.70 | 754.4 | 75 | 23.9 | 72 | W | 13 | 5.8 | | 0 | 0 | | | 0.26 | 6.6 | Clear | |
| Cape Lookout, N. C. | | | 29.78 | 756.4 | 71 | 21.7 | 90 | W | 16 | 7.2 | | 2c | 1ck | W | W | 0.30 | 7.6 | Fair | |
| Cape May, N. J. | | | 29.65 | 753.1 | 64 | 17.8 | 89 | E | 4 | 1.8 | | | 10s | | | 0.15 | 3.8 | Cloudy | |
| Charleston, S. C. | | | 29.84 | 757.9 | 78 | 25.6 | 73 | W | 7 | 3.1 | | 5ck c | 0 | W | | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 23.98 | 609.1 | 29.92 | 760.0 | 59 | 10.6 | 93 | E | 12 | 5.4 | | | Fog | | SE | 0 | 0 | Foggy | |
| Chicago, Ill. | | | 29.70 | 754.4 | 60 | 15.6 | 76 | NW | 12 | 5.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Cincinnati, Ohio | | | 29.68 | 753.9 | 71 | 21.7 | 57 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 29.55 | 751.6 | 64 | 17.8 | 67 | SW | 15 | 6.7 | | | 10ks | | W | 0.13 | 3.3 | Threatening | |
| Corsicana, Tex. | | | 29.93 | 760.2 | 67 | 19.4 | 90 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 29.86 | 758.4 | 56 | 13.3 | 74 | NW | 13 | 5.8 | | 4k | 4ks | NW | NW | 0 | 0 | Fair | |
| Denison, Tex. | | | 29.90 | 759.4 | 74 | 23.3 | 75 | S | 5 | 2.2 | | 1c | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.72 | 627.9 | 29.91 | 760.5 | 54 | 12.2 | 86 | N | 4 | 1.8 | | | 10s | | N | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 29.55 | 750.6 | 60 | 15.6 | 88 | W | 6 | 2.7 | | | 10s | | NW | 0.20 | 5.1 | Threatening | |
| Dodge City, Kan. | 27.25 | 692.1 | 29.44 | 747.8 | 63 | 17.2 | 83 | SW | 10 | 4.5 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.84 | 757.9 | 56 | 13.3 | 74 | NW | 9 | 4.0 | | 10k | 0 | NW | | Inap. | Inap. | Cloudy | |
| Duluth, Minn. | | | 30.11 | 764.8 | 46 | 7.8 | 69 | NE | 12 | 5.4 | | | 10s | | NE | 0.64 | 16.3 | Cloudy | |
| Eastport, Me. | | | 29.57 | 751.1 | 53 | 11.7 | 48 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 29.53 | 750.0 | 63 | 17.2 | 78 | SW | 9 | 4.0 | | | 10s | | W | 0.07 | 1.8 | Cloudy | |
| Escanaba, Mich. | | | 29.88 | 758.9 | 43 | 6.1 | 67 | N | 28 | 12.5 | | | 10s | | N | 0 | 0 | Cloudy | |
| Florence, Arizona | | | 29.88 | 758.9 | 67 | 19.4 | | SE | | | | 2cs | 2s | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.86 | 758.4 | 74 | 23.3 | 76 | S | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.62 | 726.9 | 29.88 | 758.9 | 67 | 19.4 | 84 | Calm | 0 | 0 | | 2c | 0 | | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.75 | 755.6 | 33 | 0.6 | 100 | N | | | 3 | 2c | 2ks | S | | 0.04 | 1.0 | Fair | |
| Fort Sill, Indian Ter. | 28.73 | 729.7 | 29.79 | 756.7 | 70 | 21.1 | 60 | Calm | 0 | 0 | | 1c | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.37 | 720.6 | 30.03 | 762.7 | 52 | 11.1 | 86 | NE | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 29.98 | 761.5 | 76 | 24.4 | 86 | S | 1 | 0.4 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.66 | 753.4 | 51 | 10.6 | 86 | NW | 14 | 6.3 | | | 10s | | NW | 0.14 | 3.6 | Cloudy | |
| Indianapolis, Ind. | | | 29.96 | 761.0 | 75 | 23.9 | 90 | SE | 3 | 1.3 | | 5k | 0 | SW | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 29.73 | 755.1 | 67 | 19.4 | 60 | NW | 11 | 4.9 | | 1k | 0 | NW | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.90 | 759.4 | 78 | 25.6 | 73 | W | 8 | 3.6 | | 8cs | 0 | W | | 0.10 | 2.5 | Fair | |
| Keokuk, Iowa | | | 29.88 | 758.9 | 57 | 13.9 | 75 | NW | 6 | 2.7 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 29.97 | 761.2 | 81.0 | 27.2 | 78 | SE | 3 | 1.3 | | 5k | 1ks | SE | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 29.74 | 755.4 | 70 | 21.1 | 90 | SW | 22 | 9.8 | | 2k | 0 | W | | 0.16 | 4.1 | Fair | |
| Knoxville, Tenn. | | | 29.88 | 758.9 | 66 | 18.9 | 90 | SW | 4 | 1.8 | | 0 | 0 | | | 0.19 | 4.8 | Clear | |
| LaCrosse, Wis. | | | 29.92 | 760.0 | 47 | 8.3 | 100 | N | 12 | 5.4 | | | 10s | | N | 0.61 | 15.5 | Cloudy | |
| Leavenworth, Kan. | | | 29.99 | 759.4 | 62 | 16.7 | 88 | NE | 3 | 1.3 | | 5k | 5ks | W | | 0.18 | 4.6 | Clearing | |
| Louisville, Ky. | | | 29.78 | 756.4 | 73 | 22.8 | 58 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 29.71 | 754.6 | 75 | 23.9 | 59 | SW | 2 | 0.9 | | 0 | 0 | | | 0.04 | 1.0 | Clear | |
| Maricopa Wells, Arizona | | | | | 80 | 26.7 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.95 | 760.7 | 40 | 4.4 | 73 | NW | 12 | 5.4 | | | 8s | | | 0.31 | 7.9 | Clearing | |
| Memphis, Tenn. | | | 29.92 | 760.0 | 77 | 25.0 | 65 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.78 | 756.4 | 51 | 10.6 | 95 | NE | 17 | 7.6 | | | 10s | | NE | 0.03 | 0.8 | Clearing | |
| Mobile, Ala. | | | 29.94 | 760.5 | 78 | 25.6 | 78 | S | 2 | 0.9 | | 2k | Haze | SW | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 29.94 | 760.5 | 75 | 23.9 | 74 | W | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.66 | 728.0 | 29.65 | 753.1 | 70 | 21.1 | 66 | SW | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Mt. Washington, N. H. | 23.45 | 595.6 | 29.81 | 757.2 | 40 | 4.4 | 100 | NW | 10 | 4.5 | | | Fog | | | 0.24 | 6.1 | Foggy | |
| Nashville, Tenn. | | | 29.87 | 758.7 | 74 | 23.3 | 63 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.50 | 749.3 | 61 | 16.1 | 82 | W | 5 | 2.2 | | | Fog | | | 0.12 | 3.0 | Cloudy | |
| New London, Conn. | | | 29.55 | 750.6 | 54 | 12.2 | 93 | SE | 4 | 1.8 | | | Fog | | SE | 0.17 | 4.3 | Cloudy | |
| New Orleans, La. | | | 29.96 | 761.0 | 76 | 24.4 | 76 | NW | 7 | 3.1 | | 1ck | 0 | W | | 0 | 0 | Clear | |
| Newport, R. I. | | | 29.57 | 751.1 | 55 | 12.8 | 93 | S | 4 | 1.8 | | | 10s | | SW | 0.31 | 7.9 | Threatening | |
| New York, N. Y. | | | 29.60 | 751.8 | 59 | 15.0 | 94 | W | 8 | 3.6 | | | 10s | | | 0.10 | 2.5 | Cloudy | |
| Norfolk, Va. | | | 29.72 | 754.9 | 74 | 23.3 | 81 | NW | 8 | 3.6 | | 0 | 0 | | | 0.75 | 19.1 | Clear | |
| North Platte, Neb. | 27.02 | 686.3 | 29.52 | 749.8 | 57 | 13.9 | 81 | E | 24 | 10.7 | | 5k | 0 | E | | 0 | 0 | Fair | |
| Omaha, Neb. | 8.88 | 733.5 | 29.95 | 760.7 | 53 | 11.7 | 79 | N | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Oswego, N. Y. | | | 29.58 | 751.3 | 53 | 11.7 | 97 | W | 2 | 0.9 | | | Fog | | | 0.02 | 0.5 | Foggy | |
| Pembina, Dakota | | | 30.16 | 766.1 | 47.5 | 8.6 | 70 | E | 8 | 3.6 | | | 10s | | | 0.25 | 6.3 | Cloudy | |
| Philadelphia, Pa. | | | 29.60 | 751.8 | 67 | 19.4 | 84 | W | 7 | 3.1 | | 2k | Haze | W | | 0.24 | 6.1 | Fair | |
| Phœnix, Arizona | | | | | 64 | 17.8 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.79 | 451.8 | 30.00 | 762.0 | 22 | — 5.6 | 72 | SW | 24 | 10.7 | | 8cs | 0 | SW | | 0 | 0 | Fair | |
| Pittsburgh, Pa. | | | 29.58 | 751.3 | 70 | 21.1 | 61 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 29.53 | 750.0 | 59 | 15.0 | 94 | W | 5 | 2.2 | | | 10n | | W | 0.19 | 4.8 | Light rain | |
| Portland, Me. | | | 29.56 | 750.8 | 54 | 12.2 | 87 | E | 4 | 1.8 | | | 10n, fg | | | 0.11 | 2.8 | Light rain | |
| Portland, Oregon | | | 30.04 | 763.0 | 43 | 6.1 | 100 | S | 1 | 0.4 | | | 10s | | | 0.29 | 7.4 | Cloudy | |
| Prescott, Arizona | 24.66 | 626.4 | 30.02 | 762.5 | 44 | 6.7 | 45 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.97 | 761.2 | 83 | 28.3 | 70 | SW | 4 | 1.8 | | 0 | 5ks | | W | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 29.54 | 750.3 | 61 | 16.1 | 82 | W | 4 | 1.8 | | | 10n | | W | 0.02 | 0.5 | Light rain | |
| Salt Lake City, Utah | 25.30 | 642.6 | 29.63 | 752.6 | 53 | 11.7 | 35 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.60 | 751.8 | 59 | 15.0 | 94 | W | 19 | 8.5 | | | Fog | | W | 0.80 | 20.3 | Foggy | |
| San Antonio, Tex. | | | 29.81 | 757.2 | 73 | 22.8 | 85 | SE | 4 | 1.8 | | | 10ks | | E | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.93 | 760.2 | 56 | 13.3 | 81 | W | 4 | 1.8 | | 0 | 8s | | W | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.95 | 760.7 | 49 | 9.4 | 85 | W | 2 | 0.9 | | Haze | 0 | | | Inap. | Inap. | Clear | |
| Santa Fé, N. M. | 23.18 | 588.8 | 29.73 | 755.1 | 52 | 11.1 | 21 | E | 2 | 0.9 | | 2cs | Haze | | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 29.86 | 758.4 | 81 | 27.2 | 66 | NW | 8 | 3.3 | | 5c | 2k | W | NW | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.03 | 762.7 | 76 | 24.4 | 77 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 29.82 | 757.4 | 72 | 22.2 | 90 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.54 | 750.3 | 60 | 15.6 | 88 | S | 2 | 0.9 | | | 10s | | S | 0.05 | 1.3 | Cloudy | |
| St. Louis, Mo. | | | 29.87 | 758.7 | 70 | 21.1 | 57 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 29.94 | 760.5 | 74 | 23.3 | 76 | W | 8 | 3.6 | | 5c | 0 | | | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.96 | 761.0 | 47 | 8.3 | 77 | N | 12 | 5.4 | | | 10s | | | 0.07 | 1.8 | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 59 | 15.0 | | SW | | | | 5c | Haze | W | | 0 | 0 | Fair | |
| Stockton, Tex. | 26.86 | 682.2 | 29.86 | 758.4 | 68 | 20.0 | 79 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 29.54 | 750.3 | 52 | 11.1 | 86 | S | 12 | 5.4 | | | | | | 0.13 | 3.3 | Rain & fog | |
| Toledo, Ohio | | | 29.60 | 751.8 | 63 | 17.2 | 72 | SW | 12 | 5.4 | | | 10ks | | SW | 0.16 | 4.1 | Threatening | |
| Tucson, Arizona | | | 29.95 | 760.7 | 56 | 13.3 | | S | | | | 1c | 0 | W | | 0 | 0 | Clear | |
| Tybee Island, Ga | 27.40 | 695.6 | 29.84 | 757.9 | 75 | 23.9 | 81 | W | 8 | 3.6 | | 10ck | 0 | W | | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 29.97 | 761.2 | 80 | 26.7 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.06 | 611.1 | 29.54 | 750.3 | 40 | 4.4 | 73 | NE | 10 | 4.5 | | 5k | 5ks | S | S | 0.32 | 8.1 | Cloudy | |
| Washington, D. C | | | 29.66 | 753.4 | 75 | 23.9 | 72 | S | 4 | 1.8 | | 0 | 0 | | | 0.26 | 6.6 | Clear | |
| Wickenburg, Arizona | | | | | 62 | 16.7 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.80 | 756.9 | 73 | 22.8 | 85 | S | 2 | 0.9 | | 2ck | 0 | NW | | 0.28 | 7.1 | Fair | |
| Wood's Holl, Mass | | | 29.50 | 751.6 | 54 | 12.2 | 93 | S | 7 | 3.1 | | | Fog | | | 0.21 | 5.3 | Dense fog | |
| Yankton, Dakota | 28.76 | 730.5 | 30.05 | 763.3 | 49 | 9.4 | 81 | N | 13 | 5.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | | | | | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| **SUB-SERIES.** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.09 | 764.3 | 76 | 24.4 | 86 | Calm | 0 | 0 | | 8c | 8n | | | 0.60 | 15.2 | | James Gall. |
| Navassa, W. I | | | | | 78 | 25.6 | | NE | | | 1 | | | | | 0.20 | 5.1 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.10 | 762.0 | 81 | 27.2 | 87 | SE | | | 2 | 5k | 6ks | E | | 0.070 | 1.7 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | 80.6 | 27.0 | | E | | | | | | | | 1.01 | 25.7 | Rainy | Fr. H. Groot. |
| Medellin, Colombia, S. A | 30.04 | 762.8 | | | 66.5 | 19.2 | 82 | Calm | | | 0 | 3cs,k | 1ks | | | 0.23 | 5.8 | Fair | Thomas Herran. |
| York Factory, B. A | 25.22 | 640.6 | | | 58.0 | 14.4 | 91 | E | 2 | 0.9 | | 4c | 3s | SE | SE | 0 | 0 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.50 | 774.7 | 71 | 21.7 | | NE | | | 3 | | | | | 0.08 | 2.0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | 30.48 | 764.0 | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67; feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,134.7 ft., or 4,314.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, [illegible] in.; Mt. Washington, 6.34 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.80 | 756.9 | 78 | 25.6 | 72 | 22.2 | 67 | W | | | 3 | | 1 | | W | 0.52 | 13.2 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.99 | 761.7 | 57.5 | 14.2 | 49.8 | 9.9 | | SSW | | | 2 | | 4 | | ENE | 0.04 | 1.0 | | | Fair | |
| Navy Yard, Norfolk, Va | 29.84 | 757.9 | 71 | 21.7 | 71 | 21.7 | 95 | WNW | 5 | 2.2 | | | 3c8 | | | 1.20 | 30.5 | | | Blue sky | |
| Navy Yard, Pensacola, Fla | 30.08 | 764.6 | | | 76 | 24.4 | 95 | WSW | 7 | 3.1 | | | 3 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.99 | 759.4 | 66 | 18.9 | 54 | 12.2 | 93 | ESE | 2 | 0.9 | | | | | | 0.1 | 3. | | | Cloudy | |
| Naval Hospital, Yokohama, Japan | 29.98 | 761.5 | 64.5 | 18.1 | 59.5 | 15.3 | 85 | ENE | | | 5 | | 8k | | NE | 0 | 0 | | | Cloudy | |
| Adams, S. 10° 20′ W. 30° 53′ | 30.02 | 762.5 | 82 | 27.8 | 80 | 26.7 | 87 | E | | | 3 | | 1 | | E | 0 | 0 | Moderate. | E | D. clouds | |
| Alert, N. 28° 40′ 23″ E. 143° 25′ 15″ | 30.01 | 762.2 | 74 | 23.3 | 75 | 23.9 | 95 | SE | | | 3 | | 10 | | SSE | | | Long | SSE | D. clouds | |
| Alliance, Beirut, Syria | 30.05 | 763.3 | 77 | 25.0 | 76 | 24.4 | 64 | NW | | | 0–1 | | 1 | | | | | Smooth | | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.80 | 756.9 | 76 | 24.4 | 76 | 24.4 | 82 | E | | | 3–6 | | 10 | | E | | | Smooth | | Squally | |
| Canonicus, New Orleans, La | 29.96 | 761.0 | 52 | 11.1 | 72 | 22.2 | 85 | NNW | | | 3 | | 2 | | W | | | | | Fair | |
| Colorado, New York, N. Y | 29.69 | 751.8 | 59 | 15.0 | 62 | 16.7 | 94 | SW | 4 | 1.8 | | | 9 | | | 0.18 | 4.6 | | | Hazy | |
| Despatch, Cadiz, Spain | 30.01 | 762.2 | 71 | 21.7 | 71 | 21.7 | 85 | SE | | | 5–6 | | 5 | | E | | | Smooth | | Pleasant | |
| Frolic, Rio de Janeiro, Brazil | 30.04 | 763.0 | 69 | 20.6 | 69 | 20.6 | 95 | NW | | | 1 | | 10n | | | Heavy | Heavy | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.93 | 760.2 | | | 69 | 20.6 | 95 | SSE | | | 1 | | 1 | | | 0 | 0 | | | D. clouds | |
| Hartford, Matanzas, Cuba, W. I. | 30.25 | 768.3 | 81 | 27.2 | 79 | 26.1 | 82 | Var. | 1.2 | 0.5 | | | 3 | | | | | | | Pleasant | |
| Huron, Curacao Island, W. I. | 30.04 | 763.0 | 83 | 28.3 | 83 | 28.3 | 79 | E | | | 4 | | 9 | | ESE | | | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.15 | 765.8 | 72 | 22.2 | 68 | 20.0 | 84 | NE | | | 1 | | 4 | | | 0 | 0 | | | Hazy | |
| Lackawanna, N. 18° 05′ W. 103° 37′ | 30.09 | 762.0 | | | 79 | 26.1 | 82 | NW | | | 1–2 | | 5 | | N&W | | | Long | W | D. clouds | |
| Marion, Smyrna, Turkey | 29.93 | 761.0 | 71 | 21.7 | 72 | 22.2 | 50 | W | | | 3 | | 9 | | E | 0 | 0 | Chop'd | NW | D. clouds | |
| Michigan, Erie, Pa | 29.25 | 742.9 | 63 | 17.2 | 63 | 17.2 | 72 | NE | | | 2 | | 10 | | NE | | | | | Cloudy | |
| Monocacy, Shanghai, China | 29.86 | 758.4 | 70 | 21.1 | 70 | 21.1 | 90 | SE | | | 2 | | 4 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Norfolk, Va | 29.78 | 756.4 | 72 | 22.2 | 71 | 21.7 | | W | | | 3 | | c | | W | Heavy | Heavy | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.08 | 764.0 | | | 77 | 25.0 | 77 | W | 12 | 5.4 | | | 4 | | S | 0 | 0 | | | D. clouds | |
| Omaha, Guayaquil, Ecuador | 29.98 | 761.5 | 79 | 26.1 | 80 | 26.7 | 91 | W | 1 | 0.4 | | | 3 | | N&W | 0.41 | 10.4 | Smooth | | Pleasant | |
| Ossipee, Port Royal, S. C | 29.90 | 759.4 | 76 | 24.4 | 76 | 24.4 | 82 | WNW | | | 2 | | 5 | | NW | | | | | D. clouds | |
| Palos, Shanghai, China | 29.97 | 761.2 | 70 | 21.1 | 68 | 20.0 | 74 | SE | | | 3–4 | | 9 | | S&E | | | | | Misty | |
| Plymouth, Pensacola, Fla | 29.99 | 761.7 | 81 | 27.2 | 77 | 25.0 | 91 | SW | | | 2 | | 7 | | W | 0 | 0 | | | Misty | |
| Ranger, Gibraltar Bay | 30.14 | 765.5 | | | 71 | 21.7 | 85 | Var. | | | 3–5 | | 7 | | W | | | Smooth | | Squally | |
| Richmond, Rio de Janeiro, Brazil | 30.07 | 763.8 | 70.5 | 21.4 | 68.0 | 20.0 | 87 | SW | | | 3 | | 7 | | N | Blank | Blank | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.82 | 757.4 | | | 68 | 20.0 | 95 | SE | | | 1 | | 0 | | | | | | | Clear | |
| Santee, Annapolis, Md | 29.75 | 755.6 | 75 | 23.9 | 71 | 21.7 | 75 | W | | | 2 | | 3 | | | 0.36 | 9.1 | | | Clear | |
| St. Louis, League Island, Pa | 29.69 | 751.8 | 68 | 20.0 | 67 | 19.4 | 84 | SW | 7 | 3.1 | | | 4 | | SW | 0.05 | 1.3 | | | Fair | |
| Swatara, San Andres, U. S. C | 29.94 | 760.5 | 82 | 27.8 | 82 | 27.8 | 91 | N | | | 1 | | 10n | | | Heavy | Heavy | Smooth | | Bad | |
| Tennessee, Yokohama, Japan | 30.07 | 763.8 | 69 | 20.6 | 64 | 17.8 | 83 | NNE | | | 3 | | 9 | | SW | | | Moderate | ENI | D. clouds | |
| Trenton, Smyrna, Turkey | 29.92 | 760.0 | 70 | 21.1 | 74 | 23.3 | 90 | WNW | 12.2 | 5.5 | | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.87 | 758.7 | 67 | 19.4 | 69 | 20.6 | 85 | SW | | | 3 | | 0 | | | | | | | Blue sky | |
| Wabash, Boston, Mass | 29.58 | 751.3 | 59 | 15.0 | 59 | 15.0 | 88 | SW | 5 | 2.2 | | | 10 | | | 0.09 | 2.3 | | | Misty | |
| Wyoming, Washington, D.C | 29.89† | 759.2 | 72 | 22.2 | | | | NW | | | 1 | | | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Yokohama, Japan | | | 30.13 | 765.3 | 66 | 18.9 | 79 | NE | | | 4 | | 8k8 | | | smooth | | P. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Corea | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 43° 51′ W. 43° 32′ | SW by W | 8 | 29.80 | 756.9 | 54.5 | 12.5 | | W | | | 6 | | 8 | | WNW | Rough | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 40° 46′ W. 50° 39′ | ENE ½E | | 29.68 | 753.9 | 50.0 | 10.0 | | SE | | | 2 | | k | | SE | Light | | Clear | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give a monut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—CONTINUED.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 29.81 | 757.2 | 79 | 26.1 | 74 | NW | 6 | 2 7 | | 8ck | 0 | | | | | Cloudy | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto. pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 23, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Upper 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.02 | 762.5 | 66.9 | 19.4 | 83 | W | | | 2 | | 6 | | | 0.236 | 6.0 | Fair | Michel. |
| Algiers | | | 30.06 | 763.4 | 62.6 | 17.0 | 86 | NE | | | 2 | | 10 | | | 0.020 | 0.5 | Hidden | Peter. |
| La Calle | | | 29.98 | 761.6 | 67.1 | 19.5 | 83 | ENE | | | 3 | | 7 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.01 | 762.3 | 68.0 | 20.0 | | SE | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.95 | 760.6 | 71.6 | 22.0 | | NNE | | | 4 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 29.98 | 761.5 | 60.3 | 15.7 | | NNW | | | 3 | | 6 | | | Inap. | Inap. | Fair | Millot. |
| Tebessa | | | 29.92 | 759.9 | 80.6 | 27.0 | | S | | | 2 | | 0 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 29.98 | 761.4 | 67.6 | 19.8 | 36 | N | | | 3 | | 4 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.93 | 760.2 | 77.0 | 25.0 | 16 | E | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.95 | 760.6 | 88.5 | 31.4 | 28 | SE | | | 3 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Upper 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.88 | 759.0 | 64.6 | 18.1 | 50 | SW | | | 3 | | 10 | | | 0.020 | 0.5 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.92 | 760.0 | 50.0 | 10.0 | 92 | W | | | 2 | | 10 | | | 0.28 | 7.3 | | Dr. Wierzbiski. |
| Eperies | | | 29.82 | 757.4 | 55.4 | 13.0 | 85 | NW | | | 1 | | 10n,k,s | | S | 0.24 | 6.20 | | Julius Mikolik. |
| Gratz | 28.06 | 727.9 | 29.88 | 759.0 | 63.5 | 17.5 | 61 | E | | | 3 | | 7 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.45 | 722.7 | 29.85 | 758.2 | 57.2 | 14.0 | 68 | NW | | | 4 | | 10 | | | 0.11 | 3.00 | Rainy | Prof. Reissenberger. |
| Kremsmünster | 28.59 | 726.2 | 29.93 | 760.1 | 53.6 | 12.0 | 60 | W | | | 2 | | 10 | | | 0.33 | 8.5 | | Prof. C. Wagner. |
| Lemberg | | | 29.74 | 755.5 | 62.2 | 16.8 | 59 | E | | | 1 | | 7 | | | 0.07 | 2.0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.95 | 760.7 | 67.8 | 19.9 | 70 | S | | | 1 | | 9cks | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 29.86 | 758.5 | 67.1 | 19.5 | 64 | W | | | 2 | | 8 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.98 | 761.4 | 68.0 | 20.0 | 65 | W | | | 1 | | 1 | | | 0.09 | 2.4 | | P. Busin. |
| Vienna | | | 29.88 | 758.9 | 63.7 | 17.6 | 49 | W | | | 3 | | 6 | | | 0.03 | 1.0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Upper 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.53 | 725.5 | 30.04 | 763.1 | 47.1 | 8.4 | 88 | NNW | | | 1 | | 10 | | | 0 | 0 | | |
| Brussels | | | 30.10 | 764.6 | 54.3 | 12.4 | 70 | N | | | 1 | | 10 | | N | 0 | 0 | Covered | Royal Observatory |
| Furnes | | | 30.14 | 765.6 | 51.3 | 10.7 | 69 | NNW | | | 2 | | 10 | | | 0.23 | 5.9 | | |
| Maeseyck | | | 29.96 | 761.0 | 55.0 | 12.8 | 64 | NNE | | | 4 | | 7 | | | 0.02 | 0.7 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.35 | 770.9 | 49.1 | 9.5 | | N | 14 | 6.3 | | | 3 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 30.35 | 770.9 | 53 | 11.7 | | NE | | | 2 | | 5 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.33 | 771.1 | 53.4 | 11.9 | | ESE | 3 | 1.3 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.30 | 769.6 | 48.0 | 8.9 | | NW | 10 | 4.5 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.35 | 770.9 | 52.3 | 11.3 | | NNE | | | 1 | | 10 | | | | | Overcast | J. Dreyer. |
| Bradford, Yorkshire | | | 30.28 | 769.1 | 47.4 | 8.6 | | N | | | 2 | | 8 | | | 0 | 0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.91 | 760.5 | 85.0 | 29.4 | | NE | | | 1 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.23 | 767.8 | 52.0 | 11.1 | | N | | | 3 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 30.25 | 768.3 | 50.0 | 10.0 | | NE | | | 3 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.24 | 768.1 | 47.2 | 8.4 | | Calm | | | 0 | | 6 | | | | | D. clouds | Capt. Fellowes, R. E. |
| Dartmoor | 28.74 | 730.0 | 30.24 | 768.1 | 45.0 | 7.2 | | E | | | 4 | | 8 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.36 | 771.1 | 56 | 13.3 | | NE | | | 4 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.18 | 766.6 | 50 | 10.0 | | NE | | | 4 | | 7 | | | | | ¾ cloud d. | J. Costello. |
| Eccles, (near Manchester) | | | 30.26 | 768.6 | 49.8 | 9.9 | | NE | 3.2 | 1.4 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.24 | 768.1 | 50.4 | 10.2 | | E | | | 2 | | 10 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.72 | 704.1 | 29.96 | 761.0 | 67.5 | 19.7 | | E | | | 2 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 760.2 | 87 | 30.6 | | E | | | 0 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.29 | 769.4 | 54 | 12.2 | | N | | | 1 | | 7 | | | | | D. clouds | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.05 | 763.3 | 67.4 | 19.7 | | E | | | 2 | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.33 | 770.4 | 51.4 | 10.8 | | NW | | | 1 | | 6 | | | | | D. clouds | J. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.20 | 767.1 | 50 | 10.0 | | NNE | | | 3 | | 5 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.22 | 767.6 | 47.3 | 8.5 | | NNE | | | 1 | | 10 | | | | | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 30.18 | 766.6 | 47.5 | 8.6 | | NE | | | 3 | | 8 | | | | | D. clouds | Lt. S. L. Hoskins, F.R.S. |
| Helston | | | 30.28 | 769.1 | 54 | 12.2 | | E | | | 4 | | 6k | | | 0 | 0 | Gloom | M. P. Moyle. |
| Holyhead | | | 30.31 | 769.9 | 49 | 9.4 | | NNE | | | 4 | | 2 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.22 | 767.6 | 48.8 | 9.3 | | NNE | 13 | 5.8 | | | 10 | | | | | Threatening | The Staff. |
| Kingstown | | | 30.38 | 771.6 | 48 | 8.9 | | NE | | | 4 | | 2 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.26 | 768.6 | 48.1 | 8.9 | | N | | | 2 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.92 | 760.0 | 66.6 | 19.2 | | SE | | | 1 | | 8k | | | | | D. clouds | Corpl. P. Bravis, A. H. C. |
| Nairn | | | 30.38 | 771.6 | 50 | 10.0 | | Calm | | | 0 | | 5 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.96 | 761.0 | 82.0 | 27.8 | | NW | | | 1 | | 8 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.29 | 769.4 | 48.3 | 9.1 | | NNW | | | 3 | | 10k | | N | 0 | 0 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.26 | 768.6 | 46.0 | 7.8 | | NNE | | | 3-4 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.24 | 768.1 | 49 | 9.4 | | NNE | | | 2 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 30.23 | 767.8 | 49.2 | 9.6 | | ENE | | | 3 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.32 | 770.1 | 54 | 12.2 | | SE | | | 4 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.28 | 769.1 | 50 | 10.0 | | NE | | | 2 | | 6 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.16 | 766.1 | 50.0 | 10.0 | | NE | | | 4 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.36 | 771.1 | 49.8 | 9.9 | | W | 20 | 8.9 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL.D. |
| Scutari, Cemetery, (Turkey) | | | 29.86 | 758.4 | 70.4 | 21.3 | | SW | | | 2 | | 1 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.27 | 768.8 | 49.7 | 9.8 | | NE | | | 1 | | 8 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.30 | 769.6 | 55.4 | 13.0 | 55 | E | | | 4 | | 3 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.29 | 769.4 | 50.0 | 10.0 | | NE | | | 1 | | 5 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.37 | 771.4 | 53 | 11.7 | | SE | | | 2 | | 5 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.24 | 768.1 | 48.3 | 9.1 | | NE | | | 1 | | 10 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 30.34 | 770.6 | 51 | 10.6 | | NW | | | 3 | | 8 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 30.17 | 766.3 | 56 | 13.3 | | NE | | | 6 | | 10 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 30.31 | 769.9 | 54.0 | 12.2 | | WSW | 10 | 4.5 | | | 7 | | | | | Hazy | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 48 | 8.9 | | NE | | | 4 | | 3 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.81 | 757.2 | 73.4 | 23.0 | 57 | Calm | | | 0 | 2 | 4 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.62 | 752.3 | 55.6 | 12.8 | 93 | | | | 2 | | 10u | | | | | Raining | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.37 | 771.4 | 50.2 | 10.1 | | NE | | | 2 | | 7k | | | 0 | 0 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.09 | 764.3 | 75.6 | 24.2 | 72 | SSE | 3.3 | 1.7 | | 0 | 7 | | SSE | Inap. | Inap. | Raining | C. Meldrum. |
| Melbourne, Observatory | | | 29.76 | 755.9 | 49.0 | 9.4 | 74 | SW | 10 | 4.5 | | | 8 | | | 0.66 | 16.8 | Clearing | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 30.40 | 772.1 | 48 | 8.9 | | NE | | | 4 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.25 | 768.3 | 44 | 6.7 | | W | | | 4 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Moulland. |
| Ship Camperdown, N. 29° 5′ W. 87° 0′ | | | 29.99 | 761.7 | 77.5 | 25.3 | | SW | | | 3 | | 4 | | | 1 | SW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 17° 0′ W. 76° 25′ | | | 30.00 | 762.0 | 81.5 | 27.5 | | ESE | | | 3 | | 7 | | | 3 | E | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 68.4 | 20.2 | 98 | SW | | | 1 | | 108 | | S | 0.32 | 8.1 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.13 | 765.3 | 53.2 | 11.8 | 48 | S | | | 4 | | 1 | | | | | | |
| Fanöe | | | 30.07 | 763.6 | 55.8 | 13.2 | 54 | WSW | | | 4 | | 7 | | | | | | |
| Godthaab, (Greenland) | | | 30.35 | 771.0 | 48.0 | 8.9 | 70 | Calm | | | 0 | | 3 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.33 | 770.3 | 44.1 | 6.7 | 80 | SE | | | 6 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.21 | 768.0 | 50.5 | 10.3 | 73 | WNW | | | 4 | | 10 | | | | | | |
| Vestervig | | | 30.10 | 764.4 | 55.4 | 13.0 | 85 | NNE | | | 6 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.17 | 766.2 | 53.6 | 12 | 84 | NE | | | 3 | | 10kn | | E | 0 | 0 | Covered | Normal School. |
| Amiens | | | 30.09 | 764.2 | 52.9 | 11.6 | | NNE | | | 2 | | 8 | | N | 0.07 | 1.8 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.98 | 761.6 | 71.2 | 21.8 | 31 | N | | | 2 | | 0 | | | 0.18 | 4.7 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.05 | 763.3 | 56.7 | 13.7 | 71 | N | | | 2 | | 8n | | N | 0.008 | 0.2 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.13 | 765.2 | 51.6 | 10.9 | 73 | NNE | | | 2 | | 10 | | ENE | 0.04 | 1. | Covered | Normal School. |
| Besançon | | | 30.13 | 765.4 | 61.0 | 16.1 | 62 | N | | | 3 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Bourg en Bresse | | | 30.14 | 765.5 | 61.5 | 16.4 | 69 | N | | | 4 | | 8kn | | N | 0 | 0 | Very cloudy | Normal School. |
| Bourges | | | 30.04 | 764.2 | 55.9 | 13.3 | 79 | W | | | 1 | | 5 | | SE | 0 | 0 | Cloudy | Normal School. |
| Brest | | | 30.09 | 764.2 | 50.5 | 10.3 | 69 | NNE | | | 4 | | 10 | | NNE | 0 | 0 | Misty | Naval Observatory. |
| Carcassonne | | | 29.98 | 761.4 | 73.0 | 22.8 | 76 | W | | | 2 | | 2 | | E | 0 | 0 | Partly cl'dy | Normal School. |
| Caen | | | 30.14 | 765.6 | 50.4 | 10.2 | 80 | NE | | | 4 | | 10 | | SW | 0.051 | 1.3 | Light rain | Normal School. |
| Chartres | | | 30.07 | 763.7 | 51.1 | 10.6 | 93 | NNE | | | 3 | | 7 | | NNW | 0.100 | 2.7 | | Normal School. |
| Châlons-sur-Marne | | | 30.06 | 763.4 | 57.0 | 13.9 | 69 | NW | | | 2 | | 10k | | SE | 0.047 | 1.2 | Covered | Normal School. |
| Clermont-Ferrand | | | 30.00 | 761.9 | 61.0 | 16.1 | 56 | SE | | | 1 | | 5 | | | 0 | 0 | Cloudy | Puy de Dome Obs'y. |
| Commercy | | | 30.03 | 762.8 | 54.5 | 12.5 | 72 | NW | | | 2 | | 5 | | NW | 0 | 0 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 30.03 | 762.8 | 68.2 | 20.1 | 26 | W | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.00 | 762.0 | 63.1 | 17.3 | 58 | N | | | 6 | | 2ek | | E | 0.059 | 1.50 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon | | | 30.01 | 762.0 | 57.6 | 14.2 | 89 | NW | | | 2 | | 8 | | SE | 0 | 0 | Very cloudy | Normal School. |
| Le Mans | | | 30.11 | 764.7 | 50.5 | 10.3 | 82 | NE | | | 4 | | 8 | | E | 0.023 | 0.59 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.04 | 763.0 | 61.9 | 16.6 | 60 | SSW | | | 1 | | 5 | | | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 30.13 | 765.4 | 52.9 | 11.6 | 64 | NE | | | 3 | | 8 | | NE | 0.020 | 0.5 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.14 | 765.6 | 57.0 | 13.9 | 78 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | Mr. Marchal. |
| Metz | | | 30.12 | 765.0 | 55.0 | 12.8 | 69 | NNW | | | 2 | | 10 | | | 0.004 | 0.1 | Covered | M. A. Schuster. |
| Mirecourt | | | 30.07 | 763.6 | 56.5 | 13.6 | 72 | N | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes | | | 30.00 | 762.0 | 71.6 | 22 | 45 | N | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Orleans | | | 30.08 | 763.9 | 53.2 | 11.8 | 78 | NNW | | | 2 | | 10 | | NW | 0 | 0 | Covered | Normal School. |
| Paris, Observatory | | | 30.10 | 764.4 | 51.8 | 11.0 | 80 | NE | | | 3 | | 10k | | NNE | 0.038 | 0.97 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 36.05 | 763.2 | 68.2 | 20.1 | 54 | ESE | | | 4 | | 2 | | WNW | 0 | 0 | ¾ covered | Naval Observatory. |
| Rouen | | | 30.12 | 765.1 | 55.0 | 12.8 | 64 | N | | | 2 | | 10 | | N | 0.004 | 0.1 | Covered | Normal School. |
| Tarbes | 29.02 | 737.1 | 30.09 | 764.3 | 67.6 | 19.8 | 60 | WSW | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Villefranche | | | 30.15 | 765.7 | 60.8 | 16 | 74 | E | | | 2 | | 10 | | | 0 | 0 | Covered | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.83 | 757.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.97 | 761.3 | 68.4 | 20.2 | 44 | SW | | | 1 | | 0 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 24.85 | 631.3 | 30.17 | 766.3 | 50.5 | 10.3 | 70 | SSW | 11.2 | 5.00 | | | 8 | | SSW | 0.010 | 0.4 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.04 | 761.2 | 50.9 | 10.5 | 81 | NNE | | | 2–3 | | 10 | | NNE | 0.035 | 0.9 | | Montsouris Observatory |
| Perpignan | | | 30.01 | 762.2 | 67.5 | 19.7 | 44 | S | 9.3 | 4.17 | | | 3 | | WSW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.47 | 570.7 | | | 49.8 | 9.9 | | SW | | | 2 | | 7 | | | 0.067 | 1.7 | Snowy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.09 | 764.3 | 53.1 | 11.7 | 81 | NNE | | | 1 | | 10 | | | 0.057 | 1.4 | Covered | E. Renou. |
| Toulouse, Observatory | | | 30.06 | 763.4 | 65.8 | 18.8 | 32 | NNE | | | 1 | | 4 | | | 0 | 0 | | The Staff |
| Tours | | | 30.07 | 763.8 | 55.4 | 13.0 | 75 | NW | | | 2 | | 10 | | WNW | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.10 | 764.5 | 50.7 | 10.4 | 90 | NE | | | 2 | | 10 | | | 0.063 | 1.59 | Covered | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.93 | 760.1 | 62.8 | 17.1 | 91 | E | 3.4 | 1.5 | | | 4k8 | | | 0 | 0 | | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,201.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.07 | 763.6 | 49.1 | 9.5 | 92 | N | | | 4 | | 10 | N | | 0.181 | 4.6 | Raining | Prof. T. Hoh. |
| Berlin | | | 30.03 | 762.7 | 57.7 | 14.3 | 50 | E | | | 2 | | 7 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.97 | 761.3 | 48.2 | 9.0 | 100 | NNE | | | 2 | | 10 | | | 0.213 | 5.4 | Raining | Royal University Obs'y. |
| Carlsruhe | | | 30.02 | 762.5 | 53.2 | 11.8 | 86 | SSW | | | 1 | | 10 | | | 0.394 | 10.0 | Raining | Albert Senz. |
| Cassel | | | 30.07 | 763.6 | 58.5 | 14.7 | 50 | E | | | 6 | | 1 | NE | | 0.063 | 1.6 | | Dr. H. Möhl. |
| Crefeld | | | 30.05 | 763.2 | 58.3 | 14.6 | 50 | N | | | 3 | | 9 | | | 0.039 | 1.0 | | Director Lose. |
| Emden | | | 30.14 | 765.6 | 55.2 | 12.9 | 70 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.04 | 763.1 | 58.3 | 14.6 | 55 | SW | | | 1 | | 10 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.0? | 29.98? | 761.6? | 61.2 | 16.2 | 60 | SSW | | | 3 | | 5 | W | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.08 | 764.1 | 56.1 | 13.4 | 42 | NE | | | 5 | | 4k | ENE | | 0 | 0 | Very clear | Captain F. Hegemann. |
| Kiel | | | 30.10 | 764.5 | 54.3 | 12.4 | 81 | E | | | 3 | | 3 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.02 | 762.5 | 50.9 | 10.5 | 56 | N | | | 5 | | 2 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | 30.10 | 764.6 | 50.0 | 10.0 | | N | | | 4 | | 1 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 30.04 | 763.1 | 50.4 | 10.2 | 84 | NE | | | 1 | | 10 | NE | | 0.138 | 3.5 | Raining | Prof. Bruhns. |
| Memel, Naval School | | | 30.07 | 763.8 | 46.2 | 7.9 | | NW | | | 6 | | 2ks | | | | | Raw | Reinbrecht & Skalweit. |
| Münster | | | 30.02 | 762.4 | 59.5 | 15.3 | 47 | N | | | | | 3 | | | 0.012 | 0.3 | | Prof. E. Heis. |
| Neufahrwasser | | | 30.10 | 764.4 | 43.3 | 6.3 | 84 | N | | | 4 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.02 | 762.5 | 57.0 | 13.9 | 71 | NNE | | | 8 | | 10 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.04 | 763.0 | 56.8 | 13.8 | 66 | | | | | | 10 | W | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.01 | 762.2 | 52.2 | 11.2 | 83 | N | | | 1 | | 10 | E | | 0.035 | 0.9 | Light rain | Prof. Schoder |
| Treves, (Trier) | | | 29.93 | 760.3 | 56.3 | 13.5 | 70 | NE | | | 4 | | 10 | | | 0.063 | 1.6 | Misty | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.49 | 723.7 | 30.02 | 762.5 | 46.4 | 8.0 | 83 | WNW | | | 3 | | 10 | SW | | 0.406* | 10.3* | | T. V. Dickmether. |
| Wustrow, Naval School | | | 30.24 | 768.1 | 52.5 | 11 4 | 53 | NE | | | 6 | | 0 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time. * Rain-fall for 48 hours.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.94 | 760.4 | 75.7 | 24.3 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.13 | 562.0 | 29.94 | 760.5 | 32.7 | 0.4 | 91 | NW | | | 2 | | 8 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.05 | 560.0 | 29.77 | 756.22 | 35.4 | 1.9 | | SSE | | | 1 | | 5 | WNW | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.9 | 760.0 | 64.0 | 17.8 | 49 | SW | 1.3 | 0.6 | | | 4 | | | 0.29 | 7.6 | | Ab. Dom. Morgini. |
| Padua | | | 29.9 | 760.0 | 65.1 | 18.4 | 60 | SSW | 2.5 | 1.1 | | | 3 | WSW | | 2.64 | 67.2 | | Prof. Dott. Lorenzoni. |
| Verona | | | 29.93 | 760.2 | 61.7 | 16.5 | 55 | NW | 2.5 | 1.1 | | | 7 | W | | 0.44 | 11.2 | | Cont. Alm. Da Schio. |
| Bergamo | | | 30.00 | 762.1 | 69.1 | 20.6 | 60 | E | | | 1 | | 10 | | | 0.31 | 8.0 | | Dott. B. Bertoncelli. |
| Domodossola | 28.03 | 727.3 | 29.94 | 760.5 | 63.3 | 17.4 | 50 | WSW | | | 2 | | 3 | | | 0.157 | 4.0 | | Prof. Trionfini Carlo. |
| Milan | | | 29.88 | 758.9 | 64.8 | 18.2 | 42 | SW | | | 6 | | 5 | | | 0.39 | 10.0 | | Prof. Giuseppe Calza. |
| Pavia | | | 29.94 | 760.4 | 76.1 | 24.5 | 35 | SE | | | 1 | | 3 | E | | 0.13 | 3.3 | | Ab. Gio. Capelli. |
| Moncalieri | | | 29.9 | 760.5 | 67.1 | 19.5 | 46 | NW | | | 2 | | 6 | SW | | 0.13 | 3.8 | | Prof. Gio. Cantoni. |
| Mondovi | | | 29.93 | 760.1 | 66.2 | 19.0 | 51 | ESE | 3.8 | 1.7 | | | 2 | W | | 0 | 0 | | Prof. P. F. Denza. |
| Porto Maurizio | 28.03 | 712.0 | 29.91 | 759.6 | 64.4 | 18.0 | 43 | NNW | | | 4 | | 2 | SW | | 0.051 | 1.3 | | Prof. D. C. Bruno. |
| Genoa | | | 30.02 | 762.5 | 65.5 | 18.6 | 62 | ESE | | | 2 | | 2 | | | 0 | 0 | | Prof. L. Vassallo. |
| Piacenza | | | 29.98 | 761.5 | 66.0 | 18.9 | 57 | S | 4.9 | 2.2 | | | 4 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Parma | | | 29.96 | 760.9 | 64.4 | 18.0 | 56 | N | 4.9 | 2.2 | | | 7 | SW | | 0 | 0 | | Dott. G. Manzi. |
| Florence | | | 29.9 | 760.9 | 66.2 | 19.0 | 59 | E | | | 2 | | 9 | | | 0.091 | 2.3 | | Prof. P. Pigorini. |
| Leghorn | | | 29.98 | 761.5 | 72.5 | 22.5 | 54 | W | | | 2 | | 10 | | | 0 | 0 | | Cav. F. Meucci. |
| Siena | | | 29.98 | 761.5 | 68.7 | 20.4 | 56 | SW | 9.4 | 4.2 | | | 10 | | | 0 | 0 | | Prof. P. Monte. |
| Urbino | 28.76 | 730.5 | 29.95 | 760.7 | 66.2 | 19.0 | 45 | SW | 0 | 0 | | | 10 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Pesaro | 28.44 | 722.4 | 29.97 | 761.3 | 64.2 | 17.9 | 61 | N | | | 2 | | 10 | | | 0 | 0 | | Prof. P. Serpieri. |
| Ancona | | | 29.97 | 761.2 | 61.2 | 17.9 | 76 | NE | 16.1 | 7.2 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Grosseto | | | 29.95 | 760.8 | 68.4 | 20.2 | 57 | ESE | | | 4 | | 4 | | | 0 | 0 | | Prof. F. DeBosis. |
| Rome | | | 29.99 | 761.8 | 70.5 | 21.4 | 73 | SSW | | | 2 | | 7 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Naples, O. U | | | 30.06 | 762.1 | 69.4 | 20.8 | 46 | W | 6.3 | 2.8 | | | 10 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Lecce | | | 30.06 | 762.0 | 75.4 | 24.1 | 44 | SW | | | 2 | | 10 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Cosenza | | | 29.80 | 757.0 | 67.5 | 19.7 | 45 | SE | 12.5 | 5.6 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cagliari | | | 29.95 | 760.6 | 72.7 | 22.6 | 68 | NW | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Riposto, (Sicily) | | | 29.93 | 760.3 | 69.8 | 21.0 | 65 | W | | | 2 | | 7 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Palermo | | | 30.01 | 762.2 | 68.4 | 20.2 | 67 | SW | | | 2 | | 4 | S | | 0.010 | 0.4 | | Prof. F. Cafiero. |
| Caltanissetta | | | 29.94 | 760.4 | 64.0 | 18.8 | 69 | NE | 6.3 | 2.8 | | | 10 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Syracuse | 27.98 | 710.8 | 29.84 | 759.2 | 73.8 | 23.2 | 18 | E | | | 1 | | 6 | NE | | 0 | 0 | | Prof. A. Pagani. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.92 | 760.0 | 68.4 | 20.2 | 66 | NE | | | 4 | | 10 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| | | | 30.01 | 762.2 | 68.7 | 20.4 | 45 | SW | 0.7 | 0.3 | | | 8 | NE | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.13 | 765.3 | 58 | 14.4 | 76 | Calm | 0 | 0 | | 5ck | | | | 0 | 0 | Fair | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.9 | 30.11 | 764.9 | 57.2 | 14.0 | 80 | W | 0.04 | 0.02 | | 1c | 3c | W | S | 0.039 | 1.0 | Foggy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.17 | 766.4 | 53.8 | 12.1 | | NNE | | | 4 | | | | | 0.071 | 1.8 | | |
| Groningen | | | 30.05 | 763.3 | 52.9 | 11.6 | | N | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.19 | 765.4 | 48.7 | 9.3 | | NW | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 30.08 | 764.1 | 53.8 | 12.1 | 32 | N | | | 3 | | 8 | | | 0 | 0 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.17 | 766.2 | 54.3 | 12.4 | 70 | W | 11.6 | 5.2 | | | 10 | | | | | Raining | |
| Brönö | | | 30.22 | 767.6 | 44.1 | 6.7 | 45 | NNE | 9 | 4 | | | 8 | | | 0 | 0 | | |
| Christiania | | | 30.21 | 767.2 | 46.9 | 8.3 | 69 | NNE | 2 | 1 | | | 6 | | | 0.001 | 0.1 | | |
| Tromsö | | | 30.32 | 770.2 | 38.3 | 3.5 | 72 | SW | 4 | 2 | | | 10 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.11 | 764.7 | 67.6 | 19.8 | 90 | SW | 1.8 | 0.8 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.91 | 759.8 | 75.4 | 24.1 | 34 | SW | 8.7 | 3.9 | | | 3 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.11 | 764.9 | 67.5 | 19.7 | 61 | ESE | 8.7 | 3.9 | | | 5 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.02 | 762.4 | 70.9 | 21.6 | 48 | SSW | 9.8 | 4.4 | | | 0 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.09 | 764.2 | 68.7 | 20.4 | 72 | NNE | 5.7 | 2.5 | | | 4 | | | 0.079 | 2.0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'dr. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.89 | 759.1 | 61.0 | 16.1 | 48 | NNE | 9 | 4 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.90 | 759.4 | 56.7 | 13.7 | 43 | NNE | 9 | 4 | | | 5 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.08 | 764.0 | 44.6 | 7.0 | 87 | NNW | 9 | 4 | | | 2 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.08 | 763.9 | 36.0 | 2.2 | 65 | NE | 13 | 6 | | | 10 | | | | | Snowing | Central Physical Obs. |
| Kuopio | | | 30.18 | 766.5 | 33.4 | 0.8 | 100 | ENE | 22 | 10 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.65 | 753.2 | 56.5 | 13.6 | 76 | N | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.61 | 752.1 | 70.5 | 21.4 | 56 | NE | 18 | 8 | | | 10 | | | | | | Kurdakof. |
| Kertch | | | 29.63 | 752.5 | 70.5 | 21.4 | 63 | WNW | 7 | 3 | | | 6 | | | | | | Lagorio. |
| Moscow | | | 29.81 | 757.1 | 53.1 | 11.7 | 37 | NW | 9 | 4 | | | 7 | | | | | | Meteorological Obs. |
| Lugan | | | 29.43 | 747.6 | 69.1 | 20.6 | 53 | Calm | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Archangel | | | 30.15 | 765.7 | 25.9 | — 3.4 | 60 | NNE | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.32 | 719.3 | 29.69 | 754.0 | 69.6 | 20.9 | 36 | NW | 45 | 20 | | | 0 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.58 | 751.4 | 57.7 | 14.3 | 91 | N | 9 | 4 | | | 10 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.60 | 751.9 | 45.5 | 7.5 | 68 | N | 16 | 7 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.92 | 759.9 | 61.5 | 16.4 | 82 | SW | 13 | 6 | | | 10 | | | | | | Tschernischef. |
| Ekaterinburg | 28.55 | 725.2 | 29.51 | 749.5 | 36.9 | 2.7 | 93 | NE | 9 | 4 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.56 | 750.8 | 86.4 | 30.2 | 31 | N | 13 | 6 | | | 10 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.21 | 716.5 | 29.80 | 757.0 | 83.5 | 28.6 | 44 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.73 | 755.1 | 77.0 | 25.0 | 24 | SW | 2 | 1 | | | 8 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.47 | 748.5 | 50.7 | 10.4 | 89 | WNW | 2 | 1 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 52.0 | 11.1 | | Calm | 0 | 0 | | | 0 | | | | | | Mossin. |
| Peking, (China) | | | 29.97 | 761.1 | 72.7 | 22.6 | 59 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.94 | 760.4 | 48.0 | 8.9 | 99 | SE | 9 | 4 | | | 10 | | | | | Heavy mist. | |
| Nikolaievsk, on the Amoor | | | | | 41.4 | 5.2 | | SE | 16 | 7 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.92 | 759.9 | 73.2 | 22.9 | 45 | SE | 7.4 | 3.33 | | 2 | 1 | WNW | | 0 | 0 | Light clouds | Royal Observatory. |
| San Fernando | | | 30.04 | 762.9 | 76.1 | 24.7 | 49 | E | 10.7 | 4.8 | | 0 | 5 | | E | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.97 | 761.3 | 79.9 | 26.6 | 84 | Calm | 0 | 0 | | 3cs | 0 | | | 0.248 | 6.3 | | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.35 | 770.9 | 34.2 | 1.2 | 55 | NE | | | 4 | | 10 | | | 0 | 0 | | |
| Umea | | | 30.32 | 770.1 | 38.5 | 3.6 | 70 | ENE | | | 4 | | 10 | | | 0.075 | 1.9 | | |
| Hernosand | | | 30.28 | 769.0 | 41.0 | 5.0 | 39 | ENE | | | 6 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 30.13 | 765.4 | 42.3 | 5.7 | 88 | N | | | 4 | | 9 | | | 0 | 0 | | |
| Wisby | | | 30.17 | 766.2 | 38.5 | 3.6 | 73 | NNE | | | 6 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.17 | 766.3 | 41.7 | 5.4 | 53 | N | 14.8 | 6.6 | | | 10 | | N | 0.001 | 0.02 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low' 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.57 | 725.6 | 29.97 | 761.1 | 64.0 | 17.8 | 40 | S | | | 1 | | 2 | | | 0 | 0 | Clouds | The Observatory. |
| Zurich | 28.37 | 720.7 | 29.99 | 761.8 | 60.4 | 15.8 | 53 | W | | | 1 | | 5 | | | 0.608 | 0.2 | Bright | The Observatory. |
| | | | | | | | | | | | | | | | | | | | |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +0.2 mm; Thermometer, +0.1 cent.; Relative Humidity, —16 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0–10. | 0–10. | 0–10. | From— | From— | Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.91 | 759.6 | 70.0 | 21.1 | 57 | SW | 11 | 5.0 | | | 3 | | WSW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.10 | 764.6 | 78.8 | 26.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.95 | 760.7 | 72.5 | 22.5 | | SW | | | 1 | | 0 | | | | | | B. Stéfanidès. |
| Yalona | | | 30.03 | 762.8 | 69.3 | 20.7 | | NW | | | 1 | | 0 | | | 0 | 0 | Fine | A. Bertrand. |
| Varna | | | 29.88 | 759.0 | 69.8 | 21.0 | | E | | | 2 | | 5 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.3 | 84.6 | 29.2 | 59 | SW | | | 2 | | 5c,cs | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0–10. | 0–10. | 0–10. | From— | From— | Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.65 | 753.1 | 50.6 | 10.3 | 72 | NE | 6 | 2.7 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.85 | 758.2 | 44 | 6.7 | | N | 4 | 1.8 | | 0 | 5s | | N | Inap. | Inap. | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.65 | 753.1 | 53 | 11.7 | 57 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.68 | 753.9 | 47 | 8.3 | 64 | E | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.77 | 756.1 | 49.0 | 9.4 | 62 | E | | | 3 | | 10s | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.69 | 754.1 | 59.8 | 10.4 | 54 | W | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C. | | | 29.94 | 760.5 | 51.3 | 10.7 | 82 | W | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.72 | 754.9 | 42 | 5.6 | 79 | SW | 4 | 1.8 | | 0 | 2s | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 29.69 | 754.1 | 51.3 | 10.7 | 60 | Calm | 0 | 0 | | 10 | 0 | | | Inap | Inap | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.34 | 770.6 | 48 | 8.9 | 78 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | James Stewart. |
| Goderich, Ontario | | | 30.11 | 764.8 | 42.9 | 6.1 | 82 | NW | | | 4 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | | | 30.14 | 765.0 | 43 | 6.1 | 59 | N | | | 3 | 0 | 0 | | | 0.16 | 4.1 | Clear | James Grant. |
| *Halifax, N. S. | 28.92 | 734.6 | 30.04 | 763.0 | 49 | 9.4 | 67 | SE | 10 | 4.5 | | | 10n | | | 0 | 0 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.64 | 753.8 | 43 | 9.6 | 50 | W | | | 3 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.03 | 762.7 | 43.3 | 6.1 | 59 | SE | | | 3 | 3k | 4s | | | 0 | 0 | Cloudy | E. Weedon. |
| *Kingston, Ontario | | | 29.68 | 753.9 | 47 | 8.3 | 60 | N | 15 | 6.7 | | 10k | 0 | NW | | Inap. | Inap. | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.89 | 759.2 | 51 | 10.6 | 59 | NE | 4 | 1.8 | | 2cs | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.77 | 756.1 | 42 | 5.6 | 54 | NW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.00 | 762.0 | 45 | 7.2 | 68 | N | 16 | 7.2 | | 0 | 0 | | | 0.35 | 8.9 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 29.99 | 761.7 | 44.1 | 6.7 | | NW | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 30.03 | 762.7 | 46 | 7.8 | 62 | NW | 5 | 2.2 | | 0 | 0 | | | 0.27 | 6.9 | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.74 | 755.4 | 51 | 10.6 | 65 | Calm | 0 | 0 | | 5k | 5ks | | | 0 | 0 | Fair | Capt. Ashe, R. N. |
| *Rockcliffe, Ontario | | | 29.94 | 760.5 | 36 | 2.2 | 61 | NW | 6 | 2.7 | | | 10s | | NW | 0 | 0 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 29.64 | 753.4 | 50 | 10.0 | 61 | NE | 6 | 2.7 | | | 10 | | | 0 | 0 | Threatening | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.02 | 762.5 | 43 | 6.1 | 51 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 30.00 | 762.0 | 41 | 5.0 | 53 | NW | 23 | 10.3 | | 0 | 0 | | | 0.08 | 2.0 | Clear | R. J. Cole. |
| Stratford, Ontario | | | 30.01 | 762.2 | 41.0 | 5.0 | 64 | NW | 16 | 7.2 | | 0 | 6 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.70 | 729.0 | 29.61 | 752.8 | 55 | 12.8 | 50 | W | 3 | 1.3 | | 2c | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 29.98 | 761.5 | 45 | 7.2 | 51 | NW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 29.60 | 751.8 | 50.5 | 10.3 | 67 | N | 0 | 0 | | 10cs | 0 | NW | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.03 | 762.7 | 44.6 | 7.0 | 64 | E | 24 | 10.7 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.78 | 756.4 | 47.5 | 8.6 | 66 | NE | | | | 10k | 10s | | | 0 | 0 | Cloudy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.74 | 755.4 | 54 | 12.2 | 60 | Calm | 0 | 0 | | 0 | 1k | | | 0.08 | 2.0 | Clear | |
| Alpena, Mich. | | | 30.15 | 765.8 | 46 | 7.8 | 39 | NW | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.76 | 755.9 | 61 | 16.1 | 66 | N | 12 | 5.4 | | 0 | 0 | | | 0.36 | 9.1 | Clear | |
| Augusta, Ga. | | | 29.86 | 758.4 | 81 | 27.2 | 52 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.82 | 757.4 | 62 | 16.7 | 61 | N | 16 | 7.2 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Barnegat, N. J. | | | 29.73 | 755.1 | 61 | 16.1 | 66 | NW | 17 | 7.6 | | 0 | 0 | | | 0.27 | 6.9 | Clear | |
| Bismarck, Dakota | 28.39 | 721.1 | 30.03 | 762.7 | 52 | 11.1 | 86 | SE | 6 | 2.7 | | | 10s | | SE | Inap. | Inap. | Cloudy | |
| Boston, Mass. | | | 29.63 | 752.6 | 58 | 14.4 | 53 | NE | 8 | 3.6 | | 0 | Haze | | | 0.33 | 8.4 | Clear | |
| Breckenridge, Minn. | | | 30.24 | 768.1 | 48 | 8.9 | 62 | E | 18 | 8.0 | | 10es | 0 | W | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.91 | 759.7 | 45 | 7.2 | 60 | N | 12 | 5.4 | | 0 | 0 | | | 0.47 | 11.9 | Clear | |
| Burlington, Vt. | | | 29.76 | 755.9 | 49 | 9.4 | 57 | N | 6 | 2.7 | | 8ek | 0 | NW | | Inap. | Inap. | Fair | |
| Cairo, Ill. | | | 30.07 | 763.8 | 60 | 15.6 | 82 | N | 8 | 3.6 | | 2k | 0 | N | | 0 | 0 | Fair | |
| Campo, Cal. | 27.33 | 694.2 | 29.90 | 759.4 | 40 | 4.4 | 83 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 60 | 15.6 | | Calm | | | | 5c | Haze | SW | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.67 | 753.6 | 72 | 22.2 | 58 | NE | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 29.76 | 755.9 | 66 | 18.9 | 84 | N | 22 | 9.8 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 29.75 | 755.6 | 74 | 23.3 | 68 | N | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 29.76 | 755.9 | 59 | 15.0 | 76 | N | 20 | 8.9 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Charleston, S. C. | | | 29.83 | 757.7 | 77 | 25.0 | 57 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.00 | 609.6 | 29.94 | 760.5 | 56 | 10.0 | 86 | SE | 2 | 0.9 | | 5ek | 1s | SE | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 30.16 | 766.1 | 45 | 7.2 | 76 | NE | 14 | 6.3 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Cincinnati, Ohio | | | 29.98 | 761.5 | 59 | 15.0 | 59 | N | 10 | 4.5 | | 1ek | 0 | N | | Inap. | Inap. | Clear | |
| Cleveland, Ohio | | | 30.04 | 763.0 | 48.5 | 9.2 | 63 | N | 13 | 5.8 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Corsicana, Tex. | | | 29.98 | 761.5 | 69 | 20.6 | 84 | S | 1 | 0.4 | | 5es | Haze | | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 30.20 | 767.1 | 52 | 11.1 | 52 | NE | 6 | 2.7 | | 7e | 0 | W | | 0 | 0 | Fair | |
| Denison, Tex. | | | 29.97 | 761.2 | 71 | 21.7 | 80 | SE | 2 | 0.9 | | 6e | 0 | | | 0 | 0 | Fair | |
| Denver, Col. | 24.76 | 628.9 | 29.98 | 761.5 | 53 | 11.7 | 73 | S | 2 | 0.9 | | | 8s | | NW | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 30.08 | 764.0 | 48 | 8.9 | 49 | N | 10 | 4.5 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Dodge City, Kan. | 27.36 | 694.9 | 29.57 | 751.1 | 64 | 17.8 | 78 | S | 4 | 1.8 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 30.24 | 768.1 | 52 | 11.1 | 53 | NE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 30.35 | 770.9 | 46 | 7.8 | 69 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.62 | 752.3 | 49 | 9.4 | 64 | NE | 6 | 2.7 | | 2ek | 8s | | W | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 29.97 | 761.2 | 47 | 8.3 | 62 | N | 13 | 5.8 | | 0 | 0 | | | 0.31 | 7.9 | Clear | |
| Escanaba, Mich. | | | 30.26 | 768.6 | 46 | 7.8 | 54 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | | | 29.86 | 758.4 | 64 | 17.8 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.94 | 760.5 | 71 | 21.7 | 84 | E | 3 | 1.3 | | 2e | 0 | | | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.66 | 728.0 | 29.89 | 759.2 | 69 | 20.6 | 70 | E | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.61 | 752.1 | 38 | 3.3 | 100 | SE | | | 7 | 2es | 8s | S | | 0.04 | 1.0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.78 | 731.0 | 29.85 | 758.2 | 70 | 21.1 | 67 | S | 6 | 2.7 | | 8k | 0 | | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.37 | 720.6 | 30.02 | 762.5 | 53 | 11.7 | 86 | SE | 12 | 5.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 30.02 | 762.5 | 74 | 23.3 | 85 | NW | 5 | 2.2 | | 2e | 0 | W | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 30.15 | 765.8 | 53 | 11.7 | 54 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.00 | 762.0 | 79 | 26.1 | 78 | SE | 1 | 0.4 | | 2e | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.06 | 763.5 | 57 | 13.9 | 63 | N | 7 | 3.1 | | 1e | 0 | NW | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.87 | 758.7 | 84 | 26.7 | 70 | W | 10 | 4.5 | | 2k | 0 | W | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 30.15 | 765.8 | 54 | 12.2 | 61 | NE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.95 | 760.7 | 81.0 | 27.2 | 78 | Calm | 0 | 0 | | 5e | 1ks | W | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 29.77 | 756.1 | 66 | 18.9 | 84 | N | 16 | 7.2 | | 1k | 0 | N | | 0.04 | 1.0 | Clear | |
| Knoxville, Tenn. | | | 29.93 | 760.2 | 63 | 17.2 | 72 | NW | 6 | 2.7 | | 0 | 0 | | | 0.11 | 2.8 | Clear | |
| LaCrosse, Wis. | | | 30.26 | 768.6 | 49 | 9.4 | 50 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.06 | 763.5 | 63 | 17.2 | 72 | SE | 9 | 4.0 | | 2ek | 2k | | SE | 0 | 0 | Fair | |
| Louisville, Ky. | | | 30.02 | 762.5 | 60 | 15.6 | 59 | NE | 12 | 5.4 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 29.79 | 756.7 | 73 | 22.8 | 45 | NW | 6 | 2.7 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Maricopa Wells, Arizona | | | | | 80 | 26.7 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.26 | 768.6 | 44 | 6.7 | 52 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.02 | 762.5 | 70 | 21.1 | 60 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 30.23 | 767.8 | 45 | 7.2 | 60 | N | 19 | 8.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 29.96 | 761.0 | 75 | 23.9 | 72 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 29.94 | 760.5 | 74.5 | 23.6 | 59 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.89 | 733.8 | 29.93 | 760.2 | 54 | 12.2 | 73 | N | 4 | 1.8 | | | 10s | | NW | 0.08 | 2.0 | Cloudy | |
| Mt. Washington, N. H. | 23.47 | 596.1 | 29.83 | 757.7 | 29 | − 1.7 | 67 | N | 10 | 4.5 | | 0 | Haze | | | 0.19 | 4.8 | Clear | |
| Nashville, Tenn. | | | 30.02 | 762.5 | 64 | 17.8 | 67 | N | 7 | 3.1 | | 10k | 0 | N | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 29.69 | 754.1 | 61 | 16.1 | 56 | NW | 7 | 3.1 | | Haz | 0 | | | 1.47 | 37.3 | Clear | |
| New London, Conn. | | | 29.65 | 753.1 | 64 | 17.8 | 47 | NW | 5 | 2.2 | | 0 | 0 | | | 0.80 | 20.3 | Clear | |
| New Orleans, La. | | | 29.96 | 761.0 | 78 | 25.6 | 77 | N | 9 | 4.0 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.63 | 752.6 | 57 | 13.9 | 68 | NW | 8 | 3.6 | | 0 | 0 | | | 0.30 | 7.6 | Clear | |
| New York, N. Y. | | | 29.75 | 755.1 | 60 | 15.6 | 55 | NW | 12 | 5.4 | | 0 | 0 | | | 0.13 | 3.3 | Clear | |
| Norfolk, Va. | | | 29.79 | 756.7 | 66 | 18.9 | 73 | N | 12 | 5.4 | | 8k | 0 | NW | | 0.08 | 2.0 | Fair | |
| North Platte, Neb. | 27.07 | 687.6 | 29.57 | 751.1 | 58 | 14.4 | 87 | SE | 20 | 8.9 | | 10k | 0 | SE | | 0.52 | 13.2 | Cloudy | |
| Omaha, Neb. | 29.03 | 737.3 | 30.10 | 764.5 | 56 | 13.3 | 87 | SE | 12 | 5.4 | | | 10s | | SE | 0.14 | 3.6 | Cloudy | |
| Oswego, N. Y. | | | 29.86 | 758.4 | 45 | 7.2 | 67 | N | 12 | 5.4 | | 2k | 0 | NW | | 0.08 | 2.0 | Fair | |
| Pembina, Dakota | | | 30.34 | 770.6 | 49 | 9.4 | 71 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 29.78 | 756.4 | 60 | 15.6 | 55 | N | 22 | 9.8 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Phœnix, Arizona | | | | | 67 | 19.4 | | NE | | | | 2e | 0 | | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.86 | 453.5 | 30.07 | 763.8 | 24 | − 4.4 | 48 | SW | 20 | 8.9 | | 8e | 0 | SW | | 0 | 0 | Fair | |
| Pittsburgh, Pa. | | | 29.90 | 759.4 | 54 | 12.2 | 67 | NW | 7 | 3.1 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Port Huron, Mich. | | | 30.08 | 764.0 | 42 | 5.6 | 74 | N | 18 | 8.0 | | Haze | 0 | | | 0.07 | 1.8 | Clear | |
| Portland, Me. | | | 29.62 | 752.3 | 54 | 12.2 | 55 | NE | 15 | 6.7 | | 0 | Haze | | | 0.14 | 3.6 | Clear | |
| Portland, Oregon | | | 30.06 | 763.5 | 51 | 10.6 | 86 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.71 | 627.6 | 30.07 | 763.8 | 38 | 3.3 | 63 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.95 | 760.7 | 79 | 26.1 | 78 | N | 8 | 3.6 | | 2es | 2ks | N | N | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 29.87 | 758.7 | 46 | 7.8 | 51 | NW | 15 | 6.7 | | 0 | 0 | | | 0.68 | 17.3 | Clear | |
| Salt Lake City, Utah | 25.60 | 650.2 | 29.93 | 760.2 | 45 | 7.2 | 42 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.75 | 755.1 | 58 | 14.4 | 75 | NW | 15 | 6.7 | | 0 | Haze | | | 1.11 | 28.2 | Clear | |
| San Antonio, Tex. | | | 29.79 | 756.7 | 70 | 21.1 | 90 | Calm | 0 | 0 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.92 | 760.0 | 53 | 11.7 | 86 | NE | 6 | 2.7 | | 0 | 2s | | NE | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 29.96 | 761.0 | 49 | 9.4 | 89 | W | 2 | 0.9 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Santa Fé, N. M. | 23.25 | 590.5 | 29.79 | 756.7 | 50.5 | 10.3 | 18 | E | 3 | 1.3 | | 1es | Haze | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 29.85 | 758.2 | 81 | 27.2 | 55 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.05 | 763.3 | 79 | 26.1 | 74 | Calm | 0 | 0 | | 0 | Haze | | | 0.14 | 3.6 | Clear | |
| Smithville, N. C. | | | 29.79 | 756.7 | 75 | 23.9 | 56 | N | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.68 | 753.9 | 61 | 16.1 | 63 | NW | 1 | 0.4 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| St. Louis, Mo. | | | 30.10 | 764.5 | 56 | 13.3 | 69 | N | 12 | 5.4 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| St. Marks, Fla. | | | 29.92 | 760.0 | 75 | 23.9 | 85 | NW | 6 | 2.7 | | 0 | 2s | | NW | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 30.25 | 768.3 | 50 | 10.0 | 55 | E | 6 | 2.7 | | 8e | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 51 | 10.6 | | SW | | | | 2e | 0 | | | 0 | 0 | Fair | |
| Stockton, Tex. | 26.86 | 682.2 | 29.86 | 758.4 | 63 | 17.2 | 78 | SW | 12 | 5.4 | | | 10s | | SW | 0.19 | 4.8 | Cloudy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 29.64 | 752.8 | 51 | 10.6 | 72 | N | 16 | 7.2 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Toledo, Ohio | | | 30.10 | 764.5 | 51 | 10.6 | 59 | N | 12 | 5.4 | | 0 | 0 | | | 0.05 | 1.3 | Clear | |
| Tucson, Arizona | 27.42 | 696.5 | 29.97 | 761.2 | 55 | 12.8 | | S | | | | 8c | Haze | S | | 0 | 0 | Fair | |
| Tybee Island, Ga | | | 29.83 | 757.7 | 77 | 25.0 | 69 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 29.99 | 761.7 | 79 | 26.1 | 69 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.18 | 614.2 | 29.66 | 753.4 | 38 | 3.3 | 63 | Calm | 0 | 0 | | 1k | 0 | SW | | 0.16 | 4.1 | Clear | |
| Washington, D. C | | | 29.84 | 757.9 | 61 | 16.1 | 57 | N | 13 | 5.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Wickenburg, Arizona | | | | | 63 | 17.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.78 | 756.4 | 74 | 23.3 | 55 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 29.64 | 752.8 | 58 | 14.4 | 69 | N | 9 | 4.0 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Yankton, Dakota | 28.84 | 732.5 | 30.13 | 765.3 | 53 | 11.7 | 90 | NE | 10 | 4.5 | | | 10s | | | 0.46 | 11.7 | Cloudy | |
| Yuma, Arizona | | | | | | | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.11 | 764.8 | 77 | 25.0 | 86 | Calm | 0 | 0 | | 10c | 8n | SE | | 0.19 | 4.8 | | James Gall. |
| Navassa, W. I | | | | | 79 | 26.1 | | NE | | | 3 | | | | | 0.03 | 0.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.02 | 762.5 | 80 | 26.7 | 91 | E | | | 1 | | 8ks | | | 0.200 | 5.08 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | | | | | 80.6 | 27.0 | | S | | | | | | | | 0.433 | 11.00 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 30.03 | 762.8 | | | 69.5 | 20.8 | 80 | NW | | | 1 | 2k | 8ks | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | 25.25 | 641.3 | | | 51.0 | 10.6 | 90 | E | 1 | 0.4 | | 2c | 0 | S | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.49 | 774.4 | | | | NE | | | 2 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | 30.08 | 764.0 | 72 | 22.2 | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67[illegible] feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,10[illegible] (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, [illegible].17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.90 | 759.4 | 73 | 22.8 | 61 | 16.1 | 66 | N | | | 4 | | 0 | | | 0.28 | 7.1 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.02 | 762.5 | 62 | 16.7 | 52.5 | 11.4 | | SW | | | 2 | | 3 | | NW | 0 | 0 | | | Fair | |
| Navy Yard, Norfolk, Va. | 29.88 | 758.9 | 68 | 20.0 | 68 | 20.0 | 95 | NW | 6 | 2.7 | | | 6ks | | | 0.10 | 2.5 | | | D. clouds | |
| Navy Yard, Pensacola, Fla. | 30.05 | 763.3 | | | 76 | 24.4 | 82 | NW | 5 | 2.2 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.81 | 757.2 | 65 | 18.3 | 59 | 15.0 | 70 | NW | 2 | 0.9 | | | 0 | | | 0.45 | 11.4 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.97 | 761.2 | 63 | 17.2 | 60 | 15.6 | 76 | E | | | 1 | | 8ck | | NW | 0 | 0 | | | Cloudy | |
| Adams, S. 12° W. 31° 30′ | 30.07 | 763.8 | 81 | 27.2 | 82 | 27.8 | | SE | | | 1–2 | | 8 | | SE | 0 | 0 | Long | SE | | |
| Alert, N. 28° 21′ 48″ E. 143° 08′ | 30.08† | 764.0† | 73 | 22.8 | 73 | 22.8 | 95 | NE | | | 3–4 | | 7 | | NW | | | Long | E | D. clouds | |
| Alliance, Beirut, Syria | 30.06 | 763.5 | 78 | 25.6 | 76.5 | 24.7 | 51 | SW | | | 2 | | 5 | | | | | Long | WNW | Hazy | |
| Ashuelot, Hong-Kong, China | 29.78 | 756.4 | 79 | 26.1 | 78 | 25.6 | 86 | Calm | | | 0 | | 7 | | NW | | | Smooth | | Hazy | |
| Canonicus, New Orleans, La. | 29.99 | 761.7 | 54 | 12.2 | 74 | 23.3 | 86 | NNW | | | 2 | | 5 | | N&W | | | | | Fair | |
| Colorado, New York, N. Y. | 29.75 | 755.6 | 57 | 13.9 | 61 | 16.1 | 77 | WNW | 16 | 7.2 | | | 2 | | | 0.1 | 3. | | | D. clouds | |
| Despatch, N. 35° 58′ W. 5° 40′ | 30.10 | 764.5 | 70 | 21.1 | 68 | 20.0 | 90 | ESE | | | 1–6 | | 2 | | E | | | Smooth | | Pleasant | |
| Frolic, Rio de Janeiro, Brazil | 30.17 | 766.3 | 67 | 19.4 | 67 | 19.4 | 95 | SW | | | 3 | | 6kn | | | | | | | Showery | |
| ‡ Gettysburg, Genoa, Italy | 29.92 | 760.0 | | | 72 | 22.2 | 95 | S | | | 1 | | 4 | | | Blank | Blank | | | D. clouds | |
| Huron, Curacao Island, W. I. | 30.10 | 764.5 | 82 | 27.8 | 82 | 27.8 | 83 | ESE | | | 1–2 | | 9 | | ESE | | | Moderate. | SE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.08 | 764.0 | 73 | 22.8 | 70 | 21.1 | 85 | Calm | | | 0 | | 5 | | WSW | 0 | 0 | | | Pleasant | |
| Lackawanna, N. 19° 25′ W. 105° 28′ | | | | | | | | | | | | | | | | | | | | | |
| Marion, Smyrna, Turkey | 29.95 | 760.7 | 73 | 22.8 | 74 | 23.3 | 51 | W | | | 4 | | 1 | | E | 0 | 0 | Chop'd | W | D. clouds | |
| Michigan, Erie, Pa. | 29.46 | 748.3 | 59 | 15.0 | 50 | 10.0 | 58 | N | | | 3 | | 0 | | | | | | | Clear | |
| Monocacy, N. 31° 58′ E. 122° 12′ | 29.84 | 757.9 | 67 | 19.4 | 67 | 19.4 | 84 | E | | | 2 | | 2 | | E | Light | Light | Smooth | | D. clouds | |
| Monongahela, Norfolk, Va. | 29.84 | 757.9 | 67 | 19.4 | 67 | 19.4 | | NNW | | | 3 | | k | | | Heavy | Heavy | | | D. clouds | |
| New Hampshire, Port Royal, S. C. | 30.08 | 764.0 | | | 76 | 24.4 | 60 | W | 11 | 4.9 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Omaha, S. 3° 50′ W. 81° | 30.01 | 762.2 | 79 | 26.1 | 79 | 26.1 | 78 | SW | 5 | 2.2 | | | 9 | | S&E | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, Port Royal, S. C. | 29.86 | 758.4 | 76 | 24.4 | 75 | 23.9 | 72 | WNW | | | 3 | | | | | | | | | Blue sky | |
| Palos, Shanghai, China | 29.98 | 761.5 | 69 | 20.6 | 66 | 18.9 | 84 | E | | | 0–1 | | 3 | | W | | | | | Clear | |
| Plymouth, Pensacola, Fla. | 29.98 | 761.5 | 80 | 26.7 | 76 | 24.4 | 82 | NW | | | 1 | | 1 | | | 0 | 0 | | | Low fog | |
| Ranger, Gibraltar Bay | 30.26 | 768.6 | | | 79 | 26.1 | 91 | Var. | | | 3–5 | | 5 | | W | | | Smooth | | Squally | |
| Richmond, Rio de Janeiro, Brazil | 30.23 | 767.8 | 67.6 | 19.4 | 65.0 | 18.3 | 76 | SW | | | 4 | | 8 | | NE | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.84 | 757.9 | | | 67 | 19.4 | 95 | SE | | | 1 | | 9 | | | | | | | D. clouds | |
| Santee, Annapolis, Md. | 29.88 | 758.9 | 68 | 20.0 | 62 | 16.7 | 61 | NW | | | 4 | | 1 | | N, S, E | 0.26 | 6.6 | | | Clear | |
| St. Louis, League Island, Pa. | 29.74 | 755.4 | 64 | 17.8 | 62 | 16.7 | 66 | NW | 13 | 5.8 | | | 0 | | | 0.16 | 4.1 | | | Clear | |
| Swatara, San Andres, U. S. C. | 29.93 | 761.0 | 83 | 28.3 | 84 | 28.9 | 91 | ESE | | | 1 | | 10n | | | Blank | Blank | Smooth | | Bad | |
| Tennessee, Yokohama, Japan | 30.00 | 762.0 | 69 | 20.6 | 65 | 18.3 | 68 | E | | | 1 | | 9 | | SE | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.88† | 758.9† | 76 | 24.4 | 75 | 23.9 | 81 | WNW | 8.5 | 3.7 | | | 10 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.93 | 761.0 | 69 | 20.6 | 68 | 20.0 | 84 | SW | | | 2 | | 2 | | SW | | | | | D. clouds | |
| Wabash, Boston, Mass. | 29.63 | 752.6 | 55 | 12.8 | 56 | 13.3 | 57 | NW | 11 | 4.9 | | | 0 | | | 0.34 | 8.6 | | | Blue sky | |
| Wyoming, Washington, D.C. | 30.08† | 764.0† | 68 | 20.0 | | | | NNW | | | 2 | | 2 | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, Yokohama, Japan | | | 30.10 | 764.5 | 66 | 18.9 | 84 | E | | | 2 | | 1ck | | | smooth | | Hazy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 42° 2′ W. 47° 40′ | SW by W¾ W | 8.5 | 29.61 | 752.1 | 46.6 | 8.1 | | NNE | | | 3 | | c | | N | Tranq'l | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 42° 31′ W. 44° 31′ | ENE | | 29.54 | 750.3 | 53.4 | 11.9 | | NNW | | | 4 | | kn | | NW | Light | | Overcast | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally, give a monut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Upper | Lower | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 29.80 | 756.9 | 78 | 25.6 | 78 | W | 8 | 3.6 | | 0 | 0 | | | | | Clear | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 24, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.04 | 762.9 | 69.4 | 20.8 | 72 | NW | | | 2 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.06 | 763.4 | 66.2 | 19.0 | 76 | NE | | | 3 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.03 | 762.7 | 64.9 | 18.3 | 78 | NW | | | 3 | | 8 | | | 0.276 | 7.0 | Cloudy | Fleury. |
| Tunis | | | 30.06 | 763.4 | 71.6 | 22.0 | | SE | | | 4 | | 2 | | | Inap. | Inap. | Clear | Jacques. |
| Sfax | | | 30.02 | 762.5 | 73.4 | 23.0 | | E | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.03 | 762.7 | 77.9 | 25.5 | | NW | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 29.98 | 761.6 | 68.4 | 20.2 | | W | | | 1 | | 0 | | | 0 | 0 | Clear. | Bourgeois. |
| Geriville | | | 30.04 | 762.9 | 78.6 | 25.9 | 43 | N | | | 2 | | 2 | | | 0 | 0 | Clear. | Lemaillot. |
| Laghouat | | | 29.99 | 761.7 | 81.5 | 27.5 | 20 | S | | | 2 | | 0 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.04 | 763.0 | 88.7 | 31.5 | 28 | NW | | | 3 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.91 | 759.7 | 68.2 | 20.1 | 57 | NE | | | 2 | | 5 | | | 0.146 | 3.7 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.99 | 761.7 | 50.7 | 10.4 | 88 | N | | | 2 | | 10 | | | 0.252 | 6.4 | | Dr. Wierzbiski. |
| Eperies | | | 29.87 | 758.8 | 54.7 | 12.6 | 75 | NW | | | 1 | | 10u.k.s. | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.70 | 729.0 | 29.93 | 760.2 | 61.9 | 16.6 | 57 | SE | | | 3 | | 5 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.45 | 722.5 | 29.83 | 757.6 | 62.4 | 16.9 | 49 | NNW | | | 4 | | 2 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.68 | 728.4 | 30.02 | 762.5 | 52.5 | 11.4 | 64 | N | | | 2 | | 8 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.85 | 758.3 | 50.4 | 10.2 | 90 | NW | | | 1 | | 10 | | | 0.232 | 5.9 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 29.94 | 760.5 | 68.0 | 20.0 | 69 | SSW | | | 1 | | 1k | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegadin | | | 29.90 | 759.4 | 68.0 | 20.0 | 68 | NW | | | 3 | | 5 | | | 0.051 | 1.30 | | Karl Stancel. |
| Trieste | | | 29.97 | 761.2 | 69.4 | 20.8 | 54 | SW | | | 1 | | 2 | | | 0.543 | 13.8 | | P. Busin. |
| Vienna | | | 29.99 | 761.8 | 54.9 | 12.7 | 60 | NW | | | 2 | | 9 | | | 0.059 | 1.5 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.01 | 726.8 | 30.07 | 763.8 | 55.6 | 13.1 | 87 | NNW | | | 1 | | 9 | | | 0 | 0 | | |
| Brussels | | | 30.11 | 764.8 | 59.0 | 15.0 | 57 | NNW | | | 0 | | 5k | | NNE | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.15 | 765.8 | 52.9 | 11.6 | 61 | NW | | | 2 | | 8 | | | 0 | 0 | | |
| Maeseyck | | | 29.98 | 761.4 | 57.7 | 14.3 | 38 | NE | | | 6 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.24 | 768.1 | 52.0 | 11.0 | | WNW | 17 | 7.6 | | | 9 | | | 0 | 0 | Overcast | William Boswell. |
| Ardrossan | | | 30.27 | 768.8 | 55 | 12.8 | | W | | | 3 | | 4 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.33 | 770.4 | 58.0 | 14.4 | | SE | 2 | 0.9 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.28 | 769.1 | 50.2 | 10.1 | | NW | 17 | 7.6 | | | 3 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.32 | 770.1 | 58.5 | 14.7 | | Calm | | | 0 | | 6 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.26 | 768.6 | 54.1 | 12.3 | | N | | | 0 | | 8 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 85.0 | 29.4 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 30.21 | 767.3 | 54.0 | 12.2 | | NNE | | | 2 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.24 | 768.1 | 49.0 | 9.4 | | NE | | | 3 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.23 | 767.8 | 52.2 | 11.2 | | Calm | | | 0 | | 8 | | | | | D. clouds | Capt. Fellowes, R. E. |
| Dartmoor | 28.77 | 730.7 | 30.27 | 768.8 | 47.0 | 8.3 | | NE | | | 4 | | 5 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.31 | 769.9 | 55 | 12.8 | | NE | | | 2 | | 3 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.17 | 766.3 | 51 | 10.6 | | NE | | | 2 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.26 | 768.6 | 58.7 | 14.8 | | NE | 0.6 | 0.3 | | | 5 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.27 | 768.8 | 52.0 | 11.1 | | SSE | | | 1 | | 5 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.40 | 696.0 | 29.64 | 752.8 | 66.7 | 19.3 | | W | | | 6 | | 10 | | | | | Overcast | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.99 | 759.4 | 87 | 30.6 | | N | | | 2 | | 3 | | | | | D clouds | |
| Galway, Queen's College | | | 30.28 | 769.1 | 62 | 16.7 | | SW | | | 1 | | 2 | | | | | D. clouds | B. G. Clare for Prof. Curtis |
| Gibraltar, (Mediterranean) | | | 29.98 | 761.5 | 73.4 | 23.0 | | E | | | 2 | | 6 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.03? | 762.7? | 56.3 | 13.5 | | WNW | | | 1 | | 8 | | | | | D. clouds | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.21 | 767.3 | 53 | 11.7 | | NNE | | | 3 | | 4 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.21 | 767.3 | 49.1 | 9.5 | | NE | | | 1 | | 10 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 30.21 | 767.3 | 49 | 9.4 | | NNW | | | 2 | | 8 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.29 | 769.4 | 56 | 13.3 | | NE | | | 4 | | 1c | | | 0 | 0 | D. clouds | M. P. Moyle. |
| Holyhead | | | 30.30 | 769.6 | 51 | 10.6 | | N | | | 3 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.21 | 767.3 | 49.9 | 9.9 | | NNE | 10 | 4.5 | | | 10kd | | | | | Threatening | The Staff. |
| Kingstown | | | 30.35 | 770.9 | 52 | 11.1 | | E | | | 1 | | 1 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.24 | 768.1 | 53.4 | 11.9 | | NE | | | 2 | | 8 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.96 | 761.0 | 67.8 | 19.9 | | NW | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.22 | 767.6 | 53 | 11.7 | | W | | | 1 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.93 | 760.2 | 83.5 | 28.6 | | NE | | | 1 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.26 | 768.6 | 54.1 | 12.3 | | N | | | 4 | | 7k | | NNE | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.25 | 768.3 | 52.1 | 11.2 | | NNE | | | 3 | | 7 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.23 | 767.8 | 51 | 10.6 | | NNE | | | 1 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 30.25 | 768.3 | 53.0 | 11.7 | | NE | | | 3 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.32 | 770.1 | 56 | 13.3 | | SE | | | 2 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 30.29 | 769.4 | 54 | 12.2 | | WSW | | | 1 | | 5 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.20 | 767.1 | 52.2 | 11.2 | | NNE | | | 3 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.21 | 767.3 | 48.2 | 9.0 | | NW | 19 | 8.5 | | | 9 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.85 | 758.2 | 68.0 | 20.0 | | WSW | | | 1 | | 9 | | | Blank | Blank | Gloomy | Sergt. W. H. Lyne. |
| Sheffield | | | 30.26 | 768.6 | 51.9 | 11.1 | | NE | | | 1 | | 6 | | | Inap. | Inap. | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 30.27 | 768.8 | 59.5 | 15.3 | 54 | W | | | 1 | | 6 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.26 | 768.6 | 57.2 | 14.0 | | E | | | 1 | | 7 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.23 | 767.8 | 54 | 12.2 | | WNW | | | 3 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 30.22 | 767.6 | 49.0 | 9.4 | | NE | | | 1 | | 10 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 30.19 | 766.8 | 49 | 9.4 | | NW | | | 2 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.26 | 768.6 | 55 | 12.8 | | SE | | | 5 | | 8 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 30.32 | 770.1 | 55.9 | 13.3 | | NW | 10 | 4.5 | | | 8 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 50 | 10.0 | | N | | | 3 | | 2 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.63 | 752.6 | 57.9 | 14.4 | 92 | NNW | 13 | 5.8 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.74 | 755.4 | 55.0 | 12.8 | 93 | S | | | 3 | | 8kn | | | 0.17 | 4.3 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.24 | 768.1 | 60.0 | 15.6 | | W | | | 2 | | 7k | | | 0 | 0 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.11 | 764.8 | 75.4 | 24.1 | 66 | SE | 14.4 | 6.4 | | 1 | 1 | | SE | 0 | 0 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 29.75 | 755.6 | 47.2 | 8.4 | 79 | NE | 7 | 3.1 | | | 7 | | | 0.03 | 0.8 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.28 | 769.1 | 52 | 11.1 | | NW | | | 3 | 5 | 3 | W | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.10 | 764.5 | 42 | 5.6 | | NW | | | 4 | 7 | 6 | NW | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

## MARINE SERIES.

| VESSELS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0—9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 40° 35′ W. 69° 55′ | | | 29.68 | 753.9 | 46.0 | 7.8 | | ESE | | | 3 | | 10 | | SSW | 0 | Smooth. | Raining | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Monland. |
| Ship Camperdown, N. 28° 0′ W. 86° 20′ | | | 29.97 | 761.2 | 79.0 | 26.1 | | NW | | | 3 | | 3 | | | 1 | SW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 17° 15′ W. 72° 40′ | | | 29.99 | 761.7 | 81.7 | 27.6 | | ENE | | | 4 | | 7 | | | 4 | E | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the Minister of Foreign Affairs.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.19 | 665.2 | | | 69.4 | 20.8 | 92 | SE | | | 1 | | 4cs | | | Inap. | Inap. | | Federico Maison. |

Note.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.21 | 767.3 | 48.4 | 9.1 | 67 | SW | | | 2 | | 5 | | | | | | |
| Fanöe | | | 30.11 | 764.9 | 53.6 | 12.0 | 71 | W | | | 4 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | 30.15 | 765.8 | 44.4 | 6.9 | 80 | NNE | | | 4 | | 3 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.21 | 767.5 | 44.8 | 7.1 | 83 | SE | | | 4 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.19 | 766.8 | 45.3 | 7.4 | 43 | N | | | 2 | | 5 | | | | | | |
| Vestervig | | | 30.14 | 765.6 | 53.1 | 11.8 | 54 | NE | | | 4 | | 6 | | | | | | |

Note.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.21 | 767.2 | 53.6 | 12 | 73 | NE | | | 2 | | 16kn | | | 0.126 | 3.2 | Covered | Normal School. |
| Amiens | | | 30.16 | 766.0 | 53.2 | 11.8 | | NE | | | 3 | | 10 | | | 0.008 | 0.2 | Covered | Normal School. |
| Avignon, Normal School | | | 30.03 | 762.8 | 58.6 | 14.8 | 78 | N | | | 1 | | 10 | | | 0.08 | 2. | Rainy | Mr. Girand. |
| †Bar-sur-Seine | | | | | | | | | | | | | | | | 0 | 0 | | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.16 | 766.0 | 50.5 | 10.3 | 69 | NNE | | | 2 | | 10 | | ENE | 0 | 0 | Covered | Normal School. |
| Besançon | | | 30.00 | 764.3 | 59.4 | 15.2 | 58 | E | | | 3 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Bourg en Bresse | | | 30.11 | 764.7 | 63.0 | 17.7 | 72 | NE | | | 2 | | 8kn | | NE | 0 | 0 | Very cloudy | Normal School. |
| Bourges | | | 30.06 | 763.5 | 55.4 | 13.0 | 90 | NW | | | 2 | | 1 | | NE | 0 | 0 | Clear | Normal School. |
| Brest | | | 30.15 | 765.9 | 51.3 | 10.7 | 50 | NE | | | 4 | | 7k | | NE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 30.07 | 763.8 | 61.0 | 16.1 | 69 | W | | | 4 | | 1 | | E | 0.12 | 3. | Clear | Normal School. |
| Caen | | | 30.19 | 766.8 | 50.7 | 10.4 | 56 | NNE | | | 2 | | | | S | 0 | 0 | | Normal School. |
| Chartres | | | 30.09 | 764.2 | 49.6 | 9.8 | 81 | N | | | 4 | | 8 | | NNE | 0.020 | 0.5 | | Normal School. |
| Châlons-sur-Marne | | | 30.07 | 763.8 | 57.2 | 14.0 | 58 | NNW | | | 3 | | 10ck | | | 0.03 | 1.0 | Covered | Normal School. |
| Clermont-Ferrand | | | 30.00 | 762.1 | 56.3 | 13.5 | 77 | S | | | 1 | | 10 | | | 0 | 0 | Cover d | Puy de Dome Obs'y. |
| Commercy | | | 30.02 | 762.6 | 57.9 | 14.4 | 65 | NE | | | 2 | | 5 | | NE | 0 | 0 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 30.05 | 763.2 | 54.9 | 12.7 | 79 | NE | | | 2 | | 10 | | SW | 0.031 | 0.8 | | M. Kina. |
| Grenoble | | | 30.00 | 761.9 | 60.4 | 15.8 | 45 | NW | | | 2 | | 10kn | | NE | 0 | 0 | Covered | Normal School. |
| La Roche-sur-Yon | | | 30.09 | 764.3 | 53.2 | 11.8 | 85 | N | | | 4 | | 8 | | SE | 0.063 | 1.6 | Very cloudy | Normal School. |
| Le Mans | | | 30.16 | 766.0 | 49.6 | 9.8 | 73 | E | | | 4 | | 8 | | E | 0 | 0 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.01 | 762.2 | 63.1 | 17.3 | 56 | NNE | | | 1 | | 5 | | | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 30.19 | 766.8 | 54.3 | 12.4 | 50 | NE | | | 3 | | 8 | | NE | 0 | 0 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.10 | 764.6 | 62.2 | 16.8 | 81 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear. | Mr. Marchal. |
| Metz | | | 30.11 | 764.9 | 58.3 | 14.6 | 44 | NNE | | | 2 | | 10 | | N | 0.013 | 0.3 | Covered | M. A. Schuster. |
| Mirecourt | | | 30.02 | 762.4 | 59.9 | 15.5 | 68 | N | | | 2 | | 10 | | SW | 0 | 0 | Covered | Normal School. |
| Nismes | | | 30.04 | 763.1 | 63.7 | 17.6 | 72 | NW | | | 2 | | 2 | | SE | 0.138 | 3.5 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.04 | 762.9 | 51.4 | 10.8 | 85 | N | | | 2 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Paris, Observatory | | | 30.12 | 765.0 | 50.7 | 10.4 | 75 | NE | | | 3 | | 10k | | N | Inap. | Inap. | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.09 | 764.2 | 61.2 | 16.2 | 58 | NE | | | 3 | | 8 | | SW | 0 | 0 | ¾ covered | Naval Observatory. |
| Rouen | | | 30.15 | 765.9 | 52.9 | 11.6 | 60 | N | | | 2 | | 10 | | N | 0 | 0 | Covered | Normal School. |
| Tarbes | 29.10 | 739.0 | 30.17 | 766.2 | 64.2 | 17.9 | 62 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Villefranche | | | 29.98 | 761.5 | 60.8 | 16 | 89 | NNW | | | 2 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.7 | 79.5 | 26.4 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.97 | 761.2 | 61.2 | 16.2 | 74 | SE | | | 1 | | 10 | | | 0.094 | 2.40 | Cloudy | The Staff. |
| Mont-Louis | 24.84 | 630.8 | 30.15 | 765.8 | 45.7 | 7.6 | 82 | ESE | 11.2 | 5.00 | | | 10 | | NW | 0.358 | 9.1 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.11 | 764.7 | 50.4 | 10.2 | 80 | N | | | 3 | | 10 | | NNE | Inap. | Inap. | | Montsouris Observatory |
| Perpignan | | | 30.04 | 763.0 | 63.1 | 17.3 | 57 | NW | 11.2 | 5.00 | | | 6 | | W | 0.055 | 1.4 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.47 | 570.8 | | | 36.0 | 2.2 | | N | | | 2 | | 10 | | | 0.630 | 16.0 | Covered | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.11 | 764.8 | 52.2 | 11.2 | 75 | NNE | | | 1 | | 10 | | | 0 | 0 | Covered | E. Renou. |
| Toulouse, Observatory | | | 30.12 | 765.0 | 54.9 | 12.5 | 81 | NW | | | 2 | | 8 | | | 0.335 | 8.5 | | The Staff |
| Tours | | | 30.11 | 764.8 | 51.6 | 10.9 | 77 | NE | | | 2 | | 10 | | | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.12 | 765.0 | 51.8 | 11.0 | 80 | NE | | | 2 | | 10 | | | 0.038 | 0.97 | Covered | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.00 | 762.0 | 63.0 | 17.2 | 80 | ENE | 9.8 | 4.4 | | | 2k | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

Note.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day: the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.3 ft.; Pic du Midi (Plantade,) 2,360 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône. † Observation not simultaneous.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.08 | 764.1 | 56.3 | 13.5 | 62 | N | | | 3 | | 9 | N | | 0.039 | 1.0 | | Prof. T. Hoh. |
| Berlin | | | 30.15 | 765.7 | 57.4 | 14.1 | 31 | E | | | 1 | | 3 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.09 | 764.3 | 53.8 | 12.1 | 67 | NNW | | | 2 | | 10 | | | 0.469 | 11.9 | | Royal University Obs'y. |
| Carlsruhe | | | 30.02 | 762.5 | 58.6 | 14.8 | 54 | NE | | | 3 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.12 | 765.0 | 60.1 | 15.6 | 44 | E | | | 5 | | 4 | N | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.07 | 763.6 | 61.7 | 16.5 | 26 | E | | | 4 | | 7 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.17 | 766.3 | 60.3 | 15.7 | 39 | NW | | | 1 | | 1 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.11 | 764.8 | 59.5 | 15.3 | 55 | SSW | | | 1 | | 9 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.987 | 736.02 | 29.992 | 761.72 | 60.6 | 15.9 | 51 | SSE | | | 4 | | 6 | SSW | | | | Light rain | M. Wilhelm. |
| Hamburg | | | 30.16 | 766.1 | 56.8 | 13.8 | 41 | ESE | | | 3 | | 1k | ESE | | 0 | 0 | Fine | Captain F. Hegemann. |
| Kiel | | | 30.15 | 765.7 | 55.8 | 13.2 | 78 | E | | | 2 | | 6 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.08 | 764.1 | 50.4 | 10.2 | 44 | NE | | | 2 | | 5 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | 30.20 | 767.1 | 49.8 | 9.9 | | N | | | 4 | | 2 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 30.11 | 764.8 | 57.2 | 14.0 | 49 | ENE | | | 2 | | 8 | ENE | | 0.037 | 0.9 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.16 | 766.1 | 46.4 | 8.0 | | ESE | | | 2 | | 10ks | | | | | Raining | Reinbrecht & Skalweit. |
| Münster | | | 30.06 | 763.5 | 61.9 | 16.6 | 80 | NE | | | | | 3 | | | 0 | 0 | Dust-Haze | Prof. E. Heis. |
| Neufahrwasser | | | 30.17 | 766.3 | 42.3 | 5.7 | 76 | NNW | | | 5 | | 7 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.11 | 764.9 | 57.7 | 14.3 | 39 | NNW | | | 6 | | 5 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.01 | 762.2 | 63.0 | 17.2 | 53 | NE | | | 2 | | 8 | NE | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.01 | 762.3 | 59.9 | 15.5 | 47 | E | | | 2 | | 9 | E | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.93 | 760.1 | 60.4 | 15.8 | 46 | N | | | 2 | | 10 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.53 | 724.7 | 30.03 | 762.8 | 55.8 | 13.2 | 47 | E | | | 4 | | 9 | E | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.26 | 768.7 | 52.5 | 11.4 | 51 | ENE | | | 2 | | 3 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.93 | 760.3 | 73.0 | 22.8 | | W | | | | | | | | | | Covered | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.13 | 562.0 | 29.94 | 760.[illegible] | 31.[illegible] | 1.2 | 98 | NW | | | 4 | | 10 | | | | | | Prof. Giovanni Cledig. |
| Stelvio | 22.41 | 561.6 | 29.847 | 757.[illegible] | 40.[illegible] | 4.9 | | SE | | | 1 | | 8 | WNW | | 0 | 0 | | Signora Ernesta Mantrelli. |
| Udine | | | 29.81 | 759.7 | 68. | 20.2 | 55 | SW | 3.1 | 1.4 | | | 5 | | | 0.142 | 3.6 | | Ab. Dem. Morgini. |
| Padua | | | 29.93 | 759.4 | 67.[illegible] | 19.8 | 60 | SE | 3.1 | 1.4 | | | 8 | S | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.90 | 759.5 | 71.4 | 21.9 | 48 | SE | 3.8 | 1.7 | | | 4 | W | | 0 | 0 | | Cont. Alm. Da Schio. |
| Verona | | | 29.93 | 760.3 | 68.7 | 20.4 | 48 | NE | | | 2 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.63 | 727.1 | 29.93 | 760.3 | 63.7 | 17.6 | 67 | SE | | | 2 | | 8 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.87 | 758.6 | 65.1 | 18.4 | 47 | SW | | | 6 | | 10 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.90 | 759.4 | 70.0 | 21.1 | 62 | S | | | 2 | | 8 | SW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.90 | 759.4 | 71.6 | 22.0 | 42 | S | | | 4 | | 9 | N | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.91 | 759.7 | 62.[illegible] | 16.8 | 60 | WNW | 1.[illegible] | 0.8 | | | 9 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.02 | 711.8 | 29.90 | 759.4 | 57.[illegible] | 14.0 | 76 | SSE | | | 4 | | 10 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.01 | 762.3 | 67.1 | 19.5 | 64 | WSW | | | 2 | | 10 | SW | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.99 | 761.8 | 64.4 | 18.0 | 62 | S | 6.[illegible] | 2.8 | | | 10 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.90 | 759.5 | 69.4 | 20.8 | 46 | NE | 4.[illegible] | 1.9 | | | 8 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.90 | 759.5 | 71.6 | 22.0 | 58 | SE | | | 2 | | 10 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.98 | 761.6 | 70.3 | 21.3 | 43 | W | | | 2 | | 1 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.00 | 761.9 | 64.9 | 19.4 | 62 | W | 6.[illegible] | 2.8 | | | 5 | W | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.76 | 730.5 | 29.95 | 760.7 | 67.1 | 19.5 | 47 | W | 0.[illegible] | 0.3 | | | 4 | N | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.43 | 722.0 | 29.94 | 760.9 | 63.1 | 17.3 | 61 | NE | | | 2 | | 4 | | | 0 | 0 | | Prof. P. Serrieri. |
| Ancona | | | 29.96 | 761.[illegible] | 65.3 | 18.5 | 61 | NE | 16.1 | 7.2 | | | 1 | | | 0.047 | 1.2 | | Prof. Luigi Guidi. |
| Grosseto | | | 29.95 | 760.7 | 68.7 | 20.4 | 53 | SE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Rome | | | 30.00 | 762.1 | 69.8 | 21.0 | 46 | WNW | | | 2 | | 3 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Naples, O. U. | | | 29.99 | 761.8 | 70.2 | 21.2 | 54 | SW | 6.[illegible] | 3.1 | | | 1 | NNW | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Lecce | | | 29.98 | 761.5 | 72.7 | 22.6 | 70 | SW | | | 2 | | 7 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Cosenza | | | 29.97 | 761.2 | 68.9 | 20.5 | 46 | ENE | 8. | 3.6 | | | 10 | N | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cagliari | | | 29.97 | 761.2 | 72.0 | 22.2 | 67 | SE | 7.[illegible] | 3.3 | | | 9 | | | 0 | 0 | | Prof. F. D. Conti. |
| Rijosto, (Sicily) | | | 29.97 | 761.2 | 70.0 | 21.1 | 49 | SW | | | 2 | | 1 | | | 0.020 | 0.5 | | Prof. A. Pacinotti. |
| Palermo | | | 30.00 | 762.1 | 68.7 | 20.4 | 66 | E | | | 2 | | 2 | SE | | 0 | 0 | | Cref. F. Cafiero. |
| Caltanissetta | | | 29.96 | 760.9 | 65.3 | 18.5 | 67 | NE | 9.[illegible] | 4.2 | | | 9 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Syracuse | 27.99 | 710.9 | 29.81 | 759.3 | 64.9 | 18.3 | 64 | NW | | | 4 | | 3 | S | | 0 | 0 | | Prof. A. Fagani. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.91 | 759.8 | 63.[illegible] | 19.0 | 63 | NNE | | | 2 | | 7 | W | | 0.102 | 2.6 | | Prof. V. Giuliano. |
| | | | 30.02 | 762.5 | 70.3 | 21.3 | 53 | SSW | 0.7 | 0.3 | | | 5 | W | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.[illegible]; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.91 | 759.7 | 60.5 | 15.8 | 88 | Calm | 0 | 0 | | 4ck | | W | | 0 | 0 | Fair | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.05 | 586.6 | 30.10 | 764.5 | 51.4 | 10.8 | 80 | SW | 0.1 | 0.06 | | 0 | 0 | | | 0 | 0 | Clear | Mariano Bárcena. |
| | | | | | | | | | | | | | | | | | | | Vicente Reyes. |
| | | | | | | | | | | | | | | | | | | | Miguel Perez. |
| | | | | | | | | | | | | | | | | | | | (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.18 | 766.5 | 55.8 | 13.2 | | NNE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 30.0[illegible] | 764.3 | 58.1 | 14.5 | | NE | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.13 | 765.4 | 55.0 | 12.8 | | NE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.0[illegible] | 764.3 | 58.1 | 14.5 | 21 | N | | | 2 | | 8 | | | 0.020 | 0.5 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.05 | 764.3 | 46.8 | 8.2 | 83 | S | 20.1 | 9.0 | | | 10 | | | 0.374 | 9.5 | Raining | |
| Brönö | | | 30.04 | 762.9 | 51.8 | 11.0 | 30 | SE | 18 | 8 | | | 2 | | | 0 | 0 | | |
| Christiania | | | 30.14 | 765.5 | 49.1 | 9.[illegible] | 76 | SSE | 13 | 6 | | | 10 | | | 0.012 | 0.3 | | |
| Tromsö | | | 30.13 | 765.4 | 36.9 | 2.7 | 58 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.11 | 764.7 | 65.1 | 18.4 | 83 | SW | 4.9 | 2.2 | | | 7 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.98 | 761.4 | 73.4 | 23.0 | 32 | SW | 8.1 | 3.6 | | | 9 | SW | | 0 | 0 | Solar halo | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.12 | 765.0 | 69.3 | 20.7 | 59 | SW | 1.8 | 0.8 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.04 | 763.0 | 68.9 | 20.5 | 47 | NW | 8.7 | 3.9 | | | 7 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.13 | 765.3 | 72.7 | 22.6 | 64 | SW | 0.7 | 0.3 | | | 6 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or well. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.01 | 762.2 | 56.7 | 13.7 | 28 | NNE | 11 | 5 | | | 8 | | | | | | Astronomical Obs. |
| Wilna | | | 30.04 | 763.0 | 48.6 | 9.2 | 47 | NE | 7 | 3 | | | 1 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.21 | 767.3 | 37.4 | 3.0 | 45 | ENE | 9 | 4 | | | 9 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.23 | 767.7 | 30.7 | — 0.7 | 66 | NE | 9 | 4 | | | 10 | | | | | | Central Physical Obs. |
| Knopfo | | | 30.23 | 767.9 | 35.2 | 1.8 | 98 | ESE | 13 | 6 | | | 3 | | | | | | Ch. Forsten. |
| Kieff | | | 29.75 | 755.6 | 58.1 | 14.5 | 37 | NE | 7 | 3 | | | 10 | | | | | Solar corona | Physical Cabinet. |
| Nikolaiev | | | 29.70 | 754.3 | 56.1 | 13.4 | 85 | N | 13 | 6 | | | 10 | | | | | | Kurdakof. |
| Kertch | | | 29.71 | 754.7 | 72.1 | 22.3 | 60 | SW | 11 | 5 | | | 5 | | | | | | Lagorio. |
| Moscow | | | 29.96 | 761.0 | 48.6 | 9.2 | 46 | N | 9 | 4 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 29.50 | 749.4 | 63.1 | 17.3 | 88 | ENE | 9 | 4 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 30.18 | 766.5 | 29.5 | — 1.4 | 76 | NW | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.45 | 722.7 | 29.81 | 757.8 | 66.2 | 19.0 | 50 | NW | 45 | 20 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.58 | 751.4 | 68.2 | 20.1 | 61 | WNW | 7 | 3 | | | 8 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.80 | 757.0 | 45.9 | 7.7 | 56 | NE | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.88 | 758.9 | 58.6 | 14.8 | 83 | E | 9 | 4 | | | 10 | | | | | | Tschernischei. |
| Ekaterinburg | 28.87 | 733.4 | 29.85 | 758.3 | 31.1 | — 0.5 | 96 | E | 2 | 1 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.54 | 750.2 | 87.8 | 31.0 | 29 | NE | 9 | 4 | | | 8 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.10 | 713.6 | 29.68 | 753.8 | 85.6 | 29.8 | 60 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.53 | 750.1 | 79.3 | 26.3 | 23 | SW | 18 | 8 | | | 8 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.23 | 742.5 | 58.6 | 14.8 | 61 | WNW | 4 | 2 | | | 10 | | | | | Raining | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 59.9 | 15.5 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.93 | 760.1 | 75.7 | 24.3 | 49 | SW | 18 | 8 | | | 3 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.88 | 759.0 | 56.8 | 13.8 | 52 | Calm | 0 | 0 | | | 10 | | | Blank | Blank | | |
| Nikolaievsk, on the Amoor | | | | | 45.0 | 7.2 | | SE | 16 | 7 | | | 5 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet: Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.89 | 759.1 | 75.7 | 24.3 | 35 | W | 5.2 | 2.33 | | 1 | 1 | SW | | 0.118 | 3.0 | Light clouds | Royal Observatory. |
| San Fernando | | | 30.01 | 762.3 | 73.2 | 22.9 | 65 | NW | 9.2 | 4.1 | | 0 | 10 | | NW | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.91 | 759.8 | 79.3 | 26.3 | 84 | Calm | 0 | 0 | | 1c | 0 | | | 0.322 | 8.2 | | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.31 | 769.8 | 37.0 | 2.8 | 52 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 30.29 | 769.4 | 38.5 | 3.6 | 41 | S | | | 2 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 30.26 | 768.5 | 42.8 | 6.0 | 70 | ESE | | | 4 | | 7 | | | 0 | 0 | | |
| Stockholm | | | 30.18 | 766.5 | 46.4 | 8.0 | 81 | NE | | | 4 | | 3 | | | 0 | 0 | | |
| Wisby | | | 30.19 | 766.8 | 37.4 | 3.0 | 90 | NNE | | | 6 | | 10 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.20 | 767.1 | 47.1 | 8.4 | 35 | N | 10.1 | 4.5 | | | 2 | | N | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.57 | 725.7 | 29.98 | 761.4 | 60.6 | 15.9 | 54 | N | | | 1 | | 10 | | | 0 | 0 | Covered | The Observatory. |
| Zurich | 28.35 | 720.2 | 29.96 | 761.0 | 63.1 | 17.3 | 53 | NE | | | 2 | | 5 | | | 0.047 | 1 2 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +0.2 mm; Thermometer, —1.9 cent.; Relative Humidity, —2 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.90 | 759.5 | 72.9 | 22.7 | 57 | SW | 3 | 1.5 | | | 10 | | WSW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.10 | 764.5 | 78.8 | 26.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.93 | 760.2 | 73.8 | 23.2 | | SW | | | 1 | | 0 | | | | | | B. Stéfanidés. |
| Valona | | | 30.01 | 762.2 | 67.6 | 19.8 | | S | | | 1 | | 10 | | | 0 | 0 | Covered | A. Bertrand. |
| Varna | | | 29.76 | 756.0 | 68.0 | 20.0 | | NE | | | 3 | | 2 | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.91 | 759.6 | 77.0 | 25.0 | 71 | ENE | | | 2 | | 8c,cs | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.88 | 758.9 | 47 | 8.3 | | N | 5 | 2.2 | | 2c | 2s | | NW | 0.02 | 0.5 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.79 | 756.7 | 40 | 4.4 | 95 | N | 11 | 4.9 | | | 10s | | NE | 0.01 | 0.3 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.77 | 756.1 | 43 | 6.1 | 86 | Calm | 0 | 0 | | | 10n | | | Inap. | Inap. | Sprinkling | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.82 | 757.4 | 46.9 | 8.3 | 73 | E | | | 1 | 3c | 0 | E | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.99 | 759.4 | 39.3 | 4.1 | 99 | NE | | | 2 | | | | | 0.31 | 7.9 | Raining | H. A. Johnson. |
| Esquimault, B. C. | | | 29.96 | 761.0 | 49.8 | 9.9 | 93 | S | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.92 | 760.0 | 41 | 5.0 | 94 | E | 10 | 4.5 | | 5k | 5n | E | E | 0.01 | 0.3 | Light rain | J. McWilliams. |
| Fredericton, N. B. | | | 29.84 | 757.9 | 43.9 | 6.6 | 68 | N | 5 | 2.2 | | | 10 | | | 0 | 0 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.37 | 771.4 | 47 | 8.3 | 81 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | James Stewart. |
| Goderich, Ontario | | | 30.18 | 766.6 | 39.5 | 4.2 | 82 | NW | | | 2 | 10k | 0 | NW | | 0 | 0 | Cloudy | H. J. Strang, M. A. |
| Granton, Ontario | | | 30.10 | 764.5 | 40 | 4.4 | 73 | N | | | 2 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 28.97 | 735.8 | 29.72 | 754.9 | 44 | 6.7 | 80 | NE | 8 | 3.6 | | | 10n | | N | Inap. | Inap. | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.07 | 763.8 | 43.7 | 6.5 | 63 | NW | | | 4 | 6k | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.71 | 754.6 | 42 | 5.6 | 83 | SW | | | 1 | | 10 | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 29.92 | 760.0 | 47 | 8.3 | 72 | N | 12 | 5.4 | | 5ck | 0 | N | | 0.08 | 2.0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.83 | 757.7 | 49 | 9.4 | 63 | N | 6 | 2.7 | | 2cs | 0 | N | | Inap | Inap. | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.08 | 764.0 | 40 | 4.4 | 82 | N | 12 | 5.4 | | 5k | 5ks | N | N | 0.04 | 1.0 | Cloudy | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.07 | 763.8 | 40 | 4.4 | 73 | NW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.73 | 755.1 | 45.8 | 7.7 | | E | | | | | | | | 0 | 0 | Dark | Peter Grant. |
| Port Stanley, Ontario | | | 30.10 | 764.5 | 40 | 4.4 | 69 | NW | 9 | 4.0 | | 2k | 0 | NW | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.86 | 758.4 | 46 | 7.8 | 77 | NE | 21 | 9.4 | | | 10n | | NE | 0 | 0 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.00 | 762.0 | 43 | 6.1 | 77 | NW | 8 | 3.6 | | | 10s | | NE | 0.04 | 1.0 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 29.81 | 757.2 | 45 | 7.2 | 80 | N | 1 | 0.4 | | | 10 | | | Inap. | Inap. | Damp | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.11 | 764.8 | 39 | 3.9 | 73 | N | 1 | 0.4 | | | 10n | | N | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 30.06 | 763.5 | 38 | 3.3 | 82 | NW | 14 | 6.3 | | | 10n | | NW | Inap. | Inap. | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28 78 | 731.0 | 30.09 | 764.3 | 37.0 | 2.8 | 80 | NW | 11 | 4.9 | | 1c | 4ks | NW | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.77 | 756.1 | 42 | 5.6 | 84 | N | 3 | 1.3 | | | 10n | | E | Inap. | Inap. | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 30.04 | 763.0 | 41 | 5.0 | 72 | NW | 19 | 8.5 | | | 8ks | | N | 0 | 0 | Cloudy | Magnetic Observatory. |
| Windsor, N. S. | | | | | | | | | | | | | | | | | | | Prof. John E. Oram. |
| Woodstock, Ontario | | | | | | | | | | | | | | | | | | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.08 | 764.0 | 42.7 | 5.9 | 70 | N | 18 | 8.0 | | 0 | 3s | | | 0 | 0 | Fair | J. Montgomery. |
| | | | 29.78 | 756.4 | 45.0 | 7.2 | 80 | W | | | | 10k | 10s | | | 0 | 0 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.78 | 756.4 | 42 | 5.6 | 100 | W | 12 | 5.4 | | | 10n | | | 0.71 | 18.0 | Light rain | |
| Alpena, Mich. | | | 30.20 | 767.1 | 41 | 5.0 | 73 | NW | 12 | 5.4 | | 0 | 2ks | | NW | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 29.82 | 757.4 | 50 | 10.0 | 58 | NW | 16 | 7.2 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Augusta, Ga. | | | 29.93 | 760.2 | 73 | 22.8 | 39 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.90 | 759.4 | 51 | 10.6 | 59 | NW | 8 | 3.6 | | 2k | 8s | NW | NW | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 29.79 | 756.7 | 48 | 8.9 | 56 | NW | 20 | 8.9 | | 5k | 5ks | NW | NW | 0 | 0 | Cloudy | |
| Bismarck, Dakota | 28.44 | 722.4 | 30.08 | 764.0 | 57 | 13.9 | 87 | S | 4 | 1.8 | | Haz | 8s | | S | 0 | 0 | Cloud | |
| Boston, Mass. | | | 29.73 | 755.1 | 45.5 | 7.5 | 96 | SE | 7 | 3.1 | | | 10n | | SE | 0.36 | 9.1 | Light rain | |
| Breckenridge, Minn. | | | 30.29 | 769.4 | 50 | 10.0 | 71 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 29.98 | 761.5 | 40 | 4.4 | 82 | NW | 8 | 3.6 | | | 10s | | NW | 0.03 | 0.8 | Cloudy | |
| Burlington, Vt. | | | 29.81 | 757.2 | 47 | 8.3 | 68 | N | 8 | 3.6 | | 2c | 2s | S | NE | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.16 | 766.1 | 57 | 13.9 | 55 | NE | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Fair | |
| Campo, Cal. | 27.35 | 694.7 | 29.92 | 760.0 | 38 | 3.3 | 71 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 59 | 15.0 | | E | | | | 0 | Haz | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.74 | 755.4 | 63 | 17.2 | 37 | NE | 23 | 10.3 | | 5k | 0 | W | | 0.28 | 7.1 | Fair | |
| Cape Henry, Va. | | | 29.84 | 757.9 | 60 | 15.6 | 53 | N | 23 | 10.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 29.83 | 757.7 | 64 | 17.8 | 62 | N | 36 | 16.1 | | 1k | 0 | N | | 0.25 | 6.3 | Clear | |
| Cape May, N. J. | | | 29.82 | 757.4 | 50 | 10.0 | 64 | NW | 28 | 12.5 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 29.89 | 759.2 | 69 | 20.6 | 47 | N | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.10 | 612.1 | 30.04 | 763.0 | 50 | 10.0 | 85 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Chicago, Ill. | | | 30.19 | 766.8 | 44 | 6.7 | 76 | NE | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.06 | 763.5 | 52 | 11.1 | 47 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.1[illegible] | 764.5 | 42 | 5.6 | 58 | NW | 16 | 7.2 | | 8k | 0 | NW | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 29.96 | 761.0 | 70 | 21.1 | 84 | E | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.23 | 767.8 | 54 | 12.2 | 48 | SE | 1 | 0.4 | | 1c | 0 | SW | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.03 | 762.7 | 66 | 18.9 | 89 | SE | 12 | 5.4 | | | 10n | | | 0.20 | 5.1 | Light rain | |
| Denver, Col. | 24.87 | 631.7 | 30.09 | 764.3 | 53 | 11.7 | 86 | SE | 2 | 0.9 | | | 10s | | | 0.03 | 0.8 | Cloudy | |
| Detroit, Mich. | | | 30.11 | 764.8 | 42 | 5.6 | 58 | N | 14 | 6.3 | | 1k | 0 | N | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.40 | 696.0 | 29.63 | 752.6 | 60 | 15.6 | 88 | SE | 4 | 1.8 | | | 10s | | SE | 0.39 | 9.9 | Cloudy | |
| Dubuque, Iowa | | | 30.25 | 768.3 | 49 | 9.4 | 63 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 30.33 | 770.4 | 50 | 10.0 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.77 | 756.1 | 45 | 7.2 | 84 | NE | 8 | 3.6 | | 8k | 2s | | | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 30.03 | 762.7 | 40 | 4.4 | 82 | N | 16 | 7.2 | | 5k | 0 | N | | Inap. | Inap | Fair | |
| Escanaba, Mich. | | | 30.24 | 768.1 | 44 | 6.7 | 60 | N | 14 | 6.3 | | 5k | 2s | N | N | 0 | 0 | Fair | |
| Florence, Arizona | | | 29.85 | 758.2 | 65 | 18.3 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.68 | 751.5 | 71 | 21.7 | 71 | E | 8 | 3.6 | | 2c | 2ks | W | | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.69 | 728.7 | 29.93 | 760.2 | 67 | 19.4 | 64 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.76 | 755.9 | 35 | 1.7 | 90 | NE | | | 3 | 10c | 0 | SE | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.79 | 731.3 | 29.86 | 758.4 | 70 | 21.1 | 56 | SE | 4 | 1.8 | | 5c | 0 | S | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.46 | 722.9 | 30.10 | 764.5 | 57 | 13.9 | 81 | SE | 12 | 5.4 | | | 10s | | SE | Inap. | Inap | Cloudy | |
| Galveston, Tex. | | | 30.00 | 762.0 | 75 | 23.9 | 81 | N | 14 | 6.3 | | 2ck | 0 | | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 30.17 | 766.3 | 48 | 8.9 | 59 | NE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 29.98 | 761.5 | 77 | 25.0 | 82 | NE | 1 | 0.4 | | 2ck | Haze | | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 30.12 | 765.0 | 50 | 10.0 | 45 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.85 | 758.2 | 77 | 25.0 | 49 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.15 | 765.8 | 55 | 12.8 | 60 | E | 8 | 3.6 | | 2c | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.91 | 759.7 | 82.5 | 28.1 | 72 | Calm | 0 | 0 | | 1cs | Haze | | | 0 | 0 | Dense haze | |
| Kittyhawk, N. C. | | | 29.84 | 757.9 | 60 | 15.6 | 54 | N | 30 | 13.4 | | 1k | 0 | N | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.01 | 762.2 | 55 | 12.8 | 61 | NW | 8 | 3.6 | | 1c | 0 | W | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 30.27 | 768.8 | 49 | 9.4 | 57 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.08 | 764.0 | 62 | 16.7 | 61 | E | 5 | 2.2 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Louisville, Ky. | | | 30.09 | 764.3 | 51 | 10.6 | 44 | N | 15 | 6.7 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 29.87 | 758.7 | 63 | 17.2 | 33 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 58 | 14.4 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.24 | 768.1 | 44 | 6.7 | 67 | NW | 12 | 5.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.10 | 764.5 | 63 | 17.2 | 61 | NE | 8 | 3.6 | | 8cs | 0 | NE | | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 30.25 | 768.3 | 44 | 6.7 | 60 | NE | 15 | 6.7 | | 0 | 2s | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 29.98 | 761.5 | 71 | 21.7 | 67 | N | 12 | 5.4 | | 0 | 2s | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.00 | 762.0 | 67 | 19.4 | 61 | N | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.94 | 735.1 | 30.01 | 762.2 | 43 | 6.1 | 58 | N | 12 | 5.4 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Mt. Washington, N. H. | 23.50 | 596.9 | 29.86 | 758.4 | 26 | — 3.3 | 100 | NE | 24 | 10.7 | | | 10n | | NE | 0.15 | 3.8 | Light snow | |
| Nashville, Tenn. | | | 30.10 | 764.5 | 56 | 13.3 | 45 | N | 10 | 4.5 | | 5c | 0 | W | | 0 | 0 | Fair | |
| New Haven, Conn. | | | 29.71 | 754.6 | 48 | 8.9 | 71 | N | 6 | 2.7 | | | 10s | | NW | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.70 | 754.4 | 48 | 8.9 | 85 | NW | 6 | 2.7 | | 5s | 5n | | N | 0.28 | 7.1 | Light rain | |
| New Orleans, La. | | | 29.94 | 760.5 | 76 | 24.4 | 5[illegible] | NE | 10 | 4.5 | | 7c | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.70 | 754.4 | 47 | 8.3 | 100 | E | 8 | 3.6 | | | 10ks | | E | 0.49 | 12.4 | Threatening | |
| New York, N. Y. | | | 29.78 | 756.4 | 47 | 8.3 | 48 | NW | 20 | 8.9 | | | 10ks | | NW | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 29.86 | 758.4 | 58.5 | 14.7 | 42 | N | 14 | 6.3 | | 0 | 0 | | | 0.23 | 5.8 | Clear | |
| North Platte, Neb. | 27.18 | 690.4 | 29.73 | 755.1 | 54 | 12.2 | 90 | E | 12 | 5.4 | | | 10s | | E | 0 | 0 | Cloudy | |
| Omaha, Neb. | 29.06 | 738.1 | 30.12 | 765.0 | 60 | 15.6 | 60 | E | 4 | 1.8 | | 5ck | 0 | N | | Inap. | Inap | Fair | |
| Oswego, N. Y. | | | 29.91 | 759.7 | 43 | 6.1 | 83 | NW | 9 | 4.0 | | 5c | 2s | NE | NE | 0.24 | 6.1 | Fair | |
| Pembina, Dakota | | | 30.33 | 770.4 | 47 | 8.3 | 69 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 29.85 | 758.2 | 46 | 7.8 | 54 | N | 24 | 10.7 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 65 | 18.3 | | SE | | | | 5c | 0 | SE | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.88 | 454.1 | 30.09 | 764.3 | 22 | — 5.6 | 93 | E | 2 | 0.9 | | 10s | 2ks | | | 0.20 | 5.1 | Cloudy | |
| Pittsburgh, Pa. | | | 30.02 | 762.5 | 42 | 5.6 | 58 | NE | 12 | 5.4 | | | 10s | | N | 0 | 0 | Cloudy | |
| Port Huron, Mich. | | | 30.13 | 765.3 | 39 | 3.9 | 81 | N | 16 | 7.2 | | | 10ks | | N | 0 | 0 | Cloudy | |
| Portland, Me. | | | 29.78 | 756.4 | 51 | 10.6 | 79 | SE | 2 | 0.9 | | 2k | 8s | | NE | 0.11 | 2.8 | Cloudy | |
| Portland, Oregon | | | 30.04 | 763.0 | 53 | 11.7 | 86 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.73 | 628.1 | 30.09 | 764.3 | 39 | 3.9 | 56 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.92 | 760.0 | 81 | 27.[illegible] | 74 | W | 8 | 3.6 | | 0 | 2ks | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.92 | 760.0 | 42 | 5.6 | 83 | NW | 10 | 4.5 | | 8k | 0 | NW | | 0.22 | 5.6 | Clearing | |
| Salt Lake City, Utah | 25.59 | 650.0 | 29.92 | 760.0 | 49 | 9.4 | 37 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.78 | 756.4 | 47 | 8.3 | 69 | NW | 27 | 12.1 | | | 10ks | | NW | 0.03 | 0.8 | Cloudy | |
| San Antonio, Tex. | | | 29.87 | 758.7 | 68 | 20.0 | 60 | Calm | 0 | 0 | | | 10ks | | | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.93 | 760.2 | 59 | 15.0 | 76 | SE | 4 | 1.8 | | | 10s | | SE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.92 | 760.0 | 51 | 10.6 | 82 | W | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.25 | 590.5 | 29.79 | 756.7 | 48 | 8.9 | 67 | NE | 6 | 2.7 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Savannah, Ga. | | | 29.89 | 759.2 | 71 | 21.7 | 52 | NE | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.10 | 764.5 | 75 | 23.9 | 72 | N | 2 | 0.9 | | | 10s | | E | Inap. | Inap | Cloudy | |
| Smithville, N. C. | | | 29.88 | 758.9 | 64 | 17.8 | 52 | N | 14 | 6.3 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Springfield, Mass. | | | 29.72 | 754.9 | 44.5 | 6.9 | 71 | NW | 3 | 1.3 | | | 10ks | | NW | 0.12 | 3.0 | Cloudy | |
| St. Louis, Mo. | | | 30.16 | 766.1 | 55 | 12.8 | 59 | NE | 9 | 4.0 | | 5k | 0 | | | 0 | 0 | Fair | |
| St. Marks, Fla. | | | 29.89 | 759.2 | 73 | 22.8 | 55 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.25 | 768.3 | 55 | 12.8 | 44 | N | 3 | 1.3 | | 2c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 51 | 10.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex. | 26.94 | 684.3 | 29.94 | 760.5 | 62 | 16.7 | 83 | SE | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 29.75 | 755.6 | 48 | 8.9 | 92 | SE | 8 | 3.6 | | | 10n | | SE | 0.30 | 7.6 | Light rain | |
| Toledo, Ohio | | | 30.13 | 765.3 | 45 | 7.2 | 53 | NE | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.43 | 696.7 | 29.98 | 761.5 | 60 | 15.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Tybee Island, Ga | | | 29.81 | 757.9 | 69 | 20.6 | 75 | NE | 24 | 10.7 | | 5ck | 0 | NE | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.05 | 763.3 | 70 | 21.1 | 61 | E | 7 | 3.1 | | Haze | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.29 | 617.0 | 29.77 | 756.1 | 37 | 2.8 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 29.90 | 759.4 | 50 | 10.0 | 53 | NW | 13 | 5.8 | | | 10ks | | NW | 0 | 0 | Cloudy | |
| Wickenburg, Arizona | | | | | 62 | 16.7 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.88 | 758.9 | 63 | 17.2 | 52 | N | 12 | 5.4 | | 2k | 0 | NW | | 0.07 | 1.8 | Fair | |
| Wood's Holl, Mass | | | 29.74 | 755.4 | 46 | 7.8 | 92 | SE | 8 | 3.6 | | | 10n | | | 0.09 | 2.3 | Light rain | |
| Yankton, Dakota | 28.96 | 735.6 | 30.26 | 768.6 | 51 | 10.6 | 79 | NE | 3 | 1.8 | | 10c | 0 | SW | | 0.01 | 0.3 | Fair | |
| Yuma, Arizona | | | | | | | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUN-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.11 | 764.8 | 81 | 27.2 | 82 | SE | 17 | 7.6 | | 8c | 2n | SE | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 79 | 26.1 | | E | | | 3 | | | | | 1.19 | 30.2 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.04 | 763.0 | 81 | 27.2 | 87 | E | | | 3 | 4c | 5k | E | | 0.036 | 0.91 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | 30.07 | 763.7 | | | 79.7 | 26.5 | | S | | | | | | | | 0 | 0 | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.28 | 642.1 | | | 65.5 | 18.6 | 89 | Calm | | | 0 | | 10n | | | 0.23 | 5.8 | Light rain | Thomas Herran. |
| York Factory, B. A | | | 30.35 | 770.9 | 47.0 | 8.3 | 89 | SE | 20 | 8.9 | | 0 | 0 | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.10 | 764.5 | 71 | 21.7 | | NE | | | 5 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Yuma, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are applied in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.91 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, [illegible] in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.96 | 761.0 | 69 | 20.6 | 50 | 10.0 | 58 | NW | | | 4 | | 7 | | NW | 0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.97 | 761.2 | 59 | 15.0 | 51.5 | 10.8 | | SW | | | 2 | | 4 | | N | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va | 29.98 | 761.5 | 60 | 15.6 | 60 | 15.6 | 100 | NNW | 6 | 2.7 | | | 1s | | | 0.10 | 2.5 | | | Blue sky | |
| Navy Yard, Pensacola, Fla | 30.08 | 764.0 | | | 73 | 22.8 | 67 | NNE | 8 | 3.6 | | | 7 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.81 | 757.2 | 59 | 15.0 | 49 | 9.4 | 78 | NE | 4 | 1.8 | | | 10 | | NW | 0.28 | 7.1 | | | Rainy | |
| Naval Hospital, Yokohama, Japan | 29.84 | 757.9 | 66 | 18.9 | 63 | 17.2 | 83 | Calm | | | 0 | | 8cks | | W | 0 | 0 | | | Cloudy | |
| Adams, S. 13° 18′ W. 32° 10′ | 30.06 | 763.5 | 82 | 27.8 | 82 | 27.8 | 87 | ESE | | | 1–2 | | 3 | | E | 0 | 0 | Smooth | | D. clouds | |
| Alert, N. 27° 10′ E. 141° 53′ | 29.83 | 757.7 | 74 | 23.3 | 75 | 23.9 | 100 | S | | | 5–7 | | 10 | | SSE | | | Rough | S | Raining | |
| Alliance, Beirut, Syria | 30.04 | 763.0 | 79 | 26.1 | 77 | 25.0 | 69 | NNE | | | 1 | | 5 | | S | | | Smooth | | Hazy | |
| Ashuelot, Hong-Kong, China | 29.90 | 759.4 | 78 | 25.6 | 76 | 24.4 | 82 | E | | | 2 | | 10 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 29.93 | 761.0 | 54 | 12.2 | 74 | 23.3 | 59 | ENE | | | 2 | | 8 | | | | | | | Light cloud | |
| Colorado, New York, N. Y | 29.80 | 756.9 | 52 | 11.1 | 48 | 8.9 | 78 | WNW | 25 | 11.2 | | | 9 | | | 0 | 0 | | | D. clouds | |
| Despatch, Gibraltar | 30.11 | 764.8 | 72 | 22.2 | 73 | 22.8 | 76 | Var. | | | 1 | | 3 | | | | | Smooth | | Pleasant | |
| Frolic, Rio de Janeiro, Brazil | 30.28 | 769.1 | 63 | 17.2 | 62 | 16.7 | 94 | NW | | | 2 | | 6k | | | 0 | 0 | | | D. clouds | |
| ‡ Gettysburg, Genoa, Italy | 29.89 | 759.2 | | | 70 | 21.1 | 100 | SSE | | | 1 | | 9 | | SE | 0 | 0 | | | D. clouds | |
| Huron, N. 12° 05′ W. 68° 59′ | 30.08 | 764.0 | 81 | 27.2 | 81 | 27.2 | 87 | SE | | | 3–4 | | 7 | | NNW | | | Moderate. | ENE | D. clouds | |
| Kearsarge, N. 31° 30′ E. 130° 05′ | 29.97 | 761.2 | 75 | 23.9 | 71 | 21.7 | 95 | ESE | | | 2 | | 3 | | W | 0 | 0 | Smooth | | Pleasant | |
| Lackawana, N. 21° 32′ W. 103° 48′ | | | | | | | | | | | | | | | | | | | | | |
| Marion, Smyrna, Turkey | 29.95 | 760.7 | 72 | 22.2 | 73 | 22.8 | 63 | WSW | | | 1 | | 10 | | ENE | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.50 | 749.3 | 56 | 13.3 | 43 | 6.1 | 83 | N | | | 3 | | 5 | | NE | | | | | Fair | |
| Monocacy, N. 35° 00′ E. 122° 47′ | 29.94 | 760.5 | 63 | 17.2 | 63 | 17.2 | 94 | NNE | | | 2 | | 10 | | | 0 | 0 | Smooth | | Foggy | |
| Monongahela, Norfolk, Va | 29.91 | 759.7 | 57 | 13.9 | 58 | 14.4 | | N | | | 2–3 | | kn | | | Light | Light | | | Squally | |
| New Hampshire, Port Royal, S. C | 30.08 | 764.0 | | | 70 | 21.1 | 57 | NNE | 26 | 11.6 | | | 2 | | S | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 30.00 | 762.0 | 75 | 23.9 | 74.5 | 23.6 | 74 | SE | 2 | 0.9 | | | 2 | | SE | 0 | 0 | Smooth | | Bright | |
| Ossipee, Port Royal, S. C | 29.90 | 759.4 | 68 | 20.0 | 69 | 20.6 | 63 | NE | | | 5 | | 2 | | | | | | | D. clouds | |
| Palos, Shanghai, China | 30.07 | 763.8 | 73 | 22.8 | 72 | 22.2 | 95 | E | | | 2 | | 1 | | W | | | | | Clear | |
| Plymouth, Pensacola, Fla | 30.00 | 762.0 | 80 | 26.7 | 74 | 23.3 | 63 | NNE | | | 3 | | 4 | | | 0 | 0 | | | Hazy | |
| Ranger, Gibraltar Bay | 30.24 | 768.1 | | | 67 | 19.4 | 95 | Calm | | | 0 | | 4 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.35 | 770.9 | 65.5 | 18.6 | 64.5 | 18.1 | 94 | WNW | | | 2 | | 3 | | NE | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.83 | 757.7 | | | 67 | 19.4 | 89 | Calm | | | 0 | | 5 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.92 | 760.0 | 54 | 12.2 | 51 | 10.6 | 72 | NW | | | 5 | | 9 | | | 0 | 0 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.76 | 755.9 | 54 | 12.2 | 50 | 10.0 | 72 | NW | 15 | 6.7 | | | 6 | | NW | 0 | 0 | | | Cloudy | |
| Swatara, San Andres, U. S. C | 29.76 | 755.9 | 81 | 27.2 | 81 | 27.2 | ? | ENE | | | 1 | | 3k | | | Blank | Blank | Smooth | | | |
| Tennessee, Yokohama, Japan | 29.82 | 757.4 | 71 | 21.7 | 70 | 21.1 | 80 | S | | | 1 | | 9 | | ESE | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.92 | 760.0 | 80 | 26.7 | 84 | 28.9 | 79 | Calm | 0 | 0 | | | 4 | | | 0 | 0 | Smooth | | Hazy | |
| Vandalia, Constantinople, Turkey | 29.95 | 760.7 | 65 | 18.3 | 65 | 18.3 | 94 | SSW | | | 1 | | 8 | | WNW | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.73 | 755.1 | 49 | 9.4 | 47 | 8.3 | 92 | SE | 19 | 8.5 | | | 10 | | | 0.53 | 13.5 | | | Raining | |
| Wyoming, Washington, D. C | 30.26 | 768.6 | 58 | 14.4 | 54 | 12.2 | | NW | | | 2 | | 0? | | NW | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
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| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 36° 02′ E. 142° 17′ | | | 29.95 | 760.7 | 60 | 15.6 | 94 | NE | | | 2 | | 6cs | | | Moderate, l'ng | ENE | Hazy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 41° 50′ W. 53° 25′ | W ½ S | 10.5 | 29.55 | 750.6 | 62.4 | 16.9 | | SW | | | 5 | | k | | WSW | Tranq'l | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 44° 19′ W. 38° 47′ | ENE | | 29.80 | 756.9 | 57.9 | 14.4 | | SW | | | 5 | | k | | SW | Light | | D. clouds | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amonut of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
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| Schooner Addie Fuller, Brunswick, Ga. | | | 29.80 | 756.9 | 74 | 23.3 | 81 | NNE | 7 | 3.1 | | | 108 | | NE | | | Cloudy | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg, and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 25, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:40 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.05 | 763.5 | 72.3 | 22.4 | 74 | NW | | | 1 | | 1 | | | 0.205 | 5.2 | Clear | Michel. |
| Algiers | | | 30.08 | 764.1 | 64.8 | 18.2 | 86 | E | | | 1 | | 8 | | | In'p. | I'nap. | Cloudy | Peter. |
| La Galle | | | 30.04 | 762.9 | 68.2 | 20.1 | 83 | NNE | | | 3 | | 7 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.08 | 763.6 | 68.0 | 20.0 | | SE | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.01 | 763.0 | 73.4 | 23.0 | | NW | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.04 | 763.0 | 72.5 | 22.5 | | NNW | | | 4 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.01 | 762.3 | 79.2 | 26.2 | | W | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.06 | 763.4 | 81.9 | 27.7 | | S | | | 4 | | 4 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 29.99 | 761.7 | 82.8 | 28.2 | 20 | E | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.05 | 763.2 | 86.7 | 30.4 | 31 | NE | | | 1 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.99 | 761.8 | 50.7 | 10.4 | 94 | SW | | | 1 | | 10 | | | 0.453 | 11.5 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.08 | 763.9 | 56.1 | 13.4 | 50 | NE | | | 2 | | 8 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.98 | 761.4 | 57.2 | 14.0 | 40 | N | | | 4 | | 5cs,8 | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | | | 29.91 | 762.3 | 53.8 | 12.1 | 86 | SSW | | | 2 | | 10 | | | 0.256 | 6.5 | | Andreas Rospini. |
| Hermannstadt | 28.76 | 730.5 | 30.01 | 762.3 | 53.8 | 12.1 | 86 | SSW | | | 2 | | 10 | | | 0.256 | 6.5 | | Prof. Reissenberger. |
| Kremsmünster | 28.56 | 724.0 | 29.89 | 759.2 | 65.1 | 18.4 | 59 | N | | | 1 | | 6 | | | 0.079 | 2.00 | | Prof. C. Wagner. |
| Lemberg | 28.69 | 728.7 | 30.04 | 762.9 | 51.8 | 11.0 | 70 | NNW | | | 3 | | 8 | | | 0.150 | 3.8 | | Dr. T. Stanecki. |
| Nyiregyhnza | | | 29.96 | 761.0 | 53.8 | 12.1 | 85 | NE | | | 1 | | 7 | | | 0 | 0 | | Habxsuda Daniel. |
| Pola | | | | | | | | | | | | | | | | | | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.93 | 760.2 | 60.6 | 15.9 | 81 | Calm | | | 0 | | 108 | | | 0.368 | 9.36 | | Karl Stancel. |
| Trieste | | | 29.93 | 760.2 | 61.7 | 16.5 | 72 | N | | | 2 | | 6 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 29.97 | 761.1 | 59.7 | 15.4 | 63 | ENE | | | 1 | | 10 | | | 0.185 | 4.7 | Raining | I. R. Central Met. Obs'y. |
| | | | 30.01 | 762.3 | 54.7 | 12.6 | 69 | NW | | | 1 | | 10 | | | 0.094 | 2.4 | | |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.63 | 727.1 | 30.07 | 763.8 | 58.8 | 14.9 | 36 | NNW | | | 1 | | 6 | | | 0 | 0 | | |
| Brussels | | | 30.17 | 766.2 | 61.0 | 16.1 | 41 | NNW | | | 1 | | 7k | | N? | 0 | 0 | | Royal Observatory. |
| Furnes | | | 30.18 | 766.5 | 59.0 | 15.0 | 56 | NW | | | 2 | | 3 | | | 0 | 0 | | |
| Maeseyck | | | 30.03 | 762.8 | 61.0 | 16.1 | 38 | N | | | 4 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.12 | 765.0 | 53.0 | 11.7 | | WNW | 6 | 2.7 | | | 7 | | | 0.165 | 4.19 | D. c'ouds | William Boswell. |
| Ardrossan | | | 30.20 | 767.1 | 55 | 12.8 | | SW | | | 2 | | 4 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.24 | 768.1 | 53.7 | 12.1 | | WNW | 6 | 2.7 | | | 10 | | | | | Overcast | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.23 | 767.8 | 53.0 | 11.7 | | W | 8 | 3.6 | | | 9 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.27 | 768.8 | 57.0 | 13.9 | | W | | | 1 | | 9 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.14 | 765.5 | 57.1 | 13.9 | | W | | | 2 | | 7 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 83.5 | 28.6 | | NE | | | 2 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.24 | 768.1 | 60.0 | 15.6 | | SW | | | 1 | | 7k | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.23 | 767.8 | 61.0 | 16.1 | | NW | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.21 | 767.3 | 60.4 | 15.8 | | Calm | | | 0 | | 6 | | | | | D. clouds | Capt. Fellowes, R. E. |
| Dartmoor | 28.79 | 731.3 | 30.25 | 768.3 | 58.0 | 14.4 | | NE | | | 2 | | 8 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.23 | 767.8 | 57 | 13.9 | | SE | | | 2 | | 7 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.21 | 767.3 | 56 | 13.3 | | ESE | | | 1 | | 2 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.21 | 767.3 | 56.0 | 13.3 | | NW | 1.5 | 0.6 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.26 | 768.6 | 56.4 | 13.6 | | NNW | | | 3 | | 2 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.25 | 692.1 | 29.57 | 751.1 | 68.3 | 20.3 | | NE | | | 4 | | 8 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 760.2 | 82 | 27.8 | | N | | | 1 | | 8 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.23 | 767.8 | 56 | 13.3 | | W | | | 1 | | 10 | | | | | Gloomy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.98 | 761.5 | 80.0 | 26.7 | | W | | | 4 | | 0 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.15 | 765.8 | 56.2 | 13.4 | | WNW | | | 2 | | 6 | | | | | D. clouds | J. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.21 | 767.3 | 51 | 10.6 | | SSE | | | 1 | | 3 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.27 | 768.8 | 62.2 | 16.8 | | NE | | | 1 | | 7 | | | Blank | Blank | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.23 | 767.8 | 55 | 12.8 | | NNW | | | 1 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.31 | 769.9 | 60 | 15.6 | | NW | | | 4 | | 1c | | | 0 | 0 | D. clouds | M. P. Moyle. |
| Holyhead | | | 30.23 | 767.8 | 56 | 13.3 | | WSW | | | 2 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.22 | 767.6 | 58.5 | 14.7 | | N | 7 | 3.1 | | | 9 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.25 | 768.3 | 55 | 12.8 | | NW | | | 1 | | 7 | | | | | D. clouds | George Mitchell, F. G. S. |
| Leicester, Museum | | | 30.21 | 767.3 | 58.5 | 14.7 | | SW | | | 2 | | 10 | | | | | Overcast | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.04 | 763.0 | 71.0 | 21.7 | | NE | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 30.16 | 764.5 | 50 | 10.0 | | W | | | 1 | | 5 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.86 | 758.4 | 87.4 | 30.8 | | SW | | | 1 | | 6 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.22 | 767.6 | 61.0 | 16.1 | | WSW | | | 1 | | 10k | | W | 0 | 0 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.21 | 767.3 | 59.2 | 15.1 | | WNW | | | 1 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.22 | 767.6 | 60 | 15.6 | | Calm | | | 0 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 30.23 | 767.8 | 61.1 | 16.2 | | ENE | | | 3 | | 8 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.27 | 768.8 | 58 | 14.4 | | SW | | | 2 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.25 | 768.3 | 53 | 11.7 | | NW | | | 1 | | 3 | | | | | Hazy | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.24 | 768.1 | 56.0 | 13.3 | | S | | | 2 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.10 | 764.5 | 49 | 9.4 | | Calm | 0 | 0 | | | 10 | | | | | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.93 | 760.2 | 67.0 | 19.4 | | NE | | | 1 | | 5 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.29 | 769.4 | 57.9 | 14.4 | | NW | | | 1 | | 10 | | | Inap. | Inap. | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.20 | 767.1 | 56.4 | 13.6 | 64 | W | | | 1 | | 6 | | | 0 | 0 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 30.20 | 767.1 | 57.0 | 13.9 | | W | | | 2 | | 9 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.09 | 764.3 | 54 | 12.2 | | WNW | | | 5 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.23 | 767.8 | 59.4 | 15.2 | | NE | | | 1 | | 6 | | | | | D. cloud | Rev. Charles H. Griffith. |
| Thurso | | | 30.07 | 763.8 | 48 | 8.9 | | Calm | | | 0 | | 9 | | | | | Rain | John Trotter. |
| Truro, Royal Institution | | | 30.26 | 768.6 | 62 | 16.7 | | N | | | 4 | | 3 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.29 | 769.4 | 55.7 | 13.2 | | NW | 12 | 5.4 | | | 3 | | | | | Hazy | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 52 | 11.1 | | NE | | | 1 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.92 | 760.0 | 54.3 | 12.4 | 81 | WSW | 10 | 4.5 | | 7 | 9 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.71 | 754.6 | 52.0 | 11.1 | 87 | NW | | | 3 | | 8kn | | | 0.01 | 0.3 | Hazy | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.16 | 766.1 | 58.8 | 14.9 | | W | | | 3 | | 6k | | | 0 | 0 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.18 | 766.6 | 75.7 | 24.3 | 68 | ESE | 22.1 | 9.9 | | 8 | 3 | WNW | ESE | 0 | 0 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 29.79 | 756.7 | 47.0 | 8.3 | 85 | NW | 5 | 2.2 | | | 3 | | | 0.22 | 5.6 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 30.16 | 766.1 | 51 | 10.6 | | W | | | 4 | 3 | 3 | SW | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.05 | 763.3 | 42 | 5.6 | | NW | | | 4 | | 10 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per sq. foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,360 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 40° 30′ W. 63° 55′ | | | 29.58 | 751.3 | 49.0 | 9.4 | | NNE | | | 5 | | 10 | | | 5* | ENE | Raining | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 26° 40′ W. 55° 30′ | | | 29.93 | 760.2 | 80.0 | 26.7 | | N | | | 3 | | | | | 1 | N | Blue sky | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Pihen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata, N. 17° 55′ W. 74° 55′ | | | 29.92 | 760.0 | 82.0 | 27.8 | | ESE | | | 4 | | 8 | | | 4 | ESE | D. clouds | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Approximated height of waves in feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.18 | 665.0 | | | 69.8 | 21.0 | 92 | SE | | | 1 | | 6ck | | | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.12 | 765.0 | 40.6 | 9.8 | 62 | SSE | | | 6 | | 2 | | | | | | |
| Fanöe | | | 30.08 | 764.0 | 53.2 | 11.8 | 78 | W | | | 4 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | 30.08 | 763.9 | 37.0 | 2.8 | 91 | SW | | | 4 | | 10 | | | | | Foggy | |
| Stykkisholm, (Iceland) | | | 30.13 | 765.3 | 37.2 | 2.9 | 82 | NE | | | 7 | | 10 | | | | | | |
| Thorshavn, (Faröe) | | | 30.12 | 765.1 | 44.2 | 6.8 | 70 | Calm | | | 0 | | 7 | | | | | | |
| Vestervig | | | 30.06 | 763.4 | 49.3 | 9.6 | 76 | WNW | | | 4 | | 8 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.25 | 768.4 | 53.6 | 12 | 61 | NE | | | 2 | | 5k | | E | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 30.15 | 765.9 | 64.0 | 17.8 | | N | | | 2 | | 8 | | N | 0 | 0 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.99 | 761.8 | 69.4 | 20.8 | 43 | NW | | | 4 | | | W | N | 0 | 0 | Light clouds | Mr. Giraud. |
| Bar-sur-Seine | | | 30.17 | 766.4 | 64.8 | 18.2 | 30 | NNE | | | 2 | | 5n | | E | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.19 | 766.9 | 61.2 | 16.2 | 46 | E | | | 1 | | 8 | | SE | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.17 | 766.4 | 62.6 | 17 | 40 | NE | | | 4 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 30.18 | 766.6 | 65.3 | 18.5 | 64 | N | | | 6 | | 2k | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges | | | 30.15 | 765.8 | 60.8 | 16.0 | 79 | NNE | | | 2 | | 1 | | S | 0 | 0 | Clear | Normal School. |
| Brest | | | 30.18 | 766.6 | 54.9 | 12.7 | 52 | NNE | | | 3 | | 9 | | NNE | 0 | 0 | Misty | Naval Observatory. |
| Carcassonne | | | 30.04 | 762.9 | 66.6 | 19.2 | 54 | W | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Caen | | | 30.24 | 768.0 | 56.8 | 13.8 | 55 | NW | | | 2 | | | | NE | 0 | 0 | | Normal School. |
| Chartres | | | 30.15 | 765.8 | 63.5 | 17.5 | 58 | N | | | 2 | | 4 | | NNE | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 30.13 | 765.2 | 63.5 | 17.5 | 37 | N | | | 3 | | 2ck | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Clermont-Ferrand | | | 30.06 | 763.4 | 63.7 | 17.6 | 59 | SSE | | | 1 | | 10 | | | 0.181 | 4.6 | Covered | Puy de Dome Obs'y. |
| Commercy | | | 30.09 | 764.2 | 58.8 | 14.9 | 70 | N | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Commune de Gréasque* | | | 30.02 | 762.4 | 66.4 | 19.1 | 45 | NW | | | 2 | | 5 | | NW | 0.08 | 2. | | M. Kina. |
| Grenoble | | | 30.03 | 762.8 | 62.1 | 16.7 | 65 | NNW | | | 4 | | 5ks | | SE | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 30.16 | 766.0 | 61.5 | 16.4 | 66 | N | | | 4 | | 8 | | SE | 0 | 0 | Very cloudy | Normal School. |
| Le Mans | | | 30.17 | 766.2 | 59.9 | 15.5 | 93 | NNE | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Lons-Le-Saulnier | | | 30.08 | 764.1 | 62.8 | 17.1 | 34 | NE | | | 2 | | 5 | | SW | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 30.23 | 767.8 | 59.0 | 15.0 | 40 | NE | | | 3 | | 5 | | NE | 0 | 0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.20 | 767.0 | 62.4 | 16.9 | 72 | Calm | | | 0 | | 0 | | | 0.063 | 1.6 | Clear | Mr. Marchal. |
| Metz | | | 30.17 | 766.4 | 58.3 | 14.6 | 40 | NNE | | | 3 | | 4k | | NNE | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 30.11 | 764.8 | 57.9 | 14.4 | 70 | N | | | 2 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes | | | 30.04 | 762.9 | 71.6 | 22 | 38 | NW | | | 6 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.11 | 764.8 | 62.6 | 17 | 59 | N | | | 2 | | 5 | | NNW | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 30.17 | 766.3 | 61.0 | 16.1 | 33 | NE | | | 2 | | 6ck | | NE | 0 | 0 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.17 | 766 2 | 65.5 | 18.6 | 57 | N | | | 2 | | 10 | | S | 0 | 0 | Covered | Naval Observatory. |
| Rouen | | | 30.20 | 767.1 | 60.6 | 15.9 | 55 | NNE | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Tarbes | | | 30.13 | 765.4 | 60.4 | 15.8 | 75 | WSW | | | 2 | | 10 | | E | 0.16 | 4. | Raining | Normal School. |
| Villefranche | 29.06 | 738.2 | 30.08 | 763.9 | 68.0 | 20 | 64 | NE | | | 3 | | 5 | | | 0.087 | 2.2 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.2 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.96 | 760.9 | 70 2 | 21.2 | 46 | NW | | | 3-4 | | 3 | | | 0 | 0 | Partly cl'dy | The Staff. |
| Mont-Louis | 24.88 | 632.0 | 30.20 | 767.0 | 42.1 | 5.6 | 82 | NNW | 18.6 | 8.33 | | | 10 | | N | 0.055 | 1.4 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.16 | 766.1 | 62.1 | 16.7 | 34 | ENE | | | 2 | | 8ck | | W | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 30.04 | 763.1 | 67.3 | 19.6 | 47 | N | 11.2 | 5.00 | | | 9 | | W | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.52 | 571.9 | | | 35.6 | 2.0 | | N | | | 1 | | 10 | | | 0.165 | 4.2 | Snowy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.16 | 766.1 | 62.6 | 17.0 | 42 | NE | | | 1 | | 8 | | | 0 | 0 | Very cloudy | E. Renou. |
| Toulouse, Observatory | | | 30.14 | 765.6 | 60.8 | 16.0 | 61 | NNW | | | 2 | | 8 | | | 0 | 0 | | The Staff |
| Tours | | | 30.16 | 766.0 | 65.1 | 18.4 | 50 | NE | | | 1 | | 7 | | NNW | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.18 | 766.5 | 61.9 | 16.6 | 52 | NE | | | 1 | | 8 | | | 0 | 0 | Almost cov'd | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.97 | 761.1 | 64.0 | 17.8 | 92 | E | 4.5 | 2.0 | | 7ck | | W | | 0 | 0 | | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,201.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometer observations for altitude the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.11 | 764.8 | 58.1 | 14.5 | 53 | NE | | | 6 | | 6 | N | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.17 | 766.2 | 56.3 | 13.5 | 37 | NE | | | 1 | | 2 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.13 | 765.4 | 55.4 | 13.0 | 50 | N | | | 2 | | 4 | | | 0 | 0 | | Royal University Ob'y. |
| Carlsruhe | | | 30.09 | 764.2 | 57.9 | 14.4 | 53 | N | | | 1 | | 2 | | | 0.575 | 14.6 | | Albert Senz. |
| Cassel | | | 30.19 | 766.9 | 58.3 | 14.6 | 46 | E | | | 4 | | 6 | N | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.13 | 765.2 | 61.3 | 16.3 | 35 | NE | | | 4 | | 7 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.16 | 766.1 | 60.3 | 15.7 | 37 | NW | | | 3 | | 5 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.13 | 765.3 | 62.6 | 17.0 | 30 | NNE | | | 2 | | 7 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.98 | 736.0 | 30.05 | 763.3 | 60.4 | 15.8 | 46 | NNW | | | 3 | | 4 | N | | 0.255 | 6.4 | | M. Wilhelm. |
| Hamburg | | | 30.13 | 765.4 | 58.3 | 14.6 | 55 | S | | | 2 | | 10 | | | 0 | 0 | Covered | Captain F. Hegemann. |
| Kiel | | | 30.11 | 764.8 | 56.3 | 13.6 | 85 | NE | | | 2 | | 8 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.18 | 766.5 | 48.4 | 9.1 | 47 | NE | | | 5 | | 2 | | | 0.136 | 3.3 | | Prof. E. Luther. |
| Köslin | | | 30.20 | 767.1 | 48.2 | 9.0 | | N | | | 2 | | 2 | | | | 0 | | H. Müller. |
| Leipsic | | | 30.17 | 766.2 | 52.6 | 11.1 | 69 | N | | | 1 | | 10 | | | | | Rainy | Prof. Bruhns. |
| Memel, Naval School | | | 30.23 | 767.9 | 45.1 | 7.3 | | NW | | | 4 | | 8c8,8 | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 30.09 | 764.3 | 61.7 | 16.5 | 48 | NW | | | | | 3 | | | 0 | 0 | Dust-H[illegible] | Prof. E. Heis. |
| Neufahrwasser | | | 30.21 | 767.2 | 46.2 | 7.9 | 58 | NE | | | 2 | | 1 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.17 | 766.3 | 52.7 | 11.5 | 40 | N | | | 3 | | 6 | | | | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.10 | 764.5 | 59.9 | 15.5 | 57 | NE | | | 2 | | 8 | W | | Inap. | Inap. | | Dr. Schur. |
| Stuttgart | | | 30.07 | 763.7 | 55.4 | 13.0 | 62 | NE | | | 2 | | 10 | E | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 30.09 | 761.9 | 60.1 | 15.6 | 48 | E | | | 2 | | 8 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.56 | 725.3 | 30.06 | 763.4 | 55.6 | 13.1 | 51 | N | | | 1 | | 9 | NE | | 0 | 0 | | T. V. Bucknether. |
| Wustrow, Naval School | | | 30.23 | 767.8 | 54.7 | 12.6 | 43 | W | | | 1 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.94 | 760.5 | 75.0 | 23.9 | | NE | | | | | k | | | | | | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.15 | 562.5 | 29.96 | 761.0 | 34.3 | 1.3 | 98 | WNW | | | 2 | | 9 | NW | | 0.787* | 20.0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.12 | 561.7 | 29.84 | 757.8 | 37.6 | 3.1 | | NNE | | | 1 | | 10 | | | 0.40 | 10.2 | | Signora Ernesta Manfredi. |
| Udine | | | 29.95 | 760.7 | 54.7 | 12.6 | 85 | N | 1.8 | 0.8 | | | 10 | | | 0.91 | 23.1 | | Ab. Dem. Morgiut. |
| Padua | | | 29.93 | 760.5 | 57.0 | 13.9 | 72 | ENE | 15.4 | 6.9 | | | 10 | SW | | 2.07 | 52.7 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.95 | 760.7 | 61.5 | 16.4 | 66 | E | 4.3 | 1.9 | | | 5 | E | | 0.50 | 12.9 | | Conte Alm. Da Schio. |
| Verona | | | 29.84 | 759.1 | 68.0 | 20.0 | 54 | NE | | | 2 | | 10 | | | 0.09 | 2.5 | | Dott. S. Bertoncelli. |
| Bergamo | 28.62 | 726.9 | 29.93 | 760.1 | 63.0 | 17.2 | 59 | S | | | 2 | | 8 | | | 0.68 | 17.5 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.88 | 758.9 | 67.1 | 19.5 | 50 | SW | | | 6 | | 5 | | | 0.02 | 0.7 | | Prof. Giuseppe Calza. |
| Milan | | | 29.93 | 760.1 | 70.3 | 21.3 | 69 | NW | | | 1 | | 7 | NW | | 0.161 | 4.1 | | Ab. Gio. Capelli. |
| Pavia | | | 29.93 | 760.1 | 66.6 | 19.2 | 50 | NE | | | 4 | | 6 | SW | | 0.32 | 8.3 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.91 | 759.7 | 65.5 | 18.6 | 59 | SSE | 6.9 | 3.1 | | | 3 | SW | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.04 | 711.9 | 29.93 | 759.5 | 64.6 | 18.1 | 33 | NE | | | 4 | | 2 | W | | 0.11 | 2.8 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.06 | 761.9 | 66.4 | 19.1 | 58 | SE | | | 2 | | 3 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.94 | 760.5 | 65.7 | 18.7 | 52 | SW | 5.6 | 2.5 | | | 0 | | | 0.32 | 8.2 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.98 | 761.6 | 63.5 | 17.5 | 70 | E | 2.5 | 1.1 | | | 7 | S | | 0.38 | 9.7 | | Dott. G. Manzi. |
| Parma | | | 29.94 | 760.4 | 65.5 | 18.6 | 57 | ENE | | | 4 | | 2 | | | 0.047 | 1.2 | | Prof. P. Pigorini. |
| Florence | | | 29.97 | 761.2 | 66.2 | 19.0 | 70 | SW | | | 2 | | 9 | | | 0.20 | 5.1 | | Cav. F. Meucci. |
| Leghorn | | | 29.95 | 760.7 | 66.7 | 19.3 | 61 | W | 13.7 | 6.1 | | | 5 | W | | 0.01 | 0.3 | | Prof. P. Monte. |
| Siena | 28.75 | 730.2 | 29.94 | 760.4 | 66.0 | 18.9 | 44 | W | 11.9 | 5.3 | | | 6 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.41 | 721.5 | 29.94 | 760.4 | 66.2 | 19.0 | 51 | SW | | | 4 | | 3 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.93 | 760.1 | 65.7 | 18.7 | 62 | N | 23.0 | 10.3 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.93 | 759.7 | 70.5 | 21.4 | 46 | SE | | | 4 | | 5 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.98 | 761.4 | 72.7 | 22.6 | 41 | ESE | | | 4 | | 5 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.07 | 762.5 | 70.2 | 21.2 | 51 | S | 11.2 | 5.0 | | | 6 | SW | | 0 | 0 | | Prof's P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.06 | 763.5 | 72.1 | 22.3 | 53 | SW | | | 4 | | 5 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.04 | 762.2 | 69.1 | 20.6 | 57 | ENE | 2.5 | 1.1 | | | 5 | SW | | 0 | 0 | | Prof. C. DeVlorga. |
| Cosenza | | | 30.07 | 762.6 | 75.2 | 24.0 | 66 | NE | 4.3 | 1.9 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.97 | 760.8 | 70.7 | 21.5 | 55 | SW | | | 2 | | 10 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.05 | 763.3 | 68.4 | 20.2 | 65 | ENE | | | 2 | | 6 | SE | | 0 | 0 | | Pref. F. Cafiero. |
| Palermo | | | 30.09 | 762.0 | 68.0 | 20.0 | 60 | NE | 6.3 | 2.8 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.07 | 712.9 | 29.97 | 761.3 | 69.1 | 20.6 | 42 | S | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.97 | 761.3 | 68.0 | 20.0 | 71 | SW | | | 2 | | 5 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.08 | 763.9 | 65.1 | 18.4 | 61 | SSW | 1.8 | 0.8 | | | 6 | NW | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.97 | 761.2 | 50.5 | 10.3 | 86 | E | 5 | 2.2 | | 2ck | | N | | 0 | 0 | Fair | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.7 | 30.10 | 764.6 | 55.8 | 13.2 | 74 | W | 0.3 | 0.15 | | 0 | 1k | | W | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.22 | 767.5 | 59.0 | 15.0 | | N | | | 3 | | | | | 0 | 0 | | |
| Groningen | | | 30.11 | 764.9 | 54.7 | 12.6 | | | | | | | | | | 0 | 0 | | |
| Helder | | | 30.19 | 766.7 | 51.1 | 10.6 | | NW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.13 | 765.3 | 60.6 | 15.9 | 15 | N | | | 3 | | 8 | | | 0 | 0 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.05 | 763.2 | 46.4 | 8.0 | 59 | WNW | 13.4 | 6.0 | | | 2 | | | 0.110 | 2.8 | | |
| Brönö | | | 29.91 | 759.8 | 41.0 | 5.0 | 84 | S | 18 | 8 | | | 10 | | | 0.118 | 3.0 | Light rain | |
| Christiania | | | 29.88 | 758.9 | 54.3 | 12.4 | 61 | WSW | 1.1 | 0.5 | | | 10 | | | 0.020 | 0.5 | | |
| Tromsö | | | 29.91 | 759.8 | 41.9 | 5.5 | 48 | NE | 4 | 2 | | | 0 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.17 | 766.4 | 66.6 | 19.2 | 88 | W | 3.1 | 1.4 | | | 9 | | | 0.079 | 2.0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 30.09 | 762.0 | 74.7 | 23.7 | 41 | NW | 4.3 | 1.9 | | | 4 | NW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.19 | 766.8 | 69.1 | 20.6 | 57 | W | 4.9 | 2.2 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.10 | 764.4 | 65.3 | 18.5 | 54 | NNW | 15.0 | 6.7 | | | 5 | WSW | | 0 | 0 | | The Observatory. |
| Pônta Delgada, (Azores) | | | 30.21 | 767.4 | 66.2 | 19.0 | 83 | Calm | 0 | 0 | | | 10 | | | 0.012 | 0.3 | Light rain | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.08 | 764.0 | 54.3 | 12.4 | 34 | WSW | 7 | 3 | | | 2 | | | | | | Astronomical Obs. |
| Wilna | | | 30.11 | 764.9 | 46.4 | 8.0 | 43 | NNW | 4 | 2 | | | 8 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.19 | 766.9 | 37.9 | 3.3 | 46 | NW | 4 | 2 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.18 | 766.6 | 36.5 | 2.5 | 52 | ENE | 4 | 2 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.11 | 764.7 | 41.0 | 5.0 | 54 | E | 13 | 6 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 29.89 | 759.3 | 47.1 | 8.4 | 97 | NW | 7 | 3 | | | 10 | | | | | Raining | Physical Cabinet. |
| Nikolaiev | | | 29.95 | 760.6 | 64.0 | 17.8 | 44 | NE | 9 | 4 | | | 5 | | | | | | Kurdakof. |
| Kertch | | | 29.89 | 759.2 | 51.6 | 10.9 | 93 | NW | 16 | 7 | | | 10 | | | | | Raining | Lagorio. |
| Moscow | | | 30.04 | 763.0 | 40.3 | 4.6 | 47 | NW | 7 | 3 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.51 | 749.5 | 48.2 | 9.0 | 81 | ENE | 34 | 15 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 30.12 | 765.1 | 36.7 | 2.6 | 55 | NW | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.41 | 721.6 | 29.77 | 756.2 | 71.1 | 21.7 | 32 | NW | 18 | 8 | | | 10 | | | | | Raining | Physical Observatory. |
| Astrakhan | | | 29.64 | 752.9 | 60.3 | 15.7 | 78 | WNW | 4 | 2 | | | 8 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.76 | 755.8 | 51.8 | 11.0 | 29 | N | 13 | 6 | | | 2 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.71 | 754.5 | 64.9 | 18.3 | 83 | NE | 13 | 6 | | | 7 | | | | | | Tschernischel. |
| Ekaterinburg | 28.76 | 730.4 | 29.74 | 755.3 | 28.2 | — 2.1 | 92 | NNE | 18 | 8 | | | 10 | | | | | Snow & hail | Meteorogical Obs. |
| Nukuss | | | 29.71 | 764.5 | 84.9 | 29.4 | 24 | SW | 9 | 4 | | | 4 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.31 | 719.1 | 29.94 | 760.5 | 77.0 | 25.0 | 46 | NE | 7 | 3 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 29.74 | 755.5 | 77.0 | 25.0 | 36 | NNE | 4 | 2 | | | 1 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.83 | 757.6 | 47.8 | 8.8 | 40 | NW | 7 | 3 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | | | | | | | | | | | | | | | Mossin. |
| Peking, (China) | | | 29.79 | 756.7 | 76.8 | 24.9 | 51 | Calm | 0 | 0 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.78 | 756.5 | 51.3 | 10.7 | 89 | NW | 4 | 2 | | | 3 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 41.9 | 5.5 | | E | 4 | 2 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.95 | 760.8 | 69.8 | 21.0 | 43 | N | 3.0 | 1.33 | | 0 | 5 | | | 0 | 0 | Cloudy | Royal Observatory. |
| San Fernando | | | 30.07 | 763.7 | 68.4 | 20.2 | 65 | WNW | 13.9 | 6.2 | | 0 | 0 | | | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.89 | 759.1 | 79.7 | 26.5 | 85 | Calm | 0 | 0 | | 1cs | 3k | | | 0 | 0 | Cloudy | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.14 | 765.6 | 37.8 | 3.2 | 56 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 30.11 | 764.9 | 39.6 | 4.2 | 49 | S | | | 4 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 30.01 | 762.3 | 36.3 | 2.4 | 93 | SE | | | 2 | | 10 | | | 0.020 | 0.5 | Snowing | |
| Stockholm | | | 30.06 | 763.4 | 49.1 | 9.5 | 87 | S | | | 4 | | 9 | | | 0.067 | 1.7 | | |
| Wisby | | | 30.16 | 766.1 | 46.0 | 7.8 | 83 | NW | | | 6 | | 5 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.03 | 762.8 | 49.5 | 9.7 | 49 | S | 20.6 | 9.2 | | | 10 | | | 0.133 | 3.37 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.65 | 727.7 | 30.07 | 763.8 | 55.8 | 13.2 | 66 | NE | | | 2 | | 9 | | | 0 | 0 | Cloudy | The Observatory. |
| Zurich | 28.45 | 722.7 | 30.08 | 763.9 | 58.6 | 14.8 | 61 | W | | | 1 | | 10 | | | 0.059 | 1.5 | Raining | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +2.2 mm; Thermometer, —4.7 cent.; Relative Humidity, +10 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.98 | 761.5 | 64.2 | 17.9 | 75 | NE | 6.7 | 3.0 | | | 8 | | SW | 0.189 | 4.8 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.94 | 760.4 | 80.6 | 27.0 | | NW | | | 3 | | 10 | | | | | | |
| Salonica | | | 29.97 | 761.2 | 79.3 | 26.3 | | S | | | 3 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.05 | 763.2 | 68.5 | 20.3 | | NW | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.92 | 760.0 | 77.0 | 25.0 | | NW | | | 2 | | 0 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.85 | 758.2 | 80.8 | 27.1 | 60 | NE | | | 1 | | 2c | | | 0 | 0 | Hazy | Pro. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.85 | 758.2 | 43.2 | 6.2 | 95 | NE | 19 | 8.5 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.99 | 761.7 | 48 | 8.9 | | NE | 1 | 0.4 | | | 10s | | NE | 0.45 | 11.4 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.79 | 756.7 | 42 | 5.6 | 95 | NE | 12 | 5.4 | | | 10n | | NE | 0.75 | 19.1 | Heavy rain | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.79 | 755.4 | 43 | 6.1 | 91 | NE | 3 | 1.3 | | | 10n | | | 0.020 | 0.51 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.93 | 760.2 | 48.2 | 9.0 | 86 | E | | | 1 | | 8s | | | 0.11 | 2.8 | Clearing | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.89 | 759.2 | 44.7 | 7.1 | 109 | NE | | | 1 | | | | | 0.60 | 15.2 | Raining | H. A. Johnson. |
| *Esquimault, B. C. | | | 29.80 | 759.9 | 51.3 | 10.7 | 93 | N | | | | | 10cs | 0 | | 0.04 | 1.0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.93 | 760.2 | 41 | 5.0 | 98 | E | 5 | 2.2 | | | 5k | 5n | E | 0.14 | 3.6 | Light rain | J. McWilliams. |
| Fredericton, N. B. | | | 29.82 | 757.4 | 42.1 | 5.6 | 84 | N | 8 | 3.6 | | | | 10 | | 0.345 | 8.77 | Raining | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.24 | 768.1 | 50 | 10.0 | 86 | SE | 4 | 1.8 | | 2cs | Haze | S | S | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.18 | 766.6 | 45.3 | 7.4 | 87 | N | | | 2 | | 10n | | | 0 | 0 | Cloudy | H. J. Strang, M. A. |
| Granton, Ontario | | | 30.12 | 765.0 | 45 | 7.2 | 84 | N | | | 2 | | 1ck | 0 | E | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 29.01 | 736.8 | 29.72 | 754.9 | 44 | 6.7 | 83 | N | 6 | 2.7 | | | | 10n | N | 0.020 | 0.51 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.11 | 764.8 | 52.9 | 11.6 | 39 | W | | | 1 | | 8ck | 0 | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.70 | 754.4 | 42 | 5.6 | 83 | NW | | | 1 | | | 10 | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.04 | 763.0 | 50 | 10.0 | 79 | NE | 9 | 4.0 | | | 5k | 2ks | NE | NE | 0.02 | 0.5 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.93 | 760.2 | 51 | 10.6 | 70 | NE | 10 | 4.5 | | | 0 | 5ks | | NE | Inap. | Inap | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.11 | 764.8 | 51 | 10.6 | 72 | N | 12 | 5.4 | | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.09 | 764.3 | 49 | 9.4 | 78 | NW | 10 | 4.5 | | | 5ck | 0 | N | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.71 | 754.6 | 43.6 | 6.4 | | NW | | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 30.12 | 765.0 | 46 | 7.8 | 85 | W | 6 | 2.7 | | | 8k | 0 | N | | Inap | Inap. | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.91 | 759.7 | 49 | 9.4 | 72 | N | 5 | 2.2 | | | | 10n | | N | 0 | 0 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.06 | 763.5 | 54 | 12.2 | 64 | NW | 10 | 4.5 | | | 5k | 0 | NE | | Inap. | Inap. | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 29.78 | 756.4 | 42 | 5.6 | 91 | N | 2 | 0.9 | | | | 10 | | | 0.18 | 4.6 | Showery | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.13 | 765.3 | 44 | 6.7 | 76 | N | 5 | 2.2 | | | | 10n | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 30.08 | 764.0 | 48 | 8.9 | 80 | N | 8 | 3.6 | | | | 8n | | NW | 0 | 0 | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.82 | 732.0 | 30.12 | 765.0 | 44.3 | 6.8 | 88 | NW | 9 | 4.0 | | | 2ck | 8ks | NW | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.75 | 755.6 | 51 | 10.6 | 72 | NE | 4 | 1.8 | | | | 10ks | | NE | Inap. | Inap | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 30.09 | 764.3 | 49 | 9.4 | 78 | NW | 13 | 5.8 | | | 5ck | 2ks | N | N | 0 | 0 | Fair | Magnetic Observatory. |
| Windsor, N. S. | | | 29.70 | 754.4 | 43.2 | 6.2 | 88 | NW | 3 | 1.3 | | | | 10n | | | 0.13 | 3.3 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.09 | 764.3 | 50.0 | 10.0 | 77 | N | 11 | 4.9 | | | | 8s | | | 0 | 0 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.76 | 755.0 | 44.5 | 6.9 | 80 | NW | | | | | 10k | 10s | | | 0 | 0 | Cloudy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 303.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.90 | 759.4 | 47 | 8.3 | 76 | Calm | 0 | 0 | | 0 | 8ks | | N | 0.26 | 6.6 | Fair | |
| Alpena, Mich. | | | 30.23 | 767.8 | 46 | 7.8 | 76 | NW | 8 | 3.6 | | 5ck | 0 | NE | | Inap. | Inap. | Fair | |
| Atlantic City, N. J. | | | 29.94 | 760.5 | 55 | 12.8 | 62 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.04 | 763.0 | 60 | 15.6 | 49 | NE | 6 | 2.7 | | | 10ks | | NE | 0 | 0 | Cloudy | |
| Baltimore, Md. | | | 30.02 | 762.5 | 53 | 11.7 | 60 | NW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Barnegat, N. J. | | | 29.92 | 760.0 | 53 | 11.7 | 60 | N | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 28.37 | 720.6 | 30.00 | 762.0 | 54 | 12.2 | 61 | S | 6 | 2.7 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Boston, Mass. | | | 29.84 | 757.9 | 47 | 8.3 | 85 | N | 5 | 2.2 | | | 10s | | N | 0.54 | 13.7 | Threatening | |
| Breckenridge, Minn. | | | 30.21 | 767.3 | 56 | 10.0 | 86 | SE | 3 | 1.3 | | 2k | 0 | | | 0 | 0 | Fair | |
| Buffalo, N. Y. | | | 30.03 | 762.7 | 46 | 7.8 | 84 | N | 6 | 2.7 | | | 10s | | N | 0 | 0 | Cloudy | |
| Burlington, Vt. | | | 29.92 | 760.0 | 47 | 8.3 | 69 | N | 7 | 3.1 | | | 10n | | N | Inap. | Inap. | Light rain | |
| Cairo, Ill. | | | 30.16 | 766.1 | 55 | 12.8 | 68 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.33 | 694.2 | 29.90 | 759.4 | 39 | 3.9 | 63 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 59 | 15.0 | | Calm | | | | 2c | Haze | S | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.94 | 760.5 | 57 | 13.9 | 52 | NE | 12 | 5.4 | | 8k | 0 | W | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.02 | 762.5 | 56 | 13.3 | 69 | NW | 16 | 7.2 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.02 | 762.5 | 56 | 13.3 | 62 | N | 16 | 7.2 | | 2k | 5s | N | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.97 | 761.2 | 52 | 11.1 | 66 | NW | 20 | 8.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 29.99 | 761.7 | 65 | 18.3 | 73 | NE | 16 | 7.2 | | 0 | 2s | | E | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 24.06 | 611.1 | 30.00 | 762.0 | 48 | 8.9 | 92 | S | 4 | 1.8 | | | 10s | | S | 0.38 | 9.7 | Cloudy | |
| Chicago, Ill. | | | 30.20 | 767.1 | 48 | 8.9 | 77 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.13 | 765.3 | 51 | 10.6 | 72 | Calm | 0 | 0 | | 0 | Sm'c | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.13 | 765.3 | 49 | 9.4 | 74 | NW | 10 | 4.5 | | 2k | 8ks | NW | NW | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 30.01 | 762.2 | 66 | 18.9 | 94 | E | 6 | 2.7 | | | 10n | | | 0.99 | 25.1 | Light rain | |
| Davenport, Iowa | | | 30.25 | 768.3 | 53 | 11.7 | 66 | SE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.02 | 762.5 | 66 | 18.9 | 89 | E | 8 | 3.6 | | | 10s | | E | 0.27 | 6.9 | Cloudy | |
| Denver, Col. | 24.81 | 630.2 | 30.03 | 762.7 | 51 | 10.6 | 78 | Calm | 0 | 0 | | 5c | 0 | | | 0.03 | 0.8 | Fair | |
| Detroit, Mich. | | | 30.13 | 765.3 | 50 | 10.0 | 64 | N | 6 | 2.7 | | 10k | 0 | N | | 0 | 0 | Cloudy | |
| Dodge City, Kan. | 27.39 | 695.7 | 29.62 | 752.3 | 60 | 15.6 | 94 | SE | 24 | 10.7 | | | 10n | | SE | 1.27 | 32.3 | Light rain | |
| Dubuque, Iowa | | | 30.23 | 767.8 | 54 | 12.2 | 73 | SE | 3 | 1.3 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.29 | 769.4 | 51 | 10.6 | 72 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.77 | 756.4 | 43 | 6.1 | 84 | N | 8 | 3.6 | | | 10s | | N | 0.01 | 0.3 | Cloudy | |
| Erie, Pa. | | | 30.06 | 763.5 | 49 | 9.4 | 77 | NW | 8 | 3.6 | | 8ck | 2s | NW | | 0 | 0 | Cloudy | |
| Escanaba, Mich. | | | 30.28 | 769.1 | 46 | 7.8 | 77 | N | 13 | 5.8 | | | 10s | | N | 0 | 0 | Cloudy | |
| Florence, Arizona | | | 29.91 | 759.7 | 63 | 17.2 | | W | | | | 2cs | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 30.05 | 763.3 | 64 | 17.8 | 72 | SE | 9 | 4.0 | | 5c | 2s | | | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.68 | 728.5 | 29.92 | 760.0 | 66 | 18.9 | 78 | E | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.74 | 755.4 | 38 | 3.3 | 81 | N | | | 3 | 8ck | 0 | | SE | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.79 | 731.3 | 29.80 | 758.4 | 67 | 19.4 | 64 | SE | 4 | 1.8 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.41 | 721.6 | 30.06 | 763.5 | 54 | 12.2 | 86 | SE | 8 | 3.6 | | | 10n | | | 0.26 | 6.6 | Light rain | |
| Galveston, Tex. | | | 29.99 | 761.7 | 77 | 25.0 | 82 | NE | 8 | 3.6 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 30.13 | 766.8 | 50 | 10.0 | 71 | NE | 4 | 1.8 | | 4ck | 1s | N | N | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.98 | 761.5 | 76 | 24.4 | 81 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.18 | 766.6 | 53 | 11.7 | 66 | Calm | 0 | 0 | | 0 | Sm'c | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.89 | 759.2 | 75 | 23.9 | 76 | NE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 30.18 | 766.6 | 56 | 13.3 | 56 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.87 | 758.7 | 81.0 | 27.2 | 74 | NW | 5 | 2.2 | | 1cs | 1ks | | | 0.28 | 7.1 | Fair | |
| Kittyhawk, N. C. | | | 30.03 | 762.7 | 54 | 12.2 | 61 | N | 16 | 7.2 | | 1k | 0 | NW | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.41 | 764.8 | 50 | 10.0 | 51 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 30.21 | 767.3 | 57 | 13.9 | 69 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.14 | 765.5 | 61 | 16.1 | 55 | SE | 2 | 0.9 | | 5cs | Haze | | | 0 | 0 | Fair | |
| Louisville, Ky. | | | 30.16 | 766.1 | 52 | 11.1 | 65 | NE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.07 | 763.8 | 54 | 12.2 | 43 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 61 | 16.1 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.26 | 768.6 | 46 | 7.8 | 69 | NW | 8 | 3.6 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.13 | 765.3 | 60 | 15.6 | 61 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 30.26 | 768.6 | 48 | 8.9 | 77 | N | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.01 | 762.2 | 66 | 18.9 | 78 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.02 | 762.5 | 64.5 | 18.1 | 46 | N | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.04 | 737.6 | 30.11 | 764.8 | 48 | 8.9 | 66 | NW | 4 | 1.8 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Mt. Washington, N. H. | 23.52 | 597.4 | 29.88 | 758.9 | 22 | — 5.6 | 100 | NE | 9 | 4.0 | | | Fog | | | 0.19 | 4.8 | Foggy | |
| Nashville, Tenn. | | | 30.11 | 764.8 | 58 | 14.4 | 53 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.88 | 758.9 | 56 | 13.3 | 56 | N | 15 | 6.7 | | Haze | 0 | | | Inap. | Inap. | Clear | |
| New London, Conn. | | | 29.85 | 758.2 | 56 | 13.3 | 56 | N | 6 | 2.7 | | 1ck | 1s | NW | | 0.14 | 3.6 | Clear | |
| New Orleans, La. | | | 29.99 | 761.7 | 72 | 22.2 | 50 | NE | 10 | 4.5 | | 4ck | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.84 | 757.9 | 51 | 10.6 | 77 | NW | 8 | 3.6 | | 1c | 0 | | | 0.60 | 15.2 | Clear | |
| New York, N. Y. | | | 29.92 | 760.0 | 54 | 12.2 | 55 | NW | 9 | 4.0 | | 2ck | 0 | | | Inap. | Inap. | Clear | |
| Norfolk, Va. | | | 30.04 | 763.0 | 52 | 11.1 | 66 | N | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 27.14 | 689.3 | 29.68 | 753.9 | 54 | 12.2 | 93 | E | 10 | 4.5 | | | 10n | | E | 0.52 | 13.2 | Light rain | |
| Omaha, Neb. | 29.06 | 737.1 | 30.14 | 765.5 | 56 | 13.3 | 68 | SE | 5 | 2.2 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 29.99 | 761.7 | 48 | 8.9 | 85 | NW | 7 | 3.1 | | 5k | 0 | N | | Inap. | Inap. | Fair | |
| Pembina, Dakota | | | 30.22 | 767.6 | 52 | 11.1 | 66 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 29.97 | 761.2 | 51 | 10.6 | 59 | N | 20 | 8.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 67 | 19.4 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.84 | 453.1 | 30.05 | 763.3 | 23 | — 5.0 | 66 | NW | 22 | 9.8 | | 2c | 5k | NW | | 0.40 | 10.2 | Fair | |
| Pittsburgh, Pa. | | | 30.08 | 764.0 | 46 | 7.8 | 69 | N | 8 | 3.6 | | | 10s | | N | 0 | 0 | Cloudy | |
| Port Huron, Mich. | | | 30.15 | 765.8 | 45 | 7.2 | 84 | N | 13 | 5.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Portland, Me. | | | 29.83 | 757.7 | 46 | 7.8 | 85 | N | 12 | 5.4 | | 8k | 2ks | N | | 0.20 | 5.1 | Cloudy | |
| Portland, Oregon | | | 29.87 | 758.7 | 53 | 11.7 | 86 | S | 3 | 1.3 | | 0 | 5s | | | 0 | 0 | Fair | |
| Prescott, Arizona | 24.79 | 629.6 | 30.15 | 765.8 | 42 | 5.6 | 60 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.89 | 759.2 | 79 | 26.1 | 78 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.00 | 762.0 | 47 | 8.3 | 85 | NW | 8 | 3.6 | | 10k | 0 | NW | | Inap. | Inap. | Cloudy | |
| Salt Lake City, Utah | 25.58 | 649.7 | 29.91 | 759.7 | 53 | 11.7 | 42 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.93 | 760.2 | 52 | 11.1 | 72 | NW | 12 | 5.4 | | 0 | 2ks | | NW | 0.02 | 0.5 | Fair | |
| San Antonio, Tex. | | | 29.86 | 758.4 | 68 | 20.0 | 79 | Calm | 0 | 0 | | 0 | 8ks | | N | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.96 | 761.0 | 59 | 15.6 | 76 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.96 | 761.0 | 50 | 10.0 | 93 | SW | 16 | 7.2 | | 0 | Haze | | SW | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.29 | 591.6 | 29.83 | 757.7 | 46.5 | 8.1 | 68 | E | 2 | 0.9 | | Haz | 0 | | | 0.07 | 1.8 | Clear | |
| Savannah, Ga. | | | 29.94 | 760.5 | 72 | 22.2 | 71 | NE | 10 | 4.5 | | Haz | 5ks | | SW | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.12 | 765.0 | 69 | 20.6 | 47 | E | 8 | 3.6 | | 5cs | 0 | E | | 0 | 0 | Fair | |
| Smithville, N. C. | | | 30.05 | 763.3 | 54 | 12.2 | 49 | N | 12 | 5.4 | | | 10ks | | | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 29.88 | 758.9 | 52 | 11.1 | 63 | N | 5 | 2.2 | | 10ck | 0 | N | | 0.28 | 7.1 | Cloudy | |
| St. Louis, Mo. | | | 30.20 | 767.1 | 50 | 10.0 | 65 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 29.90 | 759.4 | 69 | 20.6 | 48 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.19 | 766.8 | 57 | 13.9 | 52 | NE | 1 | 0.4 | | 5c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 54 | 12.2 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex. | 27.09 | 685.8 | 30.00 | 762.0 | 60 | 15.6 | 87 | Calm | 0 | 0 | | | 10s | | NW | 0.54 | 13.7 | Cloudy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 29.82 | 757.4 | 47 | 8.3 | 77 | N | 16 | 7.2 | | 10k | 0 | N | | 0.16 | 4.1 | Cloudy | |
| Toledo, Ohio | | | 30.15 | 765.8 | 51 | 10.6 | 72 | NE | 15 | 2.2 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Tucson, Arizona | 27.48 | 698.0 | 30.02 | 762.5 | 60 | 15.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.91 | 759.7 | 72 | 22.2 | 67 | E | 20 | 8.9 | | 0 | 5ks | | SE | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.29 | 764.3 | 65 | 18.3 | 48 | NE | 8 | 3.6 | | 2k | 2s | | NE | 0 | 0 | Fair | |
| Virginia City, M. T | 24.23 | 615.4 | 29.71 | 754.6 | 44 | 6.7 | 59 | Calm | 0 | 0 | | 5e | 0 | SW | | 0 | 0 | Fair | |
| Washington, D. C | | | 30.04 | 763.0 | 51 | 10.6 | 59 | NW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 64 | 17.8 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.05 | 763.3 | 53 | 11.7 | 48 | NE | 9 | 4.0 | | 10cs | 0 | SW | | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 29.85 | 758.2 | 53 | 11.7 | 72 | NW | 8 | 3.6 | | 0 | 5s | | NW | 1.21 | 30.7 | Fair | |
| Yankton, Dakota | 28.90 | 734.0 | 30.20 | 767.1 | 53 | 11.7 | 73 | NE | 6 | 2.7 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Yuma, Arizona | | | | | | | | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.11 | 764.8 | 83 | 28.3 | 87 | Calm | 0 | 0 | | 8ck | 5s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 79 | 26.1 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.02 | 762.5 | 82 | 27.8 | 87 | E | | | 3 | 8ks | 8n | E | | 0.060 | 1.5 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | 30.07 | 763.7 | | | 80.6 | 27.0 | | SE | | | | | | | | 0.971 | 24.7 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.19 | 639.8 | | | 68.5 | 20.3 | 80 | E | | | 2 | 1c | 0 | | | 0.06 | 1.5 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.06 | 763.5 | 45.6 | 7.6 | 80 | S | 9 | 4.0 | | 2c | 0 | W | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.12 | 765.0 | 73 | 22.8 | | NE | | | 5 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,130.7 ft., or 4,03.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,392.2 ft., or 1,326.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.91 in.; Denver, 5.22 in.; Florence, 1.69 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.60 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.98 | 761.5 | 66 | 18.9 | 51 | 10.6 | 59 | N | | | 3 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.03 | 762.7 | 56 | 13.3 | 52 | 11.1 | | WSW | | | 3 | | 2 | | NE | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va. | 30.14 | 765.5 | 55 | 12.8 | 55 | 12.8 | 93 | NW | 5 | 2.2 | | | 2cs | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.08 | 764.0 | | | 69 | 20.6 | 52 | NNE | 12 | 5.4 | | | | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 29.87 | 758.7 | 59 | 15.0 | 50 | 10.0 | 64 | NNE | 3 | 1.3 | | | 10 | | SW | 0.1 | 3. | | | Rainy | |
| Naval Hospital, Yokohama, Japan | 29.81 | 757.2 | 64 | 17.8 | 57 | 13.9 | 84 | E | | | 5 | | 2c,k | | E | 0 | 0 | | | Fair | |
| Adams, S. 13° 54′ W. 32° 46′ | 30.12 | 765.0 | 81 | 27.2 | 82 | 27.8 | 87 | ESE | | | 1 | | 5 | | E | 0 | 0 | Smooth | | D. clouds | |
| Alert, N. 27° 03′ 38″ E. 141° 49′ 30″ | 29.87† | 758.7† | 72 | 22.2 | 72 | 22.2 | 100 | N | | | 4 | | 9 | | N | | | Long | N | D. clouds | |
| Alliance, Beirut, Syria | 29.98 | 761.5 | 78 | 25.6 | 77 | 25.0 | 69 | NNW | | | 1 | | 4 | | | | | Smooth | | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.90 | 759.4 | 76 | 24.4 | 75 | 23.9 | 81 | E | | | 3 | | 6 | N&W | E | | | Smooth | | Hazy | |
| Canonicus, New Orleans, La | 29.99 | 761.7 | 51 | 10.6 | 70 | 21.1 | 61 | ENE | | | 2 | | 3 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.00 | 762.0 | 69 | 20.6 | 54 | 12.2 | 93 | N | 2 | 0.9 | | | 6 | | | 0 | 0 | | | D. clouds | |
| Despatch, Gibraltar | 30.15 | 765.8 | 68 | 20.0 | 69 | 20.6 | 90 | SW | | | 3 | | 0 | | | | | Smooth | | Clear | |
| Frolic, Rio de Janeiro, Brazil | 30.32 | 770.1 | 63 | 17.2 | 60 | 15.6 | 94 | NW | | | 2 | | 2k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.87 | 758.7 | | | 72 | 22.2 | 95 | SE | | | 1 | | 2 | | N | 0 | 0 | | | D. clouds | |
| Huron, N. 11° 39′ W. 69° 46′ | 30.02 | 762.5 | 80 | 26.7 | 79 | 26.1 | 82 | ENE | | | 3–4 | | 3 | | E | | | | | D. clouds | |
| Kearsarge, Kagosima, Japan | 30.02 | 762.5 | 76 | 24.4 | 72 | 22.2 | 90 | Calm | | | 0 | | 4 | | E | 0 | 0 | | | Hazy | |
| Lackawana, Mazatlan, Mexico | 29.86 | 758.4 | | | 75 | 23.9 | 86 | ENE | | | 0–1 | | 5 | | WSW | | | Gentle | W | D. clouds | |
| Marion, Smyrna, Turkey | 29.93 | 760.2 | 72 | 22.2 | 72 | 22.2 | 62 | WSW | | | 3 | | 7 | | ENE | 0 | 0 | Chop'd | WSW | D. clouds | |
| Michigan, Erie, Pa | 29.55 | 750.6 | 49 | 9.4 | 49 | 9.4 | 78 | NNW | | | 2 | | 5 | | NNW | | | | | Partly cl'dy | |
| Monocacy, N. 37° 36′ E. 122° 08′ | 29.75 | 755.6 | 62 | 16.7 | 62 | 16.7 | 88 | SW | | | 3 | | 0 | | | 0 | 0 | Smooth | | Blue sky | |
| Monongahela, Norfolk, Va | 30.05 | 763.3 | 53 | 11.7 | 53 | 11.7 | | N | | | 2–3 | | k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.18 | 766.6 | | | 71 | 21.7 | 80 | NE | 19 | 8.5 | | | 6 | | | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 30.00 | 762.0 | 74 | 23.3 | 74 | 23.3 | 76 | SE | 5 | 2.2 | | | 8 | | NW | 0 | 0 | Slight | SE | Cloudy | |
| Ossipee, Port Royal, S. C | 29.95 | 760.7 | 68 | 20.0 | 67 | 19.4 | 74 | NE | | | 4 | | 5 | | | | | | | D. clouds | |
| Palos, Shanghai, China | 30.04 | 763.0 | 70 | 21.1 | 72 | 22.2 | 85 | ENE | | | 3 | | 7 | | S&W | | | | | Clear | |
| Plymouth, N 28° 50′ W. 88° 26′ | 30.01 | 762.2 | 79 | 26.1 | 76 | 24.4 | 64 | NNE | | | 3 | | 7 | | | 0 | 0 | Smooth | N | Hazy | |
| Ranger, Gibraltar Bay | 30.22 | 767.6 | | | 70 | 21.1 | 85 | Calm | | | 0 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.38 | 771.6 | 61.5 | 16.1 | 60.0 | 15.6 | 88 | NNE | | | 4 | | 0 | | | 0 | 0 | | | Blue sky | |
| Rio Bravo, Matamoras, Mexico | 29.83 | 757.7 | | | 67 | 19.4 | 95 | SE | | | 1 | | 2 | | E | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.06 | 763.5 | 56 | 13.3 | 53 | 11.7 | 61 | NW | | | 5 | | 1 | | N | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 29.90 | 759.4 | 56 | 13.3 | 53 | 11.7 | 73 | NW | 11 | 4.9 | | | 0 | | | 0 | 0 | | | Clear | |
| Swatara, San Andres, U. S. C | 29.98 | 761.5 | 80 | 26.7 | 81 | 27.2 | 100 | ENE | | | 1 | | 5ck | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.80 | 756.9 | 69 | 20.6 | 63 | 17.2 | 78 | ESE | | | 3 | | 5 | | ESE | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.88† | 758.9† | 75 | 23.9 | 75 | 23.9 | 90 | SW | 8.1 | 3.6 | | | 4 | | | 1.7 | 43. | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.02 | 762.5 | 67 | 19.4 | 66 | 18.9 | 94 | N | | | 1 | | 5 | | NNW | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.83 | 757.7 | 51 | 10.6 | 50 | 10.0 | 79 | N | 8 | 3.6 | | | 9 | | N | 0.49 | 12.4 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.39† | 771.9† | 54 | 12.2 | 53 | 11.7 | | NNW | | | 3 | | 10 | | | | | | | Foggy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 38° 03′ E. 146° 20′ | | | 29.85 | 758.2 | 51 | 10.6 | 100 | NE | | | 4 | | 8es | | | Moderate,l'ng | NE | Misty | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 41° 45′ W. 58° 30′ | W ¼S | 9.5 | 29.64 | 752.8 | 51.1 | 10.6 | | NNW | | | 3 | | k | | NE | Tranq'l | | Overcast | Capt. C. Pohle. |
| S. S. Braunschweig, N. 49° 52′ W. 5° 24′ | | | 30.28 | 769.1 | 50 | 10.0 | | NNW | | | 3 | | Haze | | | Smooth | | Blue sky | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 47° 30′ W. 31° 33′ | NE | | 29.79 | 756.7 | 59.0 | 15.0 | | ESE | | | 6 | | ck | | SE | Moderate | | D. clouds | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 29.83 | 757.7 | 77 | 25.0 | 82 | Calm | 0 | 0 | | 0 | 0 | | | | | Clear | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 26, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.07 | 763.6 | 71.2 | 21.8 | 72 | NW | | | 3 | | 1 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.15 | 765.7 | 64.0 | 17.8 | 83 | N | | | 2 | | 4 | | | 0.177 | 4.5 | Fair | Peter. |
| La Calle | | | 30.09 | 764.3 | 71.6 | 22.0 | 76 | NNW | | | 2 | | 7 | | | 0.039 | 1.0 | Cloudy | Fleury. |
| Tunis | | | 30.10 | 764.5 | 73.4 | 23.0 | | SE | | | 3 | | 7 | | | 0.079 | 2.0 | Cloudy | Jacques. |
| Sfax | | | 30.06 | 763.4 | 73.4 | 23.0 | | W | | | 3 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.05 | 763.3 | 75.0 | 23.9 | | NNE | | | 3 | | 2 | | | Inap. | Inap. | Clear | Millot. |
| Tebessa | | | 30.07 | 763.6 | 63.0 | 17.2 | | N | | | 2 | | 6 | | | 1.378 | 35.0 | Fair | Bourgeois. |
| Geriville | | | 30.06 | 763.5 | 84.9 | 29.4 | | NW | | | 1 | | 1 | | | 0 | 0 | Clear | Lemaillot. |
| Laghount | | | 30.02 | 762.5 | 81.5 | 27.5 | 20 | NE | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.05 | 763.3 | 89.8 | 32.1 | 31 | NW | | | 3 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.00 | 762.1 | 64.9 | 18.3 | 42 | NE | | | 2 | | 2 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.04 | 762.9 | 55.8 | 13.2 | 37 | W | | | 2 | | 7 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.96 | 760.9 | 59.0 | 15.0 | 44 | N | | | 1 | | 5cks | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.81 | 731.8 | 30.07 | 763.6 | 57.0 | 13.9 | 66 | SSW | | | 2 | | 9 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.48 | 723.3 | 29.90 | 759.4 | 53.6 | 12.0 | 84 | N | | | 2 | | 9 | | | 0.252 | 6.40 | | Prof. Reissenberger. |
| Kremsmünster | 28.70 | 729.0 | 30.05 | 763.2 | 52.2 | 11.2 | 68 | SSE | | | 3 | | 8 | | | 0.055 | 1.4 | | Prof. C. Wagner. |
| Lemberg | | | 29.95 | 760.7 | 55.2 | 12.9 | 59 | SE | | | 1 | | 6 | | | 0.075 | 1.9 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 30.02 | 762.4 | 66.0 | 18.9 | 55 | WNW | | | 2 | | 1k | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.96 | 761.0 | 62.2 | 16.8 | 72 | NE | | | 3 | | 8 | | | 0.297 | 7.55 | | Karl Stancel. |
| Trieste | | | 30.04 | 762.9 | 66.0 | 18.9 | 57 | W | | | 1 | | 3 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.04 | 762.9 | 59.9 | 15.5 | 52 | NW | | | 1 | | 2 | | | Inap. | Inap. | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.69 | 728.7 | 30.13 | 765.4 | 58.8 | 14.9 | | W | | | 1 | | 9 | | | 0.039 | 1.0 | | Royal Observatory |
| Brussels | | | 30.17 | 766.3 | 61.0 | 16.1 | 49 | W | | | 1 | | 8k | | NW | 0 | 0 | | |
| Furnes | | | 30.17 | 766.3 | 56.5 | 13.6 | 60 | W | | | 2 | | 8 | | | 0 | 0 | | |
| Maseyck | | | 30.06 | 763.5 | 58.5 | 14.7 | 62 | W | | | 8 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Clouds. Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.98 | 761.5 | 53.0 | 11.7 | | S | 15 | 6.7 | | | 8 | | | 0.265 | 6.73 | Overcast | William Boswell. |
| Ardrossan | | | 30.03 | 762.7 | 54 | 12.2 | | W | | | 3 | | 6 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.06 | 763.5 | 58.0 | 14.4 | | SW | 8 | 3.6 | | | 9 | | | | | Overcast | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.13 | 765.3 | 60.1 | 15.6 | | WNW | 8 | 3.6 | | | 2 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.08 | 764.0 | 61.3 | 16.3 | | SW | | | 1 | | 7 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.13 | 765.3 | 59.2 | 15.1 | | W | | | 2 | | 4 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.98 | 761.5 | 83.8 | 28.8 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.14 | 765.5 | 60.0 | 15.6 | | N | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 30.16 | 766.1 | 61.4 | 16.3 | | NW | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.17 | 766.3 | 60.2 | 15.7 | | Calm | | | 0 | | 8 | | | | | Blue sky | Capt. Fellowes, R. E. |
| Dartmoor | 29.74 | 730.0 | 30.22 | 767.6 | 52.4 | 11.3 | | SW | | | 3 | | 8 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.04 | 763.0 | 60 | 15.6 | | SSW | | | 3 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.18 | 766.6 | 58 | 14.4 | | WSW | | | 3 | | 7 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.10 | 764.5 | 61.7 | 16.5 | | WNW | 3.8 | 1.7 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.21 | 767.3 | 60.2 | 15.7 | | SW | | | 2 | | 1 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.47 | 697.7 | 29.71 | 754.6 | 63.7 | 17.6 | | S | | | 2 | | 1 | | | | | D clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.01 | 762.2 | 82 | 27.8 | | NE | | | 0 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.02 | 762.5 | 56 | 13.3 | | W | | | 2 | | 3 | | | | | D. clouds | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.08 | 764.0 | 68.3 | 20.2 | | NE | | | 3 | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.00 | 762.0 | 53.8 | 12.1 | | WSW | | | 3 | | 10 | | | | | Gloomy | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 30.15 | 765.8 | 55 | 12.8 | | E | | | 1 | | 3 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.16 | 766.1 | 64.2 | 17.9 | | SW | | | 1 | | 7 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.21 | 767.3 | 58.5 | 14.7 | | NW | | | 1 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 29.29 | 769.4 | 59 | 15.0 | | SW | | | 4 | | 1c | | | 0 | 0 | D. clouds | M. P. Moyle. |
| Holyhead | | | 30.11 | 764.8 | 59 | 15.0 | | SW | | | 4 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.15 | 765.8 | 61.7 | 16.5 | | W | 6 | 2.7 | | | 8 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.11 | 764.8 | 58 | 14.4 | | SE | | | 3 | | 6 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.13 | 765.3 | 60.0 | 15.6 | | W | | | 1 | | 8 | | | | | D. clouds | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 29.99 | 761.7 | 68.6 | 20.3 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.96 | 761.0 | 53 | 11.7 | | W | | | 1 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.92 | 760.0 | 80.2 | 26.8 | | N | | | 1 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.13 | 765.3 | 65.1 | 18.4 | | WNW | | | 1 | | 7c,k | | W | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.13 | 765.3 | 57.2 | 14.0 | | WSW | | | 2 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.15 | 765.8 | 60 | 15.6 | | W | | | 1 | | 10 | | | | | Overcast | J. W. Lucas. |
| Plymouth | | | 29.20 | 767.1 | 62.0 | 16.7 | | SSW | | | 2 | | 6 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.16 | 766.1 | 58 | 14.4 | | SSW | | | 3 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.18 | 766.6 | 59 | 15.0 | | Calm | | | 0 | | 1 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.21 | 767.3 | 58.2 | 14.6 | | W | | | 3 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.92 | 760.0 | 49.8 | 9.9 | | WSW | 22 | 9.8 | | | 6 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.85 | 758.2 | 70.4 | 21.3 | | NE | | | 1 | | 5 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.14 | 765.5 | 58.4 | 14.7 | | NW | | | 1 | | 5 | | | 0 | 0 | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 30.18 | 766.6 | 63.6 | 17.6 | 56 | W | | | 2 | | 2 | | | 0.320 | 8.1? | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 30.10 | 764.5 | 55.0 | 12.8 | | | | | | | 7 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.87 | 758.7 | 53 | 11.7 | | SW | | | 2 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 30.17 | 766.3 | 63.5 | 17.5 | | NE | | | 1 | | 4 | | | | | D. clouds | Rev. Charles H. Griffith. |
| Thurso | | | 29.91 | 759.7 | 52 | 11.1 | | WNW | | | 3 | | 8 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 30.22 | 767.6 | 64 | 17.8 | | W | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.11 | 764.8 | 57.2 | 14.0 | | S | 27 | 12.1 | | | 8 | | | | | D. clouds | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 52 | 11.1 | | SW | | | 3 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.15 | 765.8 | 60.7 | 15.9 | 78 | NW | 11 | 4.9 | | 9 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.61 | 752.8 | 52.0 | 11.1 | 84 | SW | | | 2 | | 8ks | | | 0 | 0 | | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.04 | 763.0 | 56.2 | 13.4 | | W | | | 3 | | 10k | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.21 | 767.3 | 74.2 | 23.4 | 64 | E | 18.9 | 8.4 | | 3 | 4 | | E | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.91 | 759.7 | 49.2 | 9.6 | 97 | W | 6 | 2.7 | | | 10 | | | 0.07 | 1.8 | Raining | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.90 | 759.4 | 51 | 10.6 | | S | | | 4 | | 10 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.87 | 758.7 | 41 | 5.0 | | W | | | 4 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.: Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | Corr. Inches | Millimeters | Red. Inches | Millimeters | Fahrenheit | Centigrade | Per cent | Wind From— | Miles per hour | Meters per second | Force | Clouds Up'er | Low'r | Upper From— | Lower From— | Sea or swell. Height scale 0–9 | Direction from— | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 41° 15′ W. 57° 0′ | | | 29.87 | 758.7 | 51.0 | 10.6 | | WNW | | | 3 | | 3 | | | 10* | W | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 25° 0′ W. 84° 50′ | | | 29.89 | 759.2 | 80.0 | 26.7 | | NNE | | | 3 | | | | | 2 | S | Blue sky | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Approximated height of waves in feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 72.5 | 22.5 | 79 | E | | | 1 | | 3cs | | E | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.97 | 761.1 | 51.8 | 11.0 | 53 | NW | | | 2 | | 5 | | | | | | |
| Fanöe | | | 30.00 | 761.9 | 50.5 | 10.3 | 83 | W | | | 4 | | 9 | | | | | | |
| Godthaab, (Greenland) | | | 30.03 | 762.8 | 35.2 | 1.8 | 95 | S | | | 4 | | 10 | | | | | Snowing | |
| Stykkisholm, (Iceland) | | | 30.01 | 762.2 | 36.9 | 2.7 | 65 | NE | | | 6 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.88 | 759.0 | 42.4 | 5.8 | 79 | ENE | | | 2 | | 10 | | | | | | |
| Vestervig | | | 29.95 | 760.8 | 49.6 | 9.8 | 71 | WNW | | | 6 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.25 | 768.4 | 55.4 | 13 | 67 | SW | | | 1 | | 5ck | | SW | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 30.17 | 766.3 | 63.0 | 17.2 | | N | | | 2 | | 8 | | N | 0 | 0 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 30.07 | 763.7 | 73.0 | 22.8 | 35 | NNW | | | 3 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| †Bar-sur-Seine | | | | | | | | | | | | | | | | 0 | 0 | | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.21 | 767.2 | 63.1 | 17.3 | 53 | S | | | 1 | | 8 | | WNW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.24 | 768.1 | 64.8 | 18.2 | 40 | E | | | 3 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 30.22 | 767.5 | 64.4 | 19.1 | 57 | N | | | 6 | | 2k | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges | | | 30.22 | 767.5 | 62.6 | 17.0 | 66 | N | | | 4 | | 10 | | SE | 0 | 0 | Covered | Normal School. |
| Brest | | | 30.15 | 765.7 | 61.3 | 16.3 | 50 | NNE | | | 2 | | 4k | | NE | 0 | 0 | | Naval Observatory. |
| Carcassonne | | | 30.18 | 766.6 | 70.2 | 21.2 | 87 | W | | | 4 | | 2 | | E | 0.161 | 4.1 | Slightly cl'dy | Normal School. |
| Caen | | | 30.22 | 767.6 | 58.6 | 14.8 | 61 | NE | | | 4 | | | | N | 0 | 0 | | Normal School. |
| Chartres | | | 30.16 | 766.1 | 64.9 | 17.2 | 92 | E | | | 1 | | 8 | | NW | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 30.18 | 766.6 | 63.5 | 17.5 | 41 | NNW | | | 1 | | 2k | | SSE | 0 | 0 | Slightly cl'dy | Normal School. |
| Clermont-Ferrand | | | 30.11 | 764.8 | 65.7 | 18.7 | 35 | N | | | 1 | | 2 | | N | 0 | 0 | Slightly cl'dy | Puy de Dome Obs'y. |
| Commercy | | | 30.15 | 765.8 | 59.7 | 15.4 | 38 | W | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Commune de Gréasque* | | | 30.10 | 764.4 | 69.8 | 21.0 | 43 | W | | | 2 | | 8 | | W | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.10 | 764.5 | 65.5 | 18.6 | 54 | NE | | | 4 | | 2k | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon | | | 30.19 | 766.8 | 69.1 | 20.6 | 43 | SE | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Le Mans | | | 30.20 | 767.1 | 63.0 | 17.2 | 59 | NW | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 30.14 | 765.5 | 63.3 | 17.4 | 34 | NE | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 30.24 | 768.9 | 59.7 | 15.4 | 68 | SW | | | 2 | | 5 | | NE | 0 | 0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.24 | 768.2 | 63.1 | 17.3 | 70 | N | | | 4 | | 5 | | SE | 0 | 0 | Cloudy | Mr. Marchal. |
| Metz | | | 30.24 | 768.1 | 54.0 | 15.0 | 42 | NNW | | | 2 | | 8k | | NNW | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 30.15 | 765.7 | 60.8 | 16 | 58 | N | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Nîmes | | | 30.07 | 763.6 | 73.4 | 23 | 42 | N | | | 6 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Orleans | | | 30.18 | 766.5 | 63.7 | 17.6 | 94 | N | | | 1 | | 2 | | NNW | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.20 | 767.0 | 60.8 | 16.0 | 54 | WSW | | | 1 | | 10k | | W | 0 | 0 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.19 | 766.9 | 62.2 | 16.8 | 83 | N | | | 2 | | 2 | | S | 0 | 0 | ¼ covered | Naval Observatory. |
| Rouen | | | 30.20 | 767.3 | 60.6 | 15.9 | 54 | NNW | | | 2 | | 10 | | S | 0 | 0 | Covered | Normal School. |
| Tarbes | | | 30.17 | 766.4 | 68.7 | 20.4 | 46 | W | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Villefranche | 29.10 | 739.2 | 30.14 | 765.8 | 67.6 | 19.8 | 80 | NE | | | 3 | | 5 | | N | 0 | 0 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.95 | 760.7 | 83.1 | 28.4 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.03 | 762.7 | 72.3 | 22.4 | 36 | SW | | | 1 | | 2 | | | 0 | 0 | Partly cl'dy | The Staff. |
| Mont-Louis | 24.97 | 634.1 | 30.28 | 769.1 | 50.9 | 10.5 | 63 | NNW | 9.3 | 4.17 | | | 4 | | NNW | 0.346 | 8.8 | | Mr. Falguère. |
| Montsouris, Paris | | | 30.19 | 766.9 | 59.4 | 15.2 | 53 | Calm | | | 0 | | 10 | | WNW | 0 | 0 | | Montsouris Observatory |
| Perpignan | | | 30.12 | 765.1 | 70.2 | 21.2 | 46 | NE | 16.8 | 7.50 | | | 1 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | | | | | | | | | | | | | | | | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | | | | | | | | | | | | | | | | | | | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | 22.60 | 574.1 | | | 44.1 | 6.7 | | SW | | | 2 | | 7 | | | 0.094 | 2.4 | Fair | E. Renou. |
| Toulouse, Observatory | | | 30.18 | 766.5 | 62.2 | 16.8 | 50 | NW | | | 1 | | 10 | | | 0 | 0 | Covered | The Staff |
| Tours | | | 30.22 | 767.6 | 61.8 | 18.2 | 76 | NNW | | | 2 | | 5 | | | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.18 | 766.5 | 68.0 | 20.0 | 42 | SW | | | 1 | | 7 | | W | 0 | 0 | | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.24 | 767.2 | 63.3 | 17.4 | 57 | SE | | | 1 | | 9 | | | 0 | 0 | Lightly cov. | Marc Dechevrens, S. J |
| | | | 29.94 | 760.4 | 64.8 | 18.2 | 90 | ESE | 11.4 | 5.1 | | | 6k | | | 0 | 0 | Cloudy | |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometer observations for altitude, the constant 133. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône. † Observation not simultaneous.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.12 | 765.0 | 59.0 | 15.0 | 58 | NW | | | 5 | | 6 | NW | | 0.063 | 1.6 | | Prof. T. Hoh. |
| Berlin | | | 30.06 | 763.4 | 59.7 | 15.4 | 48 | NW | | | 1 | | 8 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.08 | 763.9 | 58.6 | 14.8 | 41 | SE | | | 1 | | 6 | W | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.13 | 765.2 | 62.2 | 16.8 | 46 | NW | | | 1 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.20 | 767.1 | 57.0 | 13.9 | 52 | NW | | | 8 | | 8 | NW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.13 | 765.4 | 61.7 | 16.5 | 48 | W | | | 3 | | 8 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.21 | 767.2 | 59.0 | 15.0 | 49 | N | | | 1 | | 2 | | | 0.043 | 1.1 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.17 | 766.3 | 61.2 | 16.2 | 40 | N | | | 2 | | 6 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.98? | 736.1? | 30.13? | 765.4? | 61.0 | 16.1 | 60 | SSW | | | 3 | | 8 | WSW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.09 | 764.3 | 54.7 | 12.6 | 53 | NW | | | 4 | | 5k | NW | | 0.008 | 0.2 | Fair | Captain F. Hegemann. |
| Kiel | | | 30.06 | 763.5 | 51.8 | 11.0 | 87 | WNW | | | 3 | | 10 | | | 0.012 | 0.3 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.00 | 761.9 | 57.2 | 14.0 | 33 | W | | | 2 | | 4 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | 30.03 | 762.7 | 51.4 | 10.8 | | SW | | | 2 | | 4 | | | 0.181 | 4.6 | | H. Müller. |
| Leipsic | | | 30.13 | 765.4 | 53.8 | 12.1 | 66 | NW | | | 2 | | 10 | | | 0.020 | 0.5 | Rain, Dust-Haze | Prof. Bruhns. |
| Memel, Naval School | | | 30.08 | 764.1 | 50.5 | 10.4 | | SW | | | 3 | | 5cs | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 30.08 | 763.9 | 55.9 | 13.3 | 78 | W | | | | | 3 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 30.00 | 762.1 | 56.8 | 13.8 | 49 | WNW | | | 3 | | 10 | | | 0.016 | 0.4 | | A. Lothes. |
| Posen | | | 30.05 | 763.2 | 63.1 | 17.3 | 83 | W | | | 6 | | 10 | | | 0.236 | 6.0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.15 | 765.8 | 62.2 | 16.8 | 39 | E | | | 2 | | 5 | W | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.10 | 764.6 | 60.3 | 15.7 | 41 | NE | | | 0 | | 8 | W | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 30.04 | 763.0 | 61.7 | 16.5 | 39 | NW | | | 4 | | 10 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.59 | 726.2 | 30.10 | 764.4 | 54.9 | 12.7 | 61 | W | | | 1 | | 9 | W | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.12 | 765.1 | 52.5 | 11.4 | 73 | WNW | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.89 | 759.1 | 77.5 | 25.3 | | S | | | | | c | | | | | | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.22 | 564.4 | 30.01 | 762.9 | 35.1 | 1.7 | 98 | NW | | | 1 | | 10 | W | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.18 | 563.4 | 29.91 | 759.62 | 39.4 | 4.1 | | W | | | 1 | | 8 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.01 | 762.3 | 61.9 | 16.6 | 61 | W | 1.3 | 0.6 | | | 10 | | | 0.012 | 0.3 | | Ab. Dem. Morgial. |
| Padua | | | 30.00 | 762.1 | 65.5 | 18.6 | 52 | ESE | 3.1 | 1.4 | | | 6 | W | | 0.003 | 0.1 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.00 | 762.1 | 69.4 | 20.8 | 44 | SSW | 7.4 | 3.3 | | | 4 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.03 | 762.8 | 68.7 | 20.4 | 54 | E | | | 1 | | 10 | | | 0.533 | 13.5 | | Dott. S. Bertoncelli. |
| Bergamo | 28.71 | 729.3 | 30.02 | 762.5 | 66.2 | 19.0 | 51 | SSW | | | 2 | | 5 | | | 0.039 | 1.0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.92 | 760.0 | 68.2 | 20.1 | 55 | SW | | | 6 | | 6 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.03 | 762.7 | 67.3 | 19.6 | 59 | SW | | | 1 | | 7 | E | | 0.225 | 5.7 | | Ab. Gio. Capelli. |
| Pavia | | | 30.01 | 762.4 | 68.5 | 20.3 | 43 | SE | | | 2 | | 2 | SW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Monzelleri | | | 30.02 | 762.6 | 66.4 | 19.1 | 59 | SSE | 3.8 | 1.7 | | | 5 | NW | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.14 | 714.8 | 30.02 | 762.4 | 62.2 | 16.8 | 50 | NE | | | 4 | | 1 | | | 0.008 | 0.2 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.09 | 761.2 | 64.0 | 17.8 | 67 | E | | | 2 | | 6 | | | 0.016 | 0.4 | | Prof. L. Vassallo. |
| Genoa | | | 30.04 | 763.0 | 66.7 | 19.3 | 59 | SW | 5.6 | 2.5 | | | 2 | NE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.02 | 762.6 | 67.3 | 19.6 | 49 | E | 3.1 | 1.4 | | | 3 | E | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.01 | 762.3 | 70.2 | 21.2 | 49 | SE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.01 | 762.3 | 71.1 | 21.7 | 33 | NE | | | 2 | | 1 | | | 0 | 0 | | Cav. F. Menoci. |
| Leghorn | | | 29.99 | 761.8 | 66.0 | 18.9 | 59 | WNW | 10.5 | 4.7 | | | 5 | ENE | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.79 | 731.3 | 29.98 | 761.5 | 68.6 | 20.0 | 41 | SE | 1.3 | 0.6 | | | 7 | E | | 0.094 | 2.3 | | Prof. L. Toscani. |
| Urbino | 28.53 | 723.9 | 30.03 | 762.8 | 58.5 | 14.7 | 56 | NE | | | 2 | | 3 | | | 0.09 | 2.3 | | Prof. P. Serpieri. |
| Pesaro | | | 30.05 | 763.3 | 62.4 | 16.9 | 60 | NE | 19.2 | 8.6 | | | 0 | | | 0.157 | 4.0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.03 | 762.8 | 66.2 | 19.0 | 46 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.02 | 762.4 | 71.6 | 22.0 | 52 | ENE | | | 4 | | 7 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.02 | 762.4 | 71.4 | 21.9 | 49 | SW | 6.3 | 2.8 | | | 8 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.03 | 762.8 | 68.7 | 20.4 | 59 | W | | | 1 | | 9 | SW | | 0.020 | 0.5 | | Prof. L. Palmieri. |
| Lecce | | | 30.00 | 761.9 | 68.0 | 20.0 | 53 | N | 9.8 | 4.4 | | | 6 | | | 0 | 0 | | Prof. C. DeFiorgi. |
| Cosenza | | | 29.95 | 760.8 | 79.5 | 26.4 | 61 | N | 5.6 | 2.5 | | | 6 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.98 | 761.5 | 70.2 | 21.2 | 60 | W | | | 4 | | 7 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Ritosto, (Sicily) | | | 29.97 | 761.1 | 67.6 | 19.8 | 74 | NE | | | 2 | | 10 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | | | | | | | | | | | | | | | | | Prof. G. Cacciatore. |
| Caltanissetta | 28.03 | 712.0 | 29.94 | 760.4 | 70.2 | 21.2 | 38 | N | | | 2 | | 10 | NW | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.93 | 760.2 | 68.7 | 20.4 | 66 | E | | | 4 | | 10 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.05 | 763.2 | 62.4 | 16.9 | 73 | WNW | 0.7 | 0.3 | | | 10 | NE | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.4 ft.; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.03 | 762.7 | 62 | 16.7 | 80 | ESE | 4 | 1.8 | | | 10s | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.13 | 587.5 | 30.14 | 765.6 | 60.8 | 16.0 | 73 | S | 1.8 | 0.82 | | 10ck | 10ck | | | 0 | 0 | Cloudy | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.19 | 766.8 | 58.5 | 14.7 | | WNW | | | 3 | | | | | 0 | 0 | | |
| Groningen | | | 30.06 | 763.5 | 57.9 | 14.4 | | NW | | | 2 | | | | | 0.012 | 0.3 | | |
| Helder | | | 30.12 | 765.0 | 56.1 | 13.4 | | SW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.10 | 764.6 | 62.8 | 17.1 | 20 | WNW | | | 2 | | 5 | | | 0 | 0 | Cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.94 | 760.5 | 45.0 | 7.2 | 64 | W | 12.8 | 5.7 | | | 3 | | | 0.858 | 21.8 | | |
| Brönö | | | 29.81 | 757.2 | 42.4 | 5.8 | 85 | NE | 9 | 4 | | | 10 | | | Inap. | Inap. | Light rain | |
| Christiania | | | 29.77 | 756.2 | 52.2 | 11.2 | 52 | WNW | 4 | 2 | | | 4 | | | 0 | 0 | | |
| Tromsö | | | 29.83 | 757.7 | 46.0 | 7.8 | 48 | NE | 4 | 2 | | | 1 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.24 | 768.0 | 67.6 | 19.8 | 88 | SW | 4.3 | 1.9 | | | 7 | NE | SW | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.03 | 762.7 | 76.1 | 24.5 | 38 | ENE | 4.9 | 2.2 | | | 5 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.24 | 768.0 | 68.4 | 20.2 | 58 | SW | 1.3 | 0.6 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.07 | 763.8 | 73.2 | 22.9 | 42 | ENE | 9.8 | 4.4 | | | 3 | | W | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.28 | 769.0 | 71.6 | 22.0 | 77 | SSE | 2.5 | 1.1 | | | 3 | | | 0.055 | 1.4 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Comdt. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Corrected for instrum'tal error and temperature. Inches. | Corrected for instrum'tal error and temperature. Millimeters. | Reduced to sea-level. Inches. | Reduced to sea-level. Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Direction. From— | Miles per hour. | Meters per second. | Force. 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.02 | 762.5 | 55.4 | 13.0 | 54 | ENE | 4 | 2 | | | 8 | | | | | Raining | Astronomical Obs. |
| Wilna | | | 30.09 | 764.2 | 51.1 | 10.6 | 37 | S | 2 | 1 | | | 2 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.04 | 763.0 | 48.0 | 8.9 | 39 | NE | 7 | 3 | | | 1 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.07 | 763.6 | 43.3 | 6.3 | 42 | WSW | 7 | 3 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.94 | 760.5 | 44.6 | 7.0 | 62 | S | 22 | 10 | | | 2 | | | | | | Ch. Forsten. |
| Kieff | | | 29.97 | 761.3 | 49.3 | 9.6 | 55 | NNE | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.01 | 762.2 | 56.8 | 13.8 | 59 | NE | 13 | 6 | | | 10 | | | | | | Kurdukof. |
| Kertch | | | 30.05 | 763.2 | 63.7 | 17.6 | 61 | SSE | 4 | 2 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.06 | 763.5 | 43.5 | 6.4 | 37 | NW | 9 | 4 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 29.93 | 730.2 | 58.5 | 14.7 | 43 | W | | | | | 7 | | | | | | Meteorological Obs. |
| Archangel | | | 29.98 | 761.4 | 41.9 | 5.5 | 39 | WSW | 9 | 4 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.49 | 723.6 | 29.85 | 758.3 | 72.0 | 22.2 | 30 | N | 13 | 6 | | | 5 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.87 | 758.6 | 53.8 | 12.1 | 68 | WNW | 11 | 5 | | | 10 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.86 | 758.4 | 50.0 | 10.0 | 35 | Calm | 0 | 0 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischel. |
| Ekaterinburg | 28.87 | 733.2 | 29.82 | 757.5 | 41.0 | 5.0 | 46 | N | 18 | 8 | | | 1 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.74 | 755.5 | 74.7 | 23.7 | 46 | NE | 7 | 3 | | | 9 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | | | | | | | | | | | | | | | | | | | Michelson. |
| Barnaul | | | 29.55 | 750.6 | 81.3 | 24.7 | 40 | SW | 4 | 2 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.52 | 749.7 | 55.4 | 13.0 | 38 | ESE | 9 | 4 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 64.9 | 18.3 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.79 | 756.7 | 76.8 | 24.9 | 49 | Calm | 0 | 0 | | | 3 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.82 | 757.5 | 45.5 | 7.5 | 100 | SE | 11 | 5 | | | 10 | | | | | Heavy mist. | |
| Nikolaievsk, on the Amoor | | | | | 38.3 | 3.5 | | Calm | 0 | 0 | | | 10 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Corrected for instrum'tal error and temperature. Inches. | Corrected for instrum'tal error and temperature. Millimeters. | Reduced to sea-level. Inches. | Reduced to sea-level. Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Direction. From— | Miles per hour. | Meters per second. | Force. 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 30.05 | 763.3 | 73.6 | 23.1 | 37 | NE | 3.0 | 1.33 | | 1 | 1 | E | | 0 | 0 | Light clouds | Royal Observatory. |
| San Fernando | | | 30.09 | 764.3 | 73.9 | 23.3 | 61 | WSW | 6.5 | 2.9 | | 0 | 7 | | WSW | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.94 | 760.4 | 79.3 | 26.3 | 86 | Calm | 0 | 0 | | 0 | 4k | | | 0.465 | 11.8 | Cloudy | Benito Vines, S. J. |

Note.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Corrected for instrum'tal error and temperature. Inches. | Corrected for instrum'tal error and temperature. Millimeters. | Reduced to sea-level. Inches. | Reduced to sea-level. Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Direction. From— | Miles per hour. | Meters per second. | Force. 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.95 | 760.8 | 41.4 | 5.2 | 60 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.86 | 758.4 | 38.5 | 3.6 | 93 | SE | | | 2 | | 10 | | | | | Raining | |
| Hernosand | | | 29.71 | 754.5 | 36.3 | 2.4 | 96 | E | | | 2 | | 10 | | | 0.197 | 5.0 | Snowing | |
| Stockholm | | | 29.76 | 755.9 | 42.3 | 5.7 | 98 | SW | | | 2 | | 10 | | | 0.146 | 3.7 | Raining | |
| Wisby | | | 29.89 | 759.1 | 47.5 | 8.6 | 81 | SW | | | 6 | | 7 | | | 0.083 | 2.1 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.72 | 755.0 | 49.6 | 9.8 | 63 | W | 11.0 | 4.9 | | | 9 | | SW | 0.002 | 0.06 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.69 | 728.8 | 30.10 | 764.5 | 60.4 | 15.8 | 42 | N | | | 2 | | 2 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.49 | 723.7 | 30.11 | 764.8 | 59.5 | 15.3 | 57 | NW | | | 1 | | 7 | | | 0 | 0 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +3.2 mm; Thermometer, —2.3 cent.; Relative Humidity, —14 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.91 | 759.7 | 65.1 | 18.4 | 66 | NE | 12.3 | 5.5 | | | 7 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.02 | 762.5 | 78.8 | 26.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.91 | 759.7 | 77.4 | 25.2 | | S | | | 1 | | 0 | | | | | | B. Stéfanidés. |
| Valona | | | 30.05 | 763.2 | 71.6 | 22.0 | | W | | | 1 | | 5 | | | 0 | 0 | Cloudy | A. Bertrand. |
| Varna | | | 29.96 | 761.0 | 59.0 | 15.0 | | N | | | 2 | | 10 | | | Blank | Blank | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.2 | 83.8 | 28.8 | 49 | SW | | | 2 | | 1c | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.97 | 761.2 | 43.8 | 6.6 | 90 | NE | 7 | 3.1 | | | 9 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.07 | 763.8 | 53 | 11.7 | | Calm | 0 | 0 | | | 10s | | N | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.91 | 759.7 | 43 | 6.1 | 95 | NE | 15 | 6.7 | | | 10n | | NE | 0.54 | 13.7 | Light rain | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.81 | 757.2 | 43 | 6.1 | 95 | NE | 8 | 3.6 | | | 10n | | | 0.165 | 4.19 | Light rain | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.01 | 762.2 | 48.9 | 9.4 | 99 | E | | | 1 | | Fog | | | 0 | 0 | Foggy | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.00 | 762.0 | 46.3 | 7.9 | 98 | NW | | | 1 | | | | | 0.97 | 24.6 | Raining | H. A. Johnson. |
| Esquimault, B. C. | | | 29.97 | 761.2 | 45.3 | 7.4 | 92 | N | | | | 3cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.05 | 763.3 | 42 | 5.6 | 100 | E | 5 | 2.2 | | | 10n | | | 0.10 | 2.5 | Light rain | J. McWilliams |
| Fredericton, N. B. | | | 29.93 | 760.2 | 45.3 | 7.4 | 75 | N | 14 | 6.3 | | | 10 | | | 0.183 | 4.65 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.07 | 763.8 | 56 | 13.3 | 81 | S | 6 | 2.7 | | 2ck | Haze | SW | S | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.19 | 766.8 | 48.4 | 9.1 | 86 | N | | | 1 | 2k | 0 | N | | 0 | 0 | Fair | H. J. Strang, M. A |
| Granton, Ontario | 29.05 | 737.9 | 30.15 | 765.8 | 51 | 10.6 | 79 | N | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.78 | 756.4 | 44 | 6.7 | 92 | N | 1 | 0.4 | | | 10n | | | 0.548 | 13.92 | Light rain | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.13 | 765.3 | 58.9 | 14.9 | 59 | NW | | | 2 | 4k | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.84 | 757.9 | 40 | 4.4 | 91 | E | | | 3 | | 10 | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.09 | 764.3 | 57 | 13.9 | 67 | NE | 4 | 1.8 | | 8ck | 0 | NE | | 0 | 0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.03 | 762.7 | 52 | 11.1 | 77 | E | 3 | 1.3 | | 5cs | 2s | E | | Inap. | Inap. | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.12 | 765.0 | 56 | 13.3 | 63 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.14 | 765.5 | 50 | 10.0 | 79 | NW | 6 | 2.7 | | 5k | 0 | NW | | 0.04 | 1.0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.79 | 756.7 | 42.1 | 5.6 | | NW | | | | | | | | 2.00 | 50.8 | Raining | Peter Grant. |
| Port Stanley, Ontario | | | 30.15 | 765.8 | 52 | 11.1 | 74 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.02 | 762.5 | 49 | 9.4 | 78 | NE | 2 | 0.9 | | | 10n | | NE | 0.02 | 0.5 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.05 | 763.3 | 57 | 13.9 | 58 | NW | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | W. H. McIntyre. |
| St. John, N. B. | | | 29.88 | 758.9 | 44 | 6.7 | 88 | N | 10 | 4.5 | | | 10 | | | 0.27 | 6.9 | Showery | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.14 | 765.5 | 50 | 10.0 | 75 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | K. Stewart. |
| Stayner, Ontario | | | 30.09 | 764.3 | 54 | 12.2 | 61 | NW | 8 | 3.6 | | 2c | 0 | N | | 0 | 0 | Fair | R. J. Cole. |
| Stratford, Ontario | 28.86 | 733.0 | 30.15 | 765.8 | 47.6 | 8.7 | 76 | N | 3 | 1.3 | | 2c | 0 | N | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.79 | 756.7 | 42 | 5.6 | 97 | NE | 4 | 1.8 | | | 10n | | | 0.15 | 3.8 | Light rain | T. C. Hill. |
| *Toronto, Ontario | | | 30.11 | 764.8 | 56 | 13.3 | 58 | NW | 9 | 4.0 | | 0 | 0 | | | 0.11 | 2.8 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 29.77 | 756.1 | 43.0 | 6.1 | 92 | NW | 5 | 2.2 | | | 10n | | | | | Raining | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.13 | 765.3 | 55.8 | 13.2 | 68 | N | 5 | 2.2 | | 0 | 1s | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.92 | 760.0 | 41.0 | 5.0 | 100 | E | | | | Fog | Fog | | | 0.06 | 1.5 | Light rain | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.8 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.98 | 761.5 | 51 | 10.6 | 71 | NW | 4 | 1.8 | | 0 | 5ks | | NW | 0.08 | 2.0 | Fair | |
| Alpena, Mich. | | | 30.21 | 767.3 | 57 | 13.9 | 57 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.01 | 762.2 | 59 | 15.0 | 58 | NW | 10 | 4.5 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Augusta, Ga. | | | 30.13 | 765.3 | 62 | 16.7 | 51 | NE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.07 | 763.8 | 59 | 15.0 | 59 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Barnegat, N. J. | | | 30.00 | 762.0 | 57 | 13.9 | 62 | N | 15 | 6.7 | | 2c | 0 | NW | | 0.06 | 1.5 | Fair | |
| Bismarck, Dakota | 28.22 | 716.8 | 29.83 | 757.7 | 58 | 14.4 | 87 | S | 9 | 4.0 | | | 10n | | S | 0.42 | 10.7 | Light rain | |
| Boston, Mass. | | | 29.96 | 761.0 | 50 | 10.0 | 78 | NE | 10 | 4.5 | | | 10ks | | N | 0.16 | 4.1 | Threatening | |
| Breckenridge, Minn. | | | 30.08 | 764.0 | 55 | 12.8 | 87 | SE | 12 | 5.4 | | 10k | Haz | | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 30.09 | 764.3 | 49 | 9.4 | 85 | W | 8 | 3.6 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 30.01 | 762.2 | 50 | 10.0 | 78 | N | 7 | 3.1 | | | 10s | | N | 0.09 | 2.3 | Cloudy | |
| Cairo, Ill. | | | 30.17 | 766.3 | 58 | 14.4 | 69 | NE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.36 | 694.9 | 29.94 | 760.5 | 41 | 5.0 | 63 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 60 | 15.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.03 | 762.2 | 62 | 16.7 | 57 | NW | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.08 | 764.0 | 63 | 17.2 | 62 | N | 12 | 5.4 | | 2k | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.11 | 764.8 | 62 | 16.7 | 55 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.03 | 762.7 | 56 | 13.3 | 68 | NW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.11 | 764.8 | 62 | 16.7 | 56 | N | 12 | 5.4 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Cheyenne, Wyoming | 24.05 | 610.9 | 29.99 | 761.7 | 48 | 8.9 | 85 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 30.21 | 767.3 | 50 | 10.0 | 79 | NE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.17 | 766.3 | 54 | 12.2 | 67 | E | 1 | 0.4 | | 0 | Sm'k | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.18 | 766.6 | 53 | 11.7 | 72 | SW | 5 | 2.2 | | 5c | 5ks | NW | W | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 30.02 | 762.5 | 64 | 17.8 | 94 | E | 12 | 5.4 | | 2cs | 8s | | E | 0.07 | 1.8 | Cloudy | |
| Davenport, Iowa | | | 30.26 | 768.6 | 54 | 12.2 | 60 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.03 | 762.7 | 65 | 18.3 | 73 | SE | 7 | 3.1 | | 2k | 8s | E | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.80 | 629.9 | 30.02 | 762.5 | 52 | 11.1 | 66 | Calm | 0 | 0 | | 0 | 0 | | | 0.39 | 9.9 | Clear | |
| Detroit, Mich. | | | 30.15 | 765.8 | 54 | 12.2 | 61 | NW | 4 | 1.8 | | 10ck | 0 | NW | | 0 | 0 | Cloudy | |
| Dodge City, Kan. | 27.41 | 696.2 | 29.64 | 752.8 | 60 | 15.6 | 94 | S | 4 | 1.8 | | | 10s | | | 0.49 | 12.4 | Cloudy | |
| Dubuque, Iowa | | | 30.24 | 768.1 | 55 | 12.8 | 68 | SE | 2 | 0.9 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.23 | 767.8 | 50 | 10.0 | 78 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.86 | 758.4 | 46 | 7.8 | 85 | N | 11 | 4.9 | | | 10n | | N | 0.28 | 7.1 | Light rain | |
| Erie, Pa. | | | 30.11 | 764.8 | 52 | 11.1 | 79 | NW | 8 | 3.6 | | 0 | Haz | | | Inap. | Inap. | Clear | |
| Escanaba, Mich. | | | 30.26 | 768.6 | 46 | 7.8 | 69 | N | 5 | 2.2 | | 0 | Sm'k | | | 0 | 0 | Clear | |
| Florence, Arizona | | | 29.93 | 760.2 | 66 | 18.9 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.03 | 762.7 | 63 | 17.2 | 62 | SE | 9 | 4.0 | | 2ck | 2cs | W | W | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.71 | 729.2 | 29.95 | 760.7 | 65 | 18.3 | 90 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| Ft. St. Michael, Alaska | | | 29.64 | 752.8 | 45.5 | 7.5 | 80 | W | | | 5 | 8c | 2ks | SE | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.82 | 732.0 | 29.91 | 759.7 | 63 | 17.2 | 66 | N | 4 | 1.8 | | 8k | 0 | | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.30 | 718.8 | 29.94 | 760.5 | 54 | 12.2 | 100 | SE | 4 | 1.8 | | | 10s | | SE | 0.22 | 5.6 | Cloudy | |
| Galveston, Tex. | | | 30.03 | 762.7 | 78 | 25.6 | 77 | SE | 2 | 0.9 | | 1k | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 30.21 | 767.3 | 58 | 14.4 | 64 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.00 | 762.0 | 81 | 27.2 | 74 | S | 8 | 3.6 | | 2k | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.20 | 767.1 | 57 | 13.9 | 63 | NE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.01 | 762.2 | 68 | 20.0 | 69 | NE | 12 | 5.4 | | | 10s | | NE | 0.09 | 2.3 | Cloudy | |
| Keokuk, Iowa | | | 30.16 | 766.1 | 57 | 13.9 | 75 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.90 | 759.4 | 82.6 | 27.8 | 63 | Calm | 0 | 0 | | 0 | 1ks | | | 0 | 0 | Hazy | |
| Kittyhawk, N. C. | | | 30.09 | 764.3 | 58 | 14.4 | 76 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.18 | 766.6 | 51 | 10.6 | 65 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 30.21 | 767.3 | 57 | 13.9 | 75 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.10 | 764.5 | 61 | 16.1 | 61 | SE | 5 | 2.2 | | 10k | 0 | | | 0 | 0 | Cloudy | |
| Louisville, Ky. | | | 30.18 | 766.6 | 59 | 15.0 | 53 | E | 10 | 4.5 | | 0 | Haze | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.12 | 765.0 | 59 | 15.0 | 43 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 57 | 13.9 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.23 | 767.8 | 44 | 6.7 | 67 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.16 | 766.1 | 60 | 15.6 | 53 | NE | 6 | 2.7 | | 1c | 0 | SW | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 30.27 | 768.8 | 50 | 10.0 | 64 | N | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.04 | 763.0 | 64 | 17.8 | 57 | N | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.08 | 764.0 | 63 | 17.2 | 67 | NE | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.00 | 738.9 | 30.16 | 766.1 | 50 | 10.0 | 86 | Calm | 0 | 0 | | 0 | Fog | | | Inap. | Inap. | Fair | |
| Mt. Washington, N. H. | 23.67 | 601.2 | 30.03 | 762.7 | 29 | — 1.7 | 100 | NE | 8 | 3.6 | | | Fog | | | 0.53 | 13.5 | Foggy | |
| Nashville, Tenn. | | | 30.16 | 766.1 | 57 | 13.9 | 57 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 29.95 | 761.7 | 55 | 12.8 | 62 | N | 12 | 5.4 | | 5k | 0 | N | | Inap. | Inap. | Fair | |
| New London, Conn. | | | 29.96 | 761.0 | 57 | 13.9 | 57 | N | 4 | 1.8 | | 1c | 2k | S | N | 0.04 | 1.0 | Fair | |
| New Orleans, La. | | | 30.02 | 762.5 | 72 | 22.2 | 41 | NE | 10 | 4.5 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.97 | 761.2 | 51 | 10.6 | 79 | N | 10 | 4.5 | | 5k | 0 | NW | | 0.02 | 0.5 | Fair | |
| New York, N. Y. | | | 30.01 | 762.2 | 58 | 14.4 | 58 | N | 6 | 2.7 | | 8k | 0 | N | | 0.03 | 0.8 | Fair | |
| Norfolk, Va. | | | 30.09 | 764.3 | 60 | 15.6 | 66 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 27.12 | 688.8 | 29.66 | 753.4 | 52 | 11.1 | 100 | E | 6 | 2.7 | | | 10s | | | 1.57 | 39.9 | Cloudy | |
| Omaha, Neb. | 29.02 | 737.1 | 30.08 | 764.0 | 59 | 15.0 | 70 | SE | 5 | 2.2 | | 5cs | 5s | | SE | 0 | 0 | Cloudy | |
| Oswego, N. Y. | | | 30.06 | 763.5 | 48 | 8.9 | 81 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 30.06 | 763.5 | 56 | 13.3 | 80 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 30.04 | 763.0 | 56 | 13.3 | 57 | NE | 14 | 6.3 | | 1c | 0 | N | | 0.11 | 2.8 | Clear | |
| Phœnix, Arizona | | | | | 67 | 19.4 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.90 | 454.6 | 30.12 | 762.0 | 23 | — 5.0 | 53 | NW | 8 | 3.6 | | 2c | 1ks | | | 0.07 | 1.8 | Fair | |
| Pittsburgh, Pa. | | | 30.14 | 765.5 | 48 | 8.9 | 85 | NW | 2 | 0.9 | | 0 | Fog | | | 0.03 | 0.8 | Clear | |
| Port Huron, Mich. | | | 30.13 | 765.3 | 53 | 11.7 | 66 | N | 9 | 4.0 | | 5c,ck | 0 | N | | 0 | 0 | Fair | |
| Portland, Me. | | | 29.94 | 760.5 | 51 | 10.6 | 65 | N | 10 | 4.5 | | 5k | 5ks | NE | | 0.18 | 4.6 | Cloudy | |
| Portland, Oregon | | | 30.09 | 764.3 | 48 | 8.9 | 92 | S | 1 | 0.4 | | | 10s | | | 0.14 | 3.6 | Cloudy | |
| Prescott, Arizona | 24.81 | 630.2 | 30.17 | 766.3 | 42 | 5.6 | 57 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.93 | 760.2 | 81 | 27.2 | 74 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.05 | 763.3 | 53 | 11.7 | 54 | NW | 8 | 3.6 | | 1c | 0 | N | | Inap. | Inap. | Clear | |
| Salt Lake City, Utah | 25.57 | 649.5 | 29.90 | 759.4 | 56 | 13.3 | 34 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.01 | 762.2 | 57 | 13.9 | 69 | N | 8 | 3.6 | | 5ck | 1ks | NW | N | 0.09 | 2.3 | Fair | |
| San Antonio, Tex. | | | 29.85 | 758.2 | 69 | 20.6 | 79 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Diego, Cal. | | | 29.96 | 761.0 | 60 | 15.6 | 81 | SE | 4 | 1.8 | | | 10s | | SE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.94 | 761.7 | 51 | 10.6 | 86 | W | 14 | 6.3 | | Haze | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.30 | 591.8 | 29.84 | 757.9 | 54 | 12.2 | 38 | NE | 12 | 5.4 | | 2ck | 2ks | W | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.10 | 764.5 | 64 | 17.8 | 62 | NE | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.14 | 765.5 | 67 | 19.4 | 64 | E | 4 | 1.8 | | | 10s | | E | 0.03 | 0.8 | Cloudy | |
| Smithville, N. C. | | | 30.11 | 764.8 | 59 | 15.0 | 64 | N | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.09 | 764.0 | 55 | 12.8 | 58 | NE | 9 | 4.0 | | 9k | 0 | N | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.17 | 766.3 | 59 | 15.0 | 65 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.01 | 762.2 | 68 | 20.0 | 75 | NE | 10 | 4.5 | | 0 | 5s | | NE | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 30.12 | 765.0 | 60 | 15.6 | 65 | NE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 51 | 10.6 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex. | 23.99 | 685.5 | 29.99 | 761.7 | 59 | 15.0 | 87 | SE | 2 | 0.9 | | 0 | 0 | | | 0.17 | 4.3 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 29.97 | 761.2 | 49 | 9.4 | 77 | N | 16 | 7.2 | | 8c,k | 0 | NE | | 0.04 | 1.0 | Fair | |
| Toledo, Ohio | | | 30.18 | 766.6 | 56 | 13.3 | 74 | W | 3 | 1.3 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Tucson, Arizona | | | 30.04 | 763.0 | 63 | 17.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | 27.50 | 698.5 | 30.04 | 763.0 | 65 | 18.3 | 64 | NE | 20 | 8.9 | | 2k | 0 | NE | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.11 | 764.8 | 64 | 17.8 | 51 | E | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.18 | 614.2 | 29.66 | 753.4 | 43 | 6.1 | 50 | Calm | 0 | 0 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.09 | 764.3 | 56 | 13.3 | 62 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 65 | 18.3 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.12 | 765.0 | 56 | 13.3 | 57 | N | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 29.97 | 761.2 | 52 | 11.1 | 72 | N | 6 | 2.7 | | 0 | 5s | | N | 0.12 | 3.0 | Fair | |
| Yankton, Dakota | 28.84 | 732.5 | 30.11 | 764.8 | 57 | 13.9 | 81 | S | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | | | | | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.12 | 765.0 | 79 | 26.1 | 95 | Calm | 0 | 0 | | | 10n | | | Inap. | Inap. | Raining | James Gall. |
| Navassa, W. I | | | | | 80 | 26.7 | | E | | | 3 | | | | | 0.11 | 2.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.08 | 764.0 | 82 | 27.8 | 83 | E | | | 2 | 3c | 5k | E | | 0 | 0 | Clear | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | | | | | 81.5 | 27.5 | | E | | | | | | | | 0.402 | 12.50 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 30.10 | 764.6 | | | 70.5 | 21.4 | 79 | Calm | | | 0 | 2k | 2ks | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | 25.22 | 640.6 | 30.04 | 763.0 | 42.0 | 5.6 | 87 | W | 10 | 4.5 | | 4k | 0 | NE | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.11 | 764.8 | 73 | 22.8 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,592 ft., or 881.5 m.; Denver, 5,195 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,109 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027 (?) ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,862.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.33 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.13 | 765.3 | 65 | 18.3 | 57 | 13.9 | 63 | N | | | 2 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.06 | 763.5 | 59 | 15.0 | 53 | 11.7 | | W | | | 2 | | 2 | | | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va. | 30.20 | 767.1 | 59 | 15.0 | 59 | 15.0 | 94 | NNW | 3 | 1.3 | | | 3ks | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.14 | 765.5 | | | 70 | 21.1 | 61 | NE | 16 | 7.2 | | | | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 29.99 | 761.7 | 61 | 16.1 | 50 | 10.0 | 72 | NNE | 4 | 1.8 | | | | | S | 0.25 | 6.3 | | | Showery | |
| Naval Hospital, Yokohama, Japan | 29.91 | 759.7 | 65.5 | 18.6 | 63 | 17.2 | 83 | SE | | | 3 | | 8ks | | W | 0 | 0 | | | Cloudy | |
| Adams, S. 14° 53′ W. 35° 45′ | 30.16 | 766.1 | 81 | 27.2 | 82 | 27.8 | 91 | ESE | | | 2 | | 9 | | E | Light | Light | Long | SE | D. clouds | |
| Alert, N. 25° 13′ 05″ E. 140° 45′ 38″ | 29.90† | 759.4† | 74 | 23.3 | 74 | 23.3 | 100 | E | | | 6 | | 10 | | NE | | | Rough | NE | D. clouds | |
| Alliance, Beirut, Syria | 30.05 | 763.3 | 78 | 25.6 | 76.5 | 24.7 | 52 | SW | | | 2 | | 3 | | | | | Moderate. | WNW | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.93 | 760.2 | 77 | 25.0 | 77 | 25.0 | 86 | E | | | 2 | | 6 | | E | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.01 | 762.2 | 50 | 10.0 | 70 | 21.1 | 75 | NE | | | 3 | | 3 | | NE | | | | | Fair | |
| Colorado, New York, N. Y | 30.05 | 763.3 | 65 | 18.3 | 58 | 14.4 | 88 | N | 2 | 0.9 | | | 8 | | | 0.03 | 0.8 | | | D. clouds | |
| Despatch, Gibraltar | 30.22 | 767.6 | 70 | 21.1 | 70 | 21.1 | 90 | NE | | | 4 | | 7 | | E | | | Smooth | | Squally | |
| Frolic, Rio de Janeiro, Brazil | 30.31 | 769.9 | 61 | 16.1 | 62 | 16.7 | 88 | NNW | | | 1 | | 4k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.92 | 760.0 | | | 72 | 22.2 | 95 | SE | | | 1 | | 3 | | | 0 | 0 | | | D. clouds | |
| Huron, Oruba Island, W. I. | 30.05 | 763.3 | 85 | 29.4 | 85 | 29.4 | 64 | ESE | | | 4–5 | | 1 | | E | | | | | Blue sky | |
| Kearsarge, Kagosima, Japan | 30.08 | 764.0 | 76 | 24.4 | 72 | 22.2 | 90 | Calm | | | 0 | | 10 | | E | 0 | 0 | | | Pleasant | |
| Lackawanna, N. 23° 26′ W. 107° 47′ | | | | | | | | | | | | | | | | | | | | | |
| Marion, Smyrna, Turkey | 29.90 | 759.4 | 74 | 23.3 | 74 | 23.3 | 68 | W | | | 3 | | 6 | | E | 0 | 0 | Chop'd | WSW | D. clouds | |
| Michigan, Erie, Pa | 29.62 | 752.3 | 62 | 16.7 | 51 | 10.6 | 79 | NW | | | 1 | | 2 | | W | | | | | Fair | |
| Monocacy, Che-foo, China | 29.59 | 749.3 | 77 | 25.0 | 75 | 23.9 | 68 | WSW | | | 3 | | 2 | | S&W | 0 | 0 | Smooth | | D. clouds | |
| Monongahela, Norfolk, Va | 30.11 | 764.8 | 58 | 14.4 | 58 | 14.4 | | NNW | | | 2 | | k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.30 | 769.6 | | | 63 | 17.2 | 67 | NE | 11 | 4.9 | | | 4 | | SW | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 30.00 | 762.0 | 72.5 | 22.5 | 73 | 22.8 | 85 | ESE | 7 | 3.1 | | | 7 | | SE | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, Port Royal, S. C | 30.15 | 765.8 | 68 | 20.0 | 66 | 18.9 | 68 | NE | | | 2 | | 2 | | NE | | | | | D. clouds | |
| Palos, Shanghai, China | 30.00 | 762.0 | 70 | 21.1 | 71 | 21.7 | 90 | SE | | | 1 | | 6 | | S&W | | | | | Clear | |
| Plymouth, N 27° 43′ W. 89° 16′ | 30.06 | 763.5 | 79 | 26.1 | 77 | 25.0 | 77 | NNW | | | 3 | | 0 | | | 0 | 0 | Smooth | | Clear | |
| Ranger, Gibraltar Bay | 30.25 | 768.3 | | | 68.5 | 20.3 | 90 | SW | | | 2–3 | | 5 | | W | | | Smooth | | Squally | |
| Richmond, Rio de Janeiro, Brazil | 30.35 | 771.9 | 63.5 | 17.5 | 62.0 | 16.7 | 88 | NNE | | | 2 | | 8 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.90 | 759.4 | | | 68 | 20.0 | 84 | S&E | | | 1 | | 1 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.12 | 765.0 | 62 | 16.7 | 57 | 13.9 | 69 | NW | | | 3 | | 1 | | S&W | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 29.94 | 760.5 | 59 | 15.0 | 57 | 13.9 | 69 | NNW | 8 | 3.6 | | | 0 | | | 0 | 0 | | | Clear | |
| Swatara, San Andres, U. S. C | 29.96 | 761.0 | 82 | 27.8 | 83 | 28.3 | 91 | Calm | | | 0 | | 5k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.97 | 761.2 | 72 | 22.2 | 68 | 20.0 | 79 | SSE | | | 2 | | 10 | | S&E | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.87† | 758.7† | 76 | 24.4 | 80 | 26.7 | 91 | WSW | 11 | 4.9 | | | 3 | | S&W | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.96 | 761.0 | 68 | 20.0 | 69 | 20.6 | 90 | NE | | | 1 | | 4 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.97 | 761.2 | 51 | 10.6 | 50 | 10.0 | 72 | NNW | 11 | 4.9 | | | 9 | | N | 0.23 | 5.8 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.40† | 772.1† | 59 | 15.0 | 59 | 15.0 | | N | | | 1 | | 1 | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 31° 49′ E. 150° 37′ | | | 29.89 | 759.2 | 52 | 11.1 | 93 | NE | | | 3 | | 10ns | | | Long | ENE | Misty | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 41° 11′ W. 63° 32′ | W¾S | 9.5 | 29.90 | 759.4 | 46.6 | 8.1 | | W | | | 3 | | 8 | | W | Smooth | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig, N. 49° 28′ W. 12° 55′ | | | 30.14 | 765.5 | 61 | 16.1 | | SSW | | | 4 | | 8k | | SW | Rough | | Haze, smoke | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 48° 1′ W. 25° 23′ | E½N | | 29.86 | 758.4 | 56.8 | 13.8 | | SE | | | 5 | | ck | | | Light | | Thick with rain. | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 29.97 | 761.2 | 70 | 21.1 | 66 | ENE | 10 | 4.5 | | 2ck | 0 | NE | | | | Clear | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 27, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.08 | 763.9 | 66.4 | 19.1 | 84 | NNW | | | 1 | | 7 | | | 0.016 | 0.4 | Cloudy | Michel. |
| Algiers | | | 30.11 | 764.8 | 64.0 | 17.8 | 79 | NE | | | 2 | | 8 | | | 0 | 0 | Cloudy | Peter. |
| La Calle | | | 30.07 | 763.6 | 64.8 | 18.2 | 81 | NE | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.13 | 765.3 | 68.0 | 20.0 | | NW | | | 4 | | 7 | | | 0.039 | 1.0 | Cloudy | Jacques. |
| Sfax | | | 30.13 | 765.2 | 71.6 | 22.0 | | ENE | | | 3 | | 6 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.07 | 763.7 | 74.5 | 23.6 | | NNE | | | 3 | | 3 | | | 0.154 | 3.9 | Fair | Millot. |
| Tebessa | | | 30.09 | 764.3 | 66.9 | 19.4 | | NW | | | 2 | | 7 | | | 0.118 | 3.0 | Cloudy | Bourgeois. |
| Geriville | | | 30.03 | 762.8 | 71.8 | 22.1 | 67 | NNE | | | 2 | | 2 | | | 0.157 | 4.0 | Clear | Lemaillot. |
| Laghouat | | | 30.05 | 763.2 | 73.4 | 23.0 | 18 | W | | | 4 | | 6 | | | 0.059 | 1.5 | Fair | Guyot. |
| Biskra | | | 30.09 | 764.2 | 73.6 | 23.1 | 83 | NW | | | 2 | | 10 | | | 0.453 | 11.5 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.08 | 764.0 | 68.4 | 20.2 | 46 | SE | | | 2 | | 5 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.05 | 763.3 | 57.9 | 14.4 | 53 | W | | | 2 | | 10 | | | 0.130 | 3.3 | | Dr. Wierzbiski. |
| Eperies | | | 29.98 | 761.6 | 59.5 | 15.3 | 48 | NW | | | 2 | | 7cks | | | 0.014 | 0.35 | | Julius Mikolik. |
| Gratz | | | 30.07 | 763.6 | 62.4 | 16.6 | 55 | SW | | | 2 | | 5 | | | 0.449 | 11.4 | | Andreas Rospini. |
| Hermannstadt | 28.83 | 732.2 | 30.05 | 763.3 | 51.3 | 10.7 | 73 | NNW | | | 1 | | 8 | | | 0.053 | 1.35 | Rainy | Prof. Reissenberger. |
| Kremsmünster | 28.63 | 727.1 | 30.03 | 762.8 | 58.6 | 14.8 | 52 | W | | | 1 | | 5 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | 28.71 | 729.1 | 29.96 | 760.9 | 51.8 | 11.0 | 73 | NE | | | 2 | | 7 | | | 0.063 | 1.6 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 30.09 | 764.3 | 70.2 | 21.2 | 45 | W | | | 1 | | 1ks | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.01 | 762.2 | 65.1 | 18.4 | 72 | NE | | | 2 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.12 | 765.1 | 68.4 | 20.2 | 67 | W | | | 1 | | 2 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.05 | 763.3 | 60.6 | 15.9 | 53 | NW | | | 1 | | 5 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | | | | | | | | | | | | | | | | 0 | 0 | | |
| Brussels | | | 29.91 | 759.8 | 66.7 | 19.3 | 50 | SW | | | 4 | c | 7k | WNW | SW | 0 | 0 | | Royal Observatory. |
| Furnes | | | 29.89 | 759.2 | 68.2 | 20.1 | 47 | SSW | | | 3 | | 8 | | | 0 | 0 | | |
| Maeseyck | | | 29.83 | 757.7 | 65.6 | 18.6 | 46 | SW | | | 4 | | 8 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.38 | 746.2 | 54.4 | 12.4 | | SSW | 16 | 7.2 | | | 9 | | | 0.265 | 6.48 | Overcast | William Boswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 29.31 | 744.5 | 52.9 | 11.6 | | SSE | 22 | 9.8 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.56 | 750.8 | 56.4 | 13.6 | | S | 17 | 7.6 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.30 | 744.2 | 55.6 | 13.1 | | SSW | | | 1 | | 10 | | | | | Misty | J. Dreyer. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0 | 0 | | J. McLandsborough, A. H. C. |
| Bridgetown, (Barbados) | | | 29.94 | 760.5 | 83.5 | 28.6 | | E | | | 3 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, |
| Cambridge, Observatory | | | 29.76 | 755.9 | 65.0 | 18.3 | | SSW | | | 3-4 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.77 | 756.1 | 66.0 | 18.9 | | SW | | | 5 | | 8 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.89 | 759.2 | 64.2 | 17.9 | | NE | | | 3 | | 10 | | | | | Blue sky | Capt. Fellowes, R. E. |
| Dartmoor | 28.33 | 719.6 | 29.80 | 756.9 | 49.4 | 9.7 | | SW | | | 6 | | 8 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.35 | 745.5 | 52 | 11.1 | | SW | | | 6 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 29.85 | 758.2 | 57 | 13.9 | | WSW | | | 3 | | 2 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.59 | 751.6 | 57.7 | 14.3 | | SW | 15.2 | 6.8 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.73 | 755.1 | 57.3 | 14.1 | | SSW | | | 6 | | 7 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.57 | 700.3 | 29.81 | 757.2 | 71.3 | 21.8 | | NE | | | 2 | | 9 | | | | | Overcast | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.02 | 762.5 | 83 | 28.3 | | W | | | 3 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.18 | 741.2 | 57 | 13.9 | | SSW | | | 7 | | 7 | | | | | Hazy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.05 | 763.3 | 68.0 | 20.0 | | E | | | 3 | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.47 | 748.5 | 52.5 | 11.4 | | S | | | 4 | | 10 | | | | | Raining | J. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.78 | 756.4 | 62 | 16.7 | | SSW | | | 5 | | 3 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.80 | 756.9 | 63.9 | 17.7 | | SW | | | 4 | | 2 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.84 | 757.9 | 59 | 15.0 | | SSW | | | 3 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.84 | 757.9 | 59 | 15.0 | | SW | | | 7 | | 6k | | | 0.66 | 16.8 | Fair | M. P. Moyle. |
| Holyhead | | | 29.47 | 748.5 | 50 | 10.0 | | SSW | | | 6 | | 10 | | | | | Raining | John Tilston. |
| Kew, Observatory | | | 29.79 | 756.7 | 60.9 | 16.1 | | SSW | 25 | 11.2 | | | 5 | | | | | D. clouds | The Staff. |
| Kingstown | | | 29.41 | 747.0 | 55 | 12.8 | | S | | | 4 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.65 | 753.1 | 60.0 | 15.6 | | SW | | | 6 | | 8 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.07 | 763.8 | 69.4 | 20.8 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.27 | 743.4 | 61 | 16.1 | | WSW | | | 1 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.96 | 761.0 | 78.2 | 25.7 | | NE | | | 2 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.66 | 753.4 | 62.3 | 16.8 | | SSW | | | 6 | | 5ck,c | | SW | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.66 | 753.4 | 59.0 | 15.0 | | SSW | | | 6 | | 8 | | | | | Hazy | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.73 | 755.1 | 63 | 17.2 | | SW | | | 3 | | 7 | | | | | D. clouds | J. W. Lucas |
| Plymouth | | | 29.80 | 756.9 | 56.6 | 13.7 | | S | | | 4 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.38 | 746.2 | 55 | 12.8 | | SSW | | | 6 | | 10 | | | | | Raining | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.87 | 758.7 | 60.6 | 15.9 | | S | | | 4 | | 0 | | | | | Clear | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.30 | 744.2 | 57 | 13.9 | | S | 18 | 8. | | | 5 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.92 | 760.0 | 62.8 | 17.1 | | NE | | | 2 | | 10 | | | Blank | Blank | Gloomy | Sergt. W. H. Lyne. |
| Sheffield | | | 29.61 | 752.1 | 62.0 | 16.7 | | SW | | | 6 | | 4 | | | 0.150 | 3.81 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 29.48 | 748.8 | 50.7 | 10.4 | 89 | SW | | | 6 | | 10 | | | 0.720 | 18.29 | Overcast | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.56 | 750.8 | 59.8 | 15.4 | | S | | | 4 | | 10 | | | | | Drizzling | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.18 | 741.2 | 57 | 13.9 | | SW | | | 4 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 29.78 | 756.4 | 61.2 | 16.2 | | SW | | | 3 | | 4 | | | | | Squally | Rev. Charles H. Griffith. |
| Thurso | | | 29.25 | 742.9 | 60 | 15.6 | | S | | | 3 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.76 | 755.9 | 60 | 15.6 | | S | | | 8 | | 10 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.31 | 744.5 | 56.7 | 13.7 | | SW | 35 | 15.6 | | | 10 | | | | | Misty | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 50 | 10.0 | | S | | | 7 | | 10 | | | 0.11 | 2.8 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.08 | 764.0 | 56.0 | 13.3 | 100 | NNW | 10 | 4.5 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.61 | 752.1 | 57.0 | 13.9 | 93 | Calm | | | 0 | | 10kn | | | | | Rainy | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.34 | 745.2 | 58.2 | 14.6 | | SW | | | 6 | | 10ks | | | 0 | 0 | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.20 | 767.1 | 74.0 | 23.3 | 63 | E | 12.9 | 5.8 | | 5 | 4 | | E | 0 | 0 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 29.96 | 761.0 | 42.1 | 5.6 | 84 | W | 25 | 11.2 | | | 10 | | | 0.37 | 9.4 | Thunder-storm | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.10 | 739.1 | 52 | 11.1 | | S | | | 4 | | 10 | | | 0.7 | 18. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.34 | 745.2 | 45 | 7.2 | | SE | | | 4 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

## MARINE SERIES.

| VESSELS. | Barometer. Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Relative Humidity. | Wind. From— | Miles per hour. | Meters per second. | Force. | Clouds. Up'er | Low'r | Upper. From— | Lower. From— | Sea or swell. Height scale 0-9 | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 42° 40′ W. 50° 20′ | | | 30.02 | 762.5 | 47.0 | 8.3 | | SW | | | 1 | | 1 | | | 10* | W | Blue sky | Capt. W. Watson. |
| S. S. Batavia, N. 42° 29′ W. 65° 0′ | | | | | 41.0 | 5.0 | | NNE | | | 2 | | 9 | | | 3 | NNW | Overcast | Capt. J. E. Mouland. |
| Ship Camperdown, N. 23° 50′ W. 82° 40′ | | | 29.94 | 760.5 | 80.0 | 26.7 | | N | | | 2 | | 2 | | | 0 | | Blue sky | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.24 | 666.5 | | | 70.7 | 21.5 | 86 | NE | | | 3 | | 5cs | | E | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.85 | 758.2 | 52.3 | 11.3 | 71 | SW | | | 2 | | 10 | | | | | | |
| Faröe | | | 29.77 | 756.1 | 54.1 | 12.3 | 87 | SSW | | | 4 | | 10 | | | | | | |
| Godthaab, (Greenland) | | | 29.80 | 757.0 | 34.7 | 1.5 | 98 | S | | | 2 | | 10 | | | | | Snowing | |
| Stykkisholm, (Iceland) | | | 29.66 | 753.4 | 35.4 | 1.9 | 82 | NE | | | 6 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.30 | 744.2 | 42.1 | 5.6 | 89 | E | | | 5 | | 10 | | | | | Raining | |
| Vestervig | | | 29.67 | 753.6 | 52.9 | 11.6 | 94 | S | | | 2 | | 10 | | | | | Raining | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 30.00 | 762.1 | 57.2 | 14 | 70 | SW | | | 2 | | 5k | | SW | 0 | 0 | Cloudy | Normal School. |
| Amiens | | | 29.85 | 758.2 | 71.6 | 22.0 | | WNW | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Avignon, Normal School | | | 30.07 | 763.8 | 75.9 | 24.4 | 33 | NW | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| †Bar-sur-Seine | | | | | | | | | | | | | | | | 0 | 0 | | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.95 | 760.6 | 67.5 | 19.7 | 50 | SW | | | 4 | | 5 | | SW | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 30.15 | 765.8 | 66.7 | 19.3 | 43 | S | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg en Bresse | | | 30.13 | 765.2 | 74.3 | 23.5 | 75 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges | | | 30.02 | 762.5 | 61.4 | 18.0 | 53 | WNW | | | 3 | | 5 | | | 0 | 0 | Cloudy | Normal School. |
| Brest | | | 29.82 | 757.5 | 58.8 | 14.9 | 63 | SW | | | 6 | | 8 | | SW | 0 | 0 | Misty | Naval Observatory. |
| Carcassonne | | | 30.02 | 762.5 | 76.6 | 24.8 | 48 | NW | | | 2 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Caen | | | 29.90 | 759.4 | 66.2 | 19 | 57 | S | | | 4 | | | | | 0 | 0 | | Normal School. |
| Chartres | | | 29.94 | 760.4 | 67.3 | 19.6 | 81 | SW | | | 4 | | 6 | | NE | 0 | 0 | | Normal School. |
| Châlons-sur-Marne | | | 29.94 | 761.7 | 65.4 | 20.8 | 40 | S | | | 3 | | 5k | | N | 0 | 0 | Cloudy | Normal School. |
| Clermont-Ferrand | | | 29.98 | 761.4 | 72.7 | 22.6 | 41 | SE | | | 1 | | 0 | | | 0 | 0 | Clear | Puy de Dome Obs'y. |
| Commercy | | | 29.99 | 761.8 | 64.9 | 18.3 | 55 | W | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Commune de Grésque* | | | 30.15 | 765.7 | 72.9 | 22.7 | 36 | SW | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.02 | 762.5 | 67.3 | 19.6 | 61 | NW | | | 4 | | 2k | | NW | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon | | | 29.98 | 761.4 | 69.1 | 20.6 | 43 | SE | | | 6 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Le Mans | | | 29.94 | 760.5 | 67.6 | 19.8 | 50 | SW | | | 2 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Lons-Le-Saulnier | | | 30.04 | 763.0 | 65.3 | 18.5 | 42 | ENE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Lorient | | | 29.95 | 760.8 | 57.9 | 14.4 | 89 | S | | | 4 | | 5 | | S | 0.118 | 3.0 | ⅜ covered | Naval Observatory. |
| Mâcon, Normal School | | | 30.18 | 766.5 | 65.5 | 18.6 | 69 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | Mr. Marchal. |
| Metz | | | 30.08 | 764.0 | 63.9 | 17.7 | 45 | S | | | 1 | | 6k | | SW | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 30.02 | 762.5 | 64.2 | 17.9 | 55 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Nisnes | | | 30.10 | 764.6 | 77.7 | 25.4 | 63 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Orleans | | | 30.00 | 762.0 | 68.5 | 20.3 | 85 | SSW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Paris, Observatory | | | 29.96 | 760.9 | 69.3 | 20.7 | 39 | SW | | | 4 | | 8k | | SW | 0 | 0 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 30.00 | 762.0 | 63.7 | 17.6 | 82 | SSW | | | 3 | | 0 | | | 0.98 | 2.5 | Clear | Naval Observatory. |
| Rouen | | | 29.93 | 760.2 | 70.7 | 21.5 | 37 | SE | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Tarbes | | | 29.91 | 760.4 | 67.1 | 19.5 | 70 | SW | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Villefranche | 28.87 | 733.3 | 29.91 | 760.4 | 67.1 | 19.5 | 70 | SW | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 30.03 | 762.7 | 72.5 | 22.5 | 74 | SE | | | 3 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Marseilles, Observatory | | | 29.95 | 760.7 | 82.8 | 28.2 | | | | | | | | | | | | | L'Abbé Marchésl. |
| Mont-Louis | | | 30.08 | 763.9 | 71.4 | 21.9 | 36 | WSW | | | 1 | | 0 | | | 0 | 0 | Clear | The Staff. |
| Montsouris, Paris | 24.94 | 633.4 | 30.25 | 768.4 | 57.2 | 14.0 | 56 | SSW | 14.9 | 6.6 | | | 8 | | SW | 0 | 0 | | Mr. Falguère. |
| Perpignan | | | 29.95 | 760.8 | 70.7 | 21.5 | 40 | SW | | | 3 | 4c | | SW | | 0 | 0 | Fine | Montsouris Observatory. |
| Pic du Midi, (Summit,) H. P. | | | 30.06 | 763.5 | 69.4 | 20.8 | 44 | SE | 22.4 | 10.00 | | | 5 | | SW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Plantade,) H. P. | 21.28 | 540.6 | | | 38.7 | 3.7 | | W | | | 2 | | | | | | | Fine | M. Baylac. |
| Saint Maur, (near Paris) | 22.58 | 573.6 | | | 45.1 | 7.3 | | W | | | 2 | | 4 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Toulouse, Observatory | | | 29.96 | 761.0 | 70.9 | 21.6 | 39 | SSW | | | 3 | | 4 | | | 0 | 0 | Fair | E. Renou. |
| Tours | | | 30.09 | 764.2 | 69.4 | 20.8 | 43 | NNW | | | 1 | | 5 | | | 0 | 0 | | The Staff |
| Versailles, (near Paris) | | | | | | | | | | | | | | | | | | | C. Marquet. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.98 | 761.4 | 69.8 | 21.0 | 59 | SW | | | 3 | | 7 | | | 0 | 0 | Cloudy | Dr. A Bérigny. |
| | | | 29.92 | 760.0 | 66.6 | 19.2 | 91 | SE | 14.3 | 6.4 | | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7.8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 338 meters, or 1,272.9 feet; Commune de Grésque, 322 m., or 1,056.4 ft.; Tarbes, 305 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometrical observations for altitude the constant 133 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône. † Observation not simultaneous.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.07 | 763.7 | 66.2 | 19.0 | 38 | W | | | 4 | | 6 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.00 | 761.9 | 62.8 | 17.1 | 43 | W | | | 1 | | 8 | | | 0.008 | 0.2 | | Prof. Arndt. |
| Breslau | | | 30.07 | 763.6 | 57.9 | 14.4 | 52 | WNW | | | 1 | | 10 | | | 0.161 | 4.1 | | Royal University Ob'y. |
| Carlsruhe | | | 30.00 | 762.0 | 65.1 | 18.4 | 40 | SW | | | 1 | | 2 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.06 | 763.5 | 66.2 | 19.0 | 43 | SW | | | 5 | | 8 | SW | | 0.024 | 0.6 | | Dr. H. Möhl. |
| Crefeld | | | 29.92 | 760.0 | 66.9 | 19.4 | 44 | S | | | 5 | | 7 | | | 1.071 | 27.2 | | Director Lose. |
| Emden | | | 29.82 | 757.5 | 65.5 | 18.6 | 56 | WSW | | | 5 | | 4 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.05 | 763.2 | 70.3 | 21.3 | 28 | SSW | | | 3 | | 6 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.97? | 735.9? | 30.05? | 763.2? | 61.9 | 16.6 | 48 | SW | | | 1 | | 0 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 29.91 | 759.6 | 61.2 | 16.2 | 58 | SW | | | 5 | | 10ks | | | 0 | 0 | Cloudy | Captain F. Hegemann. |
| Kiel | | | 29.84 | 758.0 | 61.0 | 16.1 | 75 | S | | | 3 | | 10 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.92 | 759.9 | 56.3 | 13.5 | 62 | W | | | 2 | | 4 | | | 0.157 | 4.0 | | Prof. E. Luther. |
| Köslin | | | 29.97 | 761.2 | 55.0 | 12.8 | | W | | | 4 | | 2 | | | 0.008 | 0.2 | | H. Müller. |
| Leipsic | | | 30.03 | 762.8 | 66.6 | 19.2 | 45 | SW | | | 2 | | 8 | | | 0.055 | 1.4 | Dust-haze | Prof. Bruhns. |
| Memel, Naval School | | | 29.92 | 760.0 | 51.6 | 10.9 | | WSW | | | 3 | | 10ks | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.94 | 760.5 | 64.4 | 18.0 | 55 | SW | | | | | 4 | | | 0 | 0 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.94 | 760.4 | 50.7 | 10.4 | 88 | Calm | | | 0 | | 10 | W | | 0.157 | 4.0 | | A. Lothes. |
| Posen | | | 30.03 | 762.8 | 60.8 | 16.0 | 67 | S | | | 6 | | 10 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.02 | 762.5 | 68.2 | 20.1 | 32 | | | | | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.02 | 762.4 | 67.1 | 19.5 | 26 | SW | | | 1 | | 2 | | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.89 | 759.2 | 67.6 | 19.8 | 32 | SW | | | 6 | | 4 | | | 0 | 0 | Misty | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.54 | 724.9 | 30.02 | 762.4 | 62.1 | 16.7 | 40 | N | | | 1 | | 7 | NW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.00 | 762.1 | 57.4 | 14.1 | 67 | SW | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.91 | 759.7 | 73.9 | 23.3 | | NE | | | | | | | | | | Cloudy | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | | | | | | | | | | | | | | | | | | | |
| Stelvio | 22.26 | 565.4 | 30.08 | 763.9 | 35.4 | 1.9 | 97 | WNW | | | 4 | | 7 | W | | 0 | 0 | | Prof. Giovanni Clodig. |
| Udine | 22.21 | 564.2 | 29.947 | 760.42 | 37.4 | 3.0 | | W | | | 2 | | 10 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Padua | | | 30.07 | 763.7 | 66.6 | 19.2 | 73 | SW | 3.1 | 1.4 | | | 9 | | | 0.004 | 0.1 | | Ab. Dom. Morgini. |
| Vicenza | | | 30.06 | 763.5 | 66.7 | 19.3 | 52 | S | 3.1 | 1.4 | | | 3 | SE | | 0.087 | 2.2 | | Prof. Dott. Lorenzoni. |
| Verona | | | 30.07 | 763.6 | 73.6 | 23.1 | 37 | S | 2.5 | 1.1 | | | 4 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Bergamo | | | 30.08 | 764.0 | 69.8 | 21.0 | 69 | E | | | 1 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Domodossola | 28.76 | 730.5 | 30.07 | 763.7 | 64.8 | 18.2 | 53 | NW | | | 2 | | 9 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Milan | | | 30.01 | 762.3 | 68.0 | 20.0 | 46 | SW | | | 6 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Pavia | | | 30.06 | 763.4 | 74.5 | 23.6 | 44 | E | | | 1 | | 6 | SE | | 0 | 0 | | Ab. Gio. Capelli. |
| Moncalieri | | | 30.06 | 763.5 | 69.8 | 21.0 | 47 | E | | | 2 | | 4 | SW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Mondovi | | | 30.05 | 763.2 | 68.7 | 20.4 | 58 | ESE | 3.8 | 1.7 | | | 4 | W | | 0 | 0 | | Prof. P. F. Denza. |
| Porto Maurizio | 28.15 | 714.9 | 30.02 | 762.5 | 69.6 | 20.9 | 51 | NNW | | | 4 | | 5 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Genoa | | | 30.15 | 765.8 | 67.5 | 19.7 | 65 | SSW | | | 2 | | 1 | WNW | | 0 | 0 | | Prof. L. Vassallo. |
| Piacenza | | | 30.11 | 764.8 | 68.0 | 20.0 | 61 | SW | 5.6 | 2.5 | | | 1 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Parma | | | 30.07 | 763.7 | 70.3 | 21.3 | 40 | E | 4.3 | 1.9 | | | 10 | S | | 0 | 0 | | Dott. G. Manzi. |
| Florence | | | 30.08 | 764.0 | 69.4 | 20.8 | 50 | W | | | 4 | | 7 | | | 0 | 0 | | Prof. P. Pigorini. |
| Leghorn | | | 30.10 | 764.5 | 74.3 | 23.5 | 39 | W | | | 2 | | 7 | | | 0 | 0 | | Cav. F. Meucci. |
| Siena | | | 30.11 | 764.7 | 68.4 | 20.2 | 59 | W | 6.3 | 2.8 | | | 1 | | | 0 | 0 | | Prof. P. Monte. |
| Urbino | 28.91 | 734.4 | 30.10 | 764.6 | 70.2 | 21.2 | 30 | WSW | 19.2 | 8.6 | | | 4 | W | | 0 | 0 | | Prof. L. Toscani. |
| Pesaro | 28.57 | 725.6 | 30.10 | 764.5 | 63.9 | 17.7 | 48 | NE | | | 4 | | 1 | | | 0 | 0 | | Prof. P. Serpieri. |
| Ancona | | | 30.12 | 765.0 | 66.2 | 19.0 | 54 | NE | 13.0 | 5.8 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Grosseto | | | 30.12 | 765.0 | 69.8 | 21.0 | 49 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Rome | | | 30.11 | 764.9 | 70.9 | 21.6 | 50 | NNW | | | 4 | | 6 | NW | | 0.094 | 2.4 | | Avv. P. Ponticelli. |
| Naples, O. U. | | | 30.10 | 764.5 | 72.0 | 22.2 | 48 | SW | 4.9 | 2.2 | | | 1 | | | 0.681 | 17.3 | | Prof's. P. Secchi & L. Respighi. |
| Lecce | | | 30.11 | 764.8 | 73.9 | 22.8 | 31 | N | | | 2 | | 1 | NE | | 0 | 0 | | Prof. L. Palmieri. |
| Cosenza | | | 30.06 | 763.4 | 68.0 | 20.0 | 53 | NNW | 15.0 | 6.7 | | | 2 | | | 0.181 | 4.6 | | Prof. C. DeGiorgi. |
| Cagliari | | | 30.05 | 763.2 | 75.4 | 24.1 | 75 | N | 3.1 | 1.4 | | | 4 | | | 0 | 0 | | Prof. F. D. Conti. |
| Rifosto, (Sicily) | | | 30.10 | 764.6 | 70.7 | 21.5 | 60 | S | | | 2 | | 5 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Palermo | | | 30.08 | 764.0 | 68.9 | 20.5 | 80 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. F. Cafiero. |
| Caltanissetta | | | 30.05 | 763.2 | 66.0 | 18.9 | 64 | NE | 10.5 | 4.7 | | | 5 | | | 0.012 | 0.3 | | Prof. G. Cacciatore. |
| Syracuse | 28.11 | 713.9 | 30.01 | 762.3 | 67.3 | 19.6 | 50 | SSE | | | 4 | | 10 | NE | | 0 | 0 | | Prof. A. Pagani. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.00 | 762.1 | 69.1 | 20.6 | 64 | E | | | 4 | | 4 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| | | | 30.12 | 765.0 | 71.2 | 21.8 | 30 | NE | 1.8 | 0.8 | | | 3 | SW | | 0.035 | 0.9 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.4 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.97 | 761.2 | 64 | 17.8 | 91 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.16 | 588.4 | 30.19 | 766.8 | 54.5 | 12.5 | 74 | SW | 3.4 | 1.51 | | 0 | 3s | | | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.91 | 759.6 | 64.6 | 18.1 | | WNW | | | 4 | | | | | 0.012 | 0.3 | | |
| Groningen | | | 29.81 | 757.2 | 62.1 | 16.7 | | WSW | | | 5 | | | | | 0 | 0 | | |
| Helder | | | 29.86 | 758.4 | 57.2 | 14.0 | | SSW | | | 5 | | | | | 0 | 0 | | |
| Utrecht | | | 29.86 | 758.4 | 66.9 | 19.4 | 18 | SW | | | 4 | | 2 | | | 0 | 0 | Light cloudy. | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.60 | 751.7 | 46.4 | 8.0 | 89 | SSE | 15.0 | 6.7 | | | 10 | | | 0.512 | 13.0 | Raining | |
| Brönö | | | 29.62 | 752.3 | 43.5 | 6.4 | 79 | NE | 9 | 4 | | | 7 | | | Inap. | Inap. | Light rain | |
| Christiania | | | 29.64 | 752.9 | 50.9 | 10.5 | 68 | S | 16 | 7 | | | 10 | | | | | Light rain | |
| Tromsö | | | 29.67 | 753.5 | 39.9 | 4.4 | 68 | Calm | 0 | 0 | | | 9 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.05 | 763.2 | 68.0 | 20.0 | 85 | NW | 11.2 | 5.0 | | | 6 | | | 0.14 | 3.6 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.99 | 761.8 | 78.4 | 25.8 | 38 | SW | 4.3 | 1.9 | | | 3 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.23 | 767.9 | 68.2 | 20.1 | 60 | SW | 5.6 | 2.5 | | | 8 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.08 | 763.9 | 71.2 | 21.8 | 45 | NW | 12.5 | 5.6 | | | 0 | | | 0 | 0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.13 | 765.4 | 69.1 | 20.6 | 91 | WSW | 5.6 | 2.5 | | | 10 | | | 0.110 | 2.8 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.98 | 761.6 | 52.3 | 11.3 | 66 | W | 2 | 1 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 29.92 | 760.0 | 54.0 | 12.2 | 57 | S | 2 | 1 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.79 | 756.7 | 50.5 | 10.4 | 70 | S | 7 | 3 | | | 10 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.81 | 757.1 | 53.2 | 11.8 | 48 | SW | 18 | 8 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.69 | 754.1 | 43.5 | 6.4 | 91 | ESE | 13 | 6 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.91 | 759.6 | 52.9 | 11.6 | 46 | NNE | 4 | 2 | | | 6 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.97 | 761.2 | 60.1 | 15.6 | 48 | N | 18 | 8 | | | 6 | | | | | | Kurdakof. |
| Kertch | | | 29.90 | 759.5 | 66.9 | 19.4 | 61 | NNW | 2 | 1 | | | 8 | | | | | | Lagorio. |
| Moscow | | | 29.97 | 761.3 | 46.4 | 8.0 | 36 | WNW | 7 | 3 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.80 | 756.8 | 61.5 | 16.4 | 51 | SSE | 13 | 6 | | | 9 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.85 | 758.2 | 45.9 | 7.7 | 50 | WSW | 13 | 6 | | | 8 | | | | | | Ogorodnikof. |
| Tiflis | 28.55 | 725.2 | 29.96 | 760.9 | 58.6 | 14.8 | 87 | SE | 4 | 2 | | | 10 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.01 | 762.3 | 60.6 | 15.9 | 37 | E | 2 | 1 | | | 10 | | | | | Solar corona | Sebastianof. |
| Kasan | | | 29.87 | 758.7 | 50.9 | 10.5 | 37 | WSW | 13 | 6 | | | 9 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.55 | 750.5 | 66.0 | 18.9 | 84 | NE | 13 | 6 | | | 2 | | | | | | Tschernischef. |
| Ekaterinburg | 28.95 | 735.2 | 29.91 | 759.8 | 36.9 | 2.7 | 62 | E | 4 | 2 | | | 10 | | | | | Snowing | Meteorological Obs. |
| Nukuss | | | 29.90 | 759.5 | 72.5 | 22.5 | 51 | NNW | 9 | 4 | | | 10 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | | | | | | | | | | | | | | | | | | | Michelson. |
| Barnaul | | | 29.85 | 758.1 | 70.0 | 21.1 | 52 | NW | 4 | 2 | | | 9 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.80 | 757.0 | 52.2 | 11.2 | 45 | NW | 9 | 4 | | | 7 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 62.8 | 17.1 | | Calm | 0 | 0 | | | 0 | | | | | | Mossin. |
| Peking, (China) | | | 29.80 | 756.8 | 78.8 | 26.0 | 47 | Calm | 0 | 0 | | | 3 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.47 | 748.6 | 49.1 | 9.5 | 95 | SE | 13 | 6 | | | 10 | | | | | Raining | |
| Nikolaievsk, on the Amoor | | | | | 39.6 | 4.2 | | E | 7 | 3 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.97 | 761.2 | 77.7 | 25.4 | 38 | SW | 6.7 | 3.00 | | 0 | 6 | | | 0 | 0 | Cloudy | Royal Observatory. |
| San Fernando | | | 30.07 | 763.8 | 77.2 | 25.1 | 49 | E | 14.1 | 6.3 | | 0 | 6 | | E | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.98 | 761.5 | 80.6 | 27.0 | 78 | N | 1.1 | 0.5 | | 0 | 6k | | | 0 | 0 | Cloudy | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.77 | 756.2 | 45.7 | 7.6 | 64 | S | | | 2 | | 7 | | | 0 | 0 | | |
| Umea | | | 29.67 | 753.5 | 41.0 | 5.0 | 84 | ENE | | | 2 | | 10 | | | 0.264 | 6.7 | Raining | |
| Hernosand | | | 29.66 | 753.3 | 43.2 | 6.2 | 79 | ENE | | | 2 | | 10 | | | 0.378 | 9.6 | Rain & snow | |
| Stockholm | | | 29.70 | 754.3 | 52.9 | 11.6 | 79 | W | | | 2 | | 3 | | | 0.011 | 0.3 | | |
| Wisby | | | 29.81 | 757.2 | 49.6 | 9.8 | 64 | WNW | | | 6 | | 3 | | | 0.106 | 2.7 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.68 | 753.9 | 55.9 | 13.3 | 30 | W | 9.8 | 4.4 | | | 7 | | W | 0.039 | 1.00 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.62 | 727.0 | 30.01 | 762.3 | 66.6 | 19.2 | 44 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.42 | 721.9 | 30.02 | 762.5 | 66.2 | 19.0 | 48 | NW | | | 1 | | 0 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +1.4 mm; Thermometer, +1.0 cent.; Relative Humidity, —12 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.97 | 761.1 | 60.1 | 15.3 | 79 | NNE | 14.5 | 6.5 | | | 10 | | NNE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.98 | 761.6 | 82.4 | 28.0 | | SW | | | 2 | | 0 | | | | | | |
| Salonica | | | 29.93 | 760.2 | 77.7 | 25.4 | | S | | | 1 | | 5 | | | | | | B. Stéfanidés. |
| Valona | | | 30.11 | 764.7 | 66.6 | 19.2 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 29.92 | 760.0 | 60.8 | 16.0 | | NW | | | 2 | | 8 | | | Blank | Blank | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.94 | 760.5 | 83.1 | 28.4 | 64 | W | | | 2 | | 10cs | | | 0 | 0 | Overcast | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.19 | 766.8 | 61 | 16.1 | | SW | 1 | 0.4 | | 0 | 2s | | | 0.11 | 2.8 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 30.13 | 765.3 | 43 | 6.1 | 94 | N | 5 | 2.2 | | | 10n | | NE | 0.16 | 4.1 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island. | | | 30.02 | 762.5 | 41 | 5.0 | 92 | N | 15 | 6.7 | | | 10s | | | 0.275 | 6.99 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.17 | 766.3 | 53.4 | 11.9 | 71 | E | | | 2 | 3.3k | 0 | N | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.00 | 762.0 | | | | W | | | 1 | | | | | 0.43 | 10.9 | Gloomy | H. A. Johnson. |
| Esquimault, B. C. | | | 30.06 | 763.5 | 44.3 | 6.8 | 96 | NE | | | | 3cs | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.17 | 766.3 | 45 | 7.2 | 88 | Calm | 0 | 0 | | 5k | 5s | E | E | 0 | 0 | Cloudy | J. McWilliams |
| *Fredericton, N. B. | | | 30.14 | 765.5 | 46.0 | 8.1 | 73 | NE | 4 | 1.8 | | | 10 | | | 0.09 | 2.3 | Cloudy | Prof. Harrison. |
| Fort Garry, Manitoba | | | 30.02 | 762.5 | 60 | 15.6 | 76 | S | 10 | 4.5 | | 5k | 5k | S | S | 0 | 0 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 30.26 | 768.6 | 54.7 | 12.6 | 57 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | | | 29.13 | 739.9 | 30.23 | 767.8 | 53 | 11.7 | 67 | N | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.98 | 761.5 | 44 | 6.7 | 84 | NW | 9 | 4.0 | | | 10n | | N | 0.360 | 9.14 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.22 | 767.6 | 63.7 | 17.6 | 31 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.84 | 757.9 | 42 | 5.6 | 91 | NW | | | 1 | | 10 | | | 0.20 | 5.1 | Dense fog | E. Weedon. |
| *Kingston, Ontario | | | 30.22 | 767.6 | 56 | 13.3 | 72 | SE | 1 | 0.4 | | 2c | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.19 | 766.8 | 54 | 12.2 | 63 | E | 1 | 0.4 | | 0 | 0 | | | 0.01 | 0.3 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.20 | 767.1 | 56 | 13.3 | 75 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.20 | 767.1 | 57 | 13.9 | 63 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | | | | | | | | | | | | | | | | | Peter Grant. |
| Port Stanley, Ontario | | | 30.22 | 767.6 | 55 | 12.8 | 63 | NW | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.17 | 766.3 | 50 | 10.0 | 79 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear. | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.19 | 766.8 | 58 | 14.4 | 64 | W | 3 | 1.3 | | 0 | 0 | | | 0.02 | 0.5 | Clear. | W. H. McIntyre. |
| St. John, N. B. | | | 30.07 | 763.8 | 46 | 7.8 | 77 | N | 11 | 4.9 | | | 10 | | | 0 | 0 | Cloudy | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.20 | 767.1 | 51 | 10.6 | 72 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.94 | 735.1 | 30.22 | 767.6 | 50.3 | 10.2 | 75 | NW | 2 | 0.9 | | c | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.91 | 759.7 | 42 | 5.6 | 95 | N | 5 | 2.2 | | | 10ks | | N | 0.58 | 14.7 | Clearing | T. C. Hill. |
| *Toronto, Ontario | | | 30.21 | 767.3 | 59 | 15.0 | 56 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 29.97 | 761.2 | 42.8 | 6.0 | 87 | N | 12 | 5.4 | | 3c | 10n | NW | | 0.47 | 11.9 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.20 | 767.1 | 59.2 | 15.1 | 67 | W | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.96 | 761.0 | 42.0 | 5.6 | 91 | S | | | | 10k | 10s | | | 0.16 | 4.1 | Cloudy | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.13 | 765.3 | 56 | 13.3 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0.07 | 1.8 | Clear | |
| Alpena, Mich. | | | 30.23 | 767.8 | 58 | 14.4 | 47 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.15 | 765.8 | 60 | 15.6 | 82 | N | 6 | 2.7 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Augusta, Ga. | | | 30.22 | 767.6 | 67 | 19.4 | 59 | SE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.18 | 766.6 | 60 | 15.6 | 70 | NW | 4 | 1.8 | | 8k | Sm'e | | | 0.08 | 2.0 | Cloudy | |
| Barnegat, N. J. | | | 30.14 | 765.5 | 58 | 14.4 | 69 | N | 11 | 4.9 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Bismarck, Dakota | 28.19 | 716.0 | 29.81 | 757.2 | 53 | 11.7 | 93 | S | 11 | 4.9 | | | 10s | | S | 0.05 | 1.3 | Cloudy | |
| Boston, Mass. | | | 30.16 | 766.1 | 49 | 9.4 | 71 | NE | 15 | 6.7 | | | 10s | | NE | 0.09 | 2.3 | Cloudy | |
| Breckenridge, Minn. | | | 30.05 | 763.3 | 54 | 12.2 | 93 | SE | 8 | 3.6 | | | 10n | | S | Inap. | Inap. | Light rain | |
| Buffalo, N. Y. | | | 30.18 | 766.6 | 52 | 11.1 | 86 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.18 | 766.6 | 53 | 11.7 | 67 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.20 | 767.1 | 61 | 16.1 | 60 | NE | 2 | 0.9 | | 5c | 0 | | | 0 | 0 | Fair | |
| Campo, Cal. | 27.41 | 696.2 | 29.98 | 761.5 | 35 | 1.7 | 100 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 56 | 13.3 | | W | | | | Haze | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.12 | 765.0 | 65 | 18.3 | 68 | NE | 1 | 0.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.17 | 766.3 | 66 | 18.9 | 68 | W | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.21 | 767.3 | 65 | 18.3 | 58 | S | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.16 | 766.1 | 59 | 15.0 | 64 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.17 | 766.3 | 64 | 17.8 | 58 | N | 12 | 5.4 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 24.02 | 610.1 | 29.96 | 761.0 | 48 | 8.9 | 77 | SW | 4 | 1.8 | | 0 | 0 | | | 0.26 | 6.6 | Clear | |
| Chicago, Ill. | | | 30.21 | 767.3 | 55 | 12.8 | 74 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.21 | 767.3 | 55 | 12.8 | 68 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.25 | 768.3 | 55.5 | 13.1 | 68 | S | 2 | 0.9 | | 1cs | 1k | | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 30.06 | 763.5 | 64 | 17.8 | 94 | E | 4 | 1.8 | | | 10s | | | 0.03 | 0.8 | Cloudy | |
| Davenport, Iowa | | | 30.23 | 767.8 | 59 | 15.0 | 59 | Calm | 0 | 0 | | 1c | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.05 | 763.3 | 64 | 17.8 | 78 | SE | 7 | 3.1 | | 3c | 2s | S | | 0 | 0 | Fair | |
| Denver, Col. | 24.78 | 629.4 | 30.00 | 762.0 | 51 | 10.6 | 65 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.21 | 767.3 | 56 | 13.3 | 56 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.42 | 696.5 | 29.64 | 752.8 | 62 | 16.7 | 89 | S | 3 | 1.3 | | 0 | 8s | | | 0 | 0 | Cloudy | |
| Dubuque, Iowa | | | 30.22 | 767.6 | 57 | 13.9 | 69 | SE | 1 | 0.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 30.14 | 765.5 | 52 | 11.1 | 78 | SW | 2 | 0.9 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Eastport, Me. | | | 30.09 | 764.3 | 46 | 7.8 | 77 | N | 10 | 4.5 | | | 10s | | N | 0.21 | 5.3 | Cloudy | |
| Erie, Pa. | | | 30.17 | 766.3 | 57 | 13.9 | 75 | SW | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 30.18 | 766.6 | 54 | 12.2 | 67 | S | 8 | 3.6 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Florence, Arizona | 28.36 | 720.3 | 29.96 | 761.0 | 67 | 19.4 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.09 | 764.3 | 62 | 16.7 | 71 | E | 8 | 3.6 | | 2c | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.76 | 730.5 | 30.01 | 762.2 | 63 | 17.2 | 83 | S | 4 | 1.8 | | 8c | 0 | N | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.72 | 754.9 | 37.5 | 3.1 | 95 | Calm | | | 0 | 10ck | Fog | SE | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.82 | 732.0 | 29.90 | 759.4 | 63 | 17.2 | 83 | E | 4 | 1.8 | | 10k | 0 | | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.22 | 716.8 | 29.85 | 758.2 | 55 | 12.8 | 93 | SE | 12 | 5.4 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Galveston, Tex. | | | 30.08 | 764.0 | 76 | 24.4 | 81 | SW | 1 | 0.4 | | 2ck | 5ks | W | | 0.01 | 0.3 | Cloudy | |
| Grand Haven, Mich. | | | 30.23 | 767.8 | 57 | 13.9 | 63 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.22 | 767.6 | 58 | 14.4 | 64 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.07 | 763.8 | 73 | 22.8 | 90 | NE | 14 | 6.3 | | 8k | 0 | SW | | 0.57 | 14.5 | Fair | |
| Jacksonville, Fla. | | | 30.08 | 764.0 | 72 | 22.2 | 58 | NE | 15 | 6.7 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 30.14 | 765.5 | 57 | 13.9 | 75 | SE | 8 | 3.6 | | 5k | 5s | SE | SE | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 29.96 | 761.0 | 81.5 | 27.5 | 70 | NW | 4 | 1.8 | | 0 | 1ks | | | 0 | 0 | Hazy | |
| Kittyhawk, N. C. | | | 30.21 | 767.3 | 65 | 18.3 | 67 | W | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.21 | 767.3 | 56 | 13.3 | 51 | N | 1 | 0.4 | | 3ck | 0 | SW | | 0 | 0 | Fair | |
| LaCrosse, Wis. | | | 30.18 | 766.6 | 60 | 15.6 | 44 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.07 | 763.8 | 61 | 16.1 | 77 | SE | 6 | 2.7 | | 5k | 5s | SW | | 0.04 | 1.0 | Cloudy | |
| Louisville, Ky. | | | 30.22 | 767.6 | 60 | 15.6 | 54 | NE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.20 | 767.1 | 59 | 15.0 | 48 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 88 | 31.1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.12 | 765.0 | 61 | 16.1 | 45 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.17 | 766.3 | 61 | 16.1 | 61 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 30.29 | 769.4 | 48 | 8.9 | 77 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.10 | 764.5 | 70 | 21.1 | 66 | SW | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Montgomery, Ala. | | | 30.16 | 766.1 | 68 | 20.0 | 47 | SE | 6 | 2.7 | | 2ck | Haze | N | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.16 | 740.7 | 30.32 | 767.6 | 56 | 13.3 | 62 | N | 3 | 1.3 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Mt. Washington, N. H. | 23.83 | 605.3 | 30.19 | 766.8 | 26 | — 3.3 | 76 | NE | 6 | 2.7 | | 8s | 0 | NE | | 0.29 | 7.4 | Fair | |
| Nashville, Tenn. | | | 30.19 | 766.8 | 64 | 17.8 | 52 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.16 | 766.1 | 55 | 12.8 | 68 | NE | 16 | 7.2 | | Haze | 0 | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.13 | 765.3 | 56 | 13.3 | 74 | N | 8 | 3.6 | | 2ck | 2s | SW | NE | 0 | 0 | Fair | |
| New Orleans, La. | | | 30.05 | 763.3 | 75 | 23.9 | 51 | SW | 5 | 2.2 | | | 10s | | W | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 30.14 | 765.5 | 52 | 11.1 | 86 | N | 10 | 4.5 | | | 10ks | | NE | 0 | 0 | Threatening | |
| New York, N. Y. | | | 30.16 | 766.1 | 59 | 15.0 | 59 | NW | 9 | 4.0 | | 0 | 0 | | | 0.04 | 1.0 | Clear | |
| Norfolk, Va. | | | 30.19 | 766.8 | 65 | 18.3 | 68 | SW | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| North Platte, Neb. | 27.09 | 688.1 | 29.62 | 752.3 | 55 | 12.8 | 100 | E | 5 | 2.2 | | | Fog | | | 0 | 0 | Foggy | |
| Omaha, Neb. | 28.99 | 736.3 | 30.06 | 763.5 | 57 | 13.9 | 81 | SE | 10 | 4.5 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Oswego, N. Y. | | | 30.19 | 766.8 | 56 | 13.3 | 71 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.96 | 761.0 | 60 | 15.6 | 70 | S | 11 | 4.9 | | 10k | 0 | W | | Inap. | Inap. | Cloudy | |
| Philadelphia, Pa. | | | 30.18 | 766.6 | 59 | 15.0 | 59 | NE | 7 | 3.1 | | 1cs | 0 | | | 0.19 | 4.8 | Clear | |
| Phœnix, Arizona | | | | | 65 | 18.3 | | S | | | | 2c | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.91 | 454.9 | 30.12 | 765.0 | 25 | — 3.9 | 57 | NW | 14 | 6.3 | | 1k | 0 | | | 0.03 | 0.8 | Clear | |
| Pittsburgh, Pa. | | | 30.21 | 767.3 | 49 | 9.4 | 85 | Calm | 0 | 0 | | 1k | 0 | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 30.21 | 767.3 | 53 | 11.7 | 73 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Portland, Me. | | | 30.16 | 766.1 | 52 | 11.1 | 66 | N | 9 | 4.0 | | 8k | 0 | NE | | 0.09 | 2.3 | Cloudy | |
| Portland, Oregon | | | 30.18 | 766.6 | 46 | 7.8 | 92 | S | 4 | 1.8 | | 0 | 5s | | | 0.01 | 0.3 | Fair | |
| Prescott, Arizona | 24.82 | 630.4 | 30.18 | 766.6 | 40 | 4.4 | 56 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.99 | 761.7 | 75 | 23.9 | 81 | NE | 14 | 6.3 | | 0 | 2ks | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.17 | 766.3 | 57 | 13.9 | 63 | W | 3 | 1.3 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Salt Lake City, Utah | 25.55 | 649.0 | 29.88 | 758.9 | 64 | 17.8 | 16 | SE | 8 | 3.6 | | 5ck | 2s | SW | E | 0 | 0 | Fair | |
| Sandy Hook, N. J. | | | 30.16 | 766.1 | 58 | 14.4 | 75 | N | 7 | 3.1 | | 2ck | Haze | NW | | 0.10 | 2.5 | Fair | |
| San Antonio, Tex. | | | 29.92 | 760.0 | 69 | 20.6 | 84 | Calm | 0 | 0 | | | 10ks | | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.00 | 762.0 | 66 | 15.6 | 76 | SE | 4 | 1.8 | | | 10s | | SE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.00 | 762.0 | 51 | 10.6 | 65 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.31 | 592.1 | 29.85 | 758.2 | 56.5 | 13.6 | 36 | E | 4 | 1.8 | | 1ck | 0 | SW | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.16 | 766.1 | 67 | 19.4 | 54 | NE | 11 | 4.9 | | 1ks | Haze | S | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.18 | 766.6 | 66 | 18.9 | 79 | NE | 3 | 1.3 | | Haze | 0 | | | Inap. | Inap. | Clear | |
| Smithville, N. C. | | | 30.20 | 767.1 | 63 | 17.2 | 57 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.17 | 766.3 | 57 | 13.9 | 60 | NE | 5 | 2.2 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.20 | 767.1 | 62 | 16.7 | 56 | SE | 4 | 1.8 | | 5cs | 0 | | | 0 | 0 | Fair | |
| St. Marks, Fla. | | | 30.11 | 764.8 | 66 | 18.9 | 59 | E | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 30.10 | 764.5 | 63 | 17.2 | 66 | SE | 4 | 1.8 | | 8c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 56 | 13.3 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex. | 27.09 | 685.8 | 30.00 | 762.0 | 60 | 15.6 | 70 | S | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 30.17 | 766.3 | 49 | 9.4 | 85 | N | 12 | 5.4 | | 5k | 0 | NW | | 0.04 | 1.0 | Fair | |
| Toledo, Ohio | | | 30.23 | 767.8 | 56 | 13.3 | 74 | NE | 2 | 0.9 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Tucson, Arizona | 27.51 | 698.7 | 30.06 | 763.5 | 64 | 17.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.11 | 764.8 | 67 | 19.4 | 56 | NE | 22 | 9.8 | | 2k | Haze | NE | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.12 | 765.0 | 67.5 | 19.7 | 50 | E | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.18 | 614.2 | 29.66 | 753.4 | 45 | 7.2 | 38 | Calm | 0 | 0 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Washington, D. C | | | 30.20 | 767.1 | 59 | 15.0 | 76 | NW | 3 | 1.3 | | 2ck | 0 | NW | | 0.03 | 0.8 | Fair | |
| Wickenburg, Arizona | | | | | 70 | 21.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.20 | 767.1 | 60 | 15.6 | 60 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 30.16 | 766.1 | 56 | 13.3 | 74 | N | 6 | 2.7 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.80 | 731.5 | 30.07 | 763.8 | 56 | 13.3 | 81 | SE | 12 | 5.4 | | | 10s | | SE | 0.03 | 0.8 | Cloudy | |
| Yuma, Arizona | | | | | | | | N | | | | 1ck | 0 | | | 0 | 0 | Clear | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.14 | 765.5 | 83 | 28.3 | 87 | SE | 5 | 2.2 | | | 10n | | | Inap. | Inap. | Raining | James Gall. |
| Nayassa, W. I | | | | | 81 | 27.2 | | SE | | | 4 | | | | | 3.34 | 84.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.12 | 765.0 | 82 | 27.8 | 79 | E | | | 2 | 0 | 4k | | | 0.120 | 3.05 | Clear | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | 80.6 | 27.0 | | E | | | | | | | | 0.315 | 8.00 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 30.15 | 765.7 | | | 70.5 | 21.4 | 78 | Calm | | | 0 | 2cs | 1ks | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | 25.24 | 641.1 | | | 35.0 | 1.7 | 95 | NE | 6 | 2.7 | | 3k | 6s | NE | NE | 0.10 | 2.5 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 29.91 | 759.7 | 71 | 21.7 | | NE | | | 6 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | 30.12 | 765.0 | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67; feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown 1,027.[illegible] ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,862.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.25 | 768.3 | 65 | 18.3 | 60 | 15.6 | 71 | N | | | 1 | | 6 | | N | 0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.04 | 763.0 | 60 | 15.6 | 55 | 12.8 | | SW | | | 2 | | 2 | | N | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va. | 30.39 | 769.6 | 63 | 17.2 | 63 | 17.2 | 100 | SW | 2 | 0.9 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.23 | 767.8 | | | 72 | 22.2 | 76 | E | 26 | 11.6 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.23 | 767.8 | 63 | 17.2 | 54 | 12.2 | 61 | NE | 7 | 3.1 | | | | | | 0.175 | 4.45 | | | Showery | |
| Naval Hospital, Yokohama, Japan | 29.89 | 759.2 | 69 | 20.6 | 66 | 18.9 | 79 | SW | | | 5 | | 1c,hz | | WSW | 0 | 0 | | | Fair | |
| Adams, S. 15° 40′ W. 34° 37′ | 30.19 | 766.8 | 78 | 25.6 | 78 | 25.6 | 91 | Var. | | | 1 | | 10 | | E | Light | Light | Moderate | SE | D. clouds | |
| Alert, N. 23° 55′ 57″ E. 140° 36′ 15″ | 29.85 | 758.2† | 80 | 26.7 | 80 | 26.7 | 100 | SSW | | | 4–6 | | 7 | | WSW | | | Long | SW | Lightning | |
| Alliance, Beirut, Syria | 30.06 | 763.5 | 72 | 22.2 | 75 | 23.9 | 72 | SW | | | 2 | | 9 | | N&E | | | Long | SW | Hazy | |
| Ashuelot, Hong-Kong, China | 29.97 | 761.2 | 76 | 24.4 | 76 | 24.4 | 91 | E | | | 3 | | 9 | | W | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La. | 30.06 | 763.5 | 53 | 11.7 | 72 | 22.2 | 76 | SW | | | 1 | | 10 | | | | | | | Cloudy | |
| Colorado, New York, N. Y. | 30.15 | 765.8 | 66 | 18.9 | 59 | 15.0 | 59 | N | 1 | 0.4 | | | 4 | | N&W | 0.05 | 1.3 | | | Foggy | |
| Despatch, N. 36° 15′ W. 4° 24′ | 30.18 | 766.6 | 69 | 20.6 | 67 | 19.4 | 89 | SE | | | 3 | | 9 | | ESE | | | Smooth | | Cloudy | |
| Frolic, Rio de Janeiro, Brazil | 30.37 | 771.4 | 60 | 15.6 | 63 | 17.2 | 89 | N | | | 1 | | 8k | | | 0 | 0 | | | Hazy | |
| ‡Gettysburg, Genoa, Italy | 29.96 | 761.0 | | | 73 | 22.8 | 100 | SSE | | | 1 | | 3 | | | 0 | 0 | | | D. clouds | |
| Hartford, Port Royal, S. C. | 30.35 | 770.9 | 69 | 20.6 | 69 | 20.6 | 80 | ENE | 12.0 | 5.4 | | | 7 | | | | | | | Pleasant | |
| Huron, Oruba Island, W. I. | 30.10 | 764.5 | 85 | 29.4 | 87 | 30.6 | 72 | E | | | 1–6 | | 1 | | E | | | | | Blue sky | |
| Kearsarge, Kagosima, Japan | 30.08 | 764.0 | 76 | 24.4 | 75 | 23.9 | 77 | WNW | | | 1 | | 5 | | E | 0 | 0 | | | Hazy | |
| Lackawanna, N. 24° 20′ W. 109° 47′ | 29.98 | 761.5 | | | 79 | 26.1 | 82 | NW | | | 0–1 | | 3 | | | | | Smooth | | D clouds | |
| Marion, Smyrna, Turkey | 29.99 | 759.4 | 74 | 23.3 | 75 | 23.9 | 60 | WSW | | | 3 | | 5 | | ENE | 0 | 0 | Chop'd | WSW | D. clouds | |
| Michigan, Erie, Pa. | 29.65 | 753.4 | 63 | 17.2 | 56 | 13.3 | 63 | SW | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Che-foo, China | 29.78 | 756.4 | 69 | 20.6 | 67 | 19.4 | 95 | Calm | | | 0 | | 0? | | | 0 | 0 | Smooth | | Overcast | |
| Monongahela, N. 36° 56′ W. 74° 46′ | 30.23 | 767.8 | 65 | 18.3 | 64 | 17.8 | | NW | | | 2 | | k | | | 0 | 0 | | | Hazy | |
| New Hampshire, Port Royal, S. C. | 30.36 | 771.1 | | | 69 | 20.6 | 48 | NE | 14 | 6.3 | | | 7 | | SW | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 30.00 | 762.0 | 72 | 22.2 | 71.5 | 21.9 | 80 | SE | 7 | 3.1 | | | 1 | | SE | 0 | 0 | Smooth | | Clear | |
| Ossipee, Port Royal, S. C. | 30.15 | 765.8 | 66 | 18.9 | 65 | 18.3 | 68 | NNE | | | 5 | | 8 | | ENE | | | | | D. clouds | |
| Palos, Shanghai, China | 30.00 | 762.0 | 70 | 21.1 | 70 | 21.1 | 100 | SSE | | | 2 | | 1 | | N&W | | | | | Hazy | |
| Plymouth, N 26° 55′ W. 90° 14′ | 30.11 | 764.8 | 80 | 26.7 | 78 | 25.6 | 78 | NNE | | | 2 | | 0 | | | 0 | 0 | Smooth | | Clear | |
| Ranger, N. 37° 09′ W. 3° 03′ | 30.23 | 767.8 | | | 70 | 21.1 | 90 | E | | | 3 | | 4 | | W | | | Moderate | W | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.46 | 773.7 | 66.5 | 19.2 | 66.0 | 18.9 | 89 | Calm | | | 0 | | 2 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.92 | 760.0 | | | 67 | 19.4 | 95 | SE | | | 1 | | 1 | | | | | | | Dew | |
| Santee, Annapolis, Md. | 30.24 | 768.1 | 63 | 17.2 | 60 | 15.6 | 71 | NW | | | 1 | | 8 | | | 0 | 0 | | | Cloudy | |
| St. Louis, League Island, Pa | 30.06 | 763.5 | 62 | 16.7 | 62 | 16.7 | 66 | NE | 6 | 2.7 | | | 3 | | SE | 0.07 | 1.8 | | | Fair | |
| Swatara, San Andres, U. S. C. | 29.96 | 761.0 | 82 | 27.8 | 83 | 28.3 | 100 | Calm | | | 0 | | 3k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.90 | 759.4 | 71 | 21.7 | 71 | 21.7 | 75 | S | | | 3 | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.85† | 758.2† | 75 | 23.9 | 78 | 25.6 | 78 | WSW | 12 | 5.4 | | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.02 | 762.5 | 64 | 17.8 | 64 | 16.7 | 94 | NNW | | | 1 | | 10 | | NNW | | | | | Drizzling | |
| Wabash, Boston, Mass. | 30.17 | 766.3 | 52 | 11.1 | 52 | 10.6 | 72 | NE | 10 | 4.5 | | | 9 | | NE | 0.05 | 1.3 | | | D. clouds | |
| Wyoming, Washington, D.C. | 30.42† | 772.7† | 65 | 18.3 | 65 | 18.3 | | Calm | | | 0 | | 0? | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 41° 32′ E. 155° 04′ | | | 30.05 | 763.3 | 53 | 11.7 | 73 | WSW | | | 2 | | 10ns | | | Long | E | Overcast | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning.— |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 39° 56′ W. 68° 50′ | W by S ½S | 10.5 | 30.16 | 766.1 | 51.1 | 10.6 | | WSW | | | 3 | | s | | W | Smooth | | Overcast | Capt. C. Pohle. |
| S. S. Brunswick, N. 49° 4′ W. 19° 7′ | | | 29.44 | 747.8 | 58 | 14.4 | | W | | | 6 | | 9k | | W | Heavy | | Squally | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 48° 44′ W. 17° 45′ | E½N | | 29.50 | 749.3 | 54.5 | 12.5 | | WSW | | | 6 | | n | | WSW | Rough | | Light rain | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | Up'er 0—10. | Lo'wr 0—10. | Upper. From— | Lower. From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.03 | 762.7 | 69 | 20.6 | 65 | NE | 8 | 3.6 | | 5k | 0 | NE | | | | D. clouds | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 28, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:18 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.04 | 763.0 | 70.9 | 21.6 | 69 | NNW | | | 1 | | 1 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.06 | 763.5 | 64.0 | 17.8 | 78 | N | | | 2 | | 6 | | | 0.071 | 1.8 | Fair | Peter. |
| La Calle | | | 30.00 | 762.0 | 77.7 | 25.4 | 88 | S | | | 3 | | 8 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.08 | 764.0 | 69.8 | 21.0 | | E | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Stax | | | | | 69.8 | 21.0 | | ENE | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.07 | 763.6 | 65.8 | 18.8 | | E | | | 3 | | 2 | | | 0.209 | 5.3 | Clear | Millot. |
| Tebessa | | | 30.05 | 763.2 | 62.1 | 16.7 | | E | | | 1 | | 2 | | | 0.315 | 8.0 | Clear | Bourgeois. |
| Geriville | | | 30.03 | 762.7 | 60.8 | 16.0 | 76 | NNW | | | 2 | | 6 | | | 1.339 | 34.0 | Fair | Lemaillot. |
| Laghouat | | | 30.01 | 762.3 | 70.7 | 21.5 | 20 | E | | | 2 | | 6 | | | 0.984 | 25.0 | Fair | Guyot. |
| Biskra | | | 30.06 | 763.4 | 76.3 | 24.6 | 54 | SE | | | 2 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.95 | 760.6 | 73.8 | 23.2 | 36 | SW | | | 4 | | 4 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.91 | 759.6 | 66.9 | 19.4 | 47 | WSW | | | 1 | | 7 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.94 | 760.5 | 65.5 | 18.6 | 48 | S | | | 3 | | 4c,s | | N | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.67 | 728.1 | 29.87 | 758.8 | 69.3 | 20.7 | 58 | ESE | | | 2 | | 2 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.65 | 727 7 | 30.04 | 762.9 | 64.0 | 17.8 | 50 | W | | | 1 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.48 | 723 3 | 29.77 | 756.2 | 66.2 | 19.0 | 46 | E | | | 2 | | 0 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.95 | 760.8 | 61.9 | 16.6 | 65 | SW | | | 1 | | 5 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 30.03 | 762.8 | 71.2 | 21.8 | 66 | SSE | | | 2 | | 1k | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.02 | 762 5 | 65.8 | 18.8 | 53 | Calm | | | 0 | | 3 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.04 | 763.1 | 67.5 | 19.7 | 72 | N | | | 1 | | 6 | | | 0 | 0 | ⅓ covered | P. Busin. |
| Vienna | | | 29.84 | 757.8 | 71 6 | 22.0 | 47 | E | | | 2 | | 3 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.19 | 716. 0 | 29.63 | 752.7 | 59.2 | 15.1 | 60 | S | | | 3 | | 10 | | | 0.528 | 13.4 | | |
| Brussels | | | 29.45 | 748.1 | 61.5 | 16.4 | 73 | SSW | | | 6 | | 10 | | SW | 0.890 | 22.60 | Covered | Royal Observatory. |
| Furnes | | | 29.42 | 747.3 | 61.9 | 16.6 | 68 | SW | | | 4 | | 7 | | | 0.008 | 0.2 | | |
| Maeseyck | | | 29.40 | 746.8 | 61.3 | 16.3 | 66 | SSW | | | 10 | | 7 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 28.74 | 730.0 | 52.0 | 11.1 | | S | 16 | 7.2 | | | 8 | | | 0.180 | 4.57 | Overcast | William Boswell. |
| Ardrossan | | | 28.71 | 729.2 | 54 | 12.2 | | W | | | 2 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 28.84 | 732.5 | 58.3 | 14.6 | | WSW | 16 | 7.2 | | | 7 | | | | | Squally | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 28.95 | 735.3 | 59.0 | 15.0 | | SW | 46 | 20.6 | | | 6 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.04 | 738.1 | 50.6 | 10.3 | | WSW | | | 4 | | 10 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 28.96 | 735.6 | 60.0 | 15.6 | | W | | | 8 | | 3 | | | 0.32 | 8.1 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.92 | 760.0 | 82.8 | 28.2 | | E | | | 3 | | 2 | | | | | D. clouds | A. Pvt. G. W. Roberts, [H.C. |
| Cambridge, Observatory | | | 29.19 | 741.4 | 58.0 | 14.4 | | SW | | | 5 | | 10 | | | | | Showery | H. Todd. |
| Cardington | | | 29.20 | 741.7 | 62.0 | 16.7 | | SW | | | 8 | | 7 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.36 | 745.7 | 59.2 | 15.1 | | SW | | | 4 | | 10 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 27.88 | 708.1 | 29.33 | 745.0 | 49.0 | 9.4 | | SW | | | 5 | | 9 | | | | | Raining | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 28.80 | 731.5 | 55 | 12.8 | | WSW | | | 5 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 29.36 | 745.7 | 56 | 13.3 | | SW | | | 6 | | 7 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.00 | 736.6 | 59.5 | 15.3 | | SW | 14.2 | 6.3 | | | 5 | | | | | Squally | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.32 | 744.7 | 57.0 | 13.9 | | WSW | | | 6 | | 8 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.62 | 701.5 | 29.85 | 758.2 | 71.3 | 21.8 | | NE | | | 2 | | 9 | | | | | Overcast | Pvt. G. Salmon, A.H.C. |
| Free Town, (Sierra Leone) | | | 30.02 | 762.5 | 83 | 28.3 | | NE | | | 2 | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 28.95 | 735.3 | 55 | 12.8 | | W | | | 5 | | 5 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.01 | 762.2 | 75.0 | 23.9 | | SE | | | 1 | | 5 | | | | | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 28.70 | 729.0 | 52.6 | 11.4 | | SW | | | 3 | | 10 | | | | | Raining | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.21 | 741.9 | 63 | 17.2 | | SSW | | | 5 | | 5 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.28 | 743.7 | 60.0 | 15.6 | | SW | | | 5 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 29.42 | 747.3 | 58.5 | 14.7 | | SW | | | 6 | | 5 | | | Blank | Blank | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.39 | 746.5 | 59 | 15.0 | | SW | | | 7 | | 6k | | | 0 | 0 | Fair | M. P. Moyle. |
| Holyhead | | | 29.91 | 736.8 | 54 | 12.2 | | SW | | | 6 | | 3 | | | | | Showery | John Tilston. |
| Kew, Observatory | | | 29.27 | 743.4 | 58.3 | 14.6 | | SW | 35 | 15.6 | | | 10k | | | | | Threatening | The Staff. |
| Kingstown | | | 28.96 | 735.6 | 56 | 13.3 | | WNW | | | 6 | | 6 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.10 | 739.1 | 58.8 | 14.9 | | SW | | | 6 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.10 | 764.5 | 69.0 | 20.6 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 28.68 | 728.5 | 51 | 10.6 | | SW | | | 1 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.94 | 760.5 | 78.2 | 25.7 | | N | | | 1 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.09 | 738.9 | 56.2 | 13.4 | | SSW | | | 6 | | 7ck,k | adj | SW, WSW | 0.213 | 5.41 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.08 | 738.6 | 57.2 | 14.0 | | SSW | | | 6-7 | | 8 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.20 | 741.7 | 56 | 13.3 | | SW | | | 4 | | 10 | | | | | Overcast | J. W. Lucas |
| Plymouth | | | 29.29 | 744.0 | 59.8 | 15.4 | | SW | | | 6 | | 8 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.17 | 740.9 | 55 | 12.8 | | WNW | | | 6 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.14 | 740.1 | 55 | 12.8 | | WSW | | | 6 | | 7 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.45 | 748.0 | 57.0 | 13.9 | | WSW | | | 6 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 28.70 | 729.0 | 49.2 | 9.6 | | ENE | 6 | 2.7 | | | 10 | | | | | Raining | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.12 | 765.0 | 67.8 | 19.9 | | NE | | | 2 | | 3 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.03 | 737.3 | 58.9 | 14.9 | | W | | | 6 | | 7 | | | 0.079 | 2.01 | Threatening | W. F. Cooper. |
| Silloth, Rectory | | | 28.78 | 731.0 | 52.1 | 11.2 | 89 | SW | | | 6 | | 10 | | | 0.265 | 6.73 | Overcast | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 28.96 | 735.6 | 56.1 | 13.4 | | SW | | | 5 | | 10 | | | | | Squally | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 28.65 | 727.7 | 52 | 11.1 | | SSW | | | 2 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 29.27 | 743.4 | 56.5 | 13.6 | | SW | | | 3 | | 10 | | | Blank | Blank | Squally | Rev. Charles H. Griffith. |
| Thurso | | | 28.72 | 729.5 | 50 | 10.0 | | SSE | | | 1 | | 9 | | | | | Raining | John Trotter. |
| Truro, Royal Institution | | | 29.36 | 745.7 | 59 | 15.0 | | W | | | 7 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.27 | 743.4 | 54.2 | 12.3 | | WNW | 31 | 13.9 | | | 6 | | | | | D. clouds | The Staff. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 49 | 9.4 | | W | | | 7 | | 10 | | | 0.20 | 5.1 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.13 | 765.3 | 62.8 | 17.1 | 83 | NW | 8 | 3.6 | | 10 | 9 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.14 | 765.5 | 54.0 | 13.3 | 93 | Calm | | | 0 | | 10k | | | 0.22 | 5.6 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 28.75 | 730.2 | 56.0 | 13.3 | | SW | | | 3 | | 7k | | | 0.26 | 6.6 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.14 | 765.5 | 75.0 | 23.9 | 71 | ENE | 10.2 | 4.6 | | 6 | 1 | W | E | 0.04 | 1.0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.37 | 771.4 | 50.6 | 10.3 | 64 | SSW | 20 | 8.9 | | | 8 | | | 0.59 | 15.0 | Squally | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 28.70 | 729.0 | 48 | 8.9 | | W | | | 6 | | 10 | | | 0.4 | 10. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 28.69 | 728.7 | 47 | 8.3 | | S | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in Bs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

## MARINE SERIES.

| VESSELS. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 45° 10′ W. 44° 5′ | | | 29.92 | 760.0 | 51.0 | 10.6 | | SW | | | 3 | | 10 | | | 10* | ENE | Showery | Capt. W. Watson. |
| S. S. Batavia, N. 42° 15′ W. 58° 10′ | | | | | | | | Calm | | | 0 | | 9 | | | 1 | NNW | Overcast | Capt. J. E. Monland. |
| Ship Camperdown, N. 24° 10′ W. 81° 25′ | | | 29.97 | 761.2 | 84.0 | 28.9 | | Calm | | | 0 | | 4 | | | 1 | NE | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bolstowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.23 | 742.4 | 54 | 12.2 | | NW | | | 9 | | 10 | | | 0 | | Squally | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.24 | 666.5 | | | 69.4 | 20.8 | 77 | SE | | | 2 | | 1cs | | SE | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.50 | 749.2 | 64.9 | 18.3 | 46 | SE | | | 4 | | 2 | | | | | | |
| Fanöe | | | 29.33 | 744.9 | 60.3 | 15.7 | 73 | S | | | 6 | | 10 | | | | | Rain and fog | |
| Godthaab, (Greenland) | | | 29.30 | 744.3 | 37.0 | 2.8 | 93 | ENE | | | 2 | | 10 | | | | | Raining | |
| Styrkisholm, (Iceland) | | | 29.45 | 747.9 | 36.9 | 2.7 | 89 | NE | | | 8 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 28.67 | 728.2 | 49.3 | 9.6 | 96 | Calm | | | 0 | | 10 | | | | | Rain and fog | |
| Vestervig | | | 29.23 | 742.4 | 54.3 | 12.4 | 91 | S | | | 6 | | 10 | | | | | Raining | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.60 | 751.8 | 59.0 | 15 | 73 | WSW | | | 4 | | 8k | | WSW | 0.04 | 1. | Very cloudy | Normal School. |
| Amiens | | | 29.45 | 748.0 | 64.0 | 17.8 | | SW | | | 4 | | 8 | | W | 0.008 | 0.2 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.99 | 761.8 | 74.5 | 23.6 | 41 | S | | | 3 | | 0 | | | 0 | 0 | Clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.79 | 754.4 | 63.7 | 17.6 | 56 | SW | | | 3 | | 10a | | SW | 0 | 0 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.52 | 749.7 | 62.4 | 16.9 | 79 | WSW | | | 3 | | 8 | | WSW | 0.020 | 0.50 | Very cloudy | Normal School. |
| Besançon | | | 29.91 | 759.8 | 72.5 | 22.5 | 32 | S | | | 6 | | 8 | | S | 0 | 0 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.94 | 760.5 | 67.1 | 19.5 | 65 | S | | | 6 | | 5n | | N | 0 | 0 | Cloudy | Normal School. |
| Bourges | | | 29.74 | 755.5 | 61.3 | 16.3 | 89 | S | | | 6 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Brest | | | 29.48 | 748.7 | 61.0 | 16.1 | 71 | WSW | | | 6 | | 8 | | WSW | 0.315 | 8.00 | Misty | Naval Observatory. |
| Carcassonne | | | 29.82 | 757.4 | 73.4 | 23 | 50 | E | | | 4 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Caen | | | 29.48 | 748.9 | 63.3 | 17.4 | 53 | SW | | | 2 | | 10 | | NE | 0.275 | 6.9 | Light rain | Normal School. |
| Chartres | | | 29.55 | 750.5 | 60.3 | 15.7 | 96 | SW | | | 6 | | 10 | | | 0.016 | 0.4 | Covered | Normal School. |
| Châlons-sur-Marne | | | 29.64 | 752.9 | 59.5 | 15.3 | 83 | S | | | 6 | | 10kn | | N | 0 | 0 | Covered | Normal School. |
| Clermont-Ferrand | | | 29.74 | 755.3 | 70.3 | 21.3 | 48 | SW | | | 2 | | 10 | | | 0 | 0 | Covered | Puy de Dome Obs'y. |
| Commercy | | | 29.67 | 753.6 | 64.2 | 17.9 | 55 | W | | | 6 | | 8 | | W | 0 | 0 | Very cloudy | Normal School. |
| Commune de Gréasque* | | | 30.07 | 763.8 | 70.2 | 21.2 | 31 | SE | | | 4 | | 8 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.88 | 758.9 | 73.9 | 23.3 | 49 | S | | | 8 | | 5ks | | SE | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon | | | 29.68 | 753.9 | 60.8 | 16 | 79 | W | | | 6 | | 8 | | E | 0.31 | 8. | Very cloudy | Normal School. |
| Le Mans | | | 29.57 | 751.1 | 61.9 | 16.6 | 66 | SW | | | 4 | | 5 | | SW | 0.110 | 2.8 | Cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.80 | 756.9 | 67.8 | 19.9 | 42 | S | | | 6 | | 5 | | NNE | 0 | 0 | Cloudy | Normal School. |
| Lorient | | | 29.58 | 751.3 | 61.5 | 16.4 | 66 | SW | | | 6 | | 8 | | W | 0.409 | 10.4 | ¾ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.92 | 759.9 | 69.6 | 20.9 | 65 | W | | | 6 | | 10 | | | 0 | 0 | Covered | Mr. Marchal. |
| Metz | | | 29.76 | 755.8 | 63.7 | 17.6 | 51 | S | | | 4 | | 10 | | | 0 | 0 | Covered | M. A. Schuster. |
| Mirecourt | | | 29.92 | 760.0 | 64.8 | 18.2 | 53 | SW | | | 6 | | 10 | | N | 0 | 0 | Covered | Normal School. |
| Nîmes | | | 30.05 | 763.2 | 73.0 | 22.8 | 55 | S | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Orleans | | | 30.017 | 762.22 | 62.2 | 16.8 | 78 | SSW | | | 6 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 29.55 | 750.6 | 60.3 | 15.7 | 92 | SSW | | | 4 | | 10 | | SSW | Inap. | Inap. | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Observatory | | | 29.76 | 755.6 | 60.4 | 15.8 | 80 | SW | | | 8 | | 10 | | NE | 0.67 | 17. | Raining | Naval Observatory. |
| Rouen | | | 29.54 | 750.2 | 64.2 | 17.9 | 67 | WSW | | | 4 | | 5 | | SW | 0 | 0 | Cloudy | Normal School. |
| Tarbes | 28.76 | 730.6 | 29.82 | 757.4 | 70.5 | 21.4 | 40 | N | | | 3 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Villefranche | | | 29.84 | 758.0 | 68.9 | 20.5 | 64 | SSE | | | 6 | | 5 | | SE | 0 | 0 | Cloudy | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.7 | 81.0 | 27.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.00 | 762.1 | 72.1 | 22.3 | 32 | ESE | | | 1–2 | | 4 | | | 0 | 0 | Partly cl'dy | The Staff. |
| Mont-Louis | 24.82 | 630.3 | 30.13 | 765.3 | 59.0 | 15.0 | 44 | SSW | 37.3 | 16.66 | | | 6 | | SW | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | | | 29.55 | 750.5 | 60.1 | 15.6 | 87 | SW | | | 4 | | 10 | | SW | 0.008 | 0.2 | | Montsouris Observatory |
| Perpignan | | | 29.87 | 758.6 | 74.1 | 23.4 | 49 | E | 5.6 | 2.50 | | | 3 | | NE | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.19 | 538.2 | | | 40.5 | 4.7 | | W | | | 6 | | | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.48 | 570.9 | | | 45.1 | 7.3 | | W | | | 6 | | 5 | | | 0.067 | 1.7 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.56 | 750.8 | 60.1 | 15.6 | 85 | SSW | | | 6 | | 10 | | | 0 | 0 | Covered | E. Renou. |
| Toulouse, Observatory | | | 29.82 | 757.4 | 73.6 | 23.1 | 44 | SSE | | | 4 | | 3 | | | 0 | 0 | | The Staff |
| Tours | | | | | | | | | | | | | | | | 0.031 | 0.8 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.56 | 750.9 | 60.8 | 16.0 | 83 | SW | | | 6 | | 10 | | | 0.035 | 0.88 | Stormy | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.91 | 759.6 | 68.0 | 20.0 | 90 | SE | 6.9 | 3.1 | | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 306 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometer observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.74 | 755.5 | 69.4 | 20.8 | 41 | W | | | 6 | | 3 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.66 | 753.4 | 74.1 | 23.4 | 39 | SW | | | 1 | | 0 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.84 | 758.0 | 70.0 | 21.1 | 39 | S | | | 3 | | 1 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.65 | 753.1 | 75.6 | 24.2 | 30 | SW | | | 10 | | 10 | | | 0.354 | 9.0 | Raining | Albert Sentz. |
| Cassel | | | 29.69 | 754.0 | 75.4 | 24.1 | 40 | WSW | | | 7 | | 8 | WSW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.52 | 749.7 | 63.1 | 17.3 | 61 | S | | | 6 | | 10 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.43 | 747.6 | 58.6 | 14.8 | 91 | SSW | | | 6 | | 6 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.69 | 754.2 | 76.6 | 24.8 | 25 | SSW | | | 4 | | 6 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.94? | 735.1? | 29.80? | 756.8? | 70.0 | 21.1 | 54 | W | | | 2 | | 2 | SW | | 0.016 | 0.4 | | M. Wilhelm. |
| Hamburg | | | 29.47 | 748.6 | 73.2 | 22.9 | 53 | S | | | 7 | | 10ks | | | 0 | 0 | Threatening | Captain F. Hegemann. |
| Kiel | | | 29.42 | 747.2 | 70.7 | 21.5 | 87 | SW | | | 2 | | 10 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.81 | 757.2 | 66.7 | 19.3 | 51 | SW | | | 5 | | 5 | | | 0.028 | 0.7 | | Prof. E. Luther. |
| Köslin | | | 29.71 | 754.6 | 71.4 | 21.9 | | S | | | 6 | | 1 | | | 0 | 0 | | H. Muller. |
| Leipsic | | | 29.72 | 754.8 | 75.2 | 24.0 | 27 | SSW | | | 4 | | 2 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.82 | 757.5 | 59.7 | 15.4 | | SSE | | | 3 | | 7cs | | | | | Dust-haze | Reinbrecht & Skalweit. |
| Münster | | | 29.56 | 750.8 | 64.4 | 18.0 | 71 | SW | | | | | 5 | | | 0 | 0 | | Prof. E. Heis |
| Neufahrwasser | | | 29.77 | 756.2 | 72.1 | 22.3 | 40 | SSW | | | 4 | | 8 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.80 | 756.8 | 72.1 | 22.3 | 32 | S | | | 6 | | 0 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.69 | 754.1 | 77.5 | 25.3 | 29 | W | | | 6 | | 9 | W | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.68 | 753.9 | 75.2 | 24.0 | 23 | SW | | | 6 | | 4 | | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.53 | 750.1 | 66.2 | 19.0 | 55 | SW | | | 8 | | 10 | | | 0.071 | 1.8 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.29 | 718.6 | 29.74 | 755.5 | 70.3 | 21.3 | 39 | S | | | 6 | | 6 | S | | 0 | 0 | | T. V. Bucknether. |
| Wustrow, Naval School | | | 29.62 | 752.3 | 68.7 | 20.4 | 41 | SSW | | | 4 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.12 | 765.0 | 69.8 | 21.0 | | NE | | | Strong | | k | | | Blank | Blank | | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | | | | | | | | | | | | | | | | | | | |
| Stelvio | 22.22 | 564.5 | 30.02 | 762.6 | 36.1 | 2.3 | 97 | WNW | | | 2 | | 10 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Udine | 22.17 | 563.1 | 29.897 | 759.37 | 39.2 | 4.0 | | W | | | 4 | | 7 | NE | | 0 | 0 | | Signora Ernesta Manfredi. |
| Padua | | | 30.00 | 762.0 | 68.0 | 20.0 | 36 | SE | 1.3 | 0.6 | | | 3 | | | 0.020 | 0.5 | | Ab. Dom. Morgini. |
| Vicenza | | | 29.98 | 761.6 | 69.6 | 20.9 | 55 | S | 1.8 | 0.8 | | | 4 | WSW | | 0.020 | 0.5 | | Prof. Dott. Lorenzoni. |
| Verona | | | 29.97 | 761.3 | 71.6 | 22.0 | 53 | S | 2.5 | 1.1 | | | 4 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Bergamo | | | 30.00 | 762.0 | 72.0 | 22.2 | 66 | E | | | 1 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Domodossola | 28.69 | 728.8 | 30.00 | 762.0 | 69.1 | 20.6 | 47 | WSW | | | 2 | | 6 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Milan | | | 29.97 | 761.1 | 65.1 | 18.4 | 56 | S | | | 2 | | 10 | | | 0.008 | 0.2 | | Prof. Giuseppe Calza. |
| Pavia | | | 30.00 | 761.9 | 78.6 | 25.9 | 49 | W | | | 4 | | 7 | W | | 0 | 0 | | Ab. Gio. Capelli. |
| Moncalieri | | | 29.98 | 761.5 | 72.1 | 22.3 | 40 | S | | | 2 | | 8 | SW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Mondovi | | | 29 96 | 761.0 | 68.5 | 20.3 | 55 | SSE | 4.3 | 1.9 | | | 6 | W | | 0 | 0 | | Prof. P. F. Denza. |
| Porto Maurizio | 28.07 | 712.9 | 29.94 | 760.5 | 69.3 | 20.7 | 42 | N | | | 4 | | 5 | WNW | | 0 | 0 | | Prof. D. C. Bruno. |
| Genoa | | | 30.09 | 764.3 | 68.4 | 20.2 | 72 | SW | | | 4 | | 5 | | | 0 | 0 | | Prof. L. Vassallo. |
| Piacenza | | | 30.06 | 763.5 | 69.1 | 20.6 | 64 | SE | 11.9 | 5.3 | | | 6 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Parma | | | 30.00 | 762.0 | 71.2 | 21.8 | 46 | SE | 3.8 | 1.7 | | | 7 | S | | 0 | 0 | | Dott. G Manzi. |
| Florence | | | 29.99 | 761.8 | 72.9 | 22.7 | 45 | SW | | | 6 | | 2 | | | 0.008 | 0.2 | | Prof. P. Pigorini. |
| Leghorn | | | 30.07 | 763.7 | 75.2 | 24.0 | 37 | SW | | | 2 | | 7 | | | 0.087 | 2.2 | | Cav. F. Meucci. |
| Siena | | | 30.08 | 763.9 | 70.5 | 21.4 | 66 | SSW | 8.1 | 3.6 | | | 1 | | | 0 | 0 | | Prof. P. Monte. |
| Urbino | 28.85 | 732.8 | 30.04 | 763.0 | 73.6 | 23.1 | 34 | S | 0.7 | 0.3 | | | 6 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Pesaro | 28.52 | 724.4 | 30.05 | 763.3 | 71.2 | 21.8 | 36 | SW | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Ancona | | | 30.04 | 762.9 | 71.2 | 21.8 | 75 | NE | 6.3 | 2.8 | | | 1 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Grosseto | | | 30.06 | 763.4 | 75.6 | 24.2 | 30 | ESE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Rome | | | 30.10 | 764.5 | 73.4 | 23.0 | 42 | SSE | | | 4 | | 3 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Naples, O. U. | | | 30.11 | 764.7 | 73.9 | 23.3 | 39 | SW | 9.8 | 4.4 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Lecce | | | 30.13 | 765.4 | 72.5 | 22.5 | 55 | SW | | | 4 | | 3 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Cosenza | | | 30.15 | 765.7 | 69.4 | 20.8 | 51 | NNW | 7.4 | 3.3 | | | 3 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cagliari | | | 30.10 | 764.6 | 78.1 | 25.6 | 56 | NNW | 4.3 | 1.9 | | | 9 | | | 0 | 0 | | Prof. F. D. Conti. |
| Rhiosto, (Sicily) | | | 30.00 | 762.1 | 69.8 | 21.0 | 60 | SE | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Palermo | | | 30.167 | 766.02 | 73.4 | 23.0 | 69 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. F. Cafiero. |
| Caltanissetta | | | 30.07 | 763.7 | 67.8 | 19.9 | 71 | ENE | 9.4 | 4.2 | | | 6 | | | 0 | 0 | | Prof. G. Caccialore. |
| Syracuse | 28.15 | 714.9 | 30.05 | 763.3 | 69.4 | 20.8 | 40 | S | | | 4 | | 7 | NE | | 0 | 0 | | Prof. A. Pagani. |
| Naples, S. R. | | | 30.08 | 763.9 | 69.6 | 20.9 | 66 | SW | | | 4 | | 8 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| SUM-SERIES. | | | | | | | | | | | | | | | | | | | |
| | | | 30.15 | 765.9 | 71.4 | 21.9 | 52 | W | 0 | 0 | | | 3 | SE | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.87 | 758.7 | 67 | 19.4 | 74 | SE | 8 | 3.6 | | 1c | | SW | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.15 | 588.2 | 30.18 | 766.6 | 60.8 | 16.0 | 57 | W | 1.2 | 0.55 | | 10k | 10k | | | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.41 | 746.9 | 62.6 | 17.0 | | W | | | 5 | | | | | 0 | 0 | | |
| Groningen | | | 29.34 | 745.3 | 59.7 | 15.4 | | S | | | 6 | | | | | 0.043 | 1.1 | | |
| Holder | | | 29.31 | 744.4 | 59.5 | 15.3 | | SSW | | | 6 | | | | | 0.067 | 1.7 | | |
| Utrecht | | | 29.37 | 746.1 | 58.1 | 14.5 | 63 | SSW | | | 6 | | 10 | | | 0.059 | 1.5 | Dull | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 28.99 | 736.3 | 52.9 | 11.6 | 91 | S | 33 3 | 14.9 | | | 10 | | | 0.114 | 2.9 | Raining | |
| Brönö | | | 29.23 | 742.4 | 53.6 | 12.0 | 54 | ENE | 9 | 4 | | | 4 | | | 0 | 0 | | |
| Christiania | | | 29.30 | 744.2 | 57.4 | 14.1 | 88 | SSW | 4 | 2 | | | 9 | | | 0.287 | 7.3 | | |
| Tromsö | | | 29.44 | 747.8 | 47.1 | 8.4 | 67 | Calm | 0 | 0 | | | 8 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.97 | 761.2 | 69.4 | 20.8 | 80 | W | 11.2 | 5.0 | | | 5 | | | 0.087 | 2.2 | | Dr. J. A. Sampaio. |
| Campo Major | | | 30.02 | 762.5 | 69.4 | 20.8 | 50 | SW | 7.4 | 3.3 | | | 9 | WNW | | 0 | 0 | | Dr. A. M. R dos Santos. |
| Funchal, (Madeira) | | | 30.19 | 766.8 | 71.1 | 21.7 | 59 | WSW | 9.4 | 4.2 | | | 1 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.06 | 763.5 | 61.5 | 16.4 | 86 | SW | 12.5 | 5.6 | | | 10 | | | 0.008 | 0.2 | Raining | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.02 | 762.5 | 67.3 | 19.6 | 91 | W | 3.8 | 1.7 | | | 10 | | | 0.106 | 2.7 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild. Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.88 | 759.0 | 67.1 | 19.5 | 44 | S | 9 | 4 | | | 2 | | | | | | Astronomical Obs. |
| Wilna | | | 29.94 | 760.4 | 55.4 | 13.0 | 67 | SW | 4 | 2 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.83 | 757.7 | 60.8 | 16.0 | 43 | S | 9 | 4 | | | 4 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.84 | 758.0 | 52.0 | 11.1 | 57 | S | 9 | 4 | | | 8 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.65 | 753.0 | 49.1 | 9.5 | 64 | S | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.98 | 761.5 | 60.3 | 15.7 | 41 | SE | 4 | 2 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.98 | 761.5 | 63.7 | 17.6 | 51 | Calm | 0 | 0 | | | 5 | | | | | | Kurdakof. |
| Kertch | | | 30.07 | 763.7 | 62.2 | 16.8 | 62 | NW | 7 | 3 | | | 4 | | | | | | Lagorio. |
| Moscow | | | 30.00 | 762.0 | 53.2 | 11.8 | 47 | S | 9 | 4 | | | 3 | | | | | | Meteorological Obs. |
| Lugan | | | 29.85 | 758.2 | 50.4 | 10.2 | 75 | NW | 18 | 8 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.82 | 757.3 | 53.4 | 11.9 | 34 | ESE | 18 | 8 | | | 9 | | | | | | Ogorodnikof. |
| Tiflis | 28.41 | 721.5 | 29.81 | 757.1 | 57.6 | 14.2 | 75 | NW | 18 | 8 | | | 10 | | | | | Raining | Physical Observatory. |
| Astrakhan | | | 29.87 | 758.6 | 66.9 | 19.4 | 45 | ESE | 7 | 3 | | | 7 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.97 | 761.1 | 56.3 | 13.5 | 25 | NNW | 4 | 2 | | | 3 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.63 | 752.5 | 65.7 | 18.7 | 85 | NE | 9 | 4 | | | 3 | | | | | | Tschernischef. |
| Ekaterinburg | 29.06 | 738.1 | 30.00 | 762.1 | 49.3 | 9.6 | 65 | SW | 2 | 1 | | | 6 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.77 | 756.2 | 81.1 | 27.3 | 37 | NNE | 16 | 7 | | | 8 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.28 | 718.3 | 29.87 | 758.7 | 87.8 | 31.0 | | NE | 2 | 1 | | | 2 | | | | | | Michelson. |
| Barnaul | | | 29.86 | 758.4 | 71.4 | 21.9 | 33 | W | 9 | 4 | | | 3 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.69 | 754.1 | 58.5 | 14.7 | 52 | E | 9 | 4 | | | 10 | | | | | Raining | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 62.1 | 16.7 | | Calm | 0 | 0 | | | 4 | | | | | | Mossin. |
| Peking, (China) | | | 29.90 | 759.5 | 70.5 | 21.4 | 44 | SSW | 22 | 10 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.69 | 754.0 | 54.7 | 12.6 | 63 | NW | 4 | 2 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 39.6 | 4.2 | | E | 2 | 1 | | | 6 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.90 | 759.4 | 73.2 | 22.9 | 25 | SW | 28.4 | 12.67 | | 4 | 2 | SW | | 0 | 0 | Cloudy | Royal Observatory |
| San Fernando | | | 30.08 | 764.1 | 69.1 | 20.6 | 77 | SW | 9.2 | 4.1 | | 0 | 0 | | W | 0 | 0 | | Naval Observatory |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.96 | 760.9 | 81.3 | 27.4 | 69 | NNW | 1.6 | 0.7 | | 1c | 2k | | | 0 | 0 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.65 | 753.0 | 37.4 | 3.0 | 90 | SE | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.54 | 750.2 | 38.1 | 3.4 | 90 | SW | | | 2 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.45 | 747.9 | 37.8 | 3.2 | 95 | ESE | | | 2 | | 10 | | | 0.024 | 0.6 | Rain & fog | |
| Stockholm | | | 29.53 | 750.0 | 56.8 | 13.8 | 92 | S | | | 4 | | 10 | | | 0.028 | 0.7 | | |
| Wisby | | | 29.64 | 752.8 | 64.4 | 18.0 | 51 | SSW | | | 6 | | 7 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.50 | 749.3 | 57.2 | 14.0 | 70 | S | 18.8 | 8.4 | | | 10 | | WSW | 0.024 | 0.61 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.45 | 722.6 | 29.83 | 757.7 | 69.6 | 20.9 | 41 | WSW | | | 7 | | 9 | | | 0 | 0 | Covered | The Observatory. |
| Zurich | 28.22 | 716.8 | 29.79 | 756.7 | 74.1 | 23.4 | 46 | W | | | 1 | | 3 | | | 0.217 | 5.5 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —3.0 mm; Thermometer, +2.6 cent.; Relative Humidity, —15 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.16 | 766.1 | 62.2 | 16.8 | 55 | NE | 13.4 | 6.0 | | | 3 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.04 | 763.0 | 84.2 | 29.0 | | SW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.18 | 766.6 | 72.3 | 22.4 | | SE | | | 1 | | 0 | | | | | | B. Stôfanidês. |
| Valona | | | 30.17 | 766.4 | 71.2 | 21.8 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 30.04 | 763.0 | 68.0 | 20.0 | | SW | | | 2 | | 5 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.2 | 81.9 | 27.7 | 60 | W | | | 2 | | 3c | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.96 | 761.0 | 59.1 | 10.1 | 83 | S | 4 | 1.8 | | | 3 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.25 | 768.3 | 59 | 15.0 | | SW | 10 | 4.5 | | 0 | 5s | | SW | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.97 | 761.2 | 54 | 12.2 | 71 | SW | 9 | 4.0 | | 10c | Haze | SW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.07 | 763.8 | 47 | 8.3 | 82 | S | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.18 | 766.6 | 59.2 | 15.1 | 65 | E | | | 3 | 4ck | 0 | NW | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | | | 47.8 | 8.8 | 87 | N | | | 1 | | | | | 0.08 | 2.0 | Clear | H. A. Johnson. |
| Esquimault, B. C. | | | 29.66 | 753.4 | 49.3 | 9.6 | 93 | NE | | | | 10cs | 0 | | | 0.01 | 0.3 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.00 | 762.0 | 50 | 10.0 | 72 | W | 10 | 4.5 | | 0 | 5s | | W | 0 | 0 | Clear | J. McWilliams |
| Fredericton, N. B. | | | 30.10 | 761.5 | 52.0 | 11.1 | 76 | Calm | 0 | 0 | | 1 | 0 | | | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.81 | 757.2 | 60 | 15.6 | 84 | S | 10 | 4.5 | | 2k | 2ks | S | S | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.30 | 769.6 | 61.7 | 16.5 | 69 | SW | | | 2 | 6ck | 0 | SW | | 0 | 0 | Fair | H. J. Strang, M. A. |
| Granton, Ontario | | | 29.79 | 756.7 | 61 | 16.1 | 71 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 29.20 | 741.7 | 30.29 | 769.4 | 55 | 12.8 | 65 | W | 10 | 4.5 | | 0 | 2ks | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.10 | 764.5 | 62.9 | 17.2 | 52 | W | | | 2 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.33 | 770.4 | 42 | 5.6 | 91 | N | | | 3 | | 10 | | | 0.15 | 3.8 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 29.87 | 758.7 | 54 | 12.2 | 77 | SW | 6 | 2.7 | | 2c | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.32 | 770.1 | 59 | 15.0 | 62 | SW | 18 | 8.0 | | 5ck | 2s | SW | SW | 0 | 0 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.15 | 765.8 | 55 | 12.8 | 71 | S | 2 | 0.9 | | 2cs | 0 | | | 0 | 0 | Fair | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.29 | 769.4 | 56 | 13.3 | 69 | NW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 30.31 | 769.9 | 53.5 | 11.9 | | NW | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 30.06 | 763.5 | 55 | 12.8 | 69 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.30 | 769.6 | 59 | 15.0 | 76 | S | 18 | 8.0 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.11 | 764.8 | 58 | 14.4 | 49 | W | 6 | 2.7 | | 5c | 0 | N | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 30.21 | 767.3 | 52 | 11.1 | 73 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.11 | 764.8 | 58 | 14.4 | 61 | SW | 7 | 3.1 | | 8cs | 2s | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 30.25 | 768.3 | 60 | 15.6 | 65 | Calm | 0 | 0 | | 5c | 0 | | | 0 | 0 | Fair | R. J. Cole. |
| Stratford, Ontario | 29.03 | 737.3 | 30.30 | 769.6 | 57.3 | 14.1 | 71 | Calm | 0 | 0 | | c | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.07 | 763.8 | 55 | 12.8 | 61 | W | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| Toronto, Ontario | | | 30.31 | 769.9 | 60 | 15.6 | 64 | SW | 1 | 0.4 | | 2cs | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 30.04 | 763.0 | 57.8 | 14.3 | 61 | NW | 10 | 4.5 | | 0 | 0 | | | 0.11 | 2.8 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.30 | 769.6 | 59.6 | 15.3 | 66 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.96 | 761.0 | 43.5 | 6.4 | 92 | NE | | | | 10k | 10s | | | 0 | 0 | Cloudy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.28 | 769.1 | 58 | 14.4 | 76 | NW | 2 | 0.9 | | 2c | 0 | NW | | 0 | 0 | Fair | |
| Alpena, Mich. | | | 30.28 | 769.1 | 49 | 9.4 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.35 | 770.9 | 58 | 14.4 | 75 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.25 | 768.3 | 62 | 16.7 | 72 | NE | 6 | 2.7 | | 2cs | 5s | | NE | 0 | 0 | Fair | |
| Baltimore, Md. | | | 30.33 | 770.4 | 59 | 15.0 | 81 | Calm | 0 | 0 | | Haze | Sm'e | | | 0.25 | 6.3 | Smoky | |
| Barnegat, N. J. | | | 30.34 | 770.6 | 63 | 17.2 | 67 | S | 5 | 2.2 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.05 | 712.5 | 29.62 | 752.3 | 62 | 16.7 | 88 | S | 6 | 2.7 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Boston, Mass. | | | 30.27 | 768.8 | 58 | 14.4 | 64 | W | 9 | 4.0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 29.83 | 757.7 | 62 | 16.7 | 77 | S | 24 | 10.7 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Buffalo, N. Y. | | | 30.28 | 769.1 | 57 | 13.9 | 57 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.23 | 767.8 | 60 | 15.6 | 60 | S | 11 | 4.9 | | 2k | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.19 | 766.8 | 62 | 16.7 | 56 | NE | 5 | 2.2 | | 8c | 0 | N | | 0 | 0 | Fair | |
| Campo, Cal. | 27.39 | 695.7 | 29.96 | 761.0 | 46 | 7.8 | 92 | SW | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Camp Verde, Arizona | | | | | 58 | 14.4 | | Calm | | | | 5c | 0 | | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 30.22 | 767.6 | 62 | 16.7 | 61 | NE | 16 | 7.2 | | 2k | 0 | NE | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.33 | 770.4 | 61 | 16.1 | 77 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.29 | 769.4 | 68 | 20.0 | 64 | NE | 26 | 11.6 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.34 | 770.6 | 59 | 15.0 | 76 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.21 | 767.3 | 68 | 20.0 | 74 | NE | 10 | 4.5 | | | 10s | | E | 0.09 | 2.3 | Cloudy | |
| Cheyenne, Wyoming | 23.93 | 607.8 | 29.87 | 758.7 | 52 | 11.1 | 48 | W | 4 | 1.8 | | 2ck | 0 | | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 30.20 | 767.1 | 62 | 16.7 | 61 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 30.22 | 767.6 | 59 | 15.0 | 64 | NE | 1 | 0.4 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.31 | 769.9 | 58.5 | 14.7 | 50 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 30.02 | 762.5 | 66 | 18.9 | 90 | SE | 4 | 1.8 | | 2cs | Haze | | | 0.24 | 6.1 | Fair | |
| Davenport, Iowa | | | 30.21 | 767.3 | 62 | 16.7 | 55 | Calm | 0 | 0 | | Haze | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.04 | 763.0 | 66 | 18.9 | 73 | SE | 6 | 2.7 | | | 10ks | | SE | Inap. | Inap. | Cloudy | |
| Denver, Col. | 24.69 | 627.1 | 29.91 | 759.7 | 54 | 12.2 | 43 | S | 2 | 0.9 | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Detroit, Mich. | | | 30.28 | 769.1 | 59 | 15.0 | 64 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.32 | 693.9 | 29.52 | 749.8 | 66 | 18.9 | 90 | SE | 16 | 7.2 | | | 10n | | SE | Inap. | Inap. | Light rain | |
| Dubuque, Iowa | | | 30.19 | 766.8 | 60 | 15.6 | 65 | SE | 4 | 1.8 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.09 | 764.3 | 52 | 11.1 | 72 | N | 1 | 0.4 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Eastport, Me. | | | 30.12 | 765.0 | 61 | 16.1 | 61 | SW | 3 | 1.3 | | 5ck | Haze | NW | | 0.01 | 0.3 | Fair | |
| Erie, Pa. | | | 30.27 | 768.8 | 61 | 16.1 | 55 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 30.19 | 766.8 | 59 | 15.0 | 65 | SW | 8 | 3.6 | | | Sm'e | | | 0 | 0 | Dense smoke | |
| Florence, Arizona | 28.31 | 719.1 | 29.91 | 759.7 | 70 | 21.1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.03 | 762.7 | 67 | 19.4 | 50 | SE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.70 | 729.0 | 29.93 | 760.2 | 69 | 20.6 | 84 | Calm | 0 | 0 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.72 | 754.9 | 41 | 5.0 | 82 | N | | | 5 | 5c | ks | SE | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.77 | 730.7 | 29.85 | 758.2 | 66 | 18.9 | 78 | SE | 10 | 4.5 | | 5k | 2s | | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.12 | 714.2 | 29.61 | 752.1 | 63 | 17.2 | 88 | SE | 16 | 7.2 | | 2c | 5k | SE | SE | 0 | 0 | Fair | |
| Galveston, Tex. | | | 30.07 | 763.8 | 77 | 25.0 | 77 | Calm | 0 | 0 | | 2k | 0 | | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 30.24 | 768.1 | 65 | 18.3 | 53 | SE | 3 | 1.3 | | 0 | Sm'e | | SE | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.24 | 768.1 | 61 | 16.1 | 55 | E | 1 | 0.4 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.02 | 762.5 | 79 | 26.1 | 78 | SE | 8 | 3.6 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.02 | 762.5 | 70 | 21.1 | 90 | NE | 11 | 4.9 | | | 10n | | | 0.24 | 6.1 | Light rain | |
| Keokuk, Iowa | | | 30.11 | 764.8 | 63 | 17.2 | 57 | SE | 8 | 3.6 | | 10c | 0 | S | | 0 | 0 | Fair | |
| Key West, Fla. | | | 29.93 | 760.2 | 80.0 | 26.7 | 74 | N | 4 | 1.8 | | 2k | 1ks | N | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 30.34 | 770.6 | 60 | 15.6 | 73 | NE | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.25 | 768.3 | 59 | 15.0 | 59 | N | 5 | 2.2 | | 2ck | 0 | NE | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 30.15 | 765.8 | 60 | 15.6 | 65 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.05 | 763.3 | 64 | 17.8 | 73 | S | 4 | 1.8 | | | 10s | | S | 0 | 0 | Cloudy | |
| Louisville, Ky. | | | 30.22 | 767.6 | 59 | 15.0 | 64 | NE | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.32 | 770.1 | 63 | 17.2 | 57 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 81 | 27.2 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.14 | 765.5 | 53 | 11.7 | 66 | NW | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.14 | 765.5 | 65 | 18.3 | 52 | NE | 5 | 2.2 | | 1c | Sm'e | | NE | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 30.26 | 768.6 | 54 | 12.2 | 93 | SW | 1 | 0.4 | | 0 | 2s | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.13 | 765.3 | 72 | 22.2 | 58 | E | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.20 | 767.1 | 64.5 | 18.1 | 58 | NE | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.25 | 742.9 | 30.31 | 769.9 | 56 | 13.3 | 63 | N | 2 | 0.9 | | 0 | Haze | | | Inap. | Inap. | Clear | |
| Mt. Washington, N. H. | 24.01 | 609.8 | 30.37 | 771.4 | 37 | 2.8 | 89 | NW | 30 | 13.4 | | 8s | 0 | NW | | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 30.21 | 767.3 | 63 | 17.2 | 57 | Calm | 0 | 0 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| New Haven, Conn. | | | 30.31 | 769.9 | 64 | 17.8 | 62 | SW | 8 | 3.6 | | Haze | Haze | | | 0.02 | 0.5 | Clear | |
| New London, Conn. | | | 30.30 | 769.6 | 61 | 16.1 | 60 | SW | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Orleans, La. | | | 30.09 | 764.3 | 72 | 22.2 | 80 | E | 3 | 1.3 | | 7k | 0 | SE | | Inap. | Inap. | Fair | |
| Newport, R. I. | | | 30.31 | 769.9 | 55 | 12.8 | 73 | SW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| New York, N. Y. | | | 30.35 | 770.9 | 52 | 11.1 | 86 | W | 6 | 2.7 | | 8k | Fog | W | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.34 | 770.6 | 65 | 18.3 | 63 | E | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.94 | 684.3 | 29.38 | 746.2 | 65 | 18.3 | 89 | SE | 16 | 7.2 | | 10k | 0 | SE | | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.91 | 734.3 | 29.97 | 761.2 | 61 | 16.1 | 77 | S | 8 | 3.6 | | 5ck | 5s | S | S | 0.25 | 6.3 | Cloudy | |
| Oswego, N. Y. | | | 30.29 | 769.4 | 60 | 15.6 | 57 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.74 | 755.4 | 63 | 17.2 | 78 | S | 16 | 7.2 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Philadelphia, Pa. | | | 30.35 | 770.9 | 56 | 13.3 | 80 | SW | 5 | 2.2 | | 0 | Sm'e | | | Inap. | Inap. | Clear | |
| Phœnix, Arizona | | | | | 69 | 20.6 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.85 | 453.4 | 30.06 | 763.5 | 20 | — 6.7 | 92 | SW | 27 | 12.1 | | 5c | 0 | | | 0 | 0 | Fair | |
| Pittsburgh, Pa. | | | 30.31 | 769.9 | 48 | 8.9 | 92 | N | 1 | 0.4 | | | Fog | | | Inap. | Inap. | Foggy | |
| Port Huron, Mich. | | | 30.28 | 769.1 | 57 | 13.9 | 63 | SW | 3 | 1.3 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.19 | 766.8 | 59 | 15.0 | 59 | SW | 5 | 2.2 | | 3c,k | Haze | | | 0.01 | 0.3 | Fair | |
| Portland, Oregon | | | 29.77 | 756.1 | 48 | 8.9 | 92 | S | 1 | 0.4 | | | 10n | | | 0.21 | 5.3 | Light rain | |
| Prescott, Arizona | 24.75 | 628.6 | 30.11 | 764.8 | 40 | 4.4 | 48 | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.99 | 761.7 | 75 | 23.9 | 72 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.28 | 769.1 | 59 | 15.0 | 59 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | | | | | | | | | | | | | | | | | | | |
| Sandy Hook, N. J. | | | 30.34 | 770.6 | 54 | 12.2 | 93 | NW | 8 | 3.6 | | 2k | Fog | W | W | 0.01 | 0.3 | Fair | |
| San Antonio, Tex. | | | 29.85 | 758.2 | 74 | 23.3 | 76 | SE | 3 | 1.3 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.00 | 762.0 | 59 | 15.0 | 81 | SE | 8 | 3.6 | | | 10s | | SE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.98 | 761.5 | 52 | 11.1 | 79 | SW | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.24 | 590.3 | 29.78 | 756.4 | 57 | 13.9 | 18 | NE | 3 | 1.3 | | 2cs | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.18 | 766.6 | 64 | 17.8 | 83 | E | 14 | 6.3 | | | 10n | | E | 0.22 | 5.6 | Light rain | |
| Shreveport, La. | | | 30.15 | 765.8 | 69 | 20.6 | 55 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.26 | 768.6 | 66 | 18.9 | 78 | N | 10 | 4.5 | | | 10s | | N | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 30.31 | 769.9 | 59.5 | 15.3 | 64 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 30.18 | 766.6 | 62 | 16.7 | 51 | SE | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.06 | 763.5 | 68 | 20.0 | 75 | N | 12 | 5.4 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 30.01 | 762.2 | 63 | 17.2 | 61 | SE | 2 | 0.9 | | | 10s | | SW | 0 | 0 | Cloudy | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 62 | 16.7 | | SW | | | | 2c | 0 | W | | 0 | 0 | Fair | |
| Stockton, Tex. | 26.93 | 684.0 | 29.93 | 760.2 | 69 | 20.6 | 70 | SE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 30.25 | 768.3 | 54 | 12.2 | 73 | SW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear. | |
| Toledo, Ohio | | | 30.29 | 769.4 | 61 | 16.1 | 77 | NE | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.46 | 697.5 | 30.01 | 762.2 | 62 | 16.7 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.15 | 765.8 | 65 | 18.3 | 90 | NE | 34 | 15.2 | | | 10n | | NE | 0.46 | 11.7 | Light rain | |
| Vicksburg, Miss | | | 30.12 | 765.0 | 66 | 18.9 | 58 | E | 4 | 1.8 | | 2ck | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.05 | 610.9 | 29.53 | 750.0 | 43 | 6.1 | 75 | Calm | 0 | 0 | | 8k | 0 | SW | | 0 | 0 | Cloudy | |
| Washington, D. C | | | 30.35 | 770.9 | 61 | 16.1 | 70 | S | 1 | 0.4 | | 0 | Fog | | E | 0.01 | 0.3 | Fair | |
| Wickenburg, Arizona | | | | | 68 | 20.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.26 | 768.6 | 63 | 17.2 | 61 | NE | 6 | 2.7 | | 8cs | 0 | W | | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 30.32 | 770.1 | 59 | 15.0 | 69 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.68 | 728.5 | 29.93 | 760.2 | 61 | 16.1 | 82 | SE | 12 | 5.4 | | 8cs | 5ks | SW | SW | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | | | | | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.06 | 763.5 | 81 | 27.2 | 83 | SE | 7 | 3.1 | | 0 | 10n | | | 2.45 | 62.2 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | SE | | | 5 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.10 | 764.5 | 82 | 27.8 | 83 | E | | | 2 | 2c | 5k | | | 0 | 0 | Clear | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | 30.15 | 765.8 | | | 77.0 | 25.0 | | E | | | | | | | | 0.671 | 17.75 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.22 | 640.6 | | | 69.5 | 20.8 | 74 | Calm | | | 0 | 2cs | 0 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 29.86 | 758.4 | 29.0 | − 1.7 | 100 | E | 20 | 8.9 | | 2k | 4s | E | E | 0.20 | 5.1 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.13 | 765.3 | 71 | 21.7 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morganton, 1,027 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.33 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported * Inches. | Barometer. As reported * Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.39 | 771.9 | 65 | 18.3 | 59 | 15.0 | 82 | ENE | | | 1 | | 0 | | | 0.25 | 6.3 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.05 | 763.3 | 60 | 15.6 | 56 | 13.3 | | WSW | | | 3 | | 4 | | ENE | Inap. | Inap. | | | Light rain | |
| Navy Yard, Norfolk, Va. | 30.42 | 772.7 | 63 | 17.2 | 63 | 17.2 | 94 | NE | 5 | 2.2 | | | 1c | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla. | 30.25 | 768.3 | | | 69 | 20.6 | 70 | NE | 8 | 3.6 | | | | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 30.27 | 768.8 | 65 | 18.3 | 57 | 13.9 | 69 | NW | 4 | 1.8 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.81 | 757.2 | 69 | 20.6 | 66 | 18.9 | 74 | SW | | | 6 | | 4cs,k | | SW | 0 | 0 | | | Fair | |
| Adams, S. 16° 25′ W. 34° 40′ | 30.21 | 767.3 | 78 | 25.6 | 79 | 26.1 | 91 | SE | | | 3 | | 1 | | E | Light | Light | Moderate. | SE | D. clouds | |
| Alert, N. 22° 39′ 50″ E. 142° 10′ 45″ | 29.96† | 761.0† | 80 | 26.7 | 82 | 27.8 | 100 | SW | | | 4 | | 9 | | SW | | | Moderate. | SW | Squally | |
| Alliance, Beirut, Syria | 30.02 | 762.5 | 76 | 24.4 | 75 | 23.9 | 68 | SW | | | 2 | | 5 | | NW | | | Long | NW | Hazy | |
| Ashuelot, Hong-Kong, China | 29.97 | 761.2 | 76 | 24.4 | 76 | 24.4 | 82 | E | | | 2 | | 10 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.08 | 764.0 | 52 | 11.1 | 72 | 22.2 | 85 | SSE | | | 1 | | 2 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.40 | 772.1 | 66 | 18.9 | 55 | 12.8 | 93 | WSW | 6 | 2.7 | | | 6 | | S&W | 0 | 0 | | | Hazy | |
| Despatch, N. 36° 54′ E. 0° 33′ | 30.14 | 765.5 | 74 | 23.3 | 73 | 22.8 | 85 | SE | | | 0–1 | | 2 | | | | | Smooth | | Pleasant | |
| Frolic, Rio de Janeiro, Brazil | 30.42 | 772.7 | 65 | 18.3 | 67 | 19.4 | 89 | WNW | | | 1 | | 2k | | | 0 | 0 | | | Hazy | |
| ‡ Gettysburg, Genoa, Italy | 29.95 | 760.7 | | | 69 | 20.6 | 100 | SSE | | | 2 | | 6 | | SE | 0 | 0 | | | D. clouds | |
| Hartford, Port Royal, S. C | 30.49 | 772.1 | 70 | 21.1 | 68 | 20.0 | 84 | ENE | 16.8 | 7.5 | | | 3 | | | | | | | Pleasant | |
| Huron, Oruba Island, W. I | 30.05 | 763.3 | 81 | 27.2 | 80 | 26.7 | 82 | E | | | 3–5 | | 9 | | W | | | | | D. clouds | |
| Kearsarge, Kagosima, Japan | 30.02 | 762.5 | 75 | 23.9 | 73 | 22.8 | 85 | Calm | | | 0 | | 4 | | NE | 0 | 0 | | | Hazy | |
| Lackawanna, Pichilingue Bay, Mexico | 30.00 | 762.0 | | | 73 | 22.8 | 58 | S | | | 1–2 | | 1 | | N | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 30.06 | 763.5 | 72 | 22.2 | 73 | 22.8 | 46 | NNE | | | 2 | | 1 | | SSW | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.79 | 756.7 | 64 | 17.8 | 55 | 12.8 | 68 | Calm | | | 0 | | 0 | | | | | | | Clear | |
| Monocacy, Che-foo, China | 29.89 | 756.9 | 64 | 17.8 | 64 | 17.8 | 73 | Var. | | | 1–2 | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Monongahela, N. 36° 56′ W. 74° 31′ | 30.37 | 771.4 | 58 | 14.4 | 57 | 13.9 | | NNE | | | 2 | | k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.40 | 772.1 | | | 66 | 18.9 | 94 | ENE | 18 | 8.0 | | | 10 | | | 0.24 | 6.1 | | | D. clouds | |
| Omaha, Payta, Peru | 30.01 | 762.2 | 73 | 22.8 | 72 | 22.2 | 83 | ESE | 5 | 2.2 | | | 2 | | SE | 0 | 0 | Smooth | | Clear | |
| Ossipee, Port Royal, S. C | 30.19 | 766.8 | 68 | 20.0 | 66 | 18.9 | 89 | NE | | | 5 | | 10 | | SE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.99 | 761.7 | 74 | 23.3 | 75 | 23.9 | 90 | SSE | | | 1–2 | | 1 | | N&W | | | | | Hazy | |
| Plymouth, N. 25° 47′ W. 91° 7′ | 30.12 | 765.0 | 80 | 26.7 | 78 | 25.6 | 82 | ENE | | | 3 | | 3k | | N&E | 0 | 0 | Smooth light. | N&E | Clear | |
| Ranger, N. 37° 17′ W. 0° 50′ | 30.23 | 767.8 | | | 73 | 22.8 | 90 | W | | | 0–1 | | 9 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.50 | 774.7 | 70.0 | 21.1 | 69.0 | 20.6 | 90 | N | | | 2 | | 1 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.90 | 759.4 | | | 67 | 19.4 | 95 | SE | | | 1 | | 3 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.40 | 772.1 | 68 | 20.0 | 62 | 16.7 | 83 | Calm | | | 0 | | 1 | | S&E | 0.19 | 4.8 | | | Clear | |
| St. Louis, League Island, Pa | 30.24 | 768.1 | 57 | 13.9 | 56 | 13.3 | 87 | SW | 2 | 0.9 | | | 0 | | | 0 | 0 | | | | |
| Swatara, San Andres, U. S. C | 29.96 | 761.0 | 83 | 28.3 | 83 | 28.3 | 100 | Calm | | | 0 | | 2k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.81 | 757.2 | 71 | 21.7 | 71 | 21.7 | 71 | WSW | | | 3 | | 3 | | SE | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.03† | 762.7† | 72 | 22.2 | 78 | 25.6 | 82 | NNE | 10.7 | 4.8 | | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.22 | 767.6 | 62 | 16.7 | 62 | 16.7 | 83 | N | | | 2 | | 3 | | E | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.30 | 769.6 | 57 | 13.9 | 61 | 16.1 | 61 | WSW | 6 | 2.7 | | | 1 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.60† | 777.2† | 59 | 15.0 | 64 | 17.8 | | Calm | | | 0 | | 5 | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 42° 52′ E. 160° 38′ | | | 30.03 | 762.7 | 60 | 15.6 | 76 | NNE | | | 2 | | 10ns | | | Smooth | | Overcast | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 37° 57′ W. 73° 52′ | SW by W¾W | 11.0 | 30.36 | 771.1 | 54.5 | 12.5 | | Calm | | | 0 | | 0 | | | Smooth | | Blue sky | Capt. C. Pohle. |
| S. S. Braunschweig, N. 48° 20′ W. 23° 45′ | | | 29.77 | 756.1 | 60 | 15.6 | | NW | | | 4 | | 6k | | NW | Rough. | | D. clouds | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle. |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.01 | 762.2 | 68 | 20.0 | 100 | NE | 24 | 10.7 | | | 10n | | NE | | | Heavy rain. | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 29, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.00 | 762.0 | 76.5 | 24.7 | 50 | NNW | | | 1 | | 2 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.02 | 762.4 | 67.3 | 19.6 | 50 | N | | | 2 | | 5 | | | 0 | 0 | Fair | Peter. |
| La Galle | | | 29.99 | 761.8 | 68.7 | 20.4 | 89 | E | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.08 | 763.9 | 68.0 | 20.0 | | SSE | | | 3 | | 6 | | | 0 | 0 | Fair | Jacques. |
| Sfax | | | | | 69.8 | 21.0 | | E×E | | | 2 | | 6 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.04 | 762.9 | 74.1 | 23.4 | | NE | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.05 | 763.3 | 66.0 | 18.9 | | N | | | 2 | | 6 | | | 0 | 0 | Fair | Bourgeois. |
| Geriville | | | 30.06 | 763.4 | 66.7 | 19.3 | 41 | N | | | 3 | | 3 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.07 | 763.6 | 77.0 | 25.0 | 18 | E | | | 2 | | 2 | | | 0.059 | 1.5 | Clear | Guyot. |
| Biskra | | | 30.10 | 764.5 | 84.2 | 29.0 | 26 | SE | | | 1 | | 8 | | | 0 | 0 | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.95 | 760.7 | 71.6 | 22.0 | 37 | SW | | | 5 | | 6 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.83 | 757.6 | 74.1 | 23.4 | 38 | S | | | 1 | | 7 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.89 | 759.1 | 71.2 | 21.8 | 47 | S | | | 4 | | 6cks | | N | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.65 | 727.6 | 29.85 | 758.3 | 70.0 | 21.1 | 52 | WSW | | | 4 | | 6 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.64 | 727.4 | 30.00 | 762.1 | 70.7 | 21.5 | 32 | W | | | 2 | | 0 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.48 | 723.5 | 29.77 | 756.1 | 71.2 | 21.8 | 44 | NE | | | 2 | | 5 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.90 | 759.5 | 68.9 | 20.5 | 54 | SE | | | 2 | | 3 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhaza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 30.04 | 762.9 | 71.2 | 21.8 | 67 | SSE | | | 3 | | 8cs | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.97 | 761.2 | 68.4 | 20.2 | 56 | S | | | 2 | | 3 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.04 | 763.0 | 71.6 | 22.0 | 50 | SW | | | 1 | | 8 | | | 0 | 0 | ½Covered | P. Busin. |
| Vienna | | | 29.83 | 757.6 | 72.3 | 22.4 | 52 | ESE | | | 1 | | 1 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.32 | 719.2 | 29.76 | 756.0 | 58.1 | 14.5 | 54 | SSW | | | 2 | | 10 | | | 0.252 | 6.4 | | |
| Brussels | | | 29.69 | 754.2 | 59.5 | 15.3 | 64 | WSW | | | 3 | | 9 | | SW | 0.206 | 5.20 | Sprinkling | Royal Observatory |
| Furnes | | | 29.63 | 752.6 | 62.4 | 16.9 | 51 | SW | | | 3 | | 5 | | | 0.079 | 2.0 | | |
| Maeseyck | | | 29.58 | 751.4 | 61.6 | 16.1 | 61 | SW | | | 6 | | 8 | | | 0.217 | 5.5 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.07 | 738.4 | 52.5 | 11.4 | | SW | 30 | 13.4 | | | 3 | | | 0.110 | 2.79 | Squally | William Boswell. |
| Ardrossan | | | 29.19 | 741.4 | 50 | 10.0 | | SW | | | 5 | | 5 | | | | | D. c'ouds | William McNeil. |
| Armagh, Observatory | | | 29.28 | 743.7 | 51.0 | 10.6 | | SW | 14 | 6.3 | | | 7 | | | | | Squally | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.40 | 746.7 | 56.3 | 13.5 | | SW | 33 | 14.8 | | | 3 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.39 | 746.5 | 51.5 | 10.8 | | WSW | | | 3 | | 9 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.40 | 746.7 | 54.1 | 12.3 | | SE | | | 5 | | 7 | | | 0.05 | 1.3 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 83.0 | 27.8 | | NE | | | 3 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.52 | 749.8 | 60.2 | 15.7 | | SW | | | 3 | | 7 | | | | | Showery | H. Todd. |
| Cardington | | | 29.54 | 750.3 | 63.0 | 17.2 | | SW | | | 4 | | 3 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 29.66 | 753.4 | 61.2 | 16.2 | | W | | | 4 | | 8 | | | | | Blue sky | Capt. Fellowes, R. E. |
| Dartmoor | 28.15 | 715.0 | 29.61 | 752.1 | 50.2 | 10.1 | | W | | | 4 | | 6 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.25 | 742.9 | 52 | 11.1 | | WSW | | | 6 | | 10 | | | | | Squally | J. Mac Gowan. |
| Dover | | | 29.63 | 752.6 | 57 | 13.9 | | SW | | | 4 | | 4 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.41 | 747.0 | 57.2 | 14.0 | | SW | 9.4 | 4.2 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.59 | 751.6 | 57.1 | 13.9 | | SW | | | 4 | | 4 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.69 | 703.3 | 29.93 | 760.2 | 69.5 | 20.8 | | NE | | | 2 | | 2 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.02 | 762.5 | 80 | 26.7 | | W | | | 0 | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.33 | 745.0 | 53 | 11.7 | | WSW | | | 6 | | 4 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.01 | 762.2 | 76.5 | 24.7 | | W | | | 2 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.16 | 740.7 | 49.0 | 9.4 | | W | | | 4 | | 10 | | | | | Showery | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.53 | 750.0 | 59 | 15.0 | | W | | | 4 | | 4 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.57 | 751.1 | 59.3 | 15.2 | | WSW | | | 2 | | 7 | | | Blank | Blank | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.64 | 752.8 | 57 | 13.9 | | SSW | | | 2 | | 5 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.62 | 752.3 | 58 | 14.4 | | SW | | | 4 | | 2k | | | 0.5 | 13. | Fine | M. P. Moyle. |
| Holyhead | | | 29.39 | 746.5 | 54 | 12.2 | | SW | | | 6 | | 2 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.56 | 750.8 | 58.0 | 14.4 | | SW | 24 | 10.7 | | | 7 | | | | | Showery | The Staff. |
| Kingstown | | | 29.37 | 746.0 | 55 | 12.8 | | W | | | 5 | | 6 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.49 | 749.0 | 50.0 | 10.0 | | SW | | | 1 | | 10 | | | | | Showery | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.06 | 763.5 | 68.0 | 20.0 | | E | | | 1 | | 8k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 28.94 | 734.3 | 53 | 11.7 | | WSW | | | 5 | | 5 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.90 | 759.4 | 74.0 | 23.3 | | NE | | | 3 | | 6 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.45 | 748.0 | 61.3 | 16.3 | | S | | | 5 | | 7k, ck | | SW | 0.024 | 0.61 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.46 | 748.3 | 54.9 | 12.7 | | SW | | | 5 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.53 | 750.0 | 58 | 14.4 | | SW | | | 2 | | 7 | | | | | D. clouds | J. W. Lucas |
| Plymouth | | | 29.58 | 751.3 | 59.5 | 15.3 | | SW | | | 5 | | 6 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.46 | 748.3 | 55 | 12.8 | | W | | | 5 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.49 | 749.0 | 54 | 12.2 | | WSW | | | 5 | | 6 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.66 | 753.4 | 54.0 | 12.2 | | WSW | | | 4 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 28.88 | 733.5 | 52.9 | 11.6 | | SW | 17 | 7.6 | | | 1 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.08 | 764.0 | 71.0 | 21.7 | | NE | | | 1 | | 2 | | | | | Hazy sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.43 | 747.5 | 55.0 | 12.8 | | W | | | 6 | | 6 | | | 0 | 0 | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 29.29 | 744.0 | 57.1 | 13.9 | 66 | SW | | | 6 | | 2 | | | 0 | 0 | D. clouds | Rev. Francis Redford |
| Stonyhurst, Observatory | | | 29.39 | 746.5 | 53.9 | 12.2 | | SW | | | 5 | | 6 | | | | | Squally | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 28.80 | 731.5 | 53 | 11.7 | | SW | | | 7 | | 10 | | | | | Overcast | John Smith. |
| Stratfield Turgiss | | | 29.57 | 751.1 | 56.8 | 13.8 | | SW | | | 2 | | 7 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 28.85 | 732.8 | 56 | 13.3 | | WSW | | | 5 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.61 | 752.1 | 57 | 13.9 | | W | | | 7 | | 10 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.48 | 748.8 | 49.0 | 9.4 | | W | 24 | 10.7 | | | 7 | | | | | Showery | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 50 | 10.0 | | SW | | | 7 | | 3 | | | 0.06 | 1.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.24 | 768.1 | 60.2 | 15.7 | 70 | WNW | 4 | 1.8 | | 1 | 6 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.31 | 769.9 | 55.0 | 12.8 | 87 | S | | | 1 | | 10ks | | | 0.02 | 0.5 | Cloudy | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.20 | 741.7 | 46.8 | 8.2 | | W | | | 7 | | 8k | | | 0.06 | 1.5 | Gloomy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.10 | 764.5 | 77.3 | 25.2 | 70 | NNE | 9.3 | 4.2 | | 0 | 2 | | NE | 0.05 | 1.3 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 30.55 | 776.0 | 49.0 | 9.4 | 90 | W | 4 | 1.8 | | | 8 | | | 0.27 | 6.9 | Clearing | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 28.84 | 732.5 | 48 | 8.9 | | W | | | 6 | | 10 | | | 0.2 | 5. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 28.75 | 730.2 | 45 | 7.2 | | SW | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 47° 50′ W. 37° 5′ | | | 29.59 | 751.6 | 51.0 | 10.6 | | NW | | | 3 | | 9 | WNW | | 10* | NW | Showery | Capt. W. Watson. |
| S. S. Batavia, N. 41° 55′ W. 51° 20′ | | | | | 56.0 | 13.3 | | Var. | | | 1 | | 3 | | | 2 | W | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 24° 40′ W. 80° 5′ | | | 29.93 | 760.2 | 80.0 | 26.7 | | Calm | | | 0 | | 8 | | | 2 | N | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. W. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. A. T. Prben. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. C. C. Prben. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Seine, Bear Haven, Ireland | | | 29.48 | 748.8 | 53 | 11.7 | | W | | | 6 | | 8 | | | 0 | | D. clouds | Capt. G. H. Jones. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. H. Manning. |
| | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.20 | 665.5 | | | 71.6 | 22.0 | 84 | S | | | 2 | | 4c | | NE | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.61 | 752.0 | 60.4 | 15.8 | 56 | SW | | | 4 | | 10 | | | | | Raining | |
| Fanöe | | | 29.57 | 751.0 | 54.9 | 12.7 | 80 | W | | | 6 | | 3 | | | | | | |
| Godthaab, (Greenland) | | | 29.22 | 742.3 | 35.2 | 1.8 | 78 | S | | | 7 | | 10 | | | | | | |
| Styrkisholm, (Iceland) | | | 29.48 | 748.9 | 38.7 | 3.7 | 80 | NE | | | 6 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 28.72 | 729.4 | 49.3 | 9.6 | 75 | NE | | | 4 | | 10 | | | | | | |
| Vestervig | | | 29.47 | 748.5 | 51.8 | 11.0 | 75 | SW | | | 6 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.81 | 757.1 | 57.2 | 14 | 85 | WSW | | | 2 | | 10k | | | 0.24 | 6. | Covered | Normal School. |
| Amiens | | | 29.63 | 752.6 | 65.1 | 18.4 | | SW | | | 3 | | 8 | | SW | 0.913 | 23.2 | Very cloudy | Normal School. |
| Avignon, Normal School | | | 29.95 | 760.6 | 67.3 | 19.6 | 61 | S | | | 4 | | 10 | | | 0 | 0 | Covered | Mr. Giraud. |
| Bar-sur-Seine | | | 29.79 | 756.6 | 63.1 | 17.3 | 51 | SW | | | 2 | | 10n | | SW | 0.016 | 0.4 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.72 | 755.0 | 65.3 | 18.5 | 69 | S | | | 3 | | 10 | | SW | 0.47 | 12. | Covered | Normal School. |
| Besançon | | | 29.95 | 760.7 | 64.4 | 18 | 62 | S | | | 6 | | 8 | | S | 0.165 | 4.2 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.93 | 760.3 | 62.8 | 17.1 | 76 | S | | | 6 | | 5n | | N | 0.646 | 16.4 | Cloudy | Normal School. |
| Bourges | | | 29.80 | 757.0 | 64.8 | 18.2 | 80 | SW | | | 4 | | 5 | | NE | 0.059 | 1.5 | Cloudy | Normal School. |
| Brest | | | 29.60 | 751.8 | 58.8 | 14.9 | 63 | SW | | | 4 | | 9 | | SW | 0.010 | 0.25 | Stormy | Naval Observatory. |
| † Carcassonne | | | 29.81 | 757.1 | 64.0 | 17.8 | 74 | E | | | 2 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| † Caen | | | 29.70 | 754.3 | 60.1 | 15.6 | 68 | SW | | | 1 | | 10 | | SW | 0.181 | 4.6 | Thunder-storm | Normal School. |
| Olnartres | | | 29.74 | 755.4 | 56.8 | 13.8 | 84 | SW | | | 3 | | 10 | | | 0.067 | 1.7 | Covered | Normal School. |
| † Châlons-sur-Marne | | | 29.78 | 756.3 | 61.7 | 16.5 | 49 | SW | | | 4 | | 10k | | SW | 0.315 | 8.0 | Covered | Normal School. |
| Clermont-Ferrand | | | 29.78 | 756.4 | 61.5 | 16.4 | 77 | NE | | | 1 | | 8 | | | 0.280 | 7.1 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.80 | 756.8 | 61.3 | 16.3 | 68 | WSW | | | 6 | | 5 | | WSW | 0.110 | 2.8 | Cloudy | Normal School. |
| Commune de Gréasque* | | | 30.02 | 762.6 | 63.1 | 17.3 | 65 | SE | | | 2 | | 10 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.91 | 759.8 | 61.9 | 16.6 | 64 | SSE | | | 4 | | 10ns | | NE | 0.167 | 4.25 | Covered | Normal School. |
| † La Roche-sur-Yon | | | 29.80 | 756.8 | 54.3 | 12.4 | 87 | SW | | | 2 | | 10 | | | 0.165 | 4.2 | Covered | Normal School. |
| Le Mans | | | 29.77 | 756.1 | 55.0 | 12.8 | 79 | SW | | | 3 | | 10 | | | 0.324 | 8.25 | Covered | Normal School. |
| Lons-Le-Saulnier | | | 29.82 | 757.4 | 62.4 | 16.9 | 42 | SSW | | | 6 | | 10 | | NNE | 0.39 | 10. | Covered | Normal School. |
| Lorient | | | 29.68 | 753.8 | 59.4 | 15.2 | 55 | SW | | | 3 | | 8 | | SW | 0 | 0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.96 | 761.0 | 59.5 | 15.3 | 81 | Calm | | | 0 | | 10 | | | 0.835 | 21.2 | Covered | Mr. Marchal. |
| Metz | | | 29.88 | 758.9 | 62.1 | 16.7 | 39 | SW | | | 3 | | 9k | | SW | 0 | 0 | | M. A. Schuster. |
| Mirecourt | | | 29.94 | 760.4 | 60.8 | 16 | 77 | S | | | 2 | | 10 | | NE | 0 | 0 | Covered | Normal School. |
| Nimes | | | 29.92 | 759.9 | 66.9 | 19.4 | 76 | SE | | | 6 | | 10 | | N | 0 | 0 | Covered | Normal School. |
| Orleans | | | 29.74 | 755.5 | 59.0 | 15 | 91 | SSW | | | 2 | | 5 | | SW | 0.04 | 1. | Cloudy | Normal School. |
| Paris, Observatory | | | 29.75 | 755.6 | 58.1 | 14.5 | 64 | SSW | | | 3 | | 10ck | | SW | 0.422 | 10.73 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| † Rochefort, Observatory | | | 29.80 | 756.9 | 59.0 | 15.0 | 70 | SSW | | | 3 | | 10 | | SW | 0.16 | 4. | Raining | Naval Observatory. |
| Rouen | | | 29.70 | 754.4 | 60.4 | 15.8 | 54 | WSW | | | 2 | | 5 | | SW | 0.291 | 7.4 | Cloudy | Normal School. |
| † Tarbes | 28.75 | 730.2 | 29.81 | 757.1 | 59.0 | 15 | 80 | W | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Villefranche | | | 29.77 | 756.2 | 63.9 | 17.7 | 90 | SE | | | 4 | | 10 | | S | 0.75 | 19. | Covered | Normal School. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.89 | 759.3 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.95 | 760.8 | 66.0 | 18.9 | 63 | SE | | | 2 | | 10 | | | 0.008 | 0.20 | Raining | The Staff. |
| Mont-Louis | | | 30.07 | 763.6 | 55.8 | 13.2 | 68 | SSW | 26.1 | 11.67 | | | 8 | | SSW | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | 24.75 | 628.6 | 29.74 | 755.5 | 58.1 | 14.5 | 71 | SW | | | 3 | | 10 | | WSW | 0.346 | 8.8 | | Montsouris Observatory |
| Perpignan | | | 29.78 | 756.4 | 72.0 | 22.2 | 70 | SE | 5.9 | 2.50 | | | 8 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.14 | 536.2 | | | 39.6 | 4.2 | | SW | | | 6 | | | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.39 | 568.7 | | | 44.2 | 6.8 | | SW | | | 6 | | 8 | | | 0.409 | 10.4 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.75 | 755.6 | 58.1 | 14.5 | 69 | SW | | | 2 | | 10 | | | 0.118 | 3.0 | Covered | E. Renou. |
| Toulouse, Observatory | | | 29.82 | 757.4 | 63.9 | 17.7 | 85 | SE | | | 1 | | 8 | | | 0.201 | 5.1 | | The Staff |
| Tours | | | | | | | | | | | | | | | | 0.173 | 4.4 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.75 | 755.7 | 59.7 | 15.4 | 62 | SW | | | 2 | | 10 | | | 0.067 | 1.70 | Covered | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.92 | 760.0 | 66.6 | 19.2 | 89 | SE | 6.9 | 3.1 | | | 2k | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. milimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône. † Previous to this date the direction of the clouds for Carcassonne, Caen, Châlons-sur-Marne, La Roche-sur-Yon, Rochefort and Tarbes was given and printed as *towards* instead of *from*.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.83 | 757.7 | 65.8 | 18.8 | 53 | W | | | 5 | | 4 | W | | 0.039 | 1.0 | Raining | Prof. T. Hoh. |
| Berlin | | | 29.76 | 755.8 | 66.2 | 19.0 | 63 | S | | | 2 | | 7 | | | 0.039 | 1.0 | Raining | Prof. Arndt. |
| Breslau | | | 29.90 | 759.5 | 64.6 | 18.1 | 64 | SSW | | | 3 | | 10 | | | | | Raining | Royal University Ob'y. |
| Carlsruhe | | | 29.89 | 756.9 | 63.5 | 17.5 | 63 | SW | | | 5 | | 9 | | | 1.417 | 36.0 | Raining | Albert Senz. |
| Cassel | | | 29.80 | 756.9 | 59.0 | 15.0 | 65 | SW | | | 5 | | 5 | SW | | 0.047 | 1.2 | | Dr. H. Möhl. |
| Crefeld | | | 29.70 | 754.4 | 61.7 | 16.5 | 56 | SW | | | 5 | | 8 | | | 0.039 | 1.0 | Sprinkling | Director Lose. |
| Emden | | | 29.65 | 753.2 | 61.7 | 16.5 | 57 | SW | | | 4 | | 5 | | | 0.051 | 1.3 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.82 | 757.4 | 68.9 | 20.5 | 32 | SSW | | | 4 | | 5 | | | 0.028 | 0.7 | | Physical Society. |
| Friedrichshafen | 28.95? | 735.3? | 29.86? | 758.5? | 67.3 | 19.6 | 58 | SSW | | | 2 | | 4 | WSW | | 0.228 | 5.8 | Raining | M. Wilhelm. |
| Hamburg | | | 29.67 | 753.6 | 64.2 | 17.9 | 46 | WSW | | | 6 | | 6k | | | 0.157 | 4.0 | Fair | Captain F. Hegemann. |
| Kiel | | | 29.65 | 753.1 | 58.8 | 14.9 | 69 | SW | | | 3 | | 8 | | | 0.154 | 3.9 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.74 | 755.5 | 69.3 | 20.7 | 51 | SW | | | 5 | | 5 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | 29.84 | 757.8 | 67.3 | 19.6 | | W | | | 4 | | 4 | | | 0.012 | 0.3 | | H. Müller. |
| Leipsic | | | 29.80 | 756.8 | 67.8 | 19.9 | 47 | SSW | | | 4 | | 8 | SW | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.74 | 755.5 | 58.1 | 14.5 | | SSW | | | 4 | | 10ks | | | | | | Reinbrecht & Skalweit. |
| Münster | | | 29.72 | 754.7 | 60.4 | 15.8 | 65 | SW | | | | | 2 | | | 0.154 | 3.9 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.74 | 755.4 | 70.0 | 21.1 | 60 | SSW | | | 4 | | 9 | | | 0.350 | 8.9 | | A. Lothes. |
| Posen | | | 29.80 | 756.8 | 70.7 | 21.5 | 52 | WSW | | | 6 | | 10 | | | Inap. | Inap. | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.83 | 757.6 | 64.9 | 18.3 | 57 | SW | | | 2 | | 10 | SW | | 0.039 | 1.0 | | Dr. Schur. |
| Stuttgart | | | 29.80 | 756.9 | 69.8 | 21.0 | 36 | W | | | 1 | | 5 | | | 0.354 | 9.0 | Raining | Prof. Schoder |
| Treves, (Trier) | | | 29.67 | 753.5 | 63.5 | 17.5 | 51 | W | | | 8 | | 9 | | | 0.260 | 6.6 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.38 | 720.8 | 29.85 | 758.2 | 62.2 | 16.8 | 61 | SW | | | 1 | | 7 | WNW | | 0.008 | 0.2 | Light rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.71 | 754.6 | 57.4 | 14.1 | 73 | W | | | 3 | | 3 | | | 0 | 0 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.09 | 764.3 | 74.3 | 23.5 | | NE | | | | | ck | | | | | | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.19 | 563.6 | 30.00 | 762.1 | 34.4 | 1.2 | 97 | WNW | | | 1 | | 10 | | | 1.575* | 40.0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.17 | 563.1 | 29.892 | 759.32 | 37.4 | 3.0 | | W | | | 4 | | 10 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.00 | 761.9 | 69.4 | 20.8 | 55 | S | 3.1 | 1.4 | | | 10 | | | 0.083 | 2.1 | | Ab. Dom. Morgini. |
| Padua | | | 29.98 | 761.5 | 70.7 | 21.5 | 51 | SE | 4.3 | 1.9 | | | 9 | S | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.97 | 761.3 | 71.6 | 22.0 | 53 | S | 2.5 | 1.1 | | | 4 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 29.98 | 761.6 | 73.8 | 23.2 | 49 | E | | | 2 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.69 | 728.8 | 30.00 | 762.0 | 66.2 | 19.0 | 41 | NW | | | 1 | | 10 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.00 | 762.1 | 57.2 | 14.0 | 86 | Calm | | | 0 | | 10 | | | 0.322 | 8.2 | | Prof. Giuseppe Calza. |
| Milan | | | 30.00 | 761.9 | 72.8 | 22.4 | 45 | N | | | 1 | | 8 | N | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.99 | 761.7 | 69.3 | 20.7 | 45 | NE | | | 1 | | 10 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.98 | 761.4 | 64.4 | 18.0 | 64 | NNW | 1.3 | 0.6 | | | 9 | SW | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.08 | 713.3 | 29.96 | 760.9 | 62.2 | 16.8 | 61 | NW | | | 4 | | 9 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.08 | 764.1 | 67.5 | 19.7 | 68 | SSW | | | 2 | | 10 | SW | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.05 | 763.3 | 64.6 | 18.1 | 77 | SE | 11.9 | 5.3 | | | 10 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.00 | 761.9 | 69.6 | 20.9 | 51 | NW | 4.3 | 1.9 | | | 10 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.99 | 761.8 | 72.3 | 22.4 | 52 | NNW | | | 4 | | 9 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.08 | 764.0 | 75.2 | 24.0 | 41 | W | | | 2 | | 9 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.08 | 763.9 | 70.5 | 21.4 | 58 | SSE | 12.5 | 5.6 | | | 6 | SSE | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.86 | 733.1 | 30.05 | 763.3 | 70.7 | 21.5 | 48 | SSW | 6.3 | 2.8 | | | 10 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.53 | 724.6 | 30.06 | 763.5 | 68.5 | 20.3 | 46 | SW | | | 2 | | 8 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.04 | 762.9 | 71.4 | 21.9 | 63 | ENE | 0 | 0 | | | 6 | W | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.04 | 763.1 | 71.6 | 22.0 | 55 | SE | | | 4 | | 4 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.11 | 764.8 | 74.1 | 23.4 | 55 | SSE | | | 4 | | 8 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.11 | 764.8 | 73.8 | 23.2 | 48 | SW | 7.4 | 3.3 | | | 3 | SW | | 0 | 0 | | Prof's P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.10 | 764.4 | 76.6 | 24.8 | 50 | SE | | | 2 | | 2 | WNW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.11 | 764.9 | 72.0 | 22.2 | 44 | NE | 4.9 | 2.2 | | | 3 | NE | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.06 | 763.5 | 70.2 | 26.2 | 62 | NE | 7.4 | 3.3 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.02 | 762.6 | 72.7 | 22.6 | 65 | SE | | | 2 | | 6 | S | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.16 | 766.0 | 71.6 | 22.0 | 70 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.04 | 763.0 | 68.7 | 20.4 | 70 | NE | 6.3 | 2.8 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.08 | 713.3 | 29.99 | 761.7 | 68.0 | 20.0 | 32 | S | | | 4 | | 8 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.04 | 763.0 | 70.5 | 21.4 | 62 | E | | | 2 | | 5 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.12 | 765.1 | 75.2 | 24.0 | 40 | NW | 1.8 | 0.8 | | | 4 | SW | | 0 | 0 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.4 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.82 | 757.4 | 66 | 18.9 | 74 | S | 8 | 3.6 | | 1c | | | | 0 | 0 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.13 | 587.6 | 30.15 | 765.7 | 59.0 | 15.0 | 64 | NW | 0.1 | 0.05 | | 5k | 0 | | S | 0 | 0 | Cloudy | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.67 | 753.5 | 60.1 | 15.6 | | WNW | | | 4 | | | | | 0.059 | 1.5 | | |
| Groningen | | | 29.58 | 751.3 | 59.0 | 15.0 | | WSW | | | 5 | | | | | 0.008 | 0.2 | | |
| Helder | | | 29.61 | 752.1 | 57.2 | 14.0 | | SW | | | 5 | | | | | 0.012 | 0.3 | | |
| Utrecht | | | 29.62 | 752.3 | 63.0 | 17.2 | 25 | WSW | | | 4 | | 5 | | | 0.094 | 2.4 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.04 | 737.7 | 45.3 | 7.4 | 94 | S | 24.6 | 11.0 | | | 5 | | | 0.287 | 7.3 | Raining | |
| Brönö | | | 29.01 | 736.8 | 63.7 | 17.6 | 47 | S | 7 | 3 | | | 4 | | | 0.146 | 3.7 | | |
| Christiania | | | 29.22 | 742.3 | 55.6 | 13.1 | 80 | SSW | 18 | 8 | | | 7 | | | 0.232 | 5.9 | | |
| Tromsö | | | 28.99 | 736.4 | 44.6 | 7.0 | 65 | Calm | 0 | 0 | | | 10 | | | 0.079 | 2.0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.94 | 760.4 | 65.1 | 18.4 | 84 | NW | 16.1 | 7.2 | | | 6 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.90 | 759.4 | 73.2 | 22.9 | 62 | SSW | 11.9 | 5.3 | | | 9 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.10 | 764.6 | 70.7 | 21.5 | 87 | WSW | 8.7 | 3.9 | | | 10 | | | 0.059 | 1.5 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.92 | 760.0 | 63.9 | 17.7 | 95 | SSW | 18.6 | 8.3 | | | 10 | | | 0.354 | 9.0 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 29.98 | 761.6 | 68.0 | 20.0 | 83 | WNW | 7.4 | 3.3 | | | 3 | | | 0.114 | 2.9 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.84 | 757.8 | 73.2 | 22.9 | 47 | SSW | 11 | 5 | | | 7 | | | | | | Astronomical Obs. |
| Wilna | | | 29.82 | 757.5 | 73.4 | 23.0 | 38 | SSE | 9 | 4 | | | 8 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.71 | 754.7 | 73.0 | 22.8 | 38 | S | 16 | 7 | | | 5 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.79 | 756.6 | 68.0 | 20.0 | 47 | S | 22 | 10 | | | 8 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.50 | 749.2 | 61.5 | 16.4 | 66 | S | 34 | 15 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 30.00 | 762.1 | 69.8 | 21.0 | 44 | SW | 7 | 3 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.19 | 766.8 | 59.7 | 15.4 | 79 | SW | 22 | 10 | | | 10 | | | | | Light rain | Kurdakof |
| Kertch | | | 30.25 | 768.4 | 61.0 | 16.1 | 71 | WSW | 7 | 3 | | | 7 | | | | | Raining | Lagorio. |
| Moscow | | | 30.07 | 763.7 | 61.0 | 16.1 | 35 | NW | 4 | 2 | | | 4 | | | | | | Meteorological Obs. |
| Lugan | | | 30.01 | 762.3 | 62.2 | 16.8 | 41 | NW | 18 | 8 | | | 8 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.88 | 758.9 | 50.9 | 10.5 | 63 | S | 27 | 12 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.69 | 728.7 | 30.09 | 764.3 | 65.1 | 18.4 | 30 | NW | 31 | 14 | | | 1 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.95 | 760.8 | 58.8 | 14.9 | 48 | W | 25 | 11 | | | 7 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 30.04 | 763.0 | 52.3 | 11.3 | 83 | N | 4 | 2 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.60 | 751.8 | 60.6 | 15.9 | 83 | E | 13 | 6 | | | 8 | | | | | | Tschernischef. |
| Ekaterinburg | 29.21 | 741.8 | 30.14 | 765.5 | 60.1 | 15.6 | 44 | ESE | 4 | 2 | | | 7 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.76 | 755.9 | 88.9 | 31.6 | 41 | N | 0 | 0 | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.28 | 718.2 | 29.87 | 758.6 | 88.0 | 31.1 | 58 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.04 | 763.0 | 58.6 | 14.8 | 52 | NW | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.92 | 760.0 | 48.9 | 9.4 | 65 | NW | 4 | 2 | | | 2 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 65.7 | 18.7 | | | | | | | 7 | | | | | | Mossin. |
| Peking, (China) | | | 29.68 | 753.9 | 73.0 | 22.8 | 64 | Calm | 0 | 0 | | | 5 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.75 | 755.7 | 51.4 | 10.8 | 68 | Calm | 0 | 0 | | | 8 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 42.8 | 6.0 | | SE | 7 | 3 | | | 5 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.82 | 757.4 | 70.5 | 21.4 | 52 | SW | 29.1 | 13.00 | | 2 | 5 | SW | | 0.055 | 1.4 | Cloudy | Royal Observatory |
| San Fernando | | | 30.06 | 763.5 | 70.2 | 21.2 | 73 | SW | 11.6 | 5.2 | | 0 | 10 | | SW | 0 | 0 | | Naval Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.94 | 760.4 | 79.5 | 26.4 | 71 | NNW | 0.9 | 0.4 | | 6c | 2k | | | 0 | 0 | | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.52 | 749.8 | 42.1 | 5.6 | 94 | S | | | 4 | | 10 | | | 0.157 | 4.0 | | |
| Umea | | | 29.26 | 743.3 | 40.6 | 4.8 | 97 | SW | | | 4 | | 10 | | | 0.122 | 3.1 | Raining | |
| Hernosand | | | 29.24 | 742.6 | 44.6 | 7.0 | 98 | S | | | 4 | | 10 | | | 0.063 | 1.6 | Raining | |
| Stockholm | | | 30.587 | 776.87 | 63.3 | 17.4 | 89 | S | | | 6 | | 5 | | | 0.043 | 1.1 | | |
| Wisby | | | 29.55 | 750.6 | 62.6 | 17.0 | 59 | SW | | | 7 | | 0 | | | 0.024 | 0.6 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.38 | 746.2 | 58.3 | 14.6 | 79 | SSW | 19.2 | 8.6 | | | 8 | | SW | 0.037 | 0.95 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.46 | 722.8 | 29.86 | 758.5 | 61.7 | 16.5 | 62 | SSW | | | 3 | | 10 | | | 0.087 | 2.2 | Covered | The Observatory. |
| Zurich | 28.27 | 718.0 | 29.87 | 758.8 | 63.3 | 17.4 | 73 | SE | | | 1 | | 8 | | | 0.433 | 11.0 | Covered | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —2.9 mm; Thermometer, —2.0 cent.; Relative Humidity, +6 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds: the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.14 | 765.5 | 66.0 | 18.9 | 43 | ENE | 19.0 | 8.5 | | | 3 | | SW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.02 | 762.5 | 82.4 | 28.0 | | NW | | | 1 | | 0 | | | | | | |
| Salonica | | | 30.17 | 766.2 | 75.7 | 24.3 | | S | | | 1 | | 0 | | | | | | B. Stéfanidés. |
| Valona | | | 30.20 | 767.0 | 70.2 | 21.2 | | NW | | | 1 | | 0 | | | 0 | 0 | Fine | A. Bertrand. |
| Varna | | | 30.12 | 765.0 | 71.6 | 22.0 | | E | | | 2 | | 0 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.94 | 760.4 | 76.8 | 24.9 | 67 | N | | | 2 | | 7c,cs | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.99 | 761.7 | 62.9 | 17.2 | 68 | NE | 4 | 1.8 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.25 | 768.3 | 65 | 18.3 | | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 30.02 | 762.5 | 70 | 21.1 | 60 | SW | 2 | 0.9 | | 2c | 0 | SW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.06 | 763.5 | 56 | 13.3 | 73 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.20 | 767.1 | 62.1 | 16.7 | 54 | SW | | | 3 | 0 | 0 | | | 0 | 0 | Clear | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.02 | 762.5 | | | | | | | | | | | | 0 | 0 | | H. A. Johnson. |
| Esquimault, B. C. | | | 29.72 | 754.9 | 46.3 | 7.9 | 100 | Calm | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.00 | 762.0 | 57 | 13.9 | 69 | SW | 4 | 1.8 | | 0 | Sm'e | | SW | 0 | 0 | Fair | J. McWilliams. |
| Fredericton, N. B. | | | 30.12 | 765.0 | 67.4 | 19.7 | 57 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fine | Prof. Harrison. |
| *Port Garry, Manitoba | | | 29.54 | 750.3 | 62 | 16.7 | 94 | SE | 10 | 4.5 | | Haze | 5n | S | S | 0 | 0 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 30.24 | 768.1 | 61.9 | 16.6 | 61 | S | | | 1 | 8k | 0 | SW | | 0 | 0 | Cloudy | H. J. Strang, M. A. |
| Granton, Ontario | | | 30.22 | 767.6 | 60 | 15.6 | 65 | S | | | 1 | 1cs | 0 | E | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 29.14 | 740.1 | 30.12 | 765.0 | 60 | 15.6 | 68 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.27 | 768.8 | 63.7 | 17.6 | 65 | S | | | 2 | 4k | 0 | SW | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.90 | 759.4 | 47 | 8.3 | 77 | SW | | | 3 | 2k | 3s | | | 0 | 6 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.30 | 769.6 | 55 | 12.8 | 74 | SW | 7 | 3.1 | | Haze | Sm'e | | SW | 0 | 0 | Hazy | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.18 | 766.6 | 62 | 16.7 | 60 | S | 10 | 4.5 | | 0 | h'e,sme | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.23 | 767.8 | 57 | 13.9 | 72 | S | 3 | 1.3 | | Haze | Haze | | | 0 | 0 | Smoke | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.26 | 768.6 | 56 | 13.3 | 81 | Calm | 0 | 0 | | 10k | 0 | SW | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 30.08 | 764.0 | 54.7 | 12.6 | | Calm | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 30.25 | 768.3 | 58 | 14.4 | 66 | SE | 3 | 1.3 | | 8k | 0 | SW | | 0 | 0 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 30.15 | 765.8 | 64 | 17.8 | 83 | SW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.21 | 767.3 | 55 | 12.8 | 66 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | W. H. McIntyre. |
| St. John, N. B. | | | 30.17 | 766.3 | 50 | 10.0 | 82 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.19 | 766.8 | 62 | 16.7 | 60 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Smoky | K. Stewart. |
| Stayner, Ontario | | | 30.20 | 767.1 | 68 | 20.0 | 51 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | R. J. Cole. |
| *Stratford, Ontario | | | 30.23 | 767.8 | 57.5 | 14.2 | 74 | SW | 2 | 0.9 | | 3ck | 4s | SW | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.97 | 735.8 | 30.03 | 762.7 | 74 | 23.3 | 49 | W | 8 | 3.6 | | 2c | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.26 | 768.6 | 62.4 | 16.7 | 56 | W | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 30.05 | 763.3 | 58.0 | 14.4 | 78 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.22 | 767.6 | 59.8 | 15.4 | 84 | Calm | 0 | 0 | | 4k | 0 | | | 0 | 0 | Fair | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.96 | 761.0 | 55.0 | 12.8 | 68 | W | | | | Sm'e | Sm'e | | | 0.01 | 0.3 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.23 | 767.8 | 66 | 18.9 | 54 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich. | | | 30.18 | 766.6 | 58 | 14.4 | 64 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.31 | 769.9 | 61 | 16.1 | 82 | SW | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.26 | 768.6 | 62 | 16.7 | 77 | E | 4 | 1.8 | | 2ck | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.29 | 769.4 | 64 | 17.8 | 67 | SE | 4 | 1.8 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Barnegat, N. J. | | | 30.30 | 769.6 | 64 | 17.8 | 72 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 27.68 | 703.1 | 29.19 | 741.4 | 71 | 21.7 | 75 | S | 16 | 7.2 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Boston, Mass. | | | 30.23 | 767.8 | 67.5 | 19.7 | 62 | W | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 29.55 | 750.6 | 67 | 19.4 | 74 | S | 30 | 13.4 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 30.24 | 768.1 | 60 | 15.6 | 55 | W | 1 | 0.4 | | 1ck | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.22 | 767.6 | 66 | 18.9 | 40 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.18 | 766.6 | 66 | 18.9 | 54 | S | 12 | 5.4 | | 5k | 5s | S | | 0 | 0 | Cloudy | |
| Campo, Cal. | 27.33 | 694.2 | 29.90 | 759.4 | 50 | 10.0 | 100 | SW | 5 | 2.2 | | | 10n | | W | 0.60 | 2.3 | Heavy rain | |
| Camp Verde, Arizona | | | | | 65 | 18.3 | | SE | | | | 5c | 2s | S | SE | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 30.18 | 766.6 | 61 | 16.1 | 77 | NE | 22 | 9.8 | | 2k | 0 | NE | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.30 | 769.6 | 62 | 16.7 | 61 | E | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.24 | 768.1 | 67 | 19.4 | 68 | NE | 26 | 11.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.30 | 769.6 | 61 | 16.1 | 77 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.21 | 767.3 | 64 | 17.8 | 78 | N | 13 | 5.8 | | 8cs | 2s | S | | 0.08 | 2.0 | Cloudy | |
| Cheyenne, Wyoming | 23.71 | 602.2 | 29.65 | 753.1 | 52 | 11.1 | 43 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 30.09 | 764.3 | 64 | 17.8 | 62 | S | 2 | 0.9 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 30.18 | 766.6 | 61 | 16.1 | 70 | SE | 1 | 0.4 | | 8k | Sm'e | SW | | 0 | 0 | Fair | |
| Cleveland, Ohio | | | 30.25 | 768.3 | 59.5 | 15.3 | 54 | SE | 8 | 3.6 | | | 10ks | | | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 29.94 | 760.5 | 69 | 20.6 | 90 | SE | 10 | 4.5 | | Haze | 8s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.03 | 762.7 | 65 | 18.3 | 53 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 29.88 | 758.9 | 70 | 21.1 | 84 | SE | 11 | 4.9 | | | 10s | | SE | Inap. | Inap. | Cloudy | |
| Denver, Col. | 24.46 | 621.3 | 29.68 | 753.9 | 56 | 13.3 | 18 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.20 | 767.1 | 58 | 14.4 | 69 | SE | 3 | 1.3 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| Dodge City, Kan. | 27.12 | 688.8 | 29.28 | 743.7 | 66 | 18.9 | 84 | S | 24 | 10.7 | | 2k | 0 | S | | 0.01 | 0.3 | Clear | |
| Dubuque, Iowa | | | 29.99 | 761.7 | 65 | 18.3 | 58 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 29.83 | 757.7 | 57 | 13.9 | 74 | NE | 2 | 0.9 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Eastport, Me. | | | 30.14 | 765.5 | 58 | 14.4 | 69 | Calm | 0 | 0 | | 5k,hz | Haze | | | 0 | 0 | Fair | |
| Erie, Pa. | | | 30.22 | 767.6 | 65 | 18.3 | 48 | S | 17 | 7.6 | | 5ck | Haze | SW | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.05 | 763.3 | 60 | 15.6 | 65 | S | 8 | 3.6 | | | Sm'e | | | 0 | 0 | Dense smoke | |
| Florence, Arizona | 28.84 | 732.5 | 29.84 | 757.9 | 66 | 18.9 | | W | | | | 0 | 8ks | | W | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.87 | 758.7 | 71 | 21.7 | 53 | SE | 14 | 6.3 | | 10c | 0 | | | 0 | 0 | Cloudy | |
| Fort Griffin, Tex. | 28.57 | 725.7 | 29.81 | 757.2 | 70 | 21.1 | 75 | Calm | 0 | 0 | | 2c | 0 | | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.48 | 748.8 | 43 | 6.1 | 83 | NE | | | 6 | 2c | 2ks | NE | NE | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.64 | 727.4 | 29.70 | 754.4 | 70 | 21.1 | 75 | SE | 16 | 7.2 | | 2k | 0 | | | 0.66 | 16.8 | Fair | |
| Fort Sully, Dakota | 27.79 | 705.8 | 29.22 | 742.2 | 67 | 19.4 | 79 | SE | 20 | 8.9 | | 0 | 8ks | | SE | Inap. | Inap. | Fair | |
| Galveston, Tex. | | | 30.04 | 763.0 | 77 | 25.0 | 77 | S | 6 | 2.7 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 30.11 | 764.8 | 62 | 16.7 | 61 | SE | 5 | 2.2 | | 5c | Sm'e | SW | SE | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.16 | 766.1 | 65 | 18.3 | 58 | SE | 2 | 0.9 | | 1ck | 0 | SW | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 29.98 | 761.5 | 76 | 24.4 | 81 | S | 7 | 3.1 | | 2c | 2ks | S | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.10 | 764.5 | 75 | 23.9 | 59 | NE | 14 | 6.3 | | 5k | 0 | | | 0.71 | 18.0 | Fair | |
| Keokuk, Iowa | | | 29.95 | 760.7 | 67 | 19.4 | 74 | S | 12 | 5.4 | | 5c | 0 | S | | 0 | 0 | Fair | |
| Key West, Fla. | | | 29.90 | 759.4 | 80.0 | 26.7 | 72 | N | 7 | 3.1 | | 5c,k | 2ks | W,N | N | 0 | 0 | Cloudy | |
| Kittyhawk, N. C. | | | 30.30 | 769.6 | 60 | 15.6 | 76 | NE | 18 | 8.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.27 | 768.8 | 61 | 16.1 | 60 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.94 | 760.5 | 64 | 17.8 | 62 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.84 | 757.9 | 69 | 20.6 | 60 | S | 7 | 3.1 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Louisville, Ky. | | | 30.19 | 766.8 | 66 | 18.9 | 55 | SE | 2 | 0.9 | | 2k | 2s | SW | SW | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.30 | 769.6 | 61 | 16.1 | 66 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 77 | 25.0 | | SW | | | | 10cs | 0 | | | 0 | 0 | Cloudy | |
| Marquette, Mich. | | | 30.00 | 762.0 | 63 | 17.2 | 57 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.16 | 766.1 | 70 | 21.1 | 67 | SE | 7 | 3.1 | | 0 | 2ks | | SW | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 30.10 | 764.5 | 58 | 14.4 | 64 | SE | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.16 | 766.1 | 67 | 19.4 | 79 | NE | 9 | 4.0 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Montgomery, Ala. | | | 30.21 | 767.3 | 68 | 20.0 | 67 | E | 13 | 5.8 | | 5ck | 0 | E | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.21 | 741.9 | 30.27 | 768.8 | 58 | 14.4 | 69 | Calm | 0 | 0 | | 1c | Haze | W | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 24.08 | 611.6 | 30.44 | 773.2 | 45 | 7.2 | 60 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Nashville, Tenn. | | | 30.24 | 768.1 | 67 | 19.4 | 54 | SE | 3 | 1.3 | | 2ck | 0 | E | | 0 | 0 | Fair | |
| New Haven, Conn. | | | 30.28 | 769.1 | 65 | 18.3 | 68 | S | 5 | 2.2 | | Haze | 0 | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.28 | 769.1 | 62 | 16.7 | 71 | SW | 5 | 2.2 | | 1ck | 1cs,hz | S | N | 0 | 0 | Clear | |
| New Orleans, La. | | | 30.11 | 764.8 | 72 | 22.2 | 71 | NE | 8 | 3.6 | | 4k | Haze | N | | 0 | 0 | Fair | |
| Newport, R. I. | | | 30.27 | 768.8 | 56 | 13.3 | 81 | SW | 8 | 3.6 | | 1c | 0 | | | 0 | 0 | Clear | |
| New York, N. Y. | | | 30.30 | 769.6 | 60 | 15.6 | 70 | SW | 1 | 0.4 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.31 | 769.9 | 64 | 17.8 | 57 | NE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.70 | 678.2 | 29.10 | 739.1 | 65 | 18.3 | 90 | SE | 18 | 8.0 | | 10k | 0 | SE | | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.70 | 729.0 | 29.73 | 755.1 | 67 | 19.4 | 68 | SE | 13 | 5.8 | | 2ck | 5s | | S | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 30.27 | 768.8 | 61 | 16.1 | 66 | SE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.48 | 748.8 | 63 | 17.2 | 78 | SE | 18 | 8.0 | | 5c | 5s | W | SE | 0.06 | 1.5 | Cloudy | |
| Philadelphia, Pa. | | | 30.30 | 769.6 | 63 | 17.2 | 72 | SW | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 69 | 20.6 | | SW | | | | 0 | 8s | | W | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.65 | 448.3 | 29.86 | 758.4 | 21 | — 6.1 | 71 | SW | 44 | 19.7 | | 2cs | 0 | SW | | 0 | 0 | Fair | |
| Pittsburgh, Pa. | | | 30.27 | 768.8 | 54 | 12.2 | 86 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| Port Huron, Mich. | | | 30.20 | 767.1 | 60 | 15.6 | 59 | S | 4 | 1.8 | | 2ck | 2s,sm | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.19 | 766.8 | 67 | 19.4 | 55 | W | 9 | 4.0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Portland, Oregon | | | 29.79 | 756.7 | 49 | 9.4 | 93 | Calm | 0 | 0 | | | 10s | | | 0.33 | 8.4 | Cloudy | |
| Prescott, Arizona | 24.60 | 624.8 | 29.96 | 761.6 | 53 | 11.7 | 35 | S | | | | | 10s | | SW | 0 | 0 | Cloudy | |
| Punta Rassa, Fla. | | | 29.96 | 761.0 | 72 | 22.2 | 85 | NE | 16 | 7.2 | | | 10n | | | 0.25 | 6.3 | Light rain | |
| Rochester, N. Y. | | | 30.25 | 768.3 | 61 | 16.1 | 55 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | | | | | | | | | | | | | | | | | | | |
| Sandy Hook, N. J. | | | 30.30 | 769.6 | 65 | 18.3 | 73 | SW | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.78 | 756.4 | 73 | 22.8 | 85 | SE | 6 | 2.7 | | 8cs | 2ks | SW | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.94 | 760.5 | 59 | 15.0 | 94 | SW | 12 | 5.4 | | | 10n | | SW | 0.02 | 0.5 | Light rain | |
| San Francisco, Cal. | | | 29.86 | 758.4 | 51 | 10.6 | 89 | W | 10 | 4.5 | | 0 | 5s | | W | 0.18 | 4.6 | Fair | |
| Santa Fé, N. M. | 23.14 | 587.8 | 29.68 | 753.9 | 49.5 | 9.7 | 19 | SE | 8 | 3.6 | | 2cs | 2s | SW | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.19 | 766.8 | 65 | 18.3 | 83 | NE | 10 | 4.5 | | | 10s | | E | 0.13 | 3.3 | Cloudy | |
| Shreveport, La. | | | 30.12 | 765.0 | 72 | 22.2 | 80 | Calm | 0 | 0 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Smithville, N. C. | | | 30.24 | 768.1 | 64 | 17.8 | 67 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.29 | 769.4 | 63 | 17.2 | 62 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 30.10 | 764.5 | 66 | 18.9 | 59 | S | 12 | 5.4 | | | 10s | | | 0 | 0 | Cloudy | |
| St. Marks, Fla. | | | 30.10 | 764.5 | 66 | 18.9 | 84 | NE | 12 | 5.4 | | | 10s | | NE | 0 | 0 | Cloudy | |
| St. Paul, Minn. | | | 29.79 | 756.7 | 65 | 18.3 | 63 | SE | 18 | 8.0 | | 8c | 0 | SW | | 0.01 | 0.3 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 70 | 21.1 | | SW | | | | 5ck | 5ks | NW | NW | 0 | 0 | Cloudy | |
| Stockton, Tex. | 26.87 | 682.5 | 29.87 | 758.7 | 67 | 19.4 | 74 | SW | 16 | 7.2 | | 2c | 0 | SW | | 0.47 | 11.9 | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 30.23 | 767.8 | 60 | 15.6 | 76 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Hazy | |
| Toledo, Ohio | | | 30.20 | 767.1 | 60 | 15.6 | 70 | Calm | 0 | 0 | | 8k | Haze | SW | | 0 | 0 | Cloudy | |
| Tucson, Arizona | 27.39 | 695.7 | 29.94 | 760.5 | 63 | 17.2 | | S | | | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Tybee Island, Ga | | | 30.16 | 766.1 | 67 | 19.4 | 84 | NE | 22 | 9.8 | | | 10s | | E | 0.15 | 3.8 | Cloudy | |
| Vicksburg, Miss | | | 30.16 | 766.1 | 66 | 18.9 | 73 | SE | 12 | 5.4 | | 0 | 5s | | E | 0 | 0 | Fair | |
| Virginia City, M. T | 23.87 | 606.3 | 29.35 | 745.5 | 43 | 6.1 | 75 | Calm | 0 | 0 | | | 10ks | | SW | Inap. | Inap. | Cloudy | |
| Washington, D. C | | | 30.30 | 769.6 | 65 | 18.3 | 64 | S | 2 | 0.9 | | Haze | Sm'e | | S | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 62 | 16.7 | | S | | | | | 10s | | S | 0 | 0 | Cloudy | |
| Wilmington, N. C | | | 30.25 | 768.3 | 62 | 16.7 | 61 | NE | 9 | 4.0 | | 2k | 0 | E | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 30.30 | 769.6 | 62 | 16.7 | 67 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.45 | 722.6 | 29.67 | 753.4 | 66 | 18.9 | 73 | SE | 12 | 5.4 | | 5cs | 8s | W | SW | Inap. | Inap. | Cloudy | |
| Yuma, Arizona | | | | | | | | SW | | | | | 10s | | SW | 0 | 0 | Cloudy | |
| Sub-series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.09 | 764.3 | 80 | 26.7 | 91 | Calm | 0 | 0 | | 8c | 8n | SE | | 1.25 | 31.7 | | James Gall. |
| Nassau, W. I | | | | | 81 | 27.2 | | SE | | | 4 | | | | | 0 | 0 | | Dr. G. H. Davison |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.08 | 764.0 | 81 | 27.2 | 87 | E | | | 2 | 3c | 6k | E | | 0 | 0 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | 79.7 | 26.5 | | E | | | | | | | | 0 | 0 | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 30.11 | 764.7 | | | 67.8 | 19.9 | 76 | Calm | | | 0 | 8cs,k | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | 25.21 | 640.3 | 29.67 | 753.6 | 28.0 | — 2.2 | 94 | E | 10 | 4.5 | | 2k | 0 | N | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.16 | 766.1 | 73 | 22.8 | | NE | | | 5 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,195 ft., or 1,583.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; North Platte, 2,846 ft., or 867.4 m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude; Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported * | | Barometer: Attached Thermometer. | | Temperature of the Air. | | Relative Humidity. | Wind: Direction. | Wind: Velocity | | Wind: Force. | Clouds: Amount. | | Clouds: Direction. | | Rain-fall or melted snow in the past 24 hours. | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10 | Low'r 0—10. | Up'er From— | Low'r From— | Inches. | Millimeters. | Character. | Direction from— | | |
| Naval Hospital, Annapolis, Md | 30.37 | 771.4 | 68 | 20.0 | 62 | 16.7 | 72 | S | | | 1 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.90 | 759.4 | 60 | 15.6 | 53 | 11.7 | | WSW | | | 3 | | 4 | | ESE | 0 | 0 | | | Fine | |
| Navy Yard, Norfolk, Va | 30.40 | 772.1 | 64 | 17.8 | 63 | 17.2 | 100 | E | 6 | 2.7 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Pensacola, Fla | 30.28 | 769.1 | | | 69 | 20.6 | 75 | NE | 10 | 4.5 | | | 10 | | W | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.26 | 768.6 | 74 | 23.3 | 66 | 18.9 | 64 | NW | 3 | 1.3 | | | 0 | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.74 | 755.4 | 69.5 | 20.8 | 66.5 | 19.2 | 74 | SW | | | 6 | | 4ck | | WNW | 0 | 0 | | | Fair | |
| Adams, S. 18° 01′ W. 35° 17′ | 30.24 | 768.1 | 78 | 25.6 | 79 | 26.1 | 86 | SE | | | 3 | | 7 | | E | Light | Light | Moderate. | SE | D. clouds | |
| Alert, N. 21° 43′ 28″ E. 144° 19′ 45″ | 30.06† | 763.5† | 82 | 27.8 | 82 | 27.8 | 100 | S | | | 1–2 | | 3 | | S | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.00 | 762.0 | 79 | 26.1 | 75 | 23.9 | 72 | N | | | 1 | | 4 | | | | | Long | NW | Hazy | |
| Ashuelot, Hong-Kong, China | 29.94 | 760.5 | 77 | 25.0 | 77 | 25.0 | 86 | ENE | | | 3 | | 8 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.12 | 765.0 | 52 | 11.1 | 69 | 20.6 | 80 | ENE | | | 1 | | 4 | | E | | | | | Fair | |
| Colorado, New York, N. Y | 30.35 | 770.9 | 62 | 16.7 | 64 | 17.8 | 89 | S | 1 | 0.4 | | | 1 | | | 0 | 0 | | | Hazy | |
| Despatch, N. 38° 06′ E. 5° 07′ | 30.11 | 764.8 | 71 | 21.7 | 72 | 22.2 | 67 | S | | | 2 | | 5 | | SE | | | Smooth | | Pleasant | |
| Frolic, Rio de Janeiro, Brazil | 30.44 | 773.2 | 59 | 15.0 | 67 | 19.4 | 89 | N | | | 2 | | 7kn | | | 0 | 0 | | | D clouds | |
| ‡Gettysburg, Genoa, Italy | 29.93 | 760.2 | | | 68 | 20.0 | 100 | ESE | | | 4 | | 10 | | SE | 0 | 0 | | | D. clouds | |
| Hartford, Port Royal, S. C | 30.41 | 772.4 | 72 | 22.2 | 67 | 19.4 | 84 | NE | 12.0 | 5.4 | | | 7 | | | | | | | Pleasant | |
| Huron, Oruba Island, W. I | 30.02 | 762.5 | 84 | 28.9 | 86 | 30.0 | 72 | E | | | 4 | | 9 | | E | | | | | D. clouds | |
| Kearsarge, N. 31° 34′ E. 130° 04′ | 30.04 | 763.0 | 75 | 23.9 | 72 | 22.2 | 80 | WNW | | | 2 | | 0 | | | 0 | 0 | Smooth | | Dew | |
| Lackawana, Pichilingue Bay, Mexico. | 29.94 | 760.5 | | | 71 | 21.7 | 71 | SSE | | | 2 | | 1 | | | | | Smooth | | D. clouds | |
| Marion, Smyrna, Turkey | 30.05 | 763.3 | 73 | 22.8 | 74 | 23.3 | 63 | WSW | | | 3 | | 5 | | ENE | 0 | 0 | Chop'd | WSW | D. clouds | |
| Michigan, Erie, Pa | 29.75 | 755.6 | 67 | 19.4 | 67 | 19.4 | 89 | S | | | 1 | | 5 | | SW | | | | | Partly cl'dy | |
| Monocacy, Che-foo, China | 29.74 | 755.4 | 69 | 20.6 | 69 | 20.6 | 75 | SW | | | 3 | | 0 | | | 0 | 0 | Smooth | | Blue sky | |
| Monongahela, N. 36° 58′ W. 74° 22′ | 30.37 | 771.4 | 58 | 14.4 | 58 | 14.4 | | NE | | | 2 | | k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.42 | 772.7 | | | 66 | 18.9 | 84 | NE | 20 | 8.9 | | | 10 | | | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 29.99 | 761.7 | 74 | 23.3 | 74 | 23.3 | 72 | ESE | 3 | 1.3 | | | 0? | | | 0 | 0 | Smooth | | Overcast | |
| Ossipee, Port Royal, S. C | 30.23 | 767.8 | 67 | 19.4 | 65 | 18.3 | 84 | NE | | | 4 | | 10 | | ESE | | | | | D. clouds | |
| Palos, Shanghai, China | 30.00 | 762.0 | 76 | 24.4 | 75 | 23.9 | 86 | SE | | | 1–2 | | 1 | | N&W | | | | | Clear | |
| Plymouth, N 24° 43′ W. 92° 5′ | 30.11 | 764.8 | 80 | 26.7 | 77 | 25.0 | 73 | ESE | | | 4 | | 0 | | | 0 | 0 | Light | E | Clear | |
| Ranger, N. 37° 37′ E. 3[illegible] 40′ | 30.23 | 767.8 | | | 69 | 20.6 | 90 | SE | | | 3 | | 5 | | N&W | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.48 | 774.2 | 66.5 | 19.2 | 64.8 | 18.2 | 94 | Calm | | | 0 | | 5 | | | 0 | 0 | | | Foggy | |
| Rio Bravo, Matamoras, Mexico | 29.88 | 758.9 | | | 68 | 20.0 | 90 | SE | | | 2 | | 5 | | N&W | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.37 | 771.4 | 68 | 20.0 | 66 | 18.9 | 64 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 30.22 | 767.6 | 62 | 16.7 | 61 | 16.1 | 100 | SW | 3 | 1.3 | | | 0 | | | 0 | 0 | | | | |
| Swatara, N. 10° 16′ W. 80° 43′ | 30.00 | 762.0 | 84 | 28.9 | 84 | 28.9 | 100 | E | | | 1 | | 3k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.73 | 755.1 | 71 | 21.7 | 71 | 21.7 | 71 | SSW | | | 3 | | 4 | | S&E | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.02† | 762.5† | 72 | 22.2 | 75 | 23.9 | 81 | WSW | 12.7 | 5.7 | | | 1 | | | 0 | 0 | Smooth | | Squally | |
| Vandalia, Constantinople, Turkey | 30.19 | 766.8 | 67 | 19.4 | 64 | 17.8 | 83 | NE | | | 2 | | 2 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.28 | 769.1 | 62 | 16.7 | 68 | 20.0 | 65 | WSW | 4 | 1.8 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.54† | 775.7† | 64 | 17.8 | 64 | 17.8 | | Calm | | | 0 | | | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 43° 10′ E. 166° 49′ | | | 30.12 | 765.0 | 48 | 8.9 | 85 | NW | | | 4 | | 10ks | | | Small | NW | Overcast | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig, N. 47° 33′ W. 29° 41′ | | | 29.55 | 750.6 | 53 | 11.7 | | SW | | | 4 | | 10n | | | Smooth | | Raining | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.08 | 764.0 | 66 | 18.9 | 100 | NNE | 13 | 5.8 | | | 10n | | NNE | | | Raining | Capt. James Jorgensen. |

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 30, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.01 | 762.3 | 75.6 | 24.2 | 66 | NW | | | 1 | | 1 | | | 0 | 0 | Clear | Michel. |
| Algiers | | | 30.02 | 762.4 | 73.0 | 22.8 | 34 | N | | | 2 | | 4 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.98 | 761.4 | 78.8 | 26.0 | 69 | E | | | 1 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.09 | 764.2 | 69.8 | 21.0 | | S | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Stax | | | 30.16 | 766.0 | 73.4 | 23.0 | | ESE | | | 2 | | 6 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.08 | 764.1 | 88.5 | 31.4 | | SSW | | | 5 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.17 | 766.3 | 77.5 | 25.3 | | S | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.14 | 765.5 | 77.7 | 25.4 | 17 | S | | | 4 | | 1 | | | 0 | 0 | Clear | Lemaillot. |
| Laghount | | | 30.17 | 766.3 | 82.4 | 28.0 | 20 | W | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.17 | 766.2 | 83.3 | 28.5 | 28 | SE | | | 1 | | 8 | | | 0 | 0 | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.92 | 759.9 | 73.0 | 23.1 | 36 | SW | | | 5 | | 10 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.75 | 755.7 | 75.0 | 24.2 | 39 | SW | | | 1 | | 6 | | | 0.024 | 0.6 | | Dr. Wierzbiski. |
| Eperies | | | 29.84 | 758.0 | 69.1 | 20.6 | 51 | S | | | 4 | | 6cks | | N | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.65 | 727.8 | 29.87 | 758.6 | 67.8 | 19.9 | 63 | SSW | | | 3 | | 10 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.62 | 726.9 | 29.98 | 761.4 | 75.9 | 24.4 | 39 | SE | | | 3 | | 3 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.45 | 722.7 | 29.76 | 755.9 | 61.7 | 16.4 | 66 | NW | | | 3 | | 10 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.85 | 758.1 | 71.2 | 21.8 | 66 | S | | | 2 | | 6 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhazn | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Poln | | | 30.00 | 762.0 | 65.7 | 18.7 | 87 | SE | | | 3 | | 10s | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 29.95 | 760.8 | 71.6 | 22.0 | 40 | S | | | 3 | | 4 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.02 | 762.5 | 69.9 | 20.8 | 58 | SW | | | 1 | | 10 | | | 0.047 | 1.2 | Covered | P. Busin. |
| Vienna | | | 29.70 | 754.4 | 78.8 | 26.0 | 43 | S | | | 1 | | 8 | | | Inap. | Inap. | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.33 | 719.6 | 29.78 | 756.3 | 59.5 | 15.3 | 56 | SW | | | 1 | | 10 | | | 0.067 | 1.7 | | |
| Brussels | | | 29.73 | 755.1 | 62.4 | 16.9 | 57 | SSW | | | 1 | | 8 | | SW | 0.008 | 0.20 | | Royal Observatory |
| Furnes | | | 29.70 | 754.3 | 61.2 | 16.2 | 54 | SSW | | | 2 | | 7 | | | 0.008 | 0.2 | | |
| Maeseyck | | | 29.61 | 752.0 | 62.1 | 16.7 | 68 | SW | | | 4 | | 5 | | | 0.189 | 4.8 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

# BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.27 | 743.4 | 55.2 | 12.9 | | SW | 17 | 7.6 | | | 6 | | | | | Showery | William Boswell. |
| Ardrossan | | | 29.38 | 746.2 | 55 | 12.8 | | WSW | | | 3 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.44 | 747.8 | 54.3 | 12.4 | | SW | 12 | 5.4 | | | 9 | | | | | Showery | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.53 | 750.0 | 55.0 | 12.8 | | W | 18 | 8.0 | | | 6 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.53 | 750.0 | 46.8 | 8.2 | | SW | | | 1 | | 10 | | | | | Raining | J. Dreyer. |
| Bradford, Yorkshire | | | 29.53 | 750.0 | 57.1 | 13.9 | | W | | | 6 | | 3 | | | 0.01 | 0.3 | D. clouds | J. McLandsborough, A. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 81.0 | 27.2 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.61 | 752.1 | 61.7 | 16.4 | | SW | | | 2 | | 7 | | | | | Showery | H. Todd. |
| Cardington | | | 29.63 | 752.6 | 64.0 | 17.8 | | SW | | | 3 | | 4 | | | | | D. clouds | John McLaren. |
| Chatham, School M. E. | | | 29.79 | 756.7 | 59.2 | 15.1 | | W | | | 3 | | 9 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 28.22 | 716.8 | 29.68 | 753.9 | 52.0 | 11.1 | | NW | | | 4 | | 3 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.43 | 747.5 | 53 | 11.7 | | WSW | | | 5 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.70 | 754.4 | 57 | 13.9 | | SW | | | 3 | | 2 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.52 | 749.8 | 50.7 | 13.7 | | NW | 4.4 | 2.0 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.65 | 753.1 | 58.0 | 14.4 | | SW | | | 3 | | 6 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.78 | 705.6 | 30.01 | 762.2 | 67.4 | 19.7 | | NE | | | 2 | | 1 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.99 | 761.7 | 86 | 30.0 | | N | | | 3 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.45 | 748.0 | 53 | 11.7 | | WNW | | | 4 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.91 | 760.5 | 74.5 | 23.6 | | NW | | | 3. | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.34 | 745.7 | 54.8 | 12.7 | | WSW | | | 3 | | 5 | | | | | D. clouds | J. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.62 | 752.3 | 62 | 16.7 | | SW | | | 4 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.65 | 753.1 | 64.1 | 17.8 | | SW | | | 3 | | 6 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.70 | 754.4 | 58.5 | 14.7 | | SSW | | | 1 | | 3 | | | | | D. clouds | Dr. S. F. Hoskins, F.R.S. |
| Helston. | | | 29.67 | 753.6 | 61 | 16.1 | | SW | | | 4 | | 2c,k | | | 0 | 0 | D. clouds | M. P. Moyle. |
| Holyhead | | | 29.53 | 750.0 | 55 | 12.8 | | SW | | | 5 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 29.65 | 753.1 | 59.0 | 15.0 | | WSW | 15 | 6.7 | | | 5 | | | | | Hazy | The Staff. |
| Kingstown | | | 29.50 | 749.3 | 56 | 13.3 | | W | | | 3 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.58 | 751.3 | 58.9 | 14.9 | | SW | | | 3 | | 6 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.14 | 765.5 | 68.6 | 20.3 | | E | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.23 | 742.4 | 56 | 13.3 | | W | | | 1 | | 2 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.89 | 759.2 | 77.0 | 25.0 | | NE | | | 1 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.58 | 751.3 | 58.2 | 14.6 | | SW | | | 4 | | 10d | | SW | 0.055 | 1.3 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.57 | 751.1 | 52.8 | 11.6 | | SW | | | 3 | | 10 | | | | | Raining | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.82 | 757.4 | 56 | 13.3 | | SW | | | 3 | | 9 | | | | | Overcast | J. W. Lucas |
| Plymouth | | | 29.66 | 753.4 | 61.8 | 16.6 | | SW | | | 4 | | 8 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.54 | 750.3 | 56 | 13.3 | | WSW | | | 4 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.58 | 751.3 | 55 | 12.8 | | SW | | | 3 | | 2 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.71 | 754.6 | 60.0 | 15.6 | | SW | | | 3 | | 0 | | | | | Clear | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.16 | 740.7 | 47.9 | 8.8 | | SW | 23 | 10.3 | | | 10 | | | | | Misty | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.14 | 765.5 | 70.8 | 21.6 | | NE | | | 2 | | 0 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.54 | 750.3 | 60.3 | 15.7 | | W | | | 4 | | 6 | | | 0.010 | 0.25 | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 29.45 | 748.0 | 59.8 | 15.4 | 73 | SW | | | 6 | | 3 | | | 0.020 | 0.51 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.53 | 750.0 | 55.1 | 12.8 | | SW | | | 4 | | 8 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.21 | 741.9 | 51 | 10.6 | | W | | | 5 | | 10 | | | | | Overcast | John Smith. |
| Stratfield Turgiss | | | 29.64 | 752.8 | 57.7 | 14.3 | | W | | | 1 | | 6 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 29.22 | 742.2 | 59 | 10.0 | | W | | | 4 | | 8 | | | | | Showery | John Trotter. |
| Truro, Royal Institution | | | 29.63 | 752.6 | 62 | 16.7 | | SW | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.52 | 749.8 | 56.5 | 13.6 | | SW | 12 | 5.4 | | | 7 | | | | | D. cloud | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 48 | 8.9 | | W | | | 4 | | 5 | | | 0.02 | 0.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.11 | 764.8 | 56.0 | 13.3 | 74 | NW | 10 | 4.5 | | 1 | 2 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.33 | 770.4 | 60.0 | 15.6 | 76 | S | | | 2 | | 3k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.29 | 746.5 | 57.2 | 14.0 | | W | | | 6 | | 3k | | | 0.04 | 1.0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.11 | 764.8 | 78.1 | 25.6 | 75 | ENE | 8.9 | 4.0 | | 0 | 4 | | ENE, NNW | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 29.57 | 776.5 | 48.9 | 9.4 | 92 | Calm | 0 | 0 | | | 8 | | | 0 | 0 | Foggy | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 29.30 | 745.7 | 51 | 10.6 | | NW | | | 4 | 3 | 0 | W | | 0 | 0 | Solar halo | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 28.99 | 730.3 | 47 | 8.3 | | SSW | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | Corr. Inches | Corr. Millimeters | Red. Inches | Red. Millimeters | Fahrenheit | Centigrade | Per cent | Wind From— | Miles per hour | Meters per second | Force | Clouds Upper | Clouds Lower | Upper From— | Lower From— | Sea or swell. Height scale 0–9 | Direction from— | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 49° 35′ W. 29° 25′ | | | 29.18 | 741.2 | 48.0 | 8.9 | | NW | | | 3 | | 10 | | | 10* | NE | Raining | Capt. W. Watson. |
| S. S. Batavia, N. 43° 55′ W. 45° 5′ | | | | | 52.0 | 11.1 | | W | | | 4 | | 1 | | | 3 | W | Blue sky | Capt. J. E. Mouland. |
| Ship Camperdown, N. 26° 10′ W. 75° 50′ | | | 29.95 | 760.7 | 77.0 | 25.0 | | ENE | | | 4 | | 8 | | | 4 | NE | Showery | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.53 | 750.0 | 54 | 12.2 | | SW | | | 3 | | 5 | SW | | 0 | | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.19 | 665.2 | | | 73.0 | 22.8 | 84 | SE | | | 2 | | 6cs | | | 0.7 | 18. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.60 | 751.7 | 55.2 | 12.9 | 77 | S | | | 2 | | 10 | | | | | Raining | |
| Fanöe | | | 29.58 | 751.2 | 55.6 | 13.1 | 85 | W | | | 4 | | 6 | | | | | | |
| Godthaab, (Greenland) | | | 29.42 | 747.2 | 36.7 | 2.6 | 70 | Calm | | | 0 | | 10 | | | | | | |
| Styrkishoim, (Iceland) | | | 29.56 | 750.8 | 38.7 | 3.7 | 83 | E | | | 4 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.12 | 739.6 | 50.5 | 10.3 | 72 | N | | | 4 | | 10 | | | | | | |
| Vestervig | | | 29.53 | 750.1 | 56.1 | 13.4 | 82 | SW | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.82 | 757.4 | 59.0 | 15 | 70 | SW | | | 1 | | 5k | | SW | 0.126 | 3.2 | Cloudy | Normal School. |
| Amiens | | | 29.71 | 754.5 | 64.4 | 18.0 | | S | | | 3 | | 5 | | S | 0.055 | 1.4 | Cloudy | Normal School. |
| Avignon, Normal School | | | 29.89 | 759.2 | 69.3 | 20.7 | 76 | SSE | | | 2 | | 8 | | S | 0.571 | 14.5 | Very cloudy | Mr. Giraud. |
| Bar-sur-Seine | | | 29.83 | 757.7 | 60.8 | 16.0 | 58 | SW | | | 2 | | 8kn | | SW | 0.535 | 13.6 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.78 | 756.4 | 57.7 | 14.3 | 82 | WNW | | | 2 | | 8 | | SW | 0.010 | 0.25 | Very cloudy | Normal School. |
| Besançon | | | 29.95 | 760.6 | 61.2 | 16.2 | 85 | SSE | | | 6 | | 8 | | S | 1.26 | 32. | Very cloudy | Normal School. |
| Bourg en Bresse | | | 29.95 | 760.8 | 57.0 | 13.9 | 95 | NE | | | 2 | | 5kn | | S | 1.400 | 35.8 | Cloudy | Normal School. |
| Bourges | | | 29.83 | 757.7 | 62.8 | 17.1 | 80 | S | | | 1 | | 5 | | NE | 0.295 | 7.5 | Cloudy | Normal School. |
| Brest | | | 29.64 | 752.8 | 62.4 | 16.9 | 59 | SW | | | 3 | | 7k | | SW | 0.089 | 2.25 | | Naval Observatory. |
| † Carcassonne | | | 29.85 | 758.3 | 66.6 | 19.2 | 79 | ENE | | | 2 | | 5 | | ENE | 0.047 | 1.2 | Cloudy | Normal School. |
| † Caen | | | 29.74 | 755.5 | 63.1 | 17.3 | 52 | SW | | | 1 | | | | SW | 0.047 | 1.1 | | Normal School. |
| Charyres | | | 29.76 | 755.8 | 62.8 | 17.1 | 80 | S | | | 2 | | 6 | | N | 0.102 | 2.6 | | Normal School. |
| † Châlons-sur-Marne | | | 29.81 | 757.1 | 61.7 | 16.5 | 66 | WSW | | | 3 | | 8kn | | WSW | 0.091 | 2.3 | Very cloudy | Normal School. |
| Clermont-Ferrand | | | 29.80 | 756.8 | 62.8 | 17.1 | 81 | NE | | | 1 | | 8 | | SW | 1.386 | 35.2 | Very cloudy | Puy de Dome Obs'y. |
| Commercy | | | 29.81 | 757.2 | 58.8 | 14.9 | 61 | WSW | | | 2 | | 5 | | WSW | 0.51 | 13. | Cloudy | Normal School. |
| Commune de Gréasque* | | | 29.96 | 761.0 | 63.9 | 17.7 | 82 | SW | | | 2 | | 10 | | SW | 0.610 | 15.5 | | M. Kina. |
| † La Roche-sur-Yon | | | 29.97 | 761.3 | 62.1 | 16.8 | 68 | ENE | | | 4 | | 10ns | | W | 0.87 | 22. | Covered | Normal School. |
| Le Mans | | | 29.75 | 755.7 | 61.9 | 16.6 | 73 | SE | | | 2 | | 8 | | W | 0.150 | 3.8 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.78 | 756.4 | 57.9 | 14.4 | 80 | NW | | | 4 | | 8 | | W | 0.12 | 3. | Very cloudy | Normal School. |
| Lorient | | | 29.87 | 758.8 | 58.8 | 14.9 | 91 | E | | | 1 | | 10 | | NW | 1.244 | 31.6 | Raining | Normal School. |
| Mâcon, Normal School | | | 29.75 | 755.6 | 61.5 | 16.4 | 59 | S | | | 3 | | 2 | | S | 0.079 | 2.0 | ¼ covered | Naval Observatory. |
| Metz | | | 29.92 | 759.0 | 57.7 | 14.3 | 93 | NE | | | 2 | | 10 | | | 1.354 | 34.4 | Covered | Mr. Marchal. |
| Mirecourt | | | 29.89 | 759.1 | 62.2 | 16.8 | 51 | SW | | | 2 | | 9k | | SW | 0.126 | 3.2 | | M. A. Schuster. |
| Nismes | | | 29.93 | 760.3 | 62.6 | 17 | 72 | S | | | 2 | | 10 | | NE | 0.12 | 3. | Covered | Normal School. |
| Orleans | | | 29.89 | 759.3 | 71.1 | 21.8 | 74 | SW | | | 2 | | 10 | | E | 0.28 | 7. | Covered | Normal School. |
| Paris, Observatory | | | 29.79 | 756.6 | 63.7 | 17.6 | 74 | SSW | | | 2 | | 2 | | SSW | 0.04 | 1. | Slightly cl'dy | Normal School. |
| Pivas | | | 29.78 | 756.4 | 63.3 | 17.4 | 52 | SW | | | 2 | | 8k | | SSW | 0.070 | 1.79 | Very cloudy | National Observatory. |
| † Rochefort, Observatory | | | | | | | | | | | | | | | | | | | Normal School. |
| Rouen | | | 29.78 | 756.5 | 67.3 | 19.6 | 60 | SSW | | | 3 | | 5 | | SW | 0 | 0 | ½ covered | Naval Observatory. |
| † Tarbes | | | 29.75 | 755.6 | 59.4 | 15.2 | 65 | W | | | 2 | | 5 | | SW | 0.059 | 1.5 | Cloudy | Normal School. |
| Villefranche | 28.66 | 728.0 | 29.71 | 754.5 | 63.3 | 17.4 | 86 | WSW | | | 2 | | 0 | | | 0.500 | 12.7 | Clear | Normal School. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.80 | 756.8 | 66.0 | 18.9 | 90 | NE | | | 1 | | 5 | | SW | 1.165 | 29.6 | Cloudy | Normal School. |
| Marseilles, Observatory | | | 29.87 | 758.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Mont-Louis | | | 29.89 | 759.2 | 61.6 | 18.1 | 88 | E | | | 0-1 | | 10 | | | 0.364 | 9.25 | Raining | The Staff. |
| Montsouris, Paris | 24.77 | 629.2 | 30.09 | 764.2 | 48.0 | 8.9 | 72 | SE | 7.4 | 3.33 | | | 10 | | SSW | 0.654 | 16.6 | | Mr. Falguère. |
| Perpignan | | | 29.78 | 756.3 | 64.9 | 18.3 | 56 | WSW | | | 2-3 | | 8 | | WSW | 0.047 | 1.2 | | Montsouris Observatory |
| Pic du Midi, (Summit,) H. P. | | | 29.86 | 758.5 | 69.8 | 21.0 | 71 | SE | 3.7 | 1.67 | | | 10 | | W | 0.102 | 2.6 | | Dr. Fines. |
| Pic du Midi, (Plantade,) H. P. | 21.12 | 536.3 | | | 31.6 | — 0.2 | | W | | | 4 | | | | W | | | Stormy | M. Baylac. |
| Saint Maur, (near Paris) | 22.39 | 568.8 | | | 36.0 | 2.7 | | W | | | 3 | | 10 | | | 1.079 | 27.4 | Stormy | Gen'l de Nansouty. |
| Toulouse, Observatory | | | 29.78 | 756.5 | 66.4 | 19.1 | 54 | SW | | | 3 | | 7 | | | 0.043 | 1.1 | Cloudy | E. Renou. |
| Tours | | | 29.85 | 758.1 | 67.1 | 19.5 | 88 | S | | | 1 | | 9 | | | 0.496 | 12.6 | | The Staff |
| Versailles, (near Paris) | | | | | | | | | | | | | | | | 0.063 | 1.6 | | C. Marquet. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.79 | 756.7 | 64.4 | 18.0 | 59 | SW | | | 3 | | 7 | | | 0.049 | 1.25 | Cloudy | Dr. A Bérigny. |
| | | | 29.85 | 758.3 | 70.2 | 21.2 | 86 | SE | 9.2 | 4.1 | | | 10k | | | 0 | 0 | Dark sky | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometrical observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:1, p. m., local time. * Bouches-du-Rhône. † Previous to May 29th, 1877, the direction of the clouds for Carcassonne, Caen, Châlons-sur-Marne, La Roche-sur-Yon, Rochefort and Tarbes was given and printed as *towards* instead of *from*.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.82 | 757.4 | 60.8 | 16.0 | 74 | W | | | 5 | | 5 | W | | 0.157 | 4.0 | | Prof. T. Hoh. |
| Berlin | | | 29.74 | 755.5 | 65.1 | 18.4 | 54 | SW | | | 3 | | 8 | | | 0.370 | 9.4 | | Prof. Arndt. |
| Breslau | | | 29.70 | 756.7 | 69.6 | 20.9 | 56 | WSW | | | 4 | | 10 | | | 0.055 | 1.4 | Raining | Royal University Obs'y. |
| Carlsruhe | | | 29.82 | 757.4 | 59.4 | 15.2 | 77 | SE | | | 1 | | 10 | | | 0.409 | 10.4 | Raining | Albert Senz. |
| Cassel | | | 29.82 | 757.3 | 62.2 | 16.8 | 51 | W | | | 5 | | 5 | WSW | | 0.224 | 5.7 | | Dr. H. Möhl. |
| Crefeld | | | 29.71 | 754.6 | 63.5 | 17.5 | 59 | SW | | | 4 | | 5 | | | 0.157 | 4.0 | | Director Lose. |
| Emden | | | 29.70 | 754.3 | 63.0 | 17.2 | 50 | W | | | 3 | | 3 | | | 0.059 | 1.5 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.83 | 757.6 | 66.9 | 19.4 | 45 | SSW | | | 3 | | 5 | | | 0.500 | 12.7 | | Physical Society. |
| Friedrichshafen | 28.08? | 736.0? | 29.91? | 759.6? | 58.5 | 14.7 | 83 | WSW | | | 4 | | 10 | WSW | | 0.36 | 9.2 | Raining | M. Wilhelm. |
| Hamburg | | | 29.70 | 754.4 | 57.2 | 14.0 | 80 | WNW | | | 4 | | 3k | WNW | | 0.17 | 4.4 | Showery | Captain F. Hegemann. |
| Kiel | | | 29.64 | 752.9 | 59.9 | 15.5 | 86 | W | | | 3 | | 7 | | | 0.14 | 3.6 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.66 | 753.3 | 72.5 | 22.5 | 59 | SE | | | 5 | | 5 | | | 0.06 | 1.6 | | Prof. E. Luther. |
| Köslin | | | 29.67 | 753.6 | 58.6 | 14.8 | | W | | | 6 | | 4 | | | 0.22 | 5.6 | | H. Müller. |
| Leipsic | | | 29.78 | 756.3 | 64.4 | 18.0 | 59 | SW | | | 4 | | 10 | WSW | | 0.27 | 7.0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.69 | 754.0 | 70.3 | 21.3 | | SE | | | 4 | | 10ks,h. | | | | | Squally | Rehbrecht & Skalweit. |
| Münster | | | 29.84 | 757.8 | 59.5 | 15.3 | 69 | SW | | | | | 4 | | | 0.571 | 14.5 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.63 | 752.5 | 66.6 | 19.2 | 68 | SW | | | 4 | | 10 | | | 0.029 | 0.7 | | A. Lothes. |
| Posen | | | 29.73 | 755.2 | 69.8 | 21.0 | 48 | SW | | | 8 | | 10 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.85 | 758.1 | 62.1 | 16.7 | 75 | S | | | 1 | | 10 | SW | | 1.18 | 30.2 | | Dr. Schur. |
| Stuttgart | | | 29.84 | 757.6 | 57.2 | 14.0 | 84 | NW | | | 1 | | 9 | | | 0.40 | 10.3 | Raining | Prof. Schoder |
| Treves, (Trier) | | | 29.68 | 753.9 | 62.4 | 16.9 | 55 | W | | | 6 | | 8 | | | 0.15 | 3.9 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.34 | 719.8 | 29.83 | 757.6 | 57.0 | 13.9 | 84 | SSW | | | 2 | | 10 | SW | | 0.12 | 3.2 | Raining | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.71 | 754.6 | 55.2 | 12.9 | 86 | W | | | 3 | | 5 | | | 0.44 | 11.2 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.13 | 765.3 | 77.2 | 25.1 | | NE | | | | | Strong | | | | | Very clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.16 | 562.8 | 29.97 | 761.3 | 35.2 | 1.8 | 100 | WNW | | | 4 | | 10 | | | 1.969* | 50.0* | | Prof. Giovanni Clodig. |
| Stelvio | 22.08 | 560.8 | 29.80 | 757.0 | 39.0 | 3.9 | | W | | | 6 | | 10 | | | 0.217 | 5.5 | | Signora Ernesta Manfredi. |
| Udine | | | 29.99 | 761.8 | 62.6 | 17.0 | 79 | E | 0.7 | 0.3 | | | 10 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 29.95 | 760.8 | 65.8 | 18.8 | 72 | N | 5.6 | 2.5 | | | 10 | SW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.97 | 761.1 | 65.7 | 18.7 | 69 | NE | 0.7 | 0.3 | | | 10 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.01 | 762.2 | 69.4 | 20.8 | 82 | E | | | 2 | | 10 | | | 0.098 | 2.5 | | Dott. B. Bertoncelli. |
| Bergamo | | | 29.93 | 760.1 | 57.2 | 14.0 | 78 | NW | | | 4 | | 10 | | | 1.103 | 28.0 | | Prof. Trionfini Carlo. |
| Domodossola | 28.62 | 726.9 | 29.91 | 759.7 | 57.0 | 13.9 | 85 | Calm | | | 0 | | 10 | | | 0.463 | 11.9 | | Prof. Giuseppe Calza. |
| Milan | | | 29.95 | 760.8 | 59.9 | 15.5 | 90 | ENE | | | 1 | | 10 | ENE | | 0.193 | 4.9 | | Ab. Gio. Capelli. |
| Pavia | | | 29.89 | 759.3 | 62.8 | 17.1 | 87 | NE | | | 2 | | 10 | | | 0.083 | 2.1 | | Prof. Gio. Cantoni. |
| Montalleri | | | 29.88 | 759.0 | 63.7 | 17.6 | 70 | SE | 3.8 | 1.7 | | | 9 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 27.99 | 712.0 | 29.87 | 758.6 | 63.3 | 17.4 | 66 | N | | | 4 | | 6 | S | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.99 | 761.8 | 63.1 | 17.3 | 93 | SSW | | | 6 | | 10 | SSW | | 0.661 | 16.8 | | Prof. L. Vassallo. |
| Genoa | | | 29.98 | 761.6 | 63.3 | 16.4 | 92 | SE | 9.8 | 4.4 | | | 10 | S | | 0.354 | 9.0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.89 | 759.3 | 68.7 | 20.4 | 56 | SSE | 21.7 | 9.7 | | | 10 | W | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.93 | 760.3 | 67.1 | 19.5 | 70 | WNW | | | 6 | | 9 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.05 | 763.2 | 76.1 | 24.5 | 50 | S | | | 4 | | 10 | SW | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.03 | 762.8 | 68.0 | 20.5 | 70 | S | 21.0 | 9.4 | | | 10 | SW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.87 | 733.2 | 30.06 | 763.4 | 70.0 | 21.1 | 58 | S | 6.3 | 2.8 | | | 7 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.50 | 723.8 | 30.03 | 762.7 | 69.1 | 20.6 | 39 | SW | | | 2 | | 8 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.00 | 762.1 | 75.7 | 24.3 | 42 | S | 6.3 | 2.8 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.00 | 762.1 | 70.6 | 24.8 | 43 | SE | | | 4 | | 4 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.08 | 764.0 | 73.4 | 23.0 | 56 | SSE | | | 6 | | 6 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.12 | 765.1 | 74.5 | 23.6 | 43 | S | 14.3 | 6.4 | | | 1 | WSW | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.16 | 766.1 | 77.7 | 25.4 | 36 | SW | | | 2 | | 3 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.16 | 766.1 | 73.4 | 23.0 | 41 | SW | 12.5 | 5.6 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.11 | 764.8 | 80.6 | 27.0 | 63 | N | 7.4 | 3.3 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.02 | 762.5 | 74.7 | 23.8 | 62 | SE | | | 4 | | 7 | SE | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.19 | 766.7 | 70.7 | 21.5 | 68 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.13 | 765.2 | 71.1 | 21.9 | 64 | ENE | 4.3 | 1.9 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.18 | 715.8 | 30.09 | 764.2 | 69.8 | 21.0 | 42 | S | | | 2 | | 2 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.08 | 764.1 | 70.2 | 21.2 | 67 | SE | | | 4 | | 5 | S | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.17 | 766.3 | 72.9 | 22.7 | 39 | NE | 4.3 | 1.9 | | | 5 | | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.91 | 759.7 | 64 | 17.8 | 83 | SE | 3 | 1.3 | | | 58 | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.12 | 587.2 | 30.13 | 765.3 | 57.2 | 14.0 | 76 | S | 0.2 | 0.07 | | 0 | 18 | | SW | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.73 | 755.1 | 60.4 | 15.8 | | WNW | | | 4 | | | | | 0.020 | 0.5 | | |
| Groningen | | | 29.61 | 752.1 | 60.6 | 15.9 | | W | | | 4 | | | | | 0.016 | 0.4 | | |
| Helder | | | 29.67 | 753.6 | 57.2 | 14.0 | | SW | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 29.67 | 753.7 | 59.2 | 15.1 | 42 | SW | | | 4 | | 8 | | | 0.220 | 5.6 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.33 | 744.9 | 56.5 | 13.6 | 60 | SSW | 32.4 | 14.5 | | | 0 | | | 0.543 | 13.8 | | |
| Brönö | | | 29.41 | 747.1 | 57.2 | 14.0 | 57 | S | 7 | 3 | | | 3 | | | 0.382 | 9.7 | | |
| Christiania | | | 29.49 | 749.1 | 58.8 | 14.9 | 73 | S | 9 | 4 | | | 9 | | | 0.165 | 4.2 | | |
| Tromsö | | | 29.37 | 745.9 | 46.4 | 8.0 | 78 | Calm | 0 | 0 | | | 5 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.06 | 763.4 | 62.2 | 16.8 | 68 | W | 19.6 | 8.9 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.79 | 756.7 | 68.5 | 20.3 | 81 | SSW | 17.4 | 7.9 | | | 10 | SSW | | 0.059 | 1.5 | Light rain | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.00 | 762.0 | 73.4 | 23.0 | 66 | SSW | 4.3 | 1.9 | | | 8 | | | 0.016 | 0.4 | | Capt. D. A. de Cunha. |
| Lisbon | | | 29.80 | 756.8 | 64.0 | 17.8 | 99 | SW | 23.7 | 10.6 | | | 10 | | | 0.701 | 17.8 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.07 | 763.7 | 69.1 | 20.6 | 61 | WNW | 9.8 | 4.4 | | | 5 | NNE | | 0.047 | 1.2 | Light rain | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'dr. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.71 | 754.7 | 76.1 | 24.5 | 36 | SW | 18 | 8 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.77 | 756.1 | 76.6 | 24.8 | 36 | SSE | 4 | 2 | | | 8 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.83 | 757.6 | 70.0 | 21.1 | 54 | S | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.85 | 758.3 | 58.3 | 14.6 | 90 | W | 7 | 3 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.68 | 753.9 | 62.1 | 16.7 | 48 | W | 34 | 15 | | | 5 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.97 | 761.1 | 74.5 | 23.6 | 36 | SE | 7 | 3 | | | 4 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.19 | 766.8 | 69.8 | 21.0 | 46 | SW | 13 | 6 | | | 0 | | | | | | Kurdakof |
| Kertch | | | 30.23 | 767.9 | 68.0 | 20.0 | 66 | NW | 7 | 3 | | | 1 | | | | | | Lagorio. |
| Moscow | | | 30.12 | 765.0 | 65.5 | 18.6 | 47 | SSW | 7 | 3 | | | 0 | | | | | | Meteorological Obs. |
| Lugan | | | 30.05 | 763.3 | 65.1 | 18.4 | 40 | NNW | 9 | 4 | | | 4 | | | | | | Meteorological Obs. |
| Archangel | | | 29.81 | 757.2 | 53.4 | 11.9 | 60 | SSW | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.80 | 731.4 | 30.21 | 767.3 | 60.3 | 15.7 | 67 | S | 4 | 2 | | | 10 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.11 | 764.7 | 58.1 | 14.5 | 62 | W | 13 | 6 | | | 10 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.87 | 758.6 | 59.7 | 15.4 | 55 | NE | 4 | 2 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.52 | 749.8 | 58.3 | 14.6 | 83 | S | 7 | 3 | | | 10 | | | | | | Tschernischef. |
| Ekaterinburg | 29.06 | 738.1 | 30.00 | 762.1 | 49.8 | 9.9 | 47 | E | 22 | 10 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | 30.12 | 765.1 | 73.9 | 23.3 | 39 | N | 4 | 2 | | | 5 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | |
| Tashkend | 28.37 | 720.7 | 29.98 | 761.6 | 82.8 | 28.2 | 73 | NW | 2 | 1 | | | 5 | | | | | | Bobrof. |
| Barnaul | | | 30.23 | 767.9 | 58.8 | 14.9 | 28 | N | 0 | 0 | | | 10 | | | | | | Michelson. |
| Yeniseisk | | | 30.19 | 766.9 | 37.8 | 3.2 | 80 | NW | 7 | 3 | | | 9 | | | | | Snowing | Meteorological Obs. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Marks. |
| Oorga | | | | | | | | | | | | | | | | | | | Usolzef. |
| Peking, (China) | | | 29.90 | 759.4 | 73.8 | 23.2 | 56 | Calm | 0 | 0 | | | 10 | | | | | | Mossin. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Physical Observatory. |
| Vladivostock | | | 29.91 | 759.8 | 54.7 | 12.6 | 75 | NW | 4 | 2 | | | 2 | | | | | | Meteorological Obs. |
| Nikolaievsk, on the Amoor | | | | | 45.5 | 7.5 | | E | 4 | 2 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.79 | 756.6 | 63.9 | 17.7 | 95 | S | 6.0 | 2.67 | | | 10 | | | 0.102 | 2.6 | Rainy | Royal Observatory. |
| San Fernando | | | 29.97 | 761.3 | 70.5 | 21.4 | 83 | SSW | 8.7 | 3.9 | | 0 | 10 | | SSW | 0.008 | 0.2 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.88 | 759.0 | 81.3 | 27.4 | 75 | Calm | 0 | 0 | | 0 | 2k | | | 0 | 0 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.56 | 750.7 | 41.7 | 5.4 | 78 | S | | | 6 | | 0 | | | 0.157 | 4.0 | | |
| Umea | | | 29.57 | 751.0 | 49.3 | 9.6 | 61 | SW | | | 6 | | 1 | | | 0.039 | 1.0 | | |
| Hernosand | | | 29.57 | 751.1 | 50.2 | 10.1 | 63 | S | | | 6 | | 1 | | | 0 | 0 | | |
| Stockholm | | | 29.63 | 752.6 | 56.3 | 13.5 | 90 | S | | | 2 | | 10 | | | 0.508 | 12.7 | Raining | |
| Wisby | | | 29.61 | 752.0 | 50.4 | 10.2 | 95 | SE | | | 4 | | 10 | | | 0.055 | 1.4 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.62 | 752.3 | 60.1 | 15.6 | 50 | SSE | 16.1 | 7.2 | | | 10 | | | 0.492 | 12.50 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.48 | 723.5 | 29.90 | 759.4 | 59.0 | 15.0 | 82 | NE | | | 1 | | 10 | | | 1.303 | 33.1 | Raining | The Observatory. |
| Zurich | 28.30 | 718.7 | 29.93 | 760.3 | 53.6 | 12.0 | 92 | W | | | 1 | | 10 | | | 0.787 | 20.0 | Raining | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —2.2 mm; Thermometer, —3.6 cent.; Relative Humidity, +26 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.15 | 766.6 | 66.4 | 19.1 | 52 | ENE | 17 | 7.5 | | | 0 | | | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.01 | 762.2 | 87.1 | 30.6 | | NW | | | 1 | | 0 | | | | | | |
| Salonica | | | 30.25 | 768.3 | 75.6 | 24.2 | | S | | | 1 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.23 | 767.8 | 78.6 | 25.9 | | SW | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 30.12 | 765.0 | 68.0 | 20.0 | | SW | | | 3 | | 0 | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.98 | 761.6 | 77.7 | 25.4 | 53 | N | | | 2 | | 1c | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.86 | 758.4 | 75.9 | 24.4 | 41 | W | 5 | 2.2 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.09 | 764.3 | 67 | 19.4 | | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear. | W. R. Bigg. |
| *Chatham, N. B. | | | 29.92 | 760.0 | 64 | 17.8 | 65 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.99 | 761.7 | 60 | 15.6 | 61 | SW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear. | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.06 | 763.5 | 62.5 | 16.9 | 61 | SW | | | 2 | 1k | 0 | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.85 | 758.2 | 70.8 | 21.6 | 62 | W | | | 1 | | | | | 0 | 0 | Clear. | H. A. Johnson. |
| Esquimault, B. C. | | | 29.85 | 758.2 | 49.8 | 9.9 | 82 | W | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.90 | 759.4 | 53 | 11.7 | 76 | S | 8 | 3.6 | | Sm'e | Sm'e | | | 0 | 0 | Smoky | J. McWilliams |
| Fredericton, N. B. | | | 30.04 | 763.0 | 63.0 | 17.2 | 67 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.43 | 747.5 | 62 | 16.7 | 93 | N | 2 | 0.9 | | | 10n | | N | 0.07 | 1.8 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 30.07 | 763.8 | 68.5 | 20.3 | 58 | SW | | | 2 | 3k | 0 | SW | | 0 | 0 | Hazy | H. J. Strang, M. A |
| Granton, Ontario | 29.00 | 736.6 | 30.07 | 763.8 | 64 | 17.8 | 73 | S | | | 1 | 1cs | 0 | E | | 0 | 0 | Clear. | James Grant. |
| *Halifax, N. S. | | | 30.06 | 763.5 | 64 | 17.8 | 60 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear. | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.12 | 765.0 | 61.7 | 16.5 | 69 | W | | | 1 | 2c | 0 | W | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.80 | 756.9 | 55 | 12.8 | 68 | SW | | | 4 | 0 | 3s | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.14 | 765.5 | 61 | 16.1 | 71 | S | 3 | 1.3 | | 5ck | 0 | | | 0 | 0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.04 | 763.0 | 63 | 17.2 | 55 | S | 14 | 6.3 | | 2k | Sm'e | S | | 0 | 0 | Fair | C. H. McLeod, C. E. |
| Parry Sound, Ontario | | | 30.05 | 763.3 | 59 | 15.0 | 76 | SE | 3 | 1.3 | | 2ck | Haze | W | W | 0 | 0 | Fair | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.11 | 764.8 | 60 | 15.6 | 77 | S | 2 | 0.9 | | 10k | 0 | W | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.97 | 761.2 | 65.5 | 18.6 | | W | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 30.10 | 764.5 | 60 | 15.6 | 79 | E | 4 | 1.8 | | 10k | Haze | SW | | 0 | 0 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 30.04 | 763.0 | 64 | 17.8 | 78 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear. | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.06 | 763.5 | 53 | 11.7 | 78 | Calm | 0 | 0 | | 2c | 0 | W | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 30.07 | 763.8 | 51 | 10.6 | 79 | SE | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Fine | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 30.01 | 762.2 | 67 | 19.4 | 57 | Calm | 0 | 0 | | 8k | 0 | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 30.00 | 762.0 | 72 | 22.2 | 51 | SW | 5 | 2.2 | | 2k | 2n | NW | W | 0 | 0 | Fair | R. J. Cole. |
| Stratford, Ontario | 28.81 | 731.8 | 30.05 | 763.3 | 63.0 | 17.2 | 65 | SW | 5 | 2.2 | | 2ck | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.96 | 761.0 | 76 | 24.4 | 44 | SW | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.10 | 764.5 | 60 | 15.6 | 69 | E | 5 | 2.2 | | 5k | 0 | W | | 0 | 0 | Fair | Magnetic Observatory. |
| Windsor, N. S. | | | 29.98 | 761.5 | 68.0 | 20.0 | 60 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear. | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.08 | 764.0 | 65.1 | 18.4 | 69 | Calm | 0 | 0 | | 4k | 0 | | | 0 | 0 | Fair | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.85 | 758.2 | 65.0 | 18.3 | 49 | SW | | | | Sm'e | Sm'e | | | 0 | 0 | Fair. | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.10 | 764.5 | 65 | 18.3 | 63 | Calm | 0 | 0 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Alpena, Mich. | | | 29.98 | 761.5 | 62 | 16.7 | 66 | S | 3 | 1.3 | | 2ck | 0 | SW | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 30.19 | 766.8 | 63 | 17.2 | 78 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.16 | 766.1 | 69 | 20.6 | 70 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.17 | 766.3 | 67 | 19.4 | 64 | SE | 2 | 0.9 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Barnegat, N. J. | | | 30.17 | 766.3 | 66 | 18.9 | 68 | S | 6 | 2.7 | | 0 | Haz | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 27.51 | 698.7 | 29.02 | 737.1 | 66 | 18.9 | 78 | NE | 9 | 4.0 | | | 10s | | E | Inap. | Inap. | Cloudy | |
| Boston, Mass. | | | 30.10 | 764.5 | 68 | 20.0 | 55 | SW | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 29.34 | 745.2 | 70 | 21.1 | 84 | SE | 25 | 11.2 | | 9k | 0 | S | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 30.07 | 763.8 | 63 | 17.2 | 57 | SW | 4 | 1.8 | | 2ck | Haze | | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 30.10 | 764.5 | 66 | 18.9 | 64 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.02 | 762.5 | 67 | 19.4 | 54 | S | 8 | 3.6 | | 2ck | 0 | | | 0 | 0 | Fair | |
| Campo, Cal. | 27.38 | 695.4 | 29.95 | 760.7 | 52 | 11.1 | 93 | Calm | 0 | 0 | | | 8k | | | 0.38 | 9.7 | Fair | |
| Camp Verde, Arizona | | | | | 56 | 13.3 | | SW | | | | 5k | Haz | SW | | 0.24 | 6.1 | Fair | |
| Cape Hatteras, N. C. | | | 30.04 | 763.0 | 65 | 18.3 | 83 | NE | 16 | 7.2 | | 5k | 0 | E | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.17 | 766.3 | 63 | 17.2 | 78 | NE | 12 | 5.4 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.11 | 764.8 | 65 | 18.3 | 90 | NE | 22 | 9.8 | | 4k | 0 | NE | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.18 | 766.6 | 62 | 16.7 | 71 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.12 | 765.0 | 65 | 18.3 | 83 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.54 | 597.9 | 29.48 | 748.8 | 48 | 8.9 | 64 | W | 20 | 8.9 | | | 10n | | | 0.01 | 0.3 | Light rain | |
| Chicago, Ill. | | | 29.94 | 760.5 | 66 | 18.9 | 59 | S | 8 | 3.6 | | 2c | 5s | W | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 30.06 | 763.5 | 64 | 17.8 | 67 | SE | 2 | 0.9 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 30.11 | 764.8 | 62 | 16.7 | 48 | SE | 5 | 2.2 | | 8k | 0 | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 29.85 | 758.2 | 71 | 21.7 | 85 | S | 16 | 7.2 | | | 10s | | S | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.85 | 758.2 | 69 | 20.6 | 56 | S | 12 | 5.4 | | 1c | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 29.80 | 756.9 | 72 | 22.2 | 80 | S | 16 | 7.2 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Denver, Col. | 24.26 | 616.2 | 29.48 | 748.8 | 55 | 12.8 | 34 | SW | 12 | 5.4 | | 0 | 5s | | SW | 0 | 0 | Fair | |
| Detroit, Mich. | | | 30.04 | 763.0 | 66 | 18.9 | 49 | SW | 8 | 3.6 | | 8k | 0 | | | 0 | 0 | Fair | |
| Dodge City, Kan. | 26.94 | 684.3 | 29.06 | 738.1 | 68 | 20.0 | 84 | S | 28 | 12.5 | | 5c | Haze | SW | | 0 | 0 | Fair | |
| Dubuque, Iowa | | | 29.81 | 757.2 | 69 | 20.6 | 60 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 29.60 | 751.8 | 60 | 15.6 | 70 | NE | 1 | 0.4 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Eastport, Me. | | | 30.05 | 763.3 | 56 | 13.3 | 68 | S | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Erie, Pa. | | | 30.07 | 763.8 | 65 | 18.3 | 63 | S | 10 | 4.5 | | 8ck | Haz | | | 0 | 0 | Cloudy | |
| Escanaba, Mich. | | | 29.82 | 757.4 | 62 | 16.7 | 72 | S | 11 | 4.9 | | 5k | Sm'e | S | | 0 | 0 | Fair | |
| Florence, Arizona | 28.27 | 718.0 | 29.87 | 758.7 | 63 | 17.2 | | W | | | | 2k | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.78 | 756.4 | 73 | 22.8 | 71 | S | 13 | 5.8 | | 0 | 5s | | S | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.46 | 722.9 | 29.67 | 753.6 | 72 | 22.2 | 80 | SE | 14 | 6.3 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.48 | 748.8 | 44 | 6.7 | 84 | NW | | | 5 | 8ck | 0 | NE | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.52 | 724.4 | 29.58 | 751.3 | 68 | 20.0 | 68 | SE | 16 | 7.2 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 27.54 | 699.5 | 29.04 | 737.6 | 70 | 21.1 | 90 | SE | 12 | 5.4 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Galveston, Tex. | | | 29.94 | 760.5 | 79 | 24.4 | 69 | SE | 11 | 4.9 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.97 | 761.2 | 70 | 21.1 | 49 | S | 20 | 8.9 | | 4c | Haze | | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.05 | 763.3 | 69 | 20.6 | 51 | SE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 29.90 | 759.4 | 77 | 25.0 | 69 | SE | 20 | 8.9 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.05 | 763.3 | 70 | 21.1 | 84 | N | 6 | 2.7 | | 5k | 0 | NE | | 0.18 | 4.6 | Fair | |
| Keokuk, Iowa | | | 29.78 | 756.4 | 70 | 21.1 | 66 | S | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.88 | 758.9 | 74.1 | 23.6 | 85 | NE | 8 | 3.6 | | | 8ks,n | | S,NE | 0.07 | 1.8 | Threatening | |
| Kittyhawk, N. C. | | | 30.16 | 766.1 | 61 | 16.1 | 94 | NE | 18 | 8.0 | | 0 | 8s | | NE | 0 | 0 | Cloudy | |
| Knoxville, Tenn. | | | 30.17 | 766.3 | 58 | 14.4 | 69 | Calm | 0 | 0 | | 3ck | 0 | E | | 0 | 0 | Fair | |
| LaCrosse, Wis. | | | 29.72 | 754.9 | 72 | 22.2 | 62 | S | 18 | 8.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.61 | 752.1 | 73 | 22.8 | 76 | S | 16 | 7.2 | | 5k | 0 | S | | 0.09 | 2.3 | Fair | |
| Louisville, Ky. | | | 30.10 | 764.5 | 66 | 18.9 | 63 | S | 2 | 0.9 | | 5k | Sm'e | SW | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.15 | 765.8 | 64 | 17.8 | 62 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 66 | 18.9 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.72 | 754.9 | 65 | 18.3 | 58 | SW | 22 | 9.8 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.03 | 762.7 | 73 | 22.8 | 59 | SE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.94 | 760.5 | 64 | 17.8 | 62 | S | 7 | 3.1 | | 5k | 0 | SW | | 0 | 0 | Fair | |
| Mobile, Ala. | | | 30.08 | 764.0 | 74 | 23.3 | 64 | E | 6 | 2.7 | | 5c | 0 | | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.13 | 765.3 | 68 | 20.0 | 50 | E | 5 | 2.2 | | 5c | 5ck | | | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 29.10 | 739.1 | 30.15 | 765.8 | 59 | 15.0 | 76 | Calm | 0 | 0 | | 0 | 5s | | W | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 23.98 | 609.1 | 30.34 | 770.6 | 43 | 6.1 | 58 | NW | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Nashville, Tenn. | | | 30.11 | 764.8 | 63 | 17.2 | 62 | SE | 3 | 1.3 | | 5k | 0 | SW | | 0 | 0 | Fair | |
| New Haven, Conn. | | | 30.14 | 765.5 | 72 | 22.2 | 55 | Calm | 0 | 0 | | 5ck | Haze | | | 0 | 0 | Fair | |
| New London, Conn. | | | 30.13 | 765.3 | 65 | 18.3 | 68 | SW | 4 | 1.8 | | 0 | 1s,hz. | | | 0 | 0 | Clear | |
| New Orleans, La. | | | 30.01 | 762.2 | 75 | 23.9 | 72 | E | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.15 | 765.8 | 59 | 15.0 | 76 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| New York, N. Y. | | | 30.13 | 765.3 | 62 | 16.7 | 61 | S | 6 | 2.7 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.18 | 766.6 | 62 | 16.7 | 77 | NE | 10 | 4.5 | | 2k | 0 | NE | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.46 | 672.1 | 28.81 | 731.8 | 67 | 19.4 | 45 | SE | 24 | 10.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.45 | 722.6 | 29.45 | 748.0 | 72 | 22.2 | 75 | S | 17 | 7.6 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Oswego, N. Y. | | | 30.13 | 765.3 | 59 | 15.0 | 70 | NE | 1 | 0.4 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Pembina, Dakota | | | 29.34 | 745.2 | 60 | 15.6 | 94 | NW | 7 | 3.1 | | | 10s | | | 0 | 0 | Threatening | |
| Philadelphia, Pa. | | | 30.17 | 766.3 | 68 | 20.0 | 50 | N | 7 | 3.1 | | 1k | Haze | NE | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 59 | 15.0 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.39 | 441.7 | 29.60 | 751.8 | 16 | −8.9 | 100 | W | 30 | 13.4 | | | Fog | | | 0 | 0 | Foggy | |
| Pittsburgh, Pa. | | | 30.12 | 765.0 | 60 | 15.6 | 76 | E | 1 | 0.4 | | 10k | Sm'e | S | | 0 | 0 | Cloudy | |
| Port Huron, Mich. | | | 30.03 | 762.7 | 63 | 17.2 | 67 | S | 8 | 3.6 | | 2c | 2s,hz | | | 0 | 0 | Hazy | |
| Portland, Me. | | | 30.06 | 763.5 | 65 | 18.3 | 68 | SW | 4 | 1.8 | | 2k | Haze | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 29.97 | 761.2 | 51 | 10.6 | 86 | SW | 2 | 0.9 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Prescott, Arizona | 24.60 | 624.8 | 29.96 | 761.0 | 40 | 4.4 | 73 | Calm | | | | 0 | 0 | | | 0.53 | 13.5 | Clear | |
| Punta Rassa, Fla. | | | 29.95 | 760.7 | 73 | 22.8 | 81 | NE | 16 | 7.2 | | 0 | 5ks | | | 0.09 | 2.3 | Fair | |
| Rochester, N. Y. | | | 30.09 | 764.3 | 60 | 15.6 | 65 | SW | 8 | 3.6 | | 2k | 0 | W | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.34 | 643.6 | 29.67 | 753.6 | 42 | 5.6 | 83 | N | 4 | 1.8 | | | 10s | | | 0.70 | 17.8 | Cloudy | |
| Sandy Hook, N. J. | | | 30.17 | 766.3 | 60 | 15.6 | 82 | SW | 4 | 1.8 | | 8k | 0 | E | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.72 | 754.9 | 76 | 24.4 | 72 | SE | 4 | 1.8 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.99 | 761.7 | 55 | 12.8 | 79 | E | 6 | 2.7 | | 0 | 8s | | E | 0.18 | 4.6 | Cloudy | |
| San Francisco, Cal. | | | 29.97 | 761.2 | 52 | 11.1 | 90 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.01 | 584.4 | 29.55 | 750.6 | 42.1 | 5.8 | 38 | Calm | 0 | 0 | | | 10s | | SW | 0.06 | 1.5 | Cloudy | |
| Savannah, Ga. | | | 30.12 | 765.0 | 68 | 20.0 | 79 | NE | 7 | 3.1 | | 1ck | 0 | E | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.02 | 762.5 | 73 | 22.8 | 76 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.12 | 765.0 | 64 | 17.8 | 78 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.14 | 765.5 | 65.1 | 18.6 | 63 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 29.94 | 760.5 | 67 | 19.4 | 59 | SE | 12 | 5.4 | | 5ck | 0 | | | 0 | 0 | Fair | |
| St. Marks, Fla. | | | 30.06 | 763.5 | 66 | 18.9 | 84 | N | 6 | 2.7 | | 5c | 0 | W | | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.55 | 750.6 | 72 | 22.2 | 63 | SE | 28 | 12.5 | | 2c | 0 | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 58 | 14.4 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex. | 26.75 | 679.4 | 29.75 | 755.6 | 64 | 17.8 | 89 | S | 12 | 5.4 | | 0 | 2s | | | 0 | 0 | Fair | |

## UNITED STATES SERIES.—Continued.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 30.12 | 765.0 | 57 | 13.9 | 81 | SW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Hazy | |
| Toledo, Ohio | | | 30.06 | 763.5 | 67 | 19.4 | 64 | S | 1 | 0.4 | | 5ck | Haze | S | | 0 | 0 | Fair | |
| Tucson, Arizona | | | | | | | | | | | | | | | | | | | |
| Tybee Island, Ga | 27.39 | 695.7 | 29.94 | 760.5 | 65 | 18.8 | | W | | | | | 8ks | | S | 0 | 0 | Threatening | |
| Vicksburg, Miss | | | 30.10 | 764.5 | 67 | 19.4 | 90 | NE | 16 | 7.2 | | 5c | 0 | NE | | 0 | 0 | Fair | |
| Virginia City, M. T | | | 30.05 | 763.3 | 70 | 21.1 | 79 | SE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | 23.88 | 606.5 | 29.36 | 745.7 | 88 | 3.3 | 80 | Calm | 0 | 0 | | | 10ks | | NW | 0.24 | 6.1 | Cloudy | |
| Wickenburg, Arizona | | | 30.18 | 766.6 | 65 | 18.3 | 68 | N | 3 | 1.3 | | Haze | Sm'e | | S | 0 | 0 | Clear | |
| Wilmington, N. C | | | | | 59 | 15.0 | | NW | | | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Wood's Holl, Mass | | | 30.13 | 765.3 | 63 | 17.2 | 72 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | | | 30.18 | 766.6 | 60 | 15.6 | 77 | SW | 11 | 4.9 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Yuma, Arizona | 28.14 | 714.7 | 29.32 | 744.7 | 71 | 21.7 | 75 | S | 28 | 12.5 | | 8c | 0 | W | | 0 | 0 | Fair | |
| | | | | | | | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.07 | 763.8 | 79 | 26.1 | 90 | Calm | 0 | 0 | | 10c | 8n | SE | | 0.48 | 12.2 | | James Gall. |
| Navassa, W. I | | | | | 80.7 | 26.4 | | ESE | | | 3 | | | | | 3.38 | 85.9 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.18 | 764.0 | 80 | 26.7 | 87 | E | | | 3 | 5k | 7ks | E | | 0.180 | 4.57 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | 80.6 | 27.0 | | E | | | | | | | | 0 | 0 | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 30.06 | 763.4 | | | 70.7 | 21.4 | 79 | S | | | 1 | 8cs | 2ks | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | 25.19 | 639.8 | 29.93 | 760.2 | 27.5 | − 2.7 | 94 | NE | 11 | 4.9 | | 2c | 0 | NE | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.16 | 766.1 | 73 | 22.8 | | NE | | | 5 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 511.4 (?) m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are applied in correcting the barometric observations for altitude: Camp Verde, 3,488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported * Inches. | Barometer: As reported * Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.27 | 768.8 | 69 | 20.6 | 63 | 17.2 | 83 | SE | | | 1 | | 0 | | | 0 | 0 | | | Hazy | |
| Navy Yard, Mare Island, Cal. | 30.02 | 762.5 | 62 | 16.7 | 54 | 12.2 | | SW | | | 3 | | 2 | | SE | 0 | 0 | | | Dew | |
| Navy Yard, Pensacola, Fla. | 30.20 | 767.1 | | | 72 | 22.2 | 76 | ENE | 18 | 8.0 | | | 7 | | W | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.22 | 767.6 | 75 | 23.9 | 64 | 17.8 | 73 | NW | 2 | 0.9 | | | 0 | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.80 | 756.9 | 71 | 21.7 | 67 | 19.4 | 81 | SW | | | 4 | | 0 | | | 0 | 0 | | | Clear | |
| Adams, S. 19° 55′ W. 37° 16′ | 30.28 | 769.1 | 78 | 25.6 | 77 | 25.0 | 82 | SE | | | 4 | | 4 | | E | 0 | 0 | Moderate. | SE | D. clouds | |
| Alert, N. 21° 03′ 32″ E. 145° 4[illegible] | 29.08† | 764.0† | 83 | 28.3 | 82 | 27.8 | 96 | SE | | | 1 | | 3 | | S&E | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.11 | 764.8 | 78 | 25.6 | 78 | 25.6 | 91 | NE | | | 1 | | 3 | | S&E | | | Long | N&W | Pleasant | |
| Ashuelot, Hong-Kong, China | 29.89 | 759.2 | 77 | 25.0 | 76 | 24.4 | 86 | E | | | 3 | | 0 | | | | | Smooth | | Hazy | |
| Canonicus, New Orleans, La | 30.02 | 762.5 | 53 | 11.7 | 78 | 25.6 | 57 | E | | | 2 | | 3 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.22 | 767.6 | 62 | 16.7 | 66 | 18.9 | 94 | SSW | 2 | 0.9 | | | 6 | | | 0 | 0 | | | Hazy | |
| Despatch, N. 38° 39′ E. 9° 40′ | 30.25 | 768.3 | 69 | 20.6 | 68 | 20.0 | 95 | SE | | | 3–4 | | 4 | | SE | | | Moderate. | SE | Pleasant | |
| Franklin, Norfolk, Va. | 30.24 | 768.1 | 59 | 15.0 | 64 | 17.8 | 94 | NNW | 4 | 1.8 | | | 6ck | | NNW | 0 | 0 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.40 | 772.1 | 67 | 19.4 | 68 | 20.0 | 90 | NW | | | 1 | | 7k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.88 | 758.9 | | | 66 | 18.9 | 100 | ESE | | | 3 | | 10 | | SE | | | | | Raining | |
| Hartford, Port Royal, S. C | 30.35 | 770.9 | 72 | 22.2 | 70 | 21.1 | 80 | NNE | 20.4 | 9.1 | | | 2 | | | | | | | Pleasant | |
| Huron, N. 12° 05′ W. 70° 27′ | 30.05 | 763.3 | 83 | 28.3 | 85 | 29.4 | 76 | E | | | 4–5 | | 8 | | | | | Light, ground. | NE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.03 | 762.7 | 72 | 22.2 | 70 | 21.1 | 90 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Dew | |
| Lackawanna, Pichilingue Bay, Mexico | 29.92 | 760.0 | | | 70 | 21.1 | 70 | SSE | | | 2 | | 0 | | | | | Smooth | | Blue sky | |
| Marion, Smyrna, Turkey | 30.08 | 764.0 | 72 | 22.2 | 74 | 23.3 | 63 | WSW | | | 3 | | 0 | | | 0 | 0 | Chop'd | WSW | Blue sky | |
| Michigan, Erie, Pa | 29.60 | 751.8 | 67 | 19.4 | 67 | 19.4 | 60 | S | | | 2 | | 5 | | SW | | | | | Partly cl'dy. | |
| Monocacy, Che-foo, China | 29.67 | 753.6 | 68 | 20.0 | 69 | 20.6 | 90 | NNW | | | 1 | | 5 | | N&W | Blank | Blank | Smooth | | D. clouds | |
| Monongahela, N. 37° W. 74° 30′ | 30.20 | 767.1 | 62 | 16.7 | 62 | 16.7 | | NNE | | | 2 | | cs,k | | | 0 | 0 | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.36 | 771.1 | | | 67 | 19.4 | 84 | NNE | 14 | 6.3 | | | 1 | | SW | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 30.03 | 762.7 | 74 | 23.3 | 72.5 | 22.5 | 78 | E | 7 | 3.1 | | | 4 | | SE | 0 | 0 | Smooth | | Pleasant | |
| Ossipee, Port Royal, S. C | 30.14 | 765.5 | 68 | 20.0 | 67 | 19.4 | 79 | NE | | | 4 | | 2 | | NE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.94 | 760.5 | 75 | 23.9 | 75 | 23.9 | 90 | Calm | | | 0 | | 9 | | N&W | | | | | Cloudy | |
| Plymouth, N 23° 15′ W. 93° 10′ | 30.00 | 762.0 | 80 | 26.7 | 77 | 25.0 | 77 | ENE | | | 3 | | 0 | | | 0 | 0 | Light | N&E | Clear | |
| Ranger, N. 38° 06′ E. 7[illegible] 10′ | 30.20 | 767.1 | | | 71 | 21.7 | 90 | Calm | | | 0 | | | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.48 | 774.2 | 67.2 | 19.6 | 68.5 | 20.3 | 87 | NNW | | | 2 | | 2 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.81 | 757.2 | | | 71 | 21.7 | 85 | SE | | | 4–5 | | 5 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.26 | 768.6 | 68 | 20.0 | 67 | 19.4 | 74 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 30.09 | 764.3 | 61 | 16.1 | 61 | 16.1 | ? | SW | 3 | 1.3 | | | 3 | | SW | 0 | 0 | | | | |
| Swatara, Aspinwall, Panama | 29.98 | 761.5 | 84 | 28.9 | 82 | 27.8 | 100 | Calm | | | 0 | | 10n | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.80 | 756.9 | 71 | 21.7 | 72 | 22.2 | 76 | SSW | | | 2 | | 0 | | | 0 | | Smooth | | Blue sky | |
| Trenton, Smyrna, Turkey | 30.01† | 762.2† | 73 | 22.8 | 75 | 23.9 | 81 | WSW | 11.3 | 5.1 | | | 2 | | | 0 | 0 | Smooth | | Squally | |
| Vandalia, Constantinople, Turkey | 30.26 | 768.6 | 68 | 20.0 | 66 | 18.9 | 89 | ENE | | | 3 | | 0 | | | | | | | Blue sky | |
| Wabash, Boston, Mass | 30.18 | 766.6 | 66 | 18.9 | 69 | 20.6 | 61 | W | 6 | 2.7 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.44† | 773.2† | 64 | 17.8 | 68 | 20.0 | | NE | | | 1 | | | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ——————, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Sydney, N. 43° 12′ E. 173° 16′ | | | 30.67 | 76.8 | 40 | 9.4 | 85 | W | | | 4 | | 10ns | | | Moderate. | WNW | Hazy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Pearborn. |
| S. S. Colon | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| | | | | | | | | | | | | | | | | | | | Capt. Austin. |
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| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |
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| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |
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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig, N. 46° 34′ W. 35° 3′ | | | 29.61 | 752.1 | 55 | 12.8 | | NNW | | | 6 | | 10k | | | Heavy | | Squally | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known thu the barometer is corrected for temperature, instrumental error or elevation.

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.00 | 762.0 | 70 | 21.1 | 85 | NE | 7 | 3.1 | | 0 | 0 | | | | | Clear. | Capt. James Jorgensen. |

NOTE.—The original give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON MAY 31, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.8 | 75.4 | 24.1 | 67 | NNW | | | 1 | | 6 | | | 0 | 0 | Fair | Michel. |
| Algiers | | | 30.08 | 763.9 | 71.2 | 21.8 | 45 | NW | | | 2 | | 5 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.00 | 762.1 | 82.0 | 27.8 | 69 | NE | | | 1 | | 3 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.11 | 764.7 | 69.8 | 21.0 | | S | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Stax | | | 30.22 | 767.5 | 73.4 | 23.0 | | ESE | | | 2 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.16 | 766.0 | 90.3 | 32.4 | | S | | | 5 | | 2 | | | Inap. | Inap. | Clear | Millot. |
| Tebessa | | | 30.18 | 766.6 | 83.1 | 28.4 | | E | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.20 | 767.0 | 83.1 | 28.4 | 14 | S | | | 3 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.23 | 767.7 | 86.0 | 30.0 | 20 | S | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.21 | 767.3 | 88.2 | 31.2 | | SE | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.96 | 761.0 | 75.4 | 24.1 | 40 | SW | | | 3 | | 7 | | | Inap. | Inap. | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.91 | 759.7 | 60.8 | 16.0 | 91 | SW | | | 1 | | 10 | | | 0.280 | 7.1 | | Dr. Wierzbiski. |
| Eperies | | | 29.89 | 759.2 | 72.3 | 22.4 | 52 | S | | | 5 | | 10k,s | | | 0.077 | 1.95 | | Julius Mikolik. |
| Gratz | 28.73 | 729.8 | 29.95 | 760.6 | 68.2 | 20.1 | 55 | SSW | | | 5 | | 5 | | | 0 | 0 | | Andreas Rosplni. |
| Hermannstadt | 28.65 | 727.8 | 30.00 | 761.9 | 79.2 | 26.2 | 41 | ESE | | | 1 | | 10 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.47 | 723.1 | 29.77 | 756.1 | 65.5 | 18.6 | 73 | WNW | | | 2 | | 10 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.91 | 759.6 | 72.3 | 22.4 | 65 | SW | | | 1 | | 6 | | | 0.075 | 1.9 | | Dr. T. Stanecki. |
| Nyiregyhuza | | | | | | | | | | | | | | | | | | | Habzsuda Daniel. |
| Pola | | | 30.08 | 764.0 | 70.5 | 21.4 | 72 | SE | | | 3 | | 7cs | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.00 | 762.0 | 74.8 | 23.8 | 30 | SW | | | 1 | | 10 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.09 | 764.2 | 71.2 | 21.8 | 71 | NW | | | 1 | | 10 | | | 0 | 0 | Covered | P. Busin. |
| Vienna | | | 29.80 | 756.9 | 64.9 | 18.3 | 81 | S | | | 1 | | 10 | | | Inap. | Inap. | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.33 | 719.5 | 29.77 | 756.2 | 59.2 | 15.1 | 75 | WSW | | | 1 | | 9 | | | 0.193 | 4.9 | | |
| Brussels | | | 29.67 | 753.7 | 63.7 | 17.6 | 82 | SSE | | | 2 | | 10 | SSW | SSW | 0.256 | 6.50 | Covered | Royal Observatory |
| Furnes | | | 29.65 | 753.2 | 64.9 | 18.3 | 67 | SW | | | 2 | | 8 | | | 0 | 0 | | |
| Maseyck | | | 29.61 | 752.1 | 56.8 | 13.8 | 89 | SW | | | 4 | | 10 | | | 0.004 | 0.1 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., Secretary of the Meteorological Council London, Alexander Buchan, Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.68 | 753.9 | 53.1 | 11.7 | | SSE | 17 | 7.6 | | | 3 | | | 0.120 | 3.07 | Blue sky | William Boswell. |
| Ardrossan | | | 29.60 | 751.8 | 56 | 13.3 | | NNE | | | 1 | | 8 | | | | | Overcast | William McNeil. |
| Armagh, Observatory | | | 29.56 | 750.8 | 52.9 | 11.6 | | E | 11 | 4.9 | | | 10 | | | | | Overcast | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.54 | 750.3 | 63.0 | 17.2 | | ESE | 18 | 8.0 | | | 7 | | | | | D. c'ouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.46 | 748.3 | 56.5 | 13.6 | | SE | | | 2 | | 10 | | | | | Overcast | J. Dreyer. |
| Bradford, Yorkshire | | | 29.61 | 752.1 | 62.2 | 16.8 | | E | | | 2 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 80.5 | 26.9 | | NE | | | 2 | | 7 | | | | | Overcast | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 29.69 | 751.8 | 63.0 | 17.2 | | SE | | | 1 | | 10 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.60 | 751.8 | 68.0 | 20.0 | | SE | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.64 | 752.8 | 61.2 | 16.2 | | Calm | | | 0 | | 8 | | | | | Raining | Capt. Fellowes, R. E. |
| Dartmoor | 28.14 | 714.7 | 29.59 | 751.6 | 53.6 | 12.0 | | SW | | | 4 | | 1 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.56 | 750.8 | 53 | 11.7 | | ESE | | | 3 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.65 | 753.1 | 56 | 13.3 | | SSW | | | 3 | | 6 | | | | | Drizzling | J. Costello. |
| Eccles, (near Manchester) | | | 29.56 | 750.8 | 62.8 | 17.1 | | SE | 7.4 | 3.3 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.52 | 749.8 | 57.7 | 14.3 | | SSE | | | 4 | | 10 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.82 | 706.6 | 30.06 | 763.5 | 73.0 | 22.8 | | E | | | 1 | | 0? | | | | | D. clouds? | Pvt. G. Salmon, A.H.C. |
| Free Town, (Sierra Leone) | | | 30.02 | 762.5 | 82 | 27.8 | | E | | | 0 | | 8 | | | Blank | Blank | D. clouds | |
| Galway, Queen's College | | | 29.26 | 743.2 | 54 | 12.2 | | W | | | 4 | | 5 | | | | | D. clouds | B. G. Clare for Prof. Curtis |
| Gibraltar, (Mediterranean) | | | 30.02 | 762.5 | 71.0 | 21.7 | | NW | | | 2 | | 6 | | | Blank | Blank | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 29.60 | 751.8 | 57.1 | 13.9 | | SE | | | 1 | | 10 | | | | | Threatening | L. Stuart, W. Wallace. |
| Great Yarmouth | | | 29.66 | 753.4 | 56 | 13.3 | | ESE | | | 3 | | 3 | | | | | Hazy | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.50 | 751.6 | 61.9 | 16.6 | | SSE | | | 1 | | 10 | | | | | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 29.61 | 752.1 | 61 | 16.1 | | SSW | | | 3 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.54 | 750.3 | 62 | 16.7 | | S | | | 6 | | 8k | | | 0 | 0 | Gloomy | M. P. Moyle. |
| Holyhead | | | 29.50 | 749.3 | 57 | 13.9 | | SE | | | 3 | | 4? | | | | | Overcast? | John Tilston. |
| Kew, Observatory | | | 29.58 | 751.3 | 60.9 | 16.1 | | SE | 13 | 6.7 | | | 10k | | | | | Showery | The Staff. |
| Kingstown | | | 29.54 | 750.3 | 55 | 12.8 | | ESE | | | 3 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.57 | 751.1 | 61.9 | 17.7 | | SE | | | 2 | | 4 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | | | | | | | | | | | | | | | | | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 28.61 | 752.1 | 56 | 13.9 | | ESE | | | 2 | | 5 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.94 | 760.5 | 78.4 | 25.8 | | N | | | 2 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.59 | 751.6 | 65.7 | 18.7 | | SE | | | 5 | | 7k | | SSE | 0.277 | 7.04 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.55 | 750.6 | 61.0 | 16.1 | | SE | | | 1 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.55 | 750.6 | 64 | 17.8 | | E | | | 1 | | 9 | | | | | Overcast | J. W. Lucas |
| Plymouth | | | 29.55 | 750.6 | 59.6 | 15.3 | | SE | | | 3 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.37 | 746.0 | 54 | 12.2 | | SSE | | | 5 | | 10 | | | | | Raining | W. Kennedy. |
| Saint Ann's Head | | | 29.47 | 748.5 | 56 | 13.3 | | ESE | | | 4 | | 4 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.62 | 752.3 | 63.0 | 17.2 | | SW | | | 4 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.63 | 752.6 | 49.1 | 9.5 | | WNW | 14 | 6.3 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL.D. |
| Scutari, Cemetery, (Turkey | | | 30.14 | 765.5 | 76.0 | 24.4 | | NE | | | 1 | | 3 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.60 | 751.8 | 63.9 | 17.7 | | ESE | | | 1 | | 10 | | | 0.503 | 15.07 | Showery | W. F. Cooper. |
| Silloth, Rectory | | | 29.58 | 751.3 | 62.3 | 16.8 | 55 | Calm | | | 0 | | 4 | | | 0.210 | 5.33 | D. clouds | Rev. Francis Redford. |
| Stonyhurst, Observatory | | | 29.57 | 751.1 | 60.5 | 15.8 | | E | | | 2 | | 8 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.57 | 751.1 | 52 | 11.1 | | NNE | | | 2 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 29.55 | 750.6 | 59.0 | 15.0 | | S | | | 1 | | 10 | | | | | Showery | Rev. Charles H. Griffith. |
| Thurso | | | 29.61 | 752.1 | 54 | 12.2 | | NNW | | | 2 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.51 | 749.5 | 60 | 15.6 | | W | | | 8 | | 6 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.27 | 743.4 | 53.7 | 12.1 | | E | 34 | 15.2 | | | 10 | | | | | Raining | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 50 | 10.0 | | SE | | | 3 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.93 | 760.2 | 60.7 | 15.9 | 82 | NNW | 21 | 9.4 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.13 | 765.3 | 56.0 | 13.3 | 82 | Calm | | | 0 | | 7k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.66 | 753.4 | 53.0 | 11.7 | | E | | | 2 | | 9ck | | | 0 | 0 | Fine, cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.19 | 766.8 | 78.0 | 25.6 | 74 | ENE | 4.7 | 2.1 | | 3 | 6 | | SE | 0.02 | 0.5 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 30.47 | 773.9 | 44.7 | 7.1 | 95 | SW | 2 | 0.9 | | | 10 | | | 0 | 0 | Dense fog | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.51 | 749.5 | 51 | 10.6 | | N | | | 3 | 3 | 0 | | SW | 0 | 0 | Solar halo | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.63 | 752.6 | 49 | 9.4 | | W | | | 4 | 7 | 5 | | W | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the force by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 50° 40′ W. 22° 0′ | | | 29.55 | 750.6 | 52.0 | 11.1 | | NNW | | | 5 | | 3 | | | 10* | NNE | D. clouds | Capt. W. Watson. |
| S. S. Batavia, N. 46° 25′ W. 39° 0′ | | | | | 56.6 | 13.3 | | W | | | 3 | | 7 | | | 4 | WNW | D. c'ouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 27° 30′ W. 79° 35′ | | | 30.12 | 765.0 | 76.5 | 24.7 | | ENE | | | 5 | | 3 | | | 4 | NE | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prhen. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.77 | 756.1 | 53 | 11.7 | | ESE | | | 7 | | 3 | | | 7 | SW | Raining | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower c'ouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.19 | 665.2 | | | 69.8 | 21.0 | 95 | S | | | 1 | | 9cs | | | | | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.85 | 758.3 | 59.0 | 15.5 | 51 | SE | | | 4 | | 0 | | | | | | |
| Fanöe | | | 29.77 | 756.2 | 63.0 | 17.2 | 62 | SW | | | 4 | | 3 | | | | | | |
| Godthaab, (Greenland) | | | 29.39 | 746.4 | 37.4 | 3.0 | 73 | N | | | 4 | | 9 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.61 | 752.1 | 40.1 | 4.5 | 81 | E | | | 6 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.60 | 751.7 | 46.4 | 8.0 | 57 | N | | | 2 | | 3 | | | | | | |
| Vestervig | | | 29.80 | 756.9 | 57.2 | 14.0 | 78 | SW | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon | | | 29.81 | 757.2 | 59.0 | 15 | 84 | SW | | | 2 | | 5k | | SW | 0.606 | 15.4 | Cloudy | Normal School. |
| Amiens | | | 29.64 | 752.9 | 68.0 | 20.0 | | SE | | | 3 | | 5 | | SE | 0.283 | 7.2 | Cloudy | Normal School. |
| Avignon, Normal School | | | 29.94 | 760.4 | 76.1 | 24.5 | 65 | SSE | | | 2 | | 2 | | SE | 0.252 | 6.4 | Partly cl'dy | Mr. Giraud. |
| Bar-sur-Seine | | | 29.89 | 759.3 | 66.7 | 19.3 | 51 | SW | | | 3 | | 5k | | SW | 0.299 | 7.6 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.72 | 754.8 | 66.2 | 19 | 72 | WSW | | | 4 | | 8 | | | 0.177 | 4.50 | Very cloudy | Normal School. |
| Besançon | | | 30.02 | 762.5 | 69.6 | 20.9 | 58 | S | | | 6 | | 2 | | SW | 1.465 | 37.2 | Slightly cl'dy | Normal School. |
| Bourg en Bresse | | | 30.01 | 762.3 | 70.5 | 21.4 | 80 | S | | | 2 | | 5kn | | NE | 2.134 | 54.2 | Cloudy | Normal School. |
| Bourges | | | 29.90 | 759.4 | 66.4 | 19.1 | 83 | SW | | | 8 | | 2 | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Brest | | | 29.55 | 750.5 | 59.9 | 15.5 | 76 | SW | | | 6 | | 5 | | SW | 0.089 | 2.25 | Misty | Naval Observatory. |
| † Carcassonne | | | 29.91 | 759.6 | 76.6 | 24.8 | 55 | E | | | 2 | | 1 | | E | 0 | 0 | Clear | Normal School. |
| † Caen | | | 29.67 | 753.5 | 57.9 | 14.4 | 60 | SW | | | 1 | | | | S | 0.35 | 9. | | Normal School. |
| Chartres | | | 29.76 | 755.9 | 62.1 | 16.7 | 90 | W | | | 3 | | 4 | | E | 0.346 | 8.8 | | Normal School. |
| † Châlons-sur-Marne | | | 29.78 | 756.3 | 68.0 | 20.0 | 55 | WSW | | | 4 | | 5k | | WSW | 0.472 | 12.0 | Cloudy | Normal School. |
| Clermont-Ferrand | | | | | | | | WSW | | | 2 | | 0 | | | 0.827 | 21.0 | Clear | Puy de Dome Obs'y. |
| Commercy | | | 29.79 | 756.6 | 64.0 | 17.8 | 71 | W | | | 4 | | 5 | | W | 0.28 | 7. | Cloudy | Normal School. |
| Commune de Grésque* | | | 30.01 | 762.2 | 71.4 | 21.9 | 67 | NE | | | 4 | | 8 | | SE | 0.059 | 1.5 | | M. Kina. |
| Greno ble | | | 29.92 | 759.9 | 72.3 | 22.4 | 67 | WNW | | | 2 | | 2k | | E | 0.207 | 5.25 | Slightly cl'dy | Normal School. |
| † La Roche-sur-Yon | | | 29.74 | 755.4 | 63.3 | 17.4 | 72 | SW | | | 4 | | 5 | | SW | 0.189 | 4.8 | Partly cl'dy | Normal School. |
| Le Mans | | | 29.79 | 756.6 | 64.9 | 18.3 | 63 | SW | | | 6 | | 8 | | SW | 0.728 | 18.5 | Very cloudy | Normal School. |
| Lons-Le-Saulnier | | | 29.92 | 759.9 | 70.0 | 21.1 | 61 | W | | | 1 | | 5 | | E | 2.240 | 56.9 | Cloudy | Normal School. |
| Lorient | | | 29.74 | 755.4 | 63.0 | 17.2 | 72 | SSW | | | 6 | | 5 | | SW | 0.394 | 10.0 | ½ covered | Naval Observatory. |
| Mâcon, Normal School | | | 29.95 | 760.6 | 70.7 | 21.5 | 82 | Calm | | | 0 | | 10 | | | 1.449 | 36.8 | Covered | Mr. Marchal. |
| Metz | | | 29.88 | 758.9 | 62.6 | 17.0 | 68 | SW | | | 3 | | 10 | | | 0.453 | 11.5 | | M. A. Schuster. |
| Mirecourt | | | 29.78 | 756.5 | 64.4 | 18 | 60 | SW | | | 4 | | 2 | | NE | 0.04 | 1. | Slightly cl'dy | Normal School. |
| Nismes | | | 29.98 | 761.4 | 77.0 | 25 | 71 | S | | | 2 | | 0 | | | 0.295 | 7.5 | Clear | Normal School. |
| Orleans | | | 29.76 | 755.9 | 64.4 | 18 | 90 | SSW | | | 2 | | 2 | | SSW | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 29.76 | 756.0 | 66.6 | 19.2 | 51 | SW | | | 6 | | 6ck | | WSW | 0.283 | 7.20 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| † Rochefort, Observatory | | | 29.87 | 758.7 | 69.8 | 21.0 | 50 | WSW | | | 5 | | 1 | | SW | 0 | 0 | Clear | Naval Observatory. |
| Rouen | | | 29.68 | 753.9 | 68.2 | 20.1 | 55 | SSW | | | 3 | | 2 | | SW | 0.587 | 14.9 | Slightly cl'dy | Normal School. |
| † Tarbes | 28.70 | 728.9 | 29.74 | 755.5 | 68.0 | 20 | 58 | WNW | | | 3 | | 5 | | W | 1.122 | 28.5 | Cloudy | Normal School. |
| Villefranche-sur-Saône | | | 29.88 | 758.9 | 72.9 | 22.7 | 79 | ESE | | | 1 | | 5 | | SW | 1.858 | 47.20 | Cloudy | Normal School. |
| Fort de France, Martinique | | | | | | | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.87 | 758.8 | 80.6 | 27 | | | | | | | | | | | | | The Staff. |
| Mont-Louis | | | 29.91 | 759.8 | 73.0 | 22.8 | 74 | ESE | | | 1 | | 3 | | | 0 | 0 | | Mr. Falguère. |
| Montsouris, Paris | 24.85 | 631.2 | 30.17 | 766.2 | 62.4 | 16.9 | 54 | SSW | 18.6 | 8.33 | | | 2 | | SSW | 0.343 | 8.7 | | Montsouris Observatory. |
| Perpignan | | | 29.76 | 755.9 | 67.3 | 19.6 | 52 | WSW | | | 3-4 | | 4 | | W | 0.3 3 | 7.7 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | 29.03 | 760.3 | 76.3 | 24.6 | 47 | SE | 14.9 | 6.66 | | | 5 | | SW | 0 | 0 | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 21.21 | 538.8 | | | 41.9 | 5.5 | | SW | | | 6-8 | | | | SW | | | Fine | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | 22.49 | 571.2 | | | 48.2 | 9.0 | | SW | | | 4 | | 1 | | | 0 | 0 | Clear | E. Renou. |
| Toulouse, Observatory | | | 29.77 | 756.2 | 68.0 | 20.0 | 54 | SW | | | 3 | | 5 | | | 0.441 | 11.2 | Cloudy | The Staff |
| Tours | | | 29.97 | 761.2 | 70.5 | 21.4 | 57 | SE | | | 1 | | 2 | | | 0.106 | 2.7 | | C. Marquet. |
| Versailles, (near Paris) | | | | | | | | | | | | | | | | 0.181 | 4.6 | | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.78 | 756.5 | 66.2 | 19.0 | 60 | W | | | 6 | | 9 | | | 0.337 | 8.54 | Very cloudy | Marc Dechevrens, S. J. |
| | | | 29.79 | 756.6 | 71.1 | 21.7 | 76 | E | 6.7 | 3.0 | | | 0 | | | 0 | 0 | Clear | |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Grésque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône. † Previous to May 20th, 1877, the direction of the clouds for Carcassonne, Caen, Châlons-sur-Marne, La Roche-sur-Yon, Rochefort and Tarbes was given and printed as *towards* instead of *from*.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.84 | 758.0 | 64.0 | 17.8 | 78 | SW | | | 4 | | 7 | SW | | 0.197 0 | 5.0 | Raining | Prof. T. Hoh. |
| Berlin | | | 29.85 | 758.3 | 69.6 | 20.9 | 48 | S | | | 1 | | 8 | | | 0.528 | 0 | | Prof. Arndt. |
| Breslau | | | 29.90 | 759.4 | 64.4 | 18.0 | 66 | SSE | | | 2 | | 10 | | | 0.126 | 13.4 | Raining | Royal University Obs'y. |
| Carlsruhe | | | 29.89 | 757.0 | 64.4 | 18.0 | 78 | SW | | | 5 | | 9 | | | 0.268 | 3.2 | | Albert Senz. |
| Cassel | | | 29.87 | 758.7 | 63.7 | 17.6 | 72 | SSE | | | 2 | | 8 | SW | | 0.039 | 6.8 | | Dr. H. Möhl. |
| Crefeld | | | 29.74 | 755.5 | 59.9 | 15.5 | 86 | SE | | | 3 | | 10 | | | 0.087 | 1.0 | Raining | Director Lose. |
| Emden | | | 29.72 | 755.0 | 68.9 | 20.5 | 47 | SE | | | 1 | | 5 | | | | 2.2 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.87 | 758.6 | 58.6 | 14.8 | 85 | SE | | | 1 | | 10 | | | 0.248 | 6.3 | Rain and fog | Physical Society. |
| Friedrichshafen | 28.96? | 735.5? | 29.89? | 759.3? | 65.5 | 18.6 | 71 | WNW | | | 5 | | 7 | W | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 29.82 | 757.4 | 65.7 | 18.7 | 46 | SSE | | | 3 | | 10ks | | | 0.051 | 1.3 | Pleasant | Captain F. Hegemann. |
| Kiel | | | 29.80 | 756.8 | 64.9 | 18.3 | 81 | SE | | | 2 | | 10 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.96 | 760.9 | 65.1 | 18.5 | 61 | W | | | 5 | | 2 | | | 0.012 | 0.3 | | Prof. E. Luther. |
| Köslin | | | 29.90 | 759.5 | 70.7 | 21.5 | | SE | | | 2 | | 2 | | | 0 | 0 | | H. Müller. |
| Leipsic | | | 29.89 | 759.1 | 63.1 | 17.3 | 83 | SE | | | 1 | | 10 | SE | | | | Raining | Prof. Bruhns. |
| Memel, Naval School | | | 30.00 | 761.9 | 53.6 | 12.0 | | W | | | 3 | | 1k,cs | | | 0 | 0 | | Reinbrecht & Skalweit. |
| Münster | | | 29.74 | 755.3 | 59.5 | 15.3 | 79 | SW | | | | | 3 | | | 0.142 | 3.6 | | Prof. E. Heis. |
| Neufahrwasser | | | 29.95 | 760.7 | 61.2 | 16.2 | 69 | E | | | 3 | | 7 | WSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.90 | 759.5 | 71.1 | 21.7 | 49 | S | | | 6 | | 10 | | | 0.043 | 1.1 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.84 | 757.9 | 68.4 | 20.2 | 68 | WSW | | | 3 | | 4 | SW | | 0.453 | 11.5 | | Dr. Schur. |
| Stuttgart | | | 29.78 | 756.5 | 67.6 | 19.8 | 65 | W | | | 4 | | 6 | | | 0.102 | 2.6 | | Prof. Schoder |
| Treves, (Trier) | | | 29.68 | 753.8 | 63.1 | 17.3 | 80 | SW | | | 6 | | 8 | | | 0.236 | 6.0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.34 | 719.7 | 29.80 | 756.9 | 63.0 | 17.2 | 73 | SW | | | 5 | | 9 | SW | | 0.205 | 5.2 | Heavy rain | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.91 | 759.6 | 61.9 | 16.6 | 63 | N | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the remarks in the weather column refer to the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.18 | 766.5 | 80.8 | 27.1 | | W | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds; the weather as published. They omit the humidity, wind-force, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | | | | | | | | | | | | | | | | | | | |
| Poona | | | | | | | | | | | | | | | | | | | |
| Lahore | | | | | | | | | | | | | | | | | | | |
| Belgaum | | | | | | | | | | | | | | | | | | | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | | | | | | | | | | | | | | | | | | | |
| Agra | | | | | | | | | | | | | | | | | | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | | | | | | | | | | | | | | | | | | | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | | | | | | | | | | | | | | | | | | | |
| Allahabad | | | | | | | | | | | | | | | | | | | |
| Patna | | | | | | | | | | | | | | | | | | | |
| Hazaribagh | | | | | | | | | | | | | | | | | | | |
| Cuttack | | | | | | | | | | | | | | | | | | | |
| Calcutta, (Alipore) | | | | | | | | | | | | | | | | | | | |
| Goalpara | | | | | | | | | | | | | | | | | | | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | | | | | | | | | | | | | | | | | | | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | | | | | | | | | | | | | | | | | | | Prof. Giovanni Clodig. |
| Stelvio | | | | | | | | | | | | | | | | | | | Signora Ernesta Manfredi. |
| Udine | | | | | | | | | | | | | | | | | | | Ab. Dom. Morgini. |
| Padua | | | 30.04 | 763.0 | 66.2 | 19.0 | 72 | NE | 9.4 | 4.2 | | 4 | | SW | | 0.055 | 1.4 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.06 | 763.5 | 64.2 | 17.9 | 68 | N | 5.6 | 2.5 | | 6 | | W | | 0.291 | 7.4 | | Conte Alm. Da Schio. |
| Verona | | | 30.03 | 762.8 | 71.1 | 21.7 | 60 | E | | | 1 | 10 | | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.74 | 730.0 | 30.05 | 763.2 | 60.8 | 16.0 | 79 | NE | | | 2 | 10 | | | | 0.882 | 22.4 | | Prof. Trionfini Carlo. |
| Domodossola | | | | | | | | | | | | | | | | | | | Prof. Giuseppe Calza. |
| Milan | | | 30.02 | 762.6 | 66.9 | 19.4 | 58 | E | | | 4 | 10 | | ESE | | 0.280 | 7.1 | | Ab. Gio. Capelli. |
| Pavia | | | 29.97 | 761.2 | 69.3 | 20.7 | 69 | E | | | 4 | 8 | | SW | | 0.039 | 1.0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.97 | 761.2 | 70.0 | 21.1 | 67 | NNW | 3.8 | 1.7 | | 4 | | W | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovì | 28.08 | 713.2 | 29.95 | 760.8 | 68.4 | 20.2 | 67 | NW | | | 6 | 9 | | SW | | 0.098 | 2.5 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.07 | 763.6 | 66.7 | 19.3 | 86 | E | | | 2 | 7 | | SW | | 0.260 | 6.6 | | Prof. L. Vassallo. |
| Genoa | | | 30.06 | 763.4 | 67.3 | 19.6 | 76 | SE | 14.3 | 6.4 | | 10 | | | | 0.051 | 1.3 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.97 | 761.3 | 77.2 | 25.1 | 44 | S | 11.2 | 5.0 | | 3 | | SW | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.99 | 761.8 | 74.8 | 23.8 | 47 | SW | | | 6 | 4 | | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.16 | 764.5 | 80.2 | 26.8 | 33 | S | | | 2 | 7 | | SW | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.09 | 764.2 | 70.3 | 21.2 | 67 | S | 24.8 | 11.1 | | 7 | | S | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.00 | 734.1 | 30.09 | 764.3 | 68.9 | 20.5 | 61 | S | 9.4 | 4.2 | | 8 | | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.55 | 725.2 | 30.08 | 764.1 | 73.0 | 23.1 | 42 | SW | | | 2 | 5 | | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.05 | 763.3 | 73.9 | 23.3 | 47 | ESE | 26.2 | 11.7 | | 1 | | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.08 | 764.1 | 79.5 | 26.4 | 36 | SE | | | 4 | 3 | | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.13 | 765.3 | 72.7 | 22.6 | 60 | SSE | | | 4 | 7 | | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.17 | 766.3 | 75.6 | 24.2 | 40 | S | 20.6 | 9.2 | | 0 | | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.21 | 767.3 | 78.1 | 25.6 | 34 | SW | | | 4 | 1 | | | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.21 | 767.2 | 75.6 | 24.2 | 24 | SSW | 11.2 | 5.0 | | 1 | | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.21 | 767.3 | 82.0 | 27.8 | 51 | SW | 3.8 | 1.7 | | 0 | | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.22 | 767.5 | 77.0 | 25.0 | 56 | SE | | | 4 | 0 | | | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.27 | 768.9 | 70.2 | 21.3 | 59 | SE | | | 2 | 0 | | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.15 | 765.8 | 71.8 | 22.1 | 61 | ENE | 8.1 | 3.6 | | 0 | | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.24 | 717.3 | 30.15 | 765.7 | 69.8 | 21.0 | 28 | S | | | 2 | 0 | | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.11 | 764.9 | 73.4 | 23.0 | 52 | SW | | | 4 | 6 | | SW | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.23 | 767.7 | 74.8 | 23.8 | 35 | NE | 0 | 0 | | 1 | | | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovì, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.77 | 756.1 | 68 | 20.0 | 90 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Señor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.3 | 30.08 | 764.0 | 55.4 | 13.0 | 80 | NW | 0.7 | 0.32 | | 1ck | 0 | | | 0.059 | 1.5 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.69 | 754.0 | 65.8 | 18.8 | | SSE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.68 | 753.8 | 65.8 | 18.8 | | S | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.70 | 754.4 | 62.8 | 17.1 | | E | | | 2 | | | | | 0.126 | 3.2 | | |
| Utrecht | | | 29.68 | 753.9 | 62.1 | 16.7 | 52 | SSE | | | 4 | | 8 | | | 0.016 | 0.4 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.60 | 751.9 | 53.6 | 12.0 | 82 | SSW | 23.3 | 10.4 | | | 2 | | | 0.098 | 2.5 | | |
| Brönö | | | 29.51 | 749.5 | 57.2 | 14.0 | 52 | S | 9 | 4 | | | 4 | | | 0 | 0 | | |
| Christiania | | | 29.70 | 754.3 | 54.7 | 12.6 | 93 | SSW | 9 | 4 | | | 10 | | | 0.063 | 1.6 | | |
| Tromsö | | | 29.54 | 750.4 | 46.6 | 8.1 | 66 | NE | 7 | 3 | | | 2 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.07 | 763.7 | 64.4 | 18.0 | 80 | W | 23.0 | 10.3 | | | 8 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 29.99 | 761.7 | 69.4 | 20.8 | 38 | SSW | 9.8 | 4.4 | | | 7 | SSW | | 0.197 | 5.0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.14 | 765.5 | 71.6 | 22.0 | 54 | SW | 2.5 | 1.1 | | | 1 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon | | | 30.02 | 762.6 | 63.3 | 17.4 | 75 | SW | 21.0 | 9.4 | | | 7 | | | 0.067 | 1.7 | | The Observatory. |
| Ponta Delgada, (Azores) | | | 30.10 | 764.5 | 69.4 | 20.8 | 73 | WNW | 6.9 | 3.1 | | | 3 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing but not to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.95 | 760.6 | 67.5 | 19.7 | 59 | S | 4 | 2 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.80 | 756.9 | 73.4 | 23.0 | 43 | SSE | 4 | 2 | | | 6 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.85 | 758.2 | 58.1 | 14.5 | 60 | W | 9 | 4 | | | 10 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.80 | 756.9 | 53.6 | 12.0 | 73 | WNW | 20 | 9 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.55 | 750.5 | 49.6 | 9.8 | 100 | WSW | 34 | 15 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.94 | 760.4 | 75.9 | 24.4 | 50 | SSW | 11 | 5 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.22 | 767.6 | 68.0 | 20.0 | 49 | SW | 18 | 8 | | | 9 | | | | | | Kurdakof |
| Kertch | | | 30.28 | 769.2 | 73.4 | 23.0 | 60 | NNE | 2 | 1 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.04 | 763.1 | 72.5 | 22.5 | 38 | SSW | 13 | 6 | | | 2 | | | | | | Meteorological Obs. |
| Lugan | | | 30.12 | 765.1 | 68.5 | 20.3 | 42 | WNW | 4 | 2 | | | 4 | | | | | | Meteorological Obs. |
| Archangel | | | 29.65 | 753.2 | 66.4 | 19.1 | 53 | S | 22 | 10 | | | 10 | | | | | Raining | Ogorodnikof. |
| Tiflis | 28.78 | 731.0 | 30.18 | 766.6 | 66.4 | 19.1 | 38 | NW | 4 | 2 | | | 4 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.13 | 765.3 | 66.7 | 19.3 | 54 | ESE | 2 | 1 | | | 8 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 30.10 | 764.4 | 67.5 | 19.7 | 32 | NNE | 4 | 2 | | | 3 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.56 | 750.7 | 60.3 | 15.7 | 81 | SW | 7 | 3 | | | 7 | | | | | | Tschernischef. |
| Ekaterinburg | 29.17 | 741.0 | 30.13 | 765.4 | 46.0 | 7.8 | 61 | E | 18 | 8 | | | 7 | | | | | | Meteorogical Obs. |
| Nukuss | | | 30.02 | 762.5 | 67.8 | 19.9 | 43 | N | 27? | 12? | | | 10 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.29 | 718.6 | 29.89 | 759.1 | 86.5 | 30.3 | 59 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.76 | 755.9 | 59.4 | 15.2 | 52 | NE | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.97 | 761.1 | 48.4 | 9.1 | 48 | NW | 2 | 1 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 62.2 | 16.7 | | NNW | 4 | 2 | | | 5 | | | | | | Mossin. |
| Peking, (China) | | | 29.75 | 755.6 | 74.1 | 23.4 | 54 | SSW | 18 | 8 | | | 3 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.79 | 756.6 | 57.4 | 14.1 | 62 | Calm | 0 | 0 | | | 0 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 50.4 | 10.2 | | SE | 7 | 3 | | | 6 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | | | 29.96 | 761.0 | 70.0 | 21.1 | 51 | SW | 19.4 | 8.67 | | 0 | 7 | | | 0.094 | 2.4 | Cloudy | Royal Observatory. |
| San Fernando | | | 30.06 | 763.4 | 74.8 | 23.8 | 74 | W | 7.6 | 3.4 | | 0 | 10 | | W | 0 | 0 | | Naval Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.91 | 759.6 | 83.7 | 28.7 | 73 | Calm | 0 | 0 | | 1cs | 1k | | | 0 | 0 | Clear | Benito Vines, S. J. |

NOTE.—The originals give the weather in general terms, as published; rain-fall for San Fernando from preceding to following midnight; wind-velocity for Madrid in kilometers per hour.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.49 | 749.0 | 48.2 | 9.0 | 74 | N | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.60 | 751.8 | 58.3 | 14.6 | 48 | Calm | | | 0 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.61 | 752.1 | 50.5 | 10.3 | 75 | S | | | 4 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 29.77 | 756.2 | 59.0 | 15.0 | 52 | WSW | | | 4 | | 8 | | | 0 | 0 | | |
| Wisby | | | 29.53 | 750.0 | 54.3 | 12.4 | 70 | W | | | 4 | | 0? | | | 0.017 | 23.3 | Raining? | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.74 | 755.4 | 59.4 | 15.2 | 52 | SW | 17.9 | 8.0 | | | 3 | | WSW | 0.000 | 0.01 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, and Upsala also velocity in meters per second; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.55 | 725.2 | 29.93 | 760.3 | 68.9 | 20.5 | 59 | WSW | | | 1 | | 9 | | | 1.634 | 41.5 | Cloudy | The Observatory. |
| Zurich | 28.31 | 719.1 | 29.91 | 759.7 | 65.8 | 18.8 | 73 | W | | | 4 | | 4 | | | 0.079 | 2.0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, —0.6 mm; Thermometer, +1.8 cent.; Relative Humidity, +3 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.20 | 767.0 | 70.9 | 21.6 | 44 | ENE | 9 | 4.0 | | | 4 | | SW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.98 | 761.6 | 84.2 | 29.0 | | SE | | | 3 | | 5 | | | | | | |
| Salonica | | | 30.25 | 768.3 | 77.7 | 25.4 | | S | | | 3 | | 0 | | | | | | B. Stéfanidés. |
| Valona | | | 30.32 | 770.0 | 77.0 | 25.0 | | S | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | 30.08 | 764.0 | 71.6 | 22.0 | | S | | | 2 | | 5 | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 30.02 | 762.5 | 75.0 | 23.9 | 77 | N | | | 2 | | 5cs | | | 0 | 0 | Overcast | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.76 | 755.9 | 67.9 | 19.9 | 65 | Calm | 0 | 0 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.00 | 762.0 | 66 | 18.9 | | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 29.79 | 756.7 | 63 | 17.2 | 69 | SW | 9 | 4.0 | | 0 | Sm'e | | SW | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.80 | 758.4 | 60 | 15.6 | 69 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.96 | 761.0 | 64.9 | 18.3 | 51 | SW | | | 3 | k | 0 | | | Inap. | Inap. | Hazy | James Smith, M. A. |
| Dalhousie, N. B. | | | | | | | | W | | | 1 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| Esquimault, B. C. | | | 30.09 | 764.3 | 49.3 | 9.6 | 78 | W | | | | 4cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.77 | 756.1 | 56 | 13.3 | 75 | S | 12 | 5.4 | | 0 | Sm'e | | S | 0 | 0 | Smoky | J. McWilliams |
| Fredericton, N. B. | | | 29.89 | 759.2 | 62.8 | 17.1 | 70 | SE | 1 | 0.4 | | | 10 | | | 0 | 0 | Smoky | Prof. Harrison. |
| *Port Garry, Manitoba | | | 29.37 | 746.0 | 52 | 11.1 | 98 | E | 14 | 6.3 | | | 10n | | | 0.60 | 15.2 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 30.00 | 762.0 | 69.9 | 21.1 | 56 | S | | | 1 | 0 | 0 | | | 0 | 0 | Hazy | H. J. Strang, M. A |
| Granton, Ontario | | | 30.00 | 762.0 | 67 | 19.4 | 69 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | 28.94 | 735.1 | 29.91 | 759.7 | 61 | 16.1 | 63 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.06 | 763.5 | 67.7 | 19.8 | 57 | W | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Hearr's Content, N. F. | | | 29.88 | 758.9 | 45 | 7.2 | 76 | NW | | | 3 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.07 | 763.8 | 59 | 15.0 | 83 | S | 1 | 0.4 | | Haze | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.94 | 760.5 | 65 | 18.3 | 60 | W | 14 | 6.3 | | 0 | Sm'e | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| Parry Sound, Ontario | | | 30.01 | 762.2 | 63 | 17.2 | 72 | S | 5 | 2.2 | | Haze | Haze | S | S | 0 | 0 | Smoky | Rev. R. Mosley. |
| Port Dover, Ontario | | | 30.05 | 763.3 | 60 | 15.6 | 71 | S | 4 | 1.8 | | 8k | 0 | W | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.87 | 758.7 | 63.5 | 17.5 | | W | | | | | | | | 0 | 0 | Fine | Peter Grant. |
| *Port Stanley, Ontario | | | 30.05 | 763.3 | 64 | 17.8 | 76 | SE | 2 | 0.9 | | 5k | 0 | W | | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | | | 29.90 | 759.4 | 65 | 18.3 | 84 | SW | 10 | 4.5 | | | Haze | | | 0 | 0 | Hazy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.97 | 761.2 | 58 | 14.4 | 79 | NW | 3 | 1.3 | | Sm'e | Sm'e | | | 0 | 0 | Smoky | W. H. McIntyre. |
| St. John, N. B. | | | 29.94 | 760.5 | 51 | 10.6 | 82 | S | 8 | 3.6 | | 5 | 0 | | | 0 | 0 | Pleasant | G. Murdoch, C. E. |
| *Saugeen, Ontario | | | 29.97 | 761.2 | 67 | 19.4 | 55 | Calm | 0 | 0 | | | Sm'e | | | 0 | 0 | Smoky | K. Stewart. |
| Stayner, Ontario | | | 29.96 | 761.0 | 75 | 23.9 | 53 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | R. J. Cole. |
| Stratford, Ontario | 28.78 | 731.0 | 30.02 | 762.5 | 64.9 | 18.3 | 60 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.86 | 758.4 | 75 | 23.9 | 46 | SW | 9 | 4.0 | | 2c | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| Toronto, Ontario | | | 30.05 | 763.3 | 65 | 18.3 | 58 | W | 2 | 0.9 | | 0 | Haze | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 29.84 | 757.9 | 61.0 | 16.1 | 71 | NW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.02 | 762.5 | 68.4 | 20.2 | 64 | W | 2 | 0.9 | | 0 | 2s | | | 0 | 0 | Clear | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.96 | 761.0 | 50.0 | 10.0 | 72 | E | | | | Sm'e | Sm'e | | | 0 | 0 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F. and those telegraphed, give the amount of cloudiness by the scale 0 to 4. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper 0—10 | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.00 | 762.0 | 66 | 18.9 | 67 | NW | 4 | 1.8 | | Haze | 0 | | | Inap. | Inap. | Clear | |
| Alpena, Mich. | | | 29.94 | 760.5 | 62 | 16.7 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.06 | 763.5 | 65 | 18.3 | 78 | SW | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Augusta, Ga. | | | 30.12 | 765.0 | 71 | 21.7 | 66 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.09 | 764.3 | 66 | 18.9 | 59 | SW | 2 | 0.9 | | 5ck | Sm'e | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 30.04 | 763.0 | 67 | 19.4 | 74 | W | 8 | 3.6 | | 2ck | Haze | W | | 0 | 0 | Hazy | |
| Bismarck, Dakota | 27.48 | 698.0 | 28.98 | 736.1 | 62 | 16.7 | 77 | E | 3 | 1.3 | | | 10s | | E | Inap. | Inap. | Cloudy | |
| Boston, Mass. | | | 29.96 | 761.6 | 71 | 21.7 | 53 | NW | 6 | 2.7 | | 2cs,hz. | Haze | | | 0 | 0 | Hazy | |
| Breckenridge, Minn. | | | 29.22 | 742.2 | 67 | 19.4 | 74 | SE | 26 | 11.6 | | | 10ks | | S | 0.02 | 0.5 | Cloudy | |
| Buffalo, N. Y. | | | 30.01 | 762.2 | 64 | 17.8 | 48 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.00 | 762.0 | 68 | 20.0 | 50 | S | 4 | 1.8 | | 2k | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 29.91 | 759.7 | 71 | 21.7 | 49 | S | 16 | 7.2 | | Haze | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.39 | 695.7 | 29.96 | 761.0 | 42 | 5.6 | 83 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 48 | 8.9 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.03 | 762.7 | 60 | 15.6 | 100 | E | 11 | 4.9 | | | Fog | | | 0 | 0 | Foggy | |
| Cape Henry, Va. | | | 30.12 | 765.0 | 63 | 17.2 | 80 | NW | 5 | 2.2 | | 5c | 0 | | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.12 | 765.0 | 66 | 18.9 | 90 | NE | 14 | 6.3 | | 1k | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.07 | 763.8 | 64 | 17.8 | 78 | SW | 12 | 5.4 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.10 | 764.5 | 67 | 19.4 | 84 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.56 | 598.4 | 29.50 | 749.3 | 44 | 6.7 | 42 | W | 16 | 7.2 | | 5ck | 1s | W | | 0.07 | 1.8 | Fair | |
| Chicago, Ill. | | | 29.82 | 757.4 | 71 | 21.7 | 62 | S | 9 | 4.0 | | 2c | Haze | | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.98 | 761.5 | 64 | 17.8 | 67 | SE | 2 | 0.9 | | 8ck | 2ks | SW | SW | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 30.03 | 762.7 | 63 | 17.2 | 57 | SE | 7 | 3.1 | | 1ck | 2k | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 30.30 | 769.6 | 72 | 22.2 | 80 | S | 16 | 7.2 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.73 | 755.1 | 71 | 21.7 | 62 | S | 10 | 4.5 | | 4cs | 0 | S | | 0 | 0 | Clear | |
| Denison, Tex. | | | 29.76 | 755.9 | 71 | 21.7 | 80 | S | 10 | 4.5 | | | 10s | | S | 0 | 0 | Threatening | |
| Denver, Col. | 24.33 | 618.0 | 29.55 | 750.6 | 51 | 10.6 | 21 | SW | 9 | 4.0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Detroit, Mich. | | | 29.97 | 761.2 | 66 | 18.9 | 54 | SW | 4 | 1.8 | | Haze | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 26.91 | 683.5 | 29.10 | 739.1 | 54 | 12.2 | 54 | SW | 14 | 6.3 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Dubuque, Iowa | | | 29.68 | 753.9 | 71 | 21.7 | 66 | S | 6 | 2.7 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.53 | 750.0 | 57 | 13.9 | 93 | NE | 2 | 0.9 | | | 10ks | | SW | 0.79 | 20.1 | Cloudy | |
| Eastport, Me. | | | 29.91 | 759.7 | 56 | 13.3 | 68 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Fair | |
| Erie, Pa. | | | 30.00 | 762.0 | 68 | 20.0 | 60 | S | 8 | 3.6 | | 5ck | Haze | W | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.80 | 756.9 | 61 | 16.1 | 71 | S | 8 | 3.6 | | 5c | Sm'e | S | | 0 | 0 | Fair | |
| Florence, Arizona | 28.31 | 719.1 | 29.91 | 759.7 | 70 | 21.1 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.68 | 753.9 | 72 | 22.2 | 67 | S | 12 | 5.4 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Fort Griffin, Tex. | 28.46 | 722.9 | 29.68 | 753.9 | 66 | 18.9 | 73 | Calm | 0 | 0 | | | 8ks | | SW | 1.57 | 39.9 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.55 | 750.6 | 44 | 6.7 | 84 | SW | | | 1 | 8ck | ks | S | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.47 | 723.1 | 29.53 | 750.0 | 63 | 17.2 | 78 | S | 8 | 3.6 | | 5k | 0 | SW | | 0.73 | 18.5 | Fair | |
| Fort Sully, Dakota | 27.58 | 700.5 | 29.15 | 740.4 | 48 | 8.9 | 85 | SE | 16 | 7.2 | | 0 | 8ks | | SE | 0.17 | 4.3 | Fair | |
| Galveston, Tex. | | | 29.85 | 758.2 | 78 | 25.6 | 82 | SE | 14 | 6.3 | | 0 | 8ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.86 | 758.4 | 74 | 23.3 | 49 | S | 11 | 4.9 | | 4c | Sm'e | | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.94 | 760.5 | 70 | 21.1 | 52 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 29.79 | 756.7 | 78 | 25.6 | 73 | S | 20 | 8.9 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.05 | 763.3 | 74 | 23.3 | 76 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.64 | 752.8 | 72 | 22.2 | 62 | S | 20 | 8.9 | | 8k | 0 | S | | 0 | 0 | Fair | |
| Key West, Fla. | | | 29.90 | 759.4 | 77.5 | 25.3 | 82 | NE | 15 | 6.7 | | 5cs | 5ks | E | NE | 0.36 | 9.1 | Threatening | |
| Kittyhawk, N. C. | | | 30.12 | 765.0 | 59 | 15.0 | 100 | N | 6 | 2.7 | | | 10s | | NW | 0.01 | 0.3 | Cloudy | |
| Knoxville, Tenn. | | | 30.09 | 764.3 | 61 | 16.1 | 66 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.58 | 751.3 | 74 | 23.3 | 72 | S | 18 | 8.0 | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| Leavenworth, Kan. | | | 29.56 | 750.8 | 64 | 17.8 | 94 | SE | 8 | 3.6 | | | 10n | | SE | 1.57 | 39.9 | Light rain | |
| Louisville, Ky. | | | 30.00 | 762.0 | 68 | 20.0 | 54 | S | 6 | 2.7 | | 2c | Sm'e | NW | S | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.09 | 764.3 | 65 | 18.3 | 58 | N | 2 | 0.9 | | 1k | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 82 | 27.8 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.73 | 755.1 | 68 | 20.0 | 60 | SE | 3 | 1.3 | | Haze | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 29.93 | 760.2 | 74 | 23.3 | 59 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.85 | 758.2 | 55 | 12.8 | 74 | SE | 6 | 2.7 | | 5c | Haze | | | 0 | 0 | Fair | |
| Mobile, Ala. | | | 30.02 | 762.5 | 71 | 21.7 | 75 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.06 | 763.5 | 70 | 21.1 | 59 | SE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.03 | 737.3 | 30.05 | 763.3 | 67 | 19.4 | 54 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 23.91 | 607.3 | 30.27 | 768.8 | 47 | 8.3 | 62 | NW | 12 | 5.4 | | Haze | Haze | | | 0 | 0 | Dense haze | |
| Nashville, Tenn. | | | 30.02 | 762.5 | 69 | 20.6 | 47 | E | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.00 | 762.0 | 72 | 22.2 | 55 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Clear | |
| New London, Conn. | | | 29.99 | 761.7 | 66 | 18.9 | 68 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Dense haze | |
| New Orleans, La. | | | 29.95 | 760.7 | 74 | 23.3 | 76 | SE | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Newport, R. I. | | | 29.97 | 761.2 | 62 | 16.7 | 70 | SW | 4 | 1.8 | | 5c | 0 | W | | 0 | 0 | Fair | |
| New York, N. Y. | | | 30.04 | 763.0 | 71 | 21.7 | 45 | NW | 5 | 2.2 | | 0 | Fog | | | 0.16 | 4.1 | Clear | |
| Norfolk, Va. | | | 30.13 | 765.3 | 61 | 16.1 | 82 | SW | 3 | 1.3 | | 8c | Fog | | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.54 | 674.1 | 28.97 | 735.8 | 52 | 11.1 | 73 | NW | 8 | 3.6 | | 5k | 5s | NW | NW | 0.10 | 2.5 | Cloudy | |
| Omaha, Neb. | 28.26 | 717.8 | 29.26 | 743.2 | 66 | 18.9 | 68 | S | 20 | 8.9 | | 5ck | 2s | S | S | 2.09 | 53.1 | Fair | |
| Oswego, N. Y. | | | 30.04 | 763.0 | 66 | 18.9 | 61 | SE | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Pembina, Dakota | | | 29.26 | 743.2 | 53 | 11.7 | 100 | NW | 2 | 0.9 | | 10k | 0 | S | | 0.36 | 9.1 | Cloudy | |
| Philadelphia, Pa. | | | 30.05 | 763.3 | 68 | 20.0 | 60 | W | 6 | 2.7 | | 5k | Haze | N | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 69 | 20.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.36 | 440.9 | 29.56 | 750.8 | 8 | —13.3 | 100 | W | 40 | 17.9 | | | Fog | | | 0.24 | 6.1 | Light snow | |
| Pittsburgh, Pa. | | | 30.05 | 763.3 | 58 | 14.4 | 81 | Calm | 0 | 0 | | 5k | Sm'e | | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.98 | 761.5 | 67 | 19.4 | 64 | S | 8 | 3.6 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.93 | 760.2 | 67 | 19.4 | 60 | Calm | 0 | 0 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Oregon | | | 30.21 | 767.3 | 51 | 10.6 | 78 | Calm | 0 | 0 | | | 10ks | | | 0.05 | 1.3 | Cloudy | |
| Prescott, Arizona | 24.70 | 627.4 | 30.06 | 763.5 | 39 | 3.9 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 29.94 | 760.5 | 73 | 22.8 | 72 | E | 12 | 5.4 | | 0 | 5ks | | | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 30.02 | 762.5 | 63 | 17.2 | 62 | W | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.43 | 645.9 | 29.76 | 755.9 | 46 | 4.4 | 100 | NE | 8 | 3.6 | | | 10n | | | 0.26 | 6.6 | Light rain | |
| Sandy Hook, N. J. | | | 30.03 | 762.7 | 67 | 19.4 | 74 | W | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.62 | 752.3 | 76 | 24.4 | 76 | SE | 8 | 3.6 | | 10ck | 0 | SE | | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.98 | 761.5 | 54 | 12.2 | 86 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 30.03 | 762.7 | 51 | 10.6 | 93 | SW | 6 | 2.7 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Santa Fé, N. M. | 23.05 | 585.5 | 29.59 | 751.6 | 34 | 1.1 | 79 | SE | 4 | 1.8 | | | 10ks | | SW | 0.06 | 1.5 | Cloudy | |
| Savannah, Ga. | | | 30.10 | 764.5 | 71 | 21.7 | 75 | NE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 29.90 | 759.4 | 73 | 22.8 | 81 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.10 | 764.5 | 66 | 18.9 | 84 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.01 | 762.2 | 69 | 20.6 | 63 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 29.79 | 756.7 | 72 | 22.2 | 54 | S | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.05 | 763.3 | 69 | 20.6 | 75 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.43 | 747.5 | 70 | 21.1 | 79 | SE | 14 | 6.3 | | 5c | 0 | | | 2.28 | 57.9 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 53 | 11.7 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex. | 26.82 | 681.2 | 29.82 | 757.4 | 68 | 20.0 | 35 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thatcher's Island, Mass | | | 29.95 | 760.7 | 61 | 16.1 | 71 | NW | 8 | 3.6 | | 2c | 0 | SW | | 0 | 0 | Smoky | |
| Toledo, Ohio | | | 29.98 | 761.5 | 71 | 21.7 | 53 | S | 12 | 0.9 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Tucson, Arizona | 27.47 | 697.7 | 30.02 | 762.5 | 55 | 12.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.08 | 764.0 | 70 | 21.1 | 84 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 29.97 | 761.2 | 70 | 21.1 | 79 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.04 | 610.6 | 29.52 | 749.8 | 34 | 1.1 | 95 | W | 12 | 5.4 | | | 10n | | NW | 0.55 | 14.0 | Light rain | |
| Washington, D. C | | | 30.10 | 764.5 | 64 | 17.8 | 61 | SW | 2 | 0.9 | | 1ck | 8s | W | W | 0 | 0 | Cloudy | |
| Wickenburg, Arizona | | | | | 60 | 15.6 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.10 | 764.5 | 65 | 18.3 | 78 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 29.99 | 761.7 | 62 | 16.7 | 77 | NW | 5 | 2.2 | | 8c,k | 0 | NW | | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.03 | 711.9 | 29.22 | 742.2 | 64 | 17.8 | 79 | S | 22 | 9.8 | | 0 | 2ks | | SW | 0.06 | 1.5 | Fair | |
| Yuma, Arizona | | | | | | | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.06 | 763.5 | 80 | 26.7 | 91 | Calm | 0 | 0 | | 8c | 8n | SE | | 0 | 0 | | James Gall. |
| Nuyassa, W. I | | | | | 80 | 26.7 | | SE | | | 3 | | | | | | | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.04 | 763.0 | 81 | 27.2 | 87 | E | | | 2 | 3c | 5k | E | | 0 | 0 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | 81.5 | 27.5 | | E | | | | | | | | 0.472 | 12.00 | Rainy | Dr. H. Groot. |
| Medellin, Colombia, S. A | 30.07 | 763.6 | | | 70.2 | 21.2 | 84 | SW | | | 1 | 3k | 2ks | | | Inap. | Inap. | Fair | Thomas Herran. |
| York Factory, B. A | 25.21 | 640.3 | | | 26.0 | — 3.3 | 94 | N | 10 | 4.5 | | 3k | 4s | NE | NE | 0 | 0 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.18 | 766.6 | 74 | 23.3 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | 30.16 | 766.1 | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Morgantown, 1,297.9 ft., or 395.8 m.; Medellin, 4,878 ft., or 1,486.2m.; Mt. Washington, 6,286 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.38 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.18 | 766.6 | 72 | 22.2 | 64 | 17.8 | 62 | S | | | 1 | | 5 | | NE | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 30.10 | 764.5 | 60 | 15.6 | 55.5 | 13.1 | | SW | | | 1 | | 2 | | E | 0 | 0 | | | Fine | |
| Navy Yard, Pensacola, Fla. | 30.15 | 765.8 | | | 73 | 22.8 | 81 | E | 20 | 8.9 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.04 | 763.0 | 76 | 24.4 | 65 | 18.3 | 73 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.73 | 755.1 | 70 | 21.1 | 67 | 19.4 | 92 | Calm | | | 0 | | Haze | | | 0 | 0 | | | Fair | |
| Adams, S. 21° 22′ W. 38° 36′ | 30.32 | 770.1 | 75 | 23.9 | 76 | 24.4 | 86 | SE | | | 3 | | 9 | | SE | 0 | 0 | Long | SE | D. clouds | |
| Alert, N. 20° 47′ 29″ E. 145° 34′ 45″ | 30.04† | 763.0† | 82 | 27.8 | 81 | 27.2 | 100 | SW | | | 2 | | 2 | | S&W | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.18 | 766.6 | 78 | 25.6 | 75 | 23.9 | 77 | NNW | | | 1 | | 8 | | | | | Smooth | | Pleasant | |
| Ashuelot, N. 22° 43′ E. 115° 56′ | 29.97 | 761.2 | 81 | 27.2 | 78 | 25.6 | 86 | E | | | 2 | | 0 | | | | | Light | N&E | Hazy | |
| Canonicus, New Orleans, La | 29.97 | 761.2 | 52 | 11.1 | 73 | 22.8 | 81 | SSE | | | 2 | | 0 | | | | | | | Clear | |
| Colorado, New York, N. Y | 30.10 | 764.5 | 63 | 17.2 | 69 | 20.6 | 80 | W | 1 | 0.4 | | | 5 | | | 0.08 | 2.0 | | | Hazy | |
| Despatch, Palermo, Sicily | 30.28 | 769.1 | 73 | 22.8 | 76 | 24.4 | 82 | NE | | | 1 | | 2 | | | | | Smooth | | | |
| Franklin, Norfolk, Va. | 30.20 | 767.1 | 57 | 13.9 | 60 | 15.6 | 94 | SE | 1 | 0.4 | | | 9c | | SE | 0 | 0 | | | Foggy | |
| Frolic, Rio de Janeiro, Brazil | 30.36 | 771.1 | 65 | 18.3 | 67 | 19.4 | 89 | NNE | | | 1 | | 4k | | | 0 | 0 | | | D clouds | |
| ‡Gettysburg, Genoa, Italy | 29.90 | 759.4 | | | 68 | 20.6 | 100 | E | | | 4 | | 10 | | ESE | 0 | 0 | | | D. clouds | |
| Huron, Bahia Honda, Venezuela | 30.03 | 762.7 | 86 | 30.0 | 88 | 31.1 | 80 | SSE | | | 1 | | 3 | | N | | | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.90 | 759.4 | 73 | 22.8 | 70 | 21.1 | 90 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Dew | |
| Lackawana, Pichilingue Bay, Mexico | 29.94 | 760.5 | | | 69 | 20.6 | 75 | SSE | | | 1–2 | | 0 | | | | | Smooth | | Blue sky | |
| Marion, Smyrna, Turkey | 30.17 | 766.3 | 73 | 22.8 | 75 | 23.9 | 51 | WSW | | | 3 | | 1 | | ENE | 0 | 0 | Chop'd | WSW | D. clouds | |
| Michigan, Erie, Pa | 29.56 | 750.8 | 68 | 20.0 | 68 | 20.0 | 65 | S | | | 1 | | 2 | | S | | | | | Partly cl'dy | |
| Monocacy, Che-foo, China | 29.74 | 755.4 | 60 | 15.6 | 57 | 13.9 | 87 | Calm | | | 0 | | 7 | | S&E | Light | Light | Smooth | | D. clouds | |
| Monongahela, N. 37° W. 74° | 30.16 | 766.1 | 60 | 15.6 | 60 | 15.6 | | Calm | | | 0 | | k | | | 0 | 0 | Moderate. | E | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.34 | 770.6 | | | 71 | 21.7 | 90 | NNE | 14 | 6.3 | | | 10 | | SW | 0 | 0 | | | Blue sky | |
| Omaha, Payta, Peru | 30.02 | 762.5 | 74 | 23.3 | 72.5 | 22.5 | 78 | E | 6 | 2.7 | | | 10 | | SE | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, Port Royal, S. C | 30.13 | 765.3 | 69 | 20.6 | 68 | 20.0 | 90 | NE | | | 1 | | | | | | | | | Hazy | |
| Palos, Shanghai, China | 29.89 | 759.2 | 78 | 25.6 | 78 | 25.6 | 91 | SE | | | 1–2 | | 1 | | S | | | | | Clear | |
| Plymouth, N 21° 41′ W. 94° 29′ | 29.91 | 759.7 | 82 | 27.8 | 79 | 26.1 | 78 | ESE | | | 5 | | 2 | | S&E | 0 | 0 | Brok'n, light. | S,E | Clear | |
| Ranger, N. 37° 52′ E. 10° 10′ | 30.30 | 769.6 | | | 70 | 21.1 | 95 | ESE | | | 5 | | | | | | | Moderate | N&W | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.42 | 772.7 | 68.0 | 20.0 | 68.0 | 20.0 | 90 | NNW | | | 1 | | 5 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.70 | 754.4 | | | 72 | 22.2 | 90 | SE | | | 3 | | 3 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.16 | 766.1 | 68 | 20.0 | 64 | 17.8 | 58 | Calm | | | 0 | | 4 | | | 0 | 0 | | | Hazy | |
| St. Louis, League Island, Pa | 30.01 | 762.2 | 67 | 19.4 | 67 | 19.4 | 74 | SW | 7 | 3.1 | | | 5 | | WSW | 0 | 0 | | | | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 83 | 28.3 | 82 | 27.8 | 100 | SE | | | 1 | | 4k | | | | | Smooth | | Fair | |
| Tennessee, Yokohama, Japan | 29.74 | 755.4 | 73 | 22.8 | 73 | 22.8 | 85 | E | | | 0–1 | | 5 | | | 0 | 0 | Smooth | | Hazy | |
| Trenton, Smyrna, Turkey | 30.04† | 763.0† | 72 | 22.2 | 75 | 23.9 | 100 | WSW | 12.5 | 5.6 | | | 1 | | | 0 | 0 | Smooth | | Squally | |
| Vandalia, Constantinople, Turkey | 30.25 | 768.3 | 68 | 20.0 | 67 | 19.4 | 95 | NE | | | 1 | | 6 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.07 | 763.8 | 70 | 21.1 | 70 | 21.1 | 57 | NNW | 7 | 3.1 | | | 3 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.32 | 770.1† | 67 | 19.4 | 67 | 19.4 | | W | | | 0–1 | | 9 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 43° 07′ E. 179° 39′ | | | 29.94 | 760.5 | 51 | 12 2 | 87 | W | | | 4 | | 10ns | | | Moderate. | W | Hazy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig, N. 45° 0′ W. 39° 35′ | | | 29.93 | 760.2 | 58 | 14.4 | | WSW | | | 5 | | Haze | | | Heavy | | Overcast | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.01 | 762.2 | 71 | 21.7 | 85 | NNE | 5 | 2.2 | | 0 | 0 | | | | | Clear. | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 1, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.13 | 765.2 | 76.6 | 24.8 | 62 | NNW | | | 1 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Aciers | | | 30.17 | 766.3 | 80.6 | 27.0 | 45 | NW | | | 3 | | 5 | | | 0.063 | 1.6 | Fair | Peter. |
| La Calle | | | 30.12 | 765.0 | 87.4 | 30.8 | 59 | ENE | | | 1 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.14 | 765.5 | | | | | | | | | | | | | | | Jacques. |
| Slax | | | 30.22 | 767.5 | 75.2 | 24.0 | | SE | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.11 | 764.7 | 81.7 | 27.6 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.24 | 768.2 | 85.1 | 29.5 | | S | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.19 | 766.7 | 86.2 | 30.1 | | W | | | 3 | | 4 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouant | | | 30.24 | 768.2 | 86.9 | 30.5 | 88 | S | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.21 | 767.2 | 89.6 | 32.1 | 24 | SE | | | 1 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.00 | 762.0 | 78.6 | 25.9 | 37 | SW | | | 5 | | 2 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.00 | 761.9 | 70.5 | 21.4 | 51 | WSW | | | 1 | | 2 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.92 | 759.9 | 76.1 | 24.5 | 54 | S | | | 1 | | 2c | | | 0 | 0 | | Julius Mikolik. |
| Gratz | | | 29.87 | 758.8 | 77.9 | 25.5 | 53 | SSW | | | 4 | | 1 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.69 | 728.7 | 29.96 | 761.0 | 76.6 | 24.8 | 43 | NW | | | 5 | | 1 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.61 | 726.7 | 29.84 | 757.9 | 73.8 | 23.2 | 63 | NE | | | 2 | | 3 | | | 0.059 | 1.5 | | Prof. C. Wagner. |
| Lemberg | 28.56 | 725.4 | 29.91 | 759.6 | 69.1 | 20.6 | 54 | W | | | 3 | | 4 | | | 0 | 0 | | Dr. T. Stanecki. |
| Nyiregyhnza | | | 30.10 | 764.4 | 76.6 | 24.8 | 61 | SSE | | | 1 | | 2cs | | | 0 | 0 | | Habzsuda Daniel. |
| Pola | | | 29.99 | 761.7 | 76.1 | 24.5 | 35 | Calm | | | 0 | | 0 | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.12 | 765.0 | 69.8 | 21.0 | 77 | NNW | | | 1 | | 9 | | | 1.075 | 27.3 | Covered | Karl Stancel. |
| Trieste | | | 29.88 | 758.9 | 77.0 | 25.5 | 52 | ESE | | | 2 | | 0 | | | 0 | 0 | | P. Busin. |
| Vienna | | | | | | | | | | | | | | | | | | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.45 | 722.6 | 29.94 | 760.4 | 56.8 | 13.8 | 68 | SSW | | | 3 | | 10 | | | 0.106 | 2.7 | | |
| Brussels | | | 29.75 | 755.7 | 64.6 | 18.1 | 61 | SW | | | 5 | 6 | 2 | SSW | SW | 0.063 | 1.60 | | Royal Observatory |
| Furnes | | | 29.66 | 753.3 | 56.1 | 13.4 | 89 | SSW | | | 4 | | 8 | | | 0.075 | 1.9 | | |
| Maeseyck | | | 29.78 | 756.5 | 66.4 | 19.1 | 72 | SW | | | 6 | | 8 | | | 0.039 | 1.0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.29 | 744.0 | 47.7 | 8.7 | | SE | 19 | 8.5 | | | 10 | | | 0.530 | 13.46 | Raining | William Boswell. |
| Ardrossan | | | 29.19 | 741.4 | 56 | 13.3 | | WNW | | | 1 | | 6 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.20 | 741.7 | 56.7 | 13.7 | | WSW | 9 | 4.0 | | | 10 | | | | | Gloomy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.20 | 741.7 | 54.4 | 12.4 | | W | 13 | 5.8 | | | 6 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.33 | 745.0 | 52.1 | 11.2 | | SW | | | 4 | | 10 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.17 | 740.9 | 49.9 | 9.9 | | NW | | | 1 | | 10 | | | 0.36 | 9.1 | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.01 | 762.2 | 81.0 | 27.2 | | NE | | | 3 | | 6 | | | | | Overcast | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.34 | 745.2 | 56.1 | 13.4 | | S | | | 6 | | 10 | | | | | Showery | H. Todd. |
| Cardington | | | 29.36 | 745.7 | 57.4 | 14.1 | | | | | 8 | | 10 | | | | | Raining | John McLaren. |
| Chatham, School M. E. | | | 29.59 | 759.8 | 60.2 | 15.7 | | SW | | | 6 | | 8 | | | | | Drizzling | Capt. Fellowes, R. E. |
| Dartmoor | 28.11 | 714.0 | 29.58 | 751.3 | 47.4 | 8.6 | | W | | | 6 | | 9 | | | | | Raining | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.19 | 741.4 | 53 | 11.7 | | SSW | | | 4 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 29.61 | 752.1 | 56 | 13.3 | | SW | | | 7 | | 8 | | | | | Overcast | J. Costello. |
| Eccles, (near Manchester) | | | 29.18 | 741.2 | 52.6 | 11.4 | | W | 2.8 | 1.3 | | | 10 | | | | | Showery | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.58 | 751.3 | 54.1 | 12.3 | | WSW | | | 6 | | 10 | | | | | Squally | The Staff. |
| Fort Napier, (Natal) | 27.65 | 702.3 | 29.88 | 758.9 | 84.4 | 29.1 | | NE | | | 2 | | 9 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.02 | 762.5 | 82 | 27.8 | | NW | | | 1 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.28 | 743.7 | 57 | 13.9 | | W | | | 6 | | 6 | | | | | D. clouds | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.12 | 765.0 | 75.7 | 24.3 | | W | | | 2 | | 1 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.18 | 741.2 | 54.0 | 12.2 | | SE | | | 1 | | 8 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 29.45 | 748.0 | 59 | 15.0 | | SSW | | | 6 | | 6 | | | | | Raining | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.46 | 748.3 | 53.5 | 11.9 | | SW | | | 6 | | 10 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 29.68 | 753.9 | 55 | 12.8 | | SW | | | 6 | | 8 | | | Blank | Blank | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.61 | 752.1 | 57 | 13.9 | | SW | | | 7 | | 8k | | | 0.60 | 15.2 | Fair | M. P. Moyle. |
| Holyhead | | | 29.29 | 744.0 | 57 | 13.9 | | SW | | | 5 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.42 | 747.3 | 55.5 | 13.1 | | SSW | 40 | 17.9 | | | 10kd | | | | | Showery | The Staff. |
| Kingstown | | | 29.25 | 742.9 | 58 | 14.4 | | W | | | 5 | | 7 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.23 | 742.4 | 57.3 | 14.1 | | SE | | | 6 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.18 | 766.6 | 73.0 | 22.8 | | NW | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.21 | 741.9 | 60 | 15.6 | | Calm | | | 0 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 29.90 | 759.4 | 79.0 | 26.1 | | N | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.20 | 741.7 | 53.7 | 12.1 | | SW | | | 6 | | 10kq,c | | SW | 0.365 | 9.27 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.22 | 742.2 | 51.2 | 10.7 | | SW | | | 4 | | 10 | | | | | Raining | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.33 | 745.0 | 56 | 13.3 | | SW | | | 6 | | 10 | | | | | Raining | F. Lucas. |
| Plymouth | | | 29.52 | 749.8 | 54.2 | 12.3 | | SW | | | 7 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.44 | 747.8 | 55 | 12.8 | | WNW | | | 5 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.34 | 745.2 | 54 | 12.2 | | W | | | 6 | | 2 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.73 | 755.1 | 56.6 | 13.7 | | W | | | 7 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.35 | 745.5 | 48.1 | 8.9 | | E | 30 | 13.4 | | | 10 | | | | | Raining | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 30.04 | 763.0 | 67.2 | 19.6 | | SW | | | 1 | | 1 | | | | | Blue sky | Rev. W. H. Lyne. |
| Sheffield | | | 29.16 | 740.7 | 55.5 | 13.1 | | SW | | | 4 | | 10 | | | 0.248 | 6.30 | Overcast | Sergt. W. Cooper. |
| Silloth, Rectory | | | 29.19 | 741.4 | 58.2 | 14.6 | 76 | SE | | | 6 | | 6 | | | 0.330 | 8.38 | D. clouds | W. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.20 | 741.7 | 54.0 | 12.2 | | SW | | | 1 | | 10 | | | | | Overcast | Rev. F. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 29.20 | 741.7 | 52 | 11.1 | | ENE | | | 2 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stratfield Turgiss | | | 29.39 | 746.5 | 55.5 | 13.1 | | S | | | 4 | | 10 | | | | | Squally | John Smith. |
| Thurso | | | 29.30 | 744.2 | 49 | 9.4 | | ESE | | | 5 | | 9 | | | | | Raining | Rev. C. H. Griffith, F.M.S. |
| Truro, Royal Institution | | | 29.81 | 757.2 | 55 | 12.8 | | SW | | | 7 | | 10 | | | | | Gloomy | John Trotter. |
| Valencia, Observatory | | | 29.48 | 748.8 | 54.2 | 12.3 | | WSW | 33 | 14.8 | | | 10 | | | | | Squally | W. Newcombe. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | The Staff. |
| Calf of Man, (Isle of Man) | | | | | 54 | 12.2 | | S | | | 3 | 10 | | | | 0.10 | 2.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.19 | 766.8 | 59.0 | 15.0 | 75 | S | 10 | 4.5 | | 7 | 7 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.21 | 767.3 | 50.0 | 10.0 | 87 | Calm | | | 0 | | 10n | | | 0.08 | 2.0 | Covered | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.21 | 741.9 | 52.0 | 11.1 | | E | | | 2 | | 10k | | | 0.18 | 4.6 | Thunder-storm | Andrew Gibb. |
| Mauritius, Observatory | | | 30.17 | 766.3 | 76.5 | 24.7 | 71 | ESE | 8.0 | 3.6 | | 6 | 1 | WNW | ESE | 0.02 | 0.5 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.37 | 771.4 | 49.4 | 9.7 | 88 | NE | 5 | 2.2 | | | 8 | | | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.17 | 740.9 | 53 | 11.7 | | SE | | | 4 | | 10 | | | 0.3 | 7.6 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.44 | 747.8 | 47 | 8.3 | | E | | | 4 | 5 | 7 | E | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Dover, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0 m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 51° 20′ W. 13° 40′ | | | 29.40 | 746.7 | 53.0 | 11.7 | | SSW | | | 5 | | 10 | W | | 10 | NE&W | Overcast | Capt. W. Watson. |
| S. S. Batavia, N. 48° 0′ W. 31° 50′ | | | | | 51.0 | 10.6 | | W | | | 4 | | 4 | | | 4 | W | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 28° 55′ W. 79° 40′ | | | 30.15 | 765.8 | 76.0 | 24.4 | | ENE | | | 4 | | 3 | | | 4 | NE | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.48 | 748.8 | 54 | 12.2 | | W | | | 7 | | 6 | | | 0 | | Squally | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26 24 | 666.5 | | | 69 8 | 21.0 | 98 | SE | | | 1 | | 9cs | | E | *1.5 | *38.1 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation. *Rain-fall from midnight of May 30th to 3 a. m. June 1st.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.90 | 759.4 | 62.4 | 16.9 | 62 | SE | | | 4 | | 0 | | | | | | |
| Faröe | | | 29 68 | 753.8 | 70.9 | 21.6 | 62 | S | | | 6 | | 7 | | | | | | |
| Godthaab, (Greenland) | | | 29.69 | 754.2 | 34.1 | 0.6 | 71 | W | | | 4 | | 10 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.62 | 752.3 | 43.0 | 6.1 | 71 | E | | | 4 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.64 | 752.8 | 43.7 | 6.5 | 71 | E | | | 4 | | 10 | | | | | | |
| Vestervig | | | 29.69 | 754.0 | 65.5 | 18.6 | 83 | Calm | | | 0 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 29.92 | 760.0 | 60.8 | 16 | 73 | WSW | | | 6 | | 5kn | | WSW | 0.04 | 1. | Cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 29.72 | 754.9 | 66.9 | 19.4 | 65 | SW | | | 6 | | 2 | | SW | 0.157 | 4.0 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.06 | 763.4 | 68.0 | 20 | 85 | SE | | | 1 | | 8 | | S | | | Raining | Mr. Giraud. |
| Bar-sur-Seine | | | 29.96 | 761.0 | 60.2 | 15.7 | 66 | SW | | | 2 | | 10n | | SW | 0 | 0 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory |
| Beauvais | | | 29.78 | 756.5 | 62.1 | 16.7 | 69 | WSW | | | 6 | | 5 | | WSW | 0.138 | 3.50 | Cloudy | Normal School. |
| Besançon | | | 30.09 | 764.3 | 58.3 | 14.6 | 84 | S | | | 3 | | 8 | | W | 0 | 0 | Very cloudy | Normal School. |
| Bourg en Bresse | | | 30.02 | 762.4 | 58.1 | 14.5 | 90 | N | | | 2 | | 10n | | W | | | Raining | Normal School. |
| Bourges, Normal School | | | 30.07 | 763.7 | 64.4 | 18 | 95 | SW | | | 6 | | 5 | | ENE | 0 | 0 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.78 | 756.4 | 61.0 | 16.1 | 62 | SW | | | 7 | | 7 | | SW | 0.098 | 2.50 | Misty | The Staff. |
| † Carcassonne, Normal Sch'l | | | 30.17 | 766.4 | 59.9 | 15.5 | 75 | E | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| † Caen | | | 29.78 | 756.3 | 63.9 | 17.7 | 51 | SW | | | 8 | | 5 | | WSW | 0 | 0 | Cloudy | Normal School. |
| Chartres, Normal School | | | 29.78 | 756.4 | 63.2 | 17.4 | 77 | SW | | | 8 | | 7 | | E | 0.689 | 17.5 | | Dumoulié, Director. |
| † Châlons-sur-Marne, N. S'l | | | 29.89 | 759.2 | 63.9 | 17.7 | 57 | WSW | | | 4 | | 10k | | | 0 | 0 | Covered | T. Leloup, Director. |
| Clermont-Fd., Puy de Dôme | | | 30.05 | 763.3 | 61.9 | 16.6 | 58 | SW | | | 1 | | 10 | | SE | 0 | 0 | Covered | Allnard, Director. |
| Commercy, Normal School | | | 29.95 | 760.6 | 58.8 | 14.9 | 72 | WSW | | | 4 | | 10 | | WSW | 0.04 | 1. | Covered | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.11 | 764.7 | 72.9 | 22.7 | 56 | E | | | 4 | | 8 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.96 | 761.0 | 73.4 | 23 | 61 | SW | | | 6 | | 10kn | | NE | 0 | 0 | Covered | Normal School. |
| † La Roche-sur-Yon, N. Sch'l | | | 30.03 | 762.7 | 61.2 | 16.2 | 66 | W | | | 8 | | 8 | | W | 0 | 0 | Very cloudy | Moullet, Director. |
| Le Mans, Normal School | | | 29.91 | 759.7 | 61.7 | 16.4 | 66 | W | | | 6 | | 5 | | SW | 0.091 | 2.3 | Cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.06 | 763.4 | 57.0 | 13.9 | 95 | E | | | 2 | | 10 | | E | 0.28 | 7. | Raining | Pin, Director. |
| Lorient, Naval Observatory | | | 29.92 | 760.0 | 60.4 | 15.8 | 59 | WSW | | | 8 | | 5 | | SW | 0.157 | 4.0 | ½ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.17 | 766.3 | 58.1 | 14.5 | 93 | S | | | 2 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.02 | 762.5 | 60.1 | 15.6 | 57 | SW | | | 3 | | 10k | | SW | 0.177 | 4.5 | | Normal School. |
| Mirecourt | | | 29.98 | 761.6 | 60.0 | 15.9 | 74 | SW | | | 2 | | 10 | | NNE | 0 | 0 | Covered | Normal School |
| Nîmes, Normal School | | | 30.04 | 763.1 | 70.2 | 21.2 | 46 | S | | | 4 | | cn | | S | 0.600 | 15.25 | | Boyer, Director. |
| Orleans | | | 29.88 | 758.9 | 63.7 | 17.6 | 57 | SSW | | | 6 | | 8 | | SW | 0 | 0 | Very cloudy | Normal School. |
| Paris, Observatory | | | 29.85 | 758.3 | 63.0 | 17.2 | 51 | SW | | | 6 | | 3k | | SW | 0.125 | 3.18 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| † Rochefort, Naval Obs. | | | 30.11 | 764.9 | 63.7 | 17.6 | 63 | SW | | | 8 | | 8 | | W | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.77 | 756.1 | 65.1 | 18.4 | 54 | ESE | | | 8 | | 2 | | SW | 0.157 | 4.0 | Slightly cl'dy | F. Lucard, Director. |
| † Tarbes, Normal School | | | 29.75 | 756.1 | 65.1 | 18.4 | 54 | ESE | | | 8 | | 2 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | 28 92 | 734 6 | 29.98 | 761.6 | 68.9 | 20 5 | 53 | WSW | | | 1 | | 0 | | W | 0 | 0 | Covered | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.01 | 762.2 | 73.4 | 22.9 | 57 | SE | | | 3 | | 8 | | | 0.571 | 14.50 | Very cloudy | The Staff. |
| Mont-Louis | 24.95 | 633.8 | 30.27 | 768.8 | 53.4 | 11.9 | 68 | NNW | 16.8 | 7.50 | | | 4 | | SSW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.85 | 758.1 | 63.9 | 17.7 | 60 | WSW | | | 6 | | 2 | | SSW | 0.098 | 2.5 | | Marie Davy, Director. |
| Perpignan | | | 30.14 | 765.6 | 61.9 | 16.6 | 80 | NW | 22.4 | 10.00 | | | 10 | | SW | 0.500 | 12.7 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.31 | 541.3 | | | 33.8 | 1.0 | | SW | | | 4 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.62 | 574.6 | | | 40.6 | 4.8 | | SW | | | 3 | | 9 | | | 0.055 | 1.4 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.86 | 758.5 | 65.8 | 18 8 | 54 | SW | | | 6 | | 2 | | | 0.146 | 3.7 | | E. Renou. |
| Toulouse, Observatory | | | 30.24 | 768.0 | 62.6 | 17.0 | 73 | N | | | 1 | | 8 | | | 0.154 | 3.9 | | The Staff |
| Tours | | | | | 63.3 | 17.4 | | W | | | 5 | | 5 | | W | 0.343 | 8.7 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.86 | 758.4 | 63.0 | 17.2 | 68 | WSW | | | 4 | | 7 | | | 0.231 | 5.88 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.85 | 758.1 | 67.1 | 19.5 | 93 | SE | 6.7 | 3 0 | | | 1k | | | 0 | 0 | Clear | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.3 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometer observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouchés-du-Rhône. † Previous to May 20th, 1877, the direction of the clouds for Carcassonne, Caen, Châlons-sur-Marne, La Roche-sur-Yon, Rochefort and Tarbes was given and printed as *towards* instead of *from*.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.89 | 759.3 | 61.3 | 16.3 | 96 | W | | | 6 | | 7 | W | | 0.94 | 24. | | Prof. T. Hoh |
| Berlin | | | 29.92 | 759.9 | 72.1 | 22.3 | 53 | S | | | 2 | | 3 | | | 0.094 | 2.4 | | Prof. Arndt. |
| Breslau | | | 30.04 | 762.9 | 68.2 | 20.1 | 58 | E | | | 1 | | 3 | | | 0.15 | 3.8 | | Royal University Obs'y. |
| Carlsruhe | | | 29.87 | 758.8 | 74.5 | 23.6 | 60 | NW | | | 1 | | 2 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.88 | 759.0 | 74.5 | 23.6 | 57 | SE | | | 5 | | 5 | SW | | 0 | 0 | | Dr. H. Möll. |
| Crefeld | | | 29.75 | 755.7 | 70.3 | 21.3 | 53 | SW | | | 5 | | 9 | | | 0.67 | 17. | | Director Lose. |
| Emden | | | 29.63 | 752.5 | 70.0 | 21.1 | 61 | SW | | | 1 | | 10 | | | 0.051 | 1.3 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.89 | 759.2 | 71.6 | 22.0 | 66 | SW | | | 3 | | 7 | | | 0.134 | 3.4 | | Physical Society. |
| Friedrichshafen | 28.52? | 724.5? | 29.91? | 759.7? | 70.2 | 21.2 | 68 | S | | | 4 | | 3 | WSW | | 0.874 | 22.2 | Thunder-storm | M. Wilhelm. |
| Hamburg | | | 29.76 | 755.9 | 72.5 | 22.5 | 41 | SSE | | | 6 | | 4k | SW | | 0.213 | 5.4 | Fair | Captain F. Hegemann. |
| Kiel | | | 29.76 | 756.0 | 70.0 | 21.1 | 83 | E-E | | | 2 | | 2 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.04 | 762.9 | 73.9 | 23.3 | 37 | E | | | 2 | | 4 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipzic | | | 29.89 | 759.3 | 76.3 | 24.6 | 52 | SSE | | | 2 | | 2 | | | 0.34 | 8.7 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.08 | 764.0 | 63.1 | 17.3 | 54 | WNW | | | 3 | | 7ck | W | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.03 | 762.7 | 65.8 | 18.8 | 71 | E | | | 2 | | 7 | S,SE | | 0.059 | 1.5 | | A. Lothes. |
| Posen | | | 30.04 | 762.9 | 69.8 | 21.0 | 59 | SW | | | 7 | | 9 | | | 0.56 | 14.3 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.87 | 758.6 | 76.3 | 24.6 | 50 | Calm | | | 0 | | 10 | W | | | | Thunder-storm | Dr. Schur. |
| Stuttgart | | | 29.81 | 757.2 | 76.6 | 24.8 | 45 | SW | | | 1 | | 2 | W | | 0.134 | 3.4 | Thunder-storm | Prof. Schoder |
| Treves, (Trier) | | | 29.76 | 755.9 | 64.6 | 18.1 | 56 | W | | | 8 | | 10 | | | 0.13 | 3.3 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.41 | 721.6 | 29.83 | 757.7 | 77.2 | 25.1 | 42 | SW | | | 1 | | 7 | SW | | 0.228 | 5.8 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.96 | 760.9 | 72.5 | 22.5 | 56 | SSE | | | 2 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.09 | 764.3 | 84.4 | 29.1 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | 29.77 | 756.1 | 29.80 | 757.0 | 87.9 | 31.1 | 67 | WNW | 14 | 6.2 | | | 3 | SW | WNW | 0 | 0 | Dust-haze | |
| Poona | 27.77 | 705.4 | 29.74 | 755.4 | 86.8 | 30.4 | 49 | | | | | | | | | 0 | 0 | D. clouds | |
| Lahore | 28.71 | 729.3 | 29.41 | 747.0 | 105.3 | 40.7 | 28 | Calm | 1.2 | 0.5 | | | 6 | | | 0 | 0 | Dust-haze | |
| Belgaum | 27.30 | 693.5 | 29.81 | 757.1 | 82.7 | 28.2 | 55 | W | 11 | 4.9 | | | 1 | E | E | 0 | 0 | Dust-haze | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | 28.63 | 727.2 | 29.59 | 749.2 | 94.2 | 34.6 | | SE | | | | | 3 | | | 0 | 0 | Hazy | |
| Agra | 28.95 | 735.4 | 29.49 | 749.1 | 98.7 | 37.1 | 32 | E | 3.0 | 1.3 | | | | | | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.56 | 725.5 | 29.55 | 750.6 | 103.1 | 39.5 | 17 | NW | | | | | 4 | | | 0 | 0 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.18 | 741.2 | 29.54 | 750.3 | 96.8 | 36.0 | 33 | SW | | | | | 6 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.33 | 745.0 | 29.64 | 752.8 | 81.9 | 27.7 | 84 | E | 2.9 | 1.2 | | | 8 | N | | 0 | 0 | D. clouds | |
| Patna | 29.45 | 748.1 | 29.64 | 752.7 | 80.1 | 26.7 | 70 | E | 5.1 | 2.2 | | | 10 | | | 0 | 0 | Overcast | |
| Hazaribagh | 27.66 | 702.6 | 29.63 | 753.4 | 79.0 | 26.1 | 54 | NE | 9.6 | 4.2 | | | 7 | | | 0 | 0 | Dust-storm | |
| Cuttack | 29.59 | 749.3 | 29.58 | 751.3 | 89.2 | 31.8 | 48 | NE | 8.1 | 3.6 | | | 9 | | | 0 | 0 | Threatening | |
| Calcutta, (Alipore) | 29.62 | 752.3 | 29.64 | 752.9 | 88.4 | 31.3 | 66 | SSW | 17.0 | 7.5 | | | 9 | | | 0 | 0 | Overcast | |
| Goalpara | 29.30 | 744.2 | 29.69 | 754.2 | 74.8 | 23.8 | 98 | ENE | 3.8 | 1.6 | | | 10 | | E | 0.02 | 0.5 | Drizzling | |
| Chittagong | 29.57 | 751.1 | 29.66 | 753.4 | 86.7 | 30.4 | 76 | WSW | 1.3 | 0.5 | | | 2 | | | 0 | 0 | | |
| Sibsagar | 29.42 | 747.2 | 29.75 | 755.7 | 77.1 | 25.1 | 84 | ENE | 5.3 | 2.5 | | | 10 | ENE | | 0.01 | 0.3 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | | | | | | | | | | | | | | | | | | | |

NOTE.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.32 | 566.8 | 30.04 | 763.0 | 32.0 | 0.0 | 92 | W | | | 2 | | 10 | NE | | 1.181* | 30.0* | | Prof. Giovanni Clodig. |
| Stelvio | 22.30 | 566.5 | 29.95 | 760.8? | 46.4 | 8.0 | | W | | | 2 | | 8 | | | 0.09 | 2.4 | | Signora Ernesta Manfroli. |
| Udine | | | 30.07 | 763.6 | 68.5 | 20.3 | 78 | SE | 0.7 | 0.3 | | | 10 | | | 0.189 | 4.8 | | Ab. Dom. Morgini. |
| Padua | | | 30.05 | 763.2 | 73.6 | 23.1 | 56 | NW | 1.8 | 0.8 | | | 6 | W | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.05 | 763.2 | 77.0 | 25.0 | 54 | SE | 2.5 | 1.1 | | | 6 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | 28.72 | 729.6 | 29.99 | 761.7 | 71.6 | 22.0 | 61 | S | | | 1 | | 7 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.02 | 762.4 | 62.6 | 17.0 | 92 | Calm | | | 0 | | 10 | | | 0.183 | 4.6 | | Prof. Giuseppe Calza. |
| Milan | | | 30.06 | 763.4 | 72.5 | 22.5 | 72 | S | | | 2 | | 10 | ENE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.04 | 763.0 | 72.9 | 22.7 | 73 | SE | | | 1 | | 9 | SW | | 0.047 | 1.2 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.04 | 763.1 | 66.4 | 19.1 | 88 | SSE | 4.9 | 2.2 | | | 10 | SW | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovì | 28.17 | 715.4 | 30.00 | 761.9 | 64.9 | 18.3 | 70 | WNW | | | 2 | | 10 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.16 | 766.0 | 64.8 | 18.2 | 89 | E | | | 6 | | 10 | E | | 0.079 | 2.0 | | Prof. L. Vassallo. |
| Genoa | | | 30.11 | 764.9 | 65.8 | 18.8 | 84 | SE | 3.1 | 1.4 | | | 10 | SE | | 0.047 | 1.2 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.06 | 763.5 | 73.4 | 23.0 | 65 | NNE | 3.8 | 1.7 | | | 10 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.04 | 763.0 | 76.1 | 24.5 | 57 | SE | | | 2 | | 7 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.14 | 765.5 | 78.8 | 26.0 | 57 | N | | | 2 | | 10 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.11 | 764.9 | 72.1 | 22.3 | 71 | SSW | 6.3 | 2.8 | | | 5 | W | | 0.012 | 0.3 | | Prof. P. Monte. |
| Siena | 28.91 | 734.4 | 30.07 | 763.7 | 74.8 | 23.8 | 57 | SE | 0.7 | 0.3 | | | 7 | S | | 0.103 | 2.6 | | Prof. L. Toscani. |
| Urbino | 28.58 | 726.0 | 30.08 | 764.1 | 76.1 | 24.5 | 48 | SW | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.10 | 764.6 | 71.8 | 22.1 | 75 | ENE | | | 1 | | 1 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.10 | 764.4 | 73.4 | 23.0 | 65 | SE | | | 4 | | 2 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.11 | 764.8 | 75.2 | 24.0 | 63 | SSE | | | 6 | | 6 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.15 | 765.9 | 78.6 | 25.9 | 31 | S | 21.0 | 9.4 | | | 2 | W | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.10 | 766.9 | 81.3 | 27.4 | 41 | S | | | 2 | | 1 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.14 | 765.6 | 78.8 | 26.0 | 41 | SW | 7.4 | 3.3 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.15 | 765.8 | 85.3 | 29.6 | 50 | N | 0.7 | 0.3 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.05 | 763.3 | 74.1 | 23.4 | 74 | SE | | | 2 | | 7 | SW | | 0.087 | 2.2 | | Prof. A. Pacinotti. |
| Girgenti, (Sicily) | | | 30.27 | 768.8? | 73.4 | 23.0 | 66 | SE | | | 2 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | | | | | | | | | | | | | | | | | Prof. G. Cacciatore. |
| Caltanissetta | 28.23 | 717.1 | 30.16 | 764.5 | 76.6 | 24.8 | 28 | SW | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.12 | 765.0 | 75.2 | 24.0 | 56 | SE | | | 4 | | 1 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.21 | 767.4 | 78.4 | 25.8 | 43 | SW | 0 | 0 | | | 0 | | | 0 | 0 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovì, 550 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Unmelted snow.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.85 | 758.2 | 60 | 15.6 | 79 | E | 3 | 1.3 | | | 10a | | | | | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.12 | 587.1 | 30.09 | 764.3 | 59.0 | 15.0 | 73 | W | 0.2 | 0.07 | | 1c | 1c | W | W | 0 | 0 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,200 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.67 | 753.7 | 61.6 | 18.1 | | SW | | | 6 | | | | | 0.087 | 2.2 | | |
| Groningen | | | 29.63 | 752.5 | 60.6 | 19.2 | | SW | | | 5 | | | | | 0.024 | 0.6 | | |
| Helder | | | 29.65 | 753.0 | 63.7 | 17.6 | | SSW | | | 5 | | | | | 0.043 | 1.1 | | |
| Utrecht | | | 29.68 | 753.9 | 68.2 | 20.1 | 53 | SW | | | 6 | | 5 | | | 0.059 | 1.5 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.67 | 753.7 | 61.5 | 16.4 | 56 | SSE | 15.2 | 6.8 | | | 4 | | | 0.276 | 7.0 | | |
| Brönö | | | 29.84 | 757.9 | 53.2 | 11.8 | 67 | SW | 7 | 3 | | | 8 | | | 0.079 | 2.0 | | |
| Christiania | | | 29.87 | 758.6 | 64.9 | 18.3 | 74 | SW | 7 | 3 | | | 7 | | | 0.614 | 15.6 | | |
| Tromsö | | | 29.74 | 755.3 | 48.0 | 8.9 | 80 | SW | 4 | 2 | | | 10 | | | 0.031 | 0.8 | Raining | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.20 | 767.1 | 65.8 | 18.8 | 73 | W | 13.0 | 5.8 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.19 | 766.9 | 71.6 | 22.0 | 32 | NNE | 6.8 | 3.0 | | | 2 | | | 0 | 0 | | Dr. A. M. R. dos Santos |
| Funchal, (Madeira) | | | 30.23 | 767.8 | 71.4 | 21.9 | 59 | SW | 3.8 | 1.7 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.26 | 768.6 | 65.3 | 18.5 | 54 | NE | 11.2 | 5.0 | | | 4 | | | 0.059 | 1.5 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.23 | 767.8 | 68.7 | 20.4 | 69 | SW | 4.3 | 1.9 | | | 3 | | | 0 | 0 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Comdr. Lt. S. A. P. de Miranda. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.02 | 762.6 | 66.7 | 19.3 | 61 | ESE | 9 | 4 | | | 7 | | | | | | Astronomical Obs. |
| Wilna | | | 30.00 | 761.9 | 67.6 | 19.8 | 43 | Calm | 0 | 0 | | | 1 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.04 | 763.1 | 65.7 | 18.7 | 43 | W | 4 | 2 | | | 7 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.99 | 761.8 | 59.2 | 15.1 | 60 | WNW | 18 | 8 | | | 1 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.81 | 757.2 | 63.0 | 17.2 | 52 | WSW | 22 | 10 | | | 8 | | | | | | Ch. Forsten. |
| Kieff | | | 29.80 | 757.0 | 60.6 | 15.9 | 75 | NNE | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.08 | 761.0 | 67.3 | 19.6 | 65 | SW | 22 | 10 | | | 10 | | | | | | Kurdakof |
| Kertch | | | 30.16 | 766.0 | 72.9 | 22.7 | 58 | SSE | 7 | 3 | | | 10 | | | | | | Lagorio. |
| Moscow | | | 29.96 | 760.9 | 64.8 | 18.2 | 60 | SW | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Lugan | | | 29.98 | 761.5 | 73.2 | 22.9 | 42 | WSW | 9 | 4 | | | 4 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.67 | 753.6 | 52.0 | 11.1 | 66 | SW | 29 | 13 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.71 | 729.1 | 30.05 | 763.3 | 68.7 | 20.4 | 40 | SE | 4 | 2 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.08 | 764.1 | 64.6 | 18.1 | 41 | N | 13 | 6 | | | 3 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 30.00 | 762.1 | 67.6 | 19.8 | 34 | W | 2 | 1 | | | 1 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.56 | 750.7 | 61.3 | 16.3 | 84 | E | 7 | 3 | | | 7 | | | | | | Tschernischef. |
| Ekaterinburg | 29.18 | 741.1 | 30.13 | 765.2 | 50.7 | 10.4 | 48 | SE | 9 | 4 | | | 8 | | | | | | Meteorogical Obs. |
| Nukuss | | | 30.04 | 763.1 | 66.6 | 19.2 | 61 | Calm | 0 | 0 | | | 9 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.24 | 717.3 | 29.83 | 757.7 | 86.7 | 30.4 | 41 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.08 | 764.1 | 53.1 | 11.7 | 35 | NNW | 2 | 1 | | | 8 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.91 | 759.8 | 49.1 | 9.5 | 47 | NW | 7 | 3 | | | 5 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 49.1 | 9.5 | | W | 2 | 1 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.60 | 751.8 | 77.4 | 25.2 | 47 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.74 | 755.4 | 50.2 | 10.1 | 91 | SE | 13 | 6 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 49.1 | 9.5 | | SW | 11 | 5 | | | 0 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 30.17 | 766.4 | 72.9 | 22.7 | 33 | W | 8.2 | 3.67 | | 0 | 1 | | | 0 | 0 | Almost clear | The Staff. |
| San Fernando, Naval Obs'y | | | 30.18 | 766.5 | 81.3 | 27.4 | 39 | N | 9.1 | 4.1 | | 1 | 4 | WSW | N | 0 | 0 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.97 | 761.2 | 82.8 | 28.2 | 78 | NE | 2.0 | 0.9 | | 0 | 2k | | | 0 | 0 | Cloudy | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.93 | 760.1 | 87.1 | 30.6 | 63 | S | 6.0 | 2.66 | | 5cs | 1k | | S | 0 | 0 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

Note.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.85 | 758.2 | 52.9 | 11.6 | 59 | SW | | | 4 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.81 | 757.2 | 59.9 | 15.5 | 51 | S | | | 2 | | 7 | | | 0 | 0 | | |
| Hernosand | | | 29.87 | 758.8 | 58.6 | 14.8 | 54 | SW | | | 2 | | 5 | | | 0 | 0 | | |
| Stockholm | | | 29.96 | 760.9 | 65.1 | 18.4 | 37 | S | | | 2 | | 1 | | | 0 | 0 | | |
| Wisby | | | 30.04 | 763.1 | 55.4 | 13.0 | 68 | NNW | | | 6 | | 5 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.94 | 760.5 | 65.7 | 18.7 | 36 | WSW | 13.7 | 6.1 | | | 1 | WNW | | 0.007 | 0.17 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | | | | | | | | | | | | | | | | | | | |
| Zurich | 28.64 | 727.5 | 30.07 | 763.8 | 52.7 | 11.5 | 90 | SW | | | 4 | | 10 | | | | | Thunder-storm | The Observatory. |
| | 28.31 | 719.1 | 29.87 | 758.8 | 76.6 | 24.8 | 49 | W | | | 1 | | 6 | | | 0.413 | 10.5 | | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +1.7 mm; Thermometer, —7.5 cent.; Relative Humidity, +34 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.12 | 765.0 | 72.3 | 22.4 | 60 | S | 17 | 7.5 | | | 2 | | SW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.02 | 762.5 | 86.0 | 30.0 | | NW | | | 3 | | 2 | | | | | | |
| Salonica | | | 30.13 | 765.4 | 81.0 | 28.9 | | SE | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Vulona | | | 30.20 | 767.0 | 79.3 | 26.3 | | W | | | 1 | | 0 | | | 0 | 0 | Clear | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.99 | 761.8 | 83.3 | 28.5 | 60 | WSW | | | 2 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.00 | 762.0 | 55.9 | 13.3 | 75 | NE | 7 | 3.1 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.14 | 765.5 | 66 | 18.9 | | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 29.99 | 761.7 | 53 | 11.7 | 76 | W | 4 | 1.8 | | 8cs | 0 | SW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.01 | 762.2 | 53 | 11.7 | 72 | Calm | 0 | 0 | | 8k | 0 | NW | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.10 | 764.5 | 67.2 | 19.6 | 60 | S | | | 2 | 0 | 0 | | | 0 | 0 | Hazy | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.01 | 762.2 | | | | NW | | | 1 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| Esquimault, B. C. | | | 30.10 | 764.5 | 44.8 | 7.1 | 96 | NE | | | | 2cs | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.01 | 762.2 | 47 | 8.3 | 85 | NW | 3 | 1.3 | | 5k | Haze | W | W | 0 | 0 | Hazy | J. McWilliams. |
| Fredericton, N. B. | | | 30.07 | 763.8 | 57.0 | 13.9 | 73 | E | 1 | 0.4 | | | 10 | | | 0 | 0 | Smoky | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.35 | 745.5 | 54 | 12.2 | 93 | S | 8 | 3.6 | | 2cs | 2s | SE | SE | 1.94 | 49.3 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.16 | 766.1 | 72.1 | 22.3 | 57 | SW | | | 2 | 0 | 0 | | | 0 | 0 | Hazy | H. J. Strang, M. A |
| Granton, Ontario | 29.02 | 737.1 | 30.08 | 764.0 | 69 | 20.6 | 70 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.98 | 761.5 | 63 | 17.2 | 64 | NW | 6 | 2.7 | | Haze | Haze | | | 0 | 0 | Hazy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.14 | 765.5 | 66.1 | 18.9 | 49 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.98 | 761.5 | 42 | 5.6 | 91 | SE | | | 2 | | 10n | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.18 | 766.6 | 65 | 18.3 | 77 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.08 | 764.0 | 65 | 18.3 | 62 | SW | 14 | 6.3 | | 0 | Sm'e | | | Inap. | Inap | Clear | C. H. McLeod, C. E. |
| Port Dover, Ontario | | | 30.06 | 763.5 | 70 | 21.1 | 57 | E | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Port Hastings, N. S. | | | 30.12 | 765.0 | 63 | 17.2 | 72 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Stanley, Ontario | | | 29.98 | 761.5 | 59.0 | 15.0 | | NW | | | | | | | | 0 | 0 | Fine | Peter Grant |
| *Quebec, Quebec | | | 30.10 | 764.5 | 66 | 18.9 | 69 | E | 4 | 1.8 | | 2c | 0 | W | | 0 | 0 | Clear | M. Payne. |
| *Rockliffe, Ontario | | | 30.05 | 763.3 | 69 | 20.6 | 99 | S | 1 | 0.4 | | | 10n | | S | Inap | Inap | Cloudy | Capt. Ashe, R. N |
| St. John, N. B. | | | 30.10 | 764.5 | 59 | 15.0 | 80 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Smoky | W. H. McIntyre. |
| *Saugeen, Ontario | | | 30.06 | 763.5 | 54 | 12.2 | 77 | Calm | 0 | 0 | | 10 | 0 | | | 0 | 0 | Pleasant | G. Murdock, C. E. |
| Stayner, Ontario | | | 30.02 | 762.5 | 71 | 21.7 | 53 | Calm | 0 | 0 | | 5cs | Sm'e | | | 0 | 0 | Smoky | K. Stewart. |
| Stratford, Ontario | | | 30.04 | 763.0 | 77 | 25.0 | 49 | E | 5 | 2.2 | | 2c | 0 | | | 0 | 0 | Fair | R. J. Cole. |
| *Sydney, C. B. | 28.81 | 757.9 | 30.07 | 763.8 | 68.0 | 20.0 | 63 | SW | 7 | 3.1 | | 3cs | 0 | | | 0 | 0 | Fine | C. J. MacGregor, M. A. |
| *Toronto, Ontario | | | 29.96 | 761.0 | 56 | 13.3 | 72 | NW | 3 | 1.3 | | 0 | Sm'e | | | 0 | 0 | Hazy | T. C. Hill. |
| Windsor, N. S. | | | 30.12 | 765.0 | 66 | 18.9 | 65 | E | 1 | 0.4 | | 0 | Haze | | | 0 | 0 | Clear | Magnetic Observatory |
| Woodstock, Ontario | | | 29.94 | 760.5 | 61.0 | 16.1 | 77 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | Prof. John E. Oram. |
| SUB-SERIES. | | | 30.10 | 764.5 | 69.5 | 20.8 | 65 | S | 13 | 5.8 | | 0 | 4s | | | 0 | 0 | Fair | J. Montgomery. |
| St. Johns, Newfoundland | | | 30.05 | 763.3 | 40.0 | 4.4 | 100 | E | | | | | 10n | | | 0 | 0 | Hazy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 10; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Lower. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.13 | 765.3 | 67 | 19.4 | 73 | S | 4 | 1.8 | | | Haze | | | 0 | 0 | Dense haze. | |
| Alpena, Mich. | | | 29.98 | 761.5 | 58 | 14.4 | 75 | SE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.17 | 766.3 | 72 | 22.2 | 63 | W | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.20 | 767.1 | 72 | 22.2 | 62 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.19 | 766.8 | 70 | 21.1 | 61 | Calm | 0 | 0 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Barnegat, N. J. | | | 30.15 | 765.8 | 74 | 23.3 | 63 | W | 6 | 2.7 | | 2c | Haze | | | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.70 | 703.6 | 29.30 | 744.2 | 40 | 4.4 | 91 | NW | 16 | 7.2 | | | 10s | | NW | 0.36 | 9.1 | Cloudy | |
| Boston, Mass. | | | 30.09 | 764.3 | 71 | 21.7 | 62 | W | 6 | 2.7 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Breckenridge, Minn. | | | 29.42 | 747.5 | 48 | 8.9 | 85 | S | 24 | 10.7 | | 5k | 2ks | SW | SW | 0.15 | 3.8 | Cloudy | |
| Buffalo, N. Y. | | | 30.09 | 764.3 | 70 | 21.1 | 44 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.13 | 765.3 | 69 | 20.6 | 60 | S | 4 | 1.8 | | 8c | Haze | | | Inap. | Inap | Fair | |
| Cairo, Ill. | | | 30.02 | 762.5 | 73 | 22.8 | 81 | S | 10 | 4.5 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Campo, Cal. | 27.40 | 696.0 | 29.97 | 761.2 | 42 | 5.6 | 83 | E | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 55 | 12.8 | | Calm | | | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 30.14 | 765.5 | 71 | 21.7 | 71 | NW | 4 | 1.8 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.22 | 767.6 | 69 | 20.6 | 65 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.26 | 768.6 | 70 | 21.1 | 79 | E | 6 | 2.7 | | 5k | 0 | | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.18 | 766.6 | 67 | 19.4 | 74 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.19 | 766.8 | 69 | 20.6 | 84 | N | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.90 | 607.0 | 29.84 | 757.9 | 44 | 6.7 | 42 | NW | 16 | 7.2 | | 0 | 1s | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.86 | 758.4 | 69 | 20.6 | 70 | SW | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Cincinnati, Ohio | | | 30.05 | 763.3 | 67 | 19.4 | 64 | SE | 3 | 1.3 | | Haze | Sm'e | | SE | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.12 | 765.6 | 66.5 | 19.2 | 49 | SE | 10 | 4.5 | | 8c | 0 | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 29.96 | 761.0 | 73 | 22.8 | 85 | S | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.78 | 756.4 | 67 | 19.4 | 84 | S | 8 | 3.6 | | 2ck | 0 | S | | 0.37 | 9.4 | Clear | |
| Denison, Tex. | | | 29.91 | 759.7 | 72 | 22.2 | 90 | S | 15 | 6.7 | | | 10s | | S | 0.05 | 1.3 | Cloudy | |
| Denver, Col. | 24.66 | 626.4 | 29.88 | 758.9 | 47 | 8.3 | 48 | S | 2 | 0.9 | | 0 | 5s | | W | 0 | 0 | Fair | |
| Detroit, Mich. | | | 30.03 | 762.7 | 69 | 20.6 | 56 | SW | 6 | 2.7 | | Haze | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.28 | 692.9 | 29.54 | 750.3 | 50 | 10.6 | 71 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.73 | 755.1 | 68 | 20.6 | 79 | S | 10 | 4.5 | | 2c | 0 | | | 0.44 | 11.2 | Fair | |
| Duluth, Minn. | | | 29.58 | 751.3 | 52 | 11.1 | 93 | NE | 1 | 0.4 | | 5k | 0 | SW | | 0.75 | 19.1 | Clearing | |
| Eagle Pass, Texas | | | 29.81 | 757.2 | 77 | 25.0 | 76 | S | 5 | 2.2 | | | 10s | | SE | | | Cloudy | |
| Eastport, Me. | | | 30.01 | 762.2 | 60 | 15.6 | 60 | Calm | 0 | 0 | | Haze | Sm'e | | | 0 | 0 | Hazy | |
| Erie, Pa. | | | 30.09 | 764.3 | 71 | 21.7 | 53 | S | 12 | 5.4 | | 2c | Sm'e | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.80 | 756.9 | 56 | 13.3 | 81 | S | 13 | 5.8 | | | 10s | | S | 0 | 0 | Cloudy | |
| Florence, Arizona | 28.31 | 719.1 | 29.91 | 759.7 | 76 | 24.4 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.84 | 757.9 | 74 | 23.3 | 76 | S | 15 | 6.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| Fort Griffin, Tex. | 28.64 | 727.4 | 29.83 | 759.2 | 71 | 21.7 | 85 | N | 8 | 3.6 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.72 | 754.9 | 41 | 5.6 | 91 | SW | | | 5 | 10ck | 2s | S | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.68 | 728.5 | 29.75 | 755.6 | 69 | 20.6 | 79 | SW | | | 5 | | 8s | | SW | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.03 | 711.9 | 29.66 | 753.4 | 45 | 7.2 | 76 | NW | 16 | 7.2 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 30.01 | 762.2 | 79 | 26.1 | 82 | SE | 8 | 3.6 | | 0 | 8ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.90 | 759.4 | 71 | 21.7 | 53 | S | 21 | 9.4 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Indianapolis, Ind. | | | 29.99 | 761.7 | 74 | 23.3 | 47 | SE | 8 | 3.6 | | 2cs,bz | 2s | | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 29.96 | 741.0 | 77 | 25.0 | 86 | S | 8 | 3.6 | | 2k | 2ks | S | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.14 | 765.5 | 77 | 25.0 | 60 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.71 | 754.6 | 70 | 21.1 | 84 | S | 17 | 7.6 | | 2k | 0 | S | | 0.50 | 12.7 | Fair | |
| Key West, Fla. | | | 29.99 | 761.7 | 78.0 | 25.6 | 80 | NE | 15 | 6.7 | | | 8s | | NE | Inap. | Inap. | Cloudy | |
| Kittyhawk, N. C. | | | 30.23 | 767.8 | 65 | 18.3 | 89 | E | 3 | 1.3 | | 0 | Fog | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.20 | 767.1 | 62 | 16.7 | 55 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.65 | 753.1 | 67 | 19.4 | 79 | S | 14 | 6.3 | | 10k | 0 | S | | 0.97 | 24.6 | Cloudy | |
| Leavenworth, Kan. | | | 29.70 | 754.4 | 68 | 20.0 | 69 | SW | 11 | 4.9 | | 0 | 0 | | | 0.73 | 18.5 | Clear | |
| Louisville, Ky. | | | 30.06 | 763.5 | 73 | 22.8 | 54 | S | 4 | 1.8 | | 5c | Haze | SW | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.21 | 767.3 | 65 | 18.9 | 59 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 68 | 20.0 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.70 | 754.4 | 64 | 17.8 | 67 | SE | 12 | 5.4 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Mason, Texas | 28.34 | 719.8 | 30.01 | 762.2 | 75 | 23.9 | 76 | SE | 8 | 3.6 | | | 10s | | | 0.12 | 3.0 | Cloudy | |
| Memphis, Tenn. | | | 30.08 | 764.0 | 78 | 25.6 | 61 | SW | 8 | 3.6 | | 1c | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 28.85 | 758.2 | 59 | 15.0 | 93 | SE | 5 | 2.2 | | | 10n,fg | | | 0.28 | 7.1 | Light rain | |
| Mobile, Ala. | | | 30.13 | 765.3 | 71 | 21.7 | 85 | E | 1 | 0.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.18 | 766.6 | 71 | 21.7 | 66 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.12 | 739.6 | 30.15 | 765.8 | 67 | 19.4 | 59 | Calm | 0 | 0 | | 1c | Sm'e | W | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 24.07 | 611.4 | 30.43 | 772.9 | 54 | 12.2 | 67 | N | 4 | 1.8 | | 2k | Haze | N | | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 30.11 | 764.8 | 72 | 22.2 | 50 | SE | 4 | 1.8 | | 8k | 0 | NW | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 30.14 | 765.5 | 76 | 24.4 | 58 | N | 5 | 2.2 | | Haze | Haze | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.12 | 765.0 | 73 | 22.8 | 58 | W | 4 | 1.8 | | 1cs | Haze | | | 0 | 0 | Dense haze | |
| New Orleans, La. | | | 30.07 | 763.8 | 75 | 23.9 | 81 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.11 | 764.8 | 69 | 20.6 | 69 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| New York, N. Y. | | | 30.17 | 766.3 | 71 | 21.7 | 57 | NW | 2 | 0.9 | | 0 | Fog | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.23 | 767.8 | 71 | 21.7 | 49 | S | 1 | 0.4 | | 0 | Fog | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.91 | 683.5 | 29.44 | 747.8 | 47 | 8.3 | 61 | NW | 16 | 7.2 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Omaha, Neb. | 28.63 | 727.2 | 29.66 | 753.4 | 58 | 14.4 | 64 | W | 8 | 3.6 | | 0 | 0 | | | 0.36 | 9.1 | Clear | |
| Oswego, N. Y. | | | 30.16 | 766.1 | 66 | 18.9 | 68 | SE | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Pembina, Dakota | | | 29.27 | 743.4 | 52 | 11.1 | 93 | S | 5 | 2.2 | | | 10n | | | 1.58 | 40.1 | Light rain | |
| Philadelphia, Pa. | | | 30.18 | 766.6 | 69 | 20.6 | 61 | W | 4 | 1.8 | | 5c,k | Haze | N | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 68 | 20.0 | | SE | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.61 | 447.3 | 29.82 | 757.4 | 13 | −10.6 | 100 | W | 35 | 15.6 | | 1k | 0 | W | | 0.13 | 3.3 | Clear | |
| Pittsburgh, Pa. | | | 30.14 | 765.5 | 59 | 15.0 | 81 | Calm | 0 | 0 | | 0 | Fog | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 30.03 | 762.7 | 68 | 20.0 | 69 | S | 8 | 3.6 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.06 | 763.5 | 74 | 23.3 | 51 | NW | 6 | 2.7 | | 2k | Haze | NE | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 30.19 | 766.8 | 46 | 7.8 | 92 | Calm | 0 | 0 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Prescott, Arizona | 24.81 | 630.2 | 30.17 | 766.3 | 40 | 4.4 | 83 | S | | | | 2ck | 0 | | | 0 | 0 | Fair | |
| Punta Rassa, Fla. | | | 30.06 | 763.5 | 74 | 23.3 | 76 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.11 | 764.8 | 68 | 20.0 | 59 | SW | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.63 | 651.0 | 29.96 | 761.0 | 48 | 8.9 | 71 | NE | 2 | 0.9 | | 0 | 0 | | | 0.93 | 23.6 | Clear | |
| Sandy Hook, N. J. | | | 30.15 | 765.8 | 66 | 18.9 | 78 | W | 7 | 3.1 | | 5c | Haze | NE | | 0 | 0 | Fair | |
| San Antonio, Tex. | | | 29.80 | 756.9 | 76 | 24.4 | 81 | SE | 3 | 1.3 | | 0 | 5ks | | SE | Inap. | Inap. | Fair | |
| San Diego, Cal. | | | 29.94 | 760.5 | 56 | 13.3 | 93 | N | 2 | 0.9 | | 0 | 5s | | N | 0 | 0 | Fair | |
| San Francisco, Cal. | | | 29.97 | 761.2 | 52 | 11.1 | 79 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.25 | 590.5 | 29.79 | 756.7 | 41 | 5.0 | 56 | N | 7 | 3.1 | | Haze | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.18 | 766.6 | 73 | 22.8 | 76 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.10 | 764.5 | 72 | 22.2 | 85 | SE | 4 | 1.8 | | 8s | 0 | SE | | 0 | 0 | Fair | |
| Smithville, N. C. | | | 30.21 | 767.3 | 66 | 18.9 | 90 | N | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.14 | 765.5 | 69 | 20.6 | 65 | NW | 1 | 0.4 | | 5c | Sm'e | NE | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.88 | 758.9 | 69 | 20.6 | 80 | S | 12 | 5.4 | | | 10s | | | 0.62 | 15.7 | Cloudy | |
| St. Marks, Fla. | | | 30.13 | 765.3 | 71 | 21.7 | 75 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.65 | 753.1 | 60 | 15.6 | 81 | SE | 4 | 1.8 | | 2c | 5s | | SE | 1.03 | 26.2 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sunwix, Arizona | | | | | 55 | 12.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Stockton, Tex | 26.04 | 684.3 | 29.94 | 760.5 | 59 | 15.0 | 59 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 30.09 | 764.3 | 71 | 21.7 | 75 | NW | 4 | 1.8 | | 2k | 0 | | | 0 | 0 | Smoky | |
| Toledo, Ohio | | | 30.04 | 763.0 | 74 | 23.3 | 50 | S | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Tucson, Arizona | 27.51 | 698.7 | 30.06 | 763.5 | 55 | 12.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.16 | 766.4 | 72 | 22.2 | 90 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.12 | 765.0 | 73 | 22.8 | 80 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, M. T | 24.19 | 614.4 | 29.67 | 753.6 | 36 | 2.2 | 80 | Calm | 0 | 0 | | 2c | 2ks | W | W | 0.07 | 1.8 | Fair | |
| Washington, D. C | | | 30.20 | 767.1 | 60 | 20.6 | 60 | S | 2 | 0.9 | | 2c | Sm'e | N | | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 60 | 15.6 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Wilmington, N. C | | | 30.20 | 767.1 | 68 | 20.0 | 79 | NE | 4 | 1.8 | | 1k | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 30.13 | 765.3 | 66 | 18.9 | 73 | NW | 4 | 1.8 | | Haze | 0 | NW | | 0 | 0 | Fair | |
| Yankton, Dakota | 28.43 | 722.1 | 29.69 | 754.1 | 49 | 9.4 | 64 | W | 9 | 4.0 | | 8es | 0 | S | | Inap. | Inap. | Fair | |
| Yuma, Arizona | | | | | | | | N | | | | 5c | 0 | SW | | 0 | 0 | Fair | |
| SUB-STATIONS. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.13 | 765.3 | 81 | 27.2 | 91 | SE | 5 | 2.2 | | 5ck | 2n | SE | | 2.42 | 61.5 | | James Gall. |
| Kingstown, W. I | | | | | 81 | 27.2 | | ESE | | | 4 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.08 | 764.6 | 80 | 26.7 | 87 | E | | | 2 | | 8ks | | | 0.820 | 20.83 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.28 | 642.1 | | | 67.0 | 19.4 | 80 | Calm | | | 0 | | 10s,ks | | | 0.53 | 13.5 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.98 | 761.5 | 32.0 | 0.0 | 94 | NE | 20 | 8.9 | | 2c | 6s | NE | NE | 0 | 0 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.15 | 765.8 | 74 | 23.3 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67; feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft. or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.27 | 768.8 | 73 | 22.8 | 68 | 20.0 | 60 | S | | | 1 | | 1 | | | 0 | 0 | | | Hazy | |
| Navy Yard, Mare Island, Cal. | 30.03 | 762.7 | 59 | 15.0 | 56 | 13.3 | | SW | | | 3 | | 0 | | | 0 | 0 | | | Fair | |
| Navy Yard, Pensacola, Fla. | 30.20 | 767.1 | | | 70 | 21.1 | ? | NE | 10 | 4.5 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Navy Yard, Portsmouth, N.H. | 30.14 | 765.5 | 76 | 24.4 | 67 | 19.4 | 69 | | | | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.72 | 754.9 | 67 | 19.4 | 62 | 16.7 | 83 | ENE | | | 4 | | 10ks | | SW | 0.10 | 2.5 | | | Gloomy | |
| Alert, N. 20° 16′ 19″ E. 149° 11′ 30″ | 29.05† | 763.3† | 85 | 29.4 | 84 | 28.9 | 96 | Calm | | | 0 | | 1 | | S | | | Long | S | Hazy | |
| Alliance, Beirut, Syria | 30.07 | 763.8 | 78 | 25.6 | 75 | 23.9 | 72 | SW | | | 2 | | 2 | | | | | Calm | None | Clear | |
| Ashuelot, Swatow, China | 29.95 | 760.7 | 81 | 27.2 | 80 | 26.7 | 74 | ENE | | | 1 | | 1 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.09 | 764.3 | 54 | 12.2 | 76 | 24.4 | 77 | SE | | | 2 | | 2 | | S&E | | | | | Fair | |
| Colorado, New York, N. Y | 30.20 | 767.1 | 65 | 18.3 | 71 | 21.7 | 62 | N&W | 1 | 0.4 | | | 9 | | | 0 | 0 | | | Hazy | |
| Despatch, Palermo, Sicily | 30.34 | 770.6 | 74 | 23.3 | 75 | 23.9 | 95 | E | | | 1 | | 3 | | E | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 30.19 | 766.8 | 62 | 16.7 | 68 | 20.0 | 95 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Frolic, Rio de Janeiro, Brazil | 30.26 | 768.6 | 69 | 20.6 | 71 | 21.7 | 95 | N | | | 1 | | 6k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.96 | 761.0 | | | 66 | 18.9 | 100 | SE | | | 2 | | 10 | | SE | Blank | Blank | | | D. clouds | |
| Hartford, N. 32° 44′ 11″ W. 78° 04′ 21″ | 30.43† | 772.9 | | | 76 | 24.4 | 95 | ENE | 3.6 | 1.6 | | | 3 | | | 0 | 0 | | | Pleasant | |
| Huron, Cape de Vela, N. G. | 30.10 | 764.5 | 85 | 29.4 | 86 | 30.0 | 80 | NW | | | 1 | | 9 | | NW | 0 | 0 | Smooth | ENE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.92 | 760.0 | 73 | 22.8 | 71 | 21.7 | 90 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Blue sky | |
| Lackawanna, Pichilingue Bay, Mexico. | 29.94 | 760.5 | | | 68 | 20.0 | 70 | SSE | | | 3–4 | | 1 | | | | | | | D. clouds | |
| Marion, Smyrna, Turkey | 30.05 | 764.3 | 75 | 23.9 | 79 | 26.1 | 95 | WSW | | | 3 | | 0 | | | 0 | 0 | Smooth | | Blue sky | |
| Michigan, Erie, Pa | 29.64 | 752.8 | 70 | 21.1 | 70 | 21.1 | 57 | SE | | | 2 | | 0 | | | | | | | Clear | |
| Monocacy, Che-foo, China | 29.70 | 754.4 | 67 | 19.4 | 64 | 17.8 | 100 | S&W | | | 2 | | 1 | | S&W | 0 | 0 | | | D. clouds | |
| Monongahela, N. 37° 41′ W. 70° 26′ | 30.29 | 769.4 | 65 | 18.3 | 65 | 18.3 | 84 | WNW | | | 3 | | c | | | 0 | 0 | Long | S&I | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.44 | 773.2 | | | 69 | 20.6 | 90 | E | 5 | 2.2 | | | 1 | | SE | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 30.04 | 763.0 | 74.5 | 23.6 | 74 | 23.3 | 76 | SE | 9 | 4.0 | | | 7 | | SE | 0 | 0 | Smooth | | Pleasant | |
| Ossipee, Port Royal, S. C | 30.25 | 768.3 | 72 | 22.2 | 73 | 22.8 | 90 | NNE | | | 2 | | 2 | | NE | | | | | Hazy | |
| Palos, Shanghai, China | 29.94 | 760.5 | 77 | 25.0 | 68 | 20.0 | 81 | SE | | | 2 | | 2 | | S&E | 0 | 0 | | | Clear | |
| Pensacola, Pichilingue Bay, Mexico. | 30.00 | 762.0 | | | 68 | 20.0 | 79 | SSE | | | 2 | | 4 | | | 0 | 0 | | | Pleasant | |
| Plymouth, N 20° 11′ W. 95° 48′ | 29.96 | 761.0 | 86 | 30.0 | 81 | 27.2 | 83 | ESE | | | 4 | | 6 | | S&E | 0 | 0 | Moderate. | N&E | Cloudy | |
| Ranger, N. 36° 38′ E. 12° 43′ | 30.32 | 770.1 | | | 70 | 21.1 | 90 | SE | | | 3 | | 2 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.32 | 770.1 | 70.6 | 21.1 | 67.0 | 19.4 | 89 | N | | | 1 | | 8 | | | 0 | 0 | | | Foggy | |
| Rio Bravo, Matamoras, Mexico | 29.80 | 756.9 | | | 69 | 20.6 | 95 | SE | | | 1 | | 1 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.20 | 767.1 | 72 | 22.2 | 69 | 20.6 | 61 | W | | | 0–1 | | 1 | | S | 0 | 0 | | | Hazy | |
| St. Louis, League Island, Pa | 30.07 | 763.8 | 69 | 20.6 | 67 | 19.4 | 79 | WSW | 6 | 2.7 | | | 7 | | SE | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.02 | 762.5 | 83 | 28.3 | 79 | 26.1 | 91 | NE | | | 1 | | 4ck | | NE | Blank | Blank | | | Fair | |
| Tennessee, Yokohama, Japan | 29.79 | 756.7 | 70 | 21.1 | 68 | 20.0 | 79 | ENE | | | 3 | | 10 | | | Blank | Blank | Light | S | D. clouds | |
| Trenton, Smyrna, Turkey | 29.98 | 761.5 | 78 | 25.6 | 80 | 26.7 | 82 | WNW | 5 | 2.2 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Vandalia, Constantinople, Turkey | 30.15 | 765.8 | 65 | 18.3 | 63 | 17.2 | 94 | S | | | 1 | | 3 | | S | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.18 | 766.6 | 71 | 21.7 | 74 | 23.3 | 63 | WSW | 2 | 0.9 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.38† | 771.6 | 69 | 20.6 | 69 | 20.6 | | Calm | | | 0 | | 1 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

# UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 43° 01′ W. 173° 53′ | | | 29.94 | 760.5 | 56 | 13.3 | 87 | SW | | | 2 | | 10ks | | | Smooth. | | Overcast | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Co Lua | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig, N. 44° 0′ W. 44° 30′ | 8.74 W | 9.2 | 29.96 | 761.0 | 62 | 16.7 | | SW | | | 2 | | Fog | | | Smooth | | Fog & mist. | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.07 | 763.8 | 74 | 23.3 | 81 | NE | 8 | 3.6 | | 0 | 0 | | | | | Clear. | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 2, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.00 | 762.1 | 74.8 | 23.8 | 70 | N | | | 3 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.13 | 765.2 | 71.6 | 22.0 | 82 | NNE | | | 2 | | 8 | | | 0 | 0 | Cloudy | Peter. |
| La Galle | | | 30.12 | 765.1 | 77.2 | 25.1 | 60 | N | | | 2 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.14 | 765.6 | 96.8 | 36.0 | | SE | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.15 | 765.8 | 73.4 | 23.0 | | SSE | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.07 | 763.7 | 93.6 | 34.2 | | SSE | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.28 | 767.8 | 85.3 | 29.6 | | N | | | 1 | | 2 | | | 0.197 | 5.0 | Clear | Bourgeois. |
| Geriville | | | 30.16 | 766.0 | 86.0 | 30.0 | | S | | | 3 | | 1 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.21 | 767.2 | 88.7 | 31.5 | 88 | E | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.16 | 766.0 | 96.1 | 35.6 | 28 | SE | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.11 | 764.8 | 62.2 | 16.8 | 83 | SW | | | 4 | | 10 | | | 0.433 | 11.0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.14 | 765.6 | 58.3 | 14.6 | 87 | NE | | | 1 | | 10 | | | 0.161 | 4.1 | | Dr. Wierzbiski. |
| Eperies | | | 30.00 | 762.0 | 62.1 | 16.7 | 91 | Calm | | | 0 | | 10n | | | 0.892 | 22.67 | | Julius Mikolik. |
| Gratz | 28.83 | 733.1 | 30.08 | 764.0 | 69.6 | 20.9 | 50 | NW | | | 5 | | 0 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.52 | 724.4 | 29.88 | 758.9 | 74.3 | 23.5 | 54 | NW | | | 1 | | 6 | | | 0.614 | 15.6 | | Prof. Reissenberger. |
| Kremsmünster | 28.85 | 732.8 | 30.17 | 766.9 | 65.5 | 18.6 | 49 | SW | | | 2 | | 3 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 29.97 | 761.1 | 67.5 | 19.7 | 62 | NE | | | 1 | | 6 | | | 0 | 0 | | Dr. T. Stanecki. |
| Syrkeyhaza | | | | | | | | | | | | | | | | | | | Habasuda Daniel. |
| Pola | | | 30.07 | 763.8 | 70.0 | 21.1 | 56 | ENE | | | 4 | | 28 | | | 1.685 | 42.81 | | I.R. Hydrographic Office |
| Szegedin | | | 29.95 | 760.8 | 65.3 | 18.5 | 89 | Calm | | | 0 | | 10 | | | 0.203 | 5.17 | | Karl Stancel. |
| Trieste | | | 30.11 | 764.8 | 71.6 | 22.0 | 74 | NW | | | 1 | | 7 | | | 0 | 0 | Almost cov'd | P. Busin. |
| Vienna | | | 30.12 | 765.1 | 70.5 | 21.4 | 40 | NNW | | | 4 | | 1 | | | 0.016 | 0.4 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | | | | | | | | | | | | | | | | | | | |
| Brussels | 28.68 | 728.5 | 30.18 | 766.5 | 60.6 | 15.9 | 57 | SW | | | 2 | | 4 | | | 0 | 0 | | |
| Furnes | | | 30.08 | 764.0 | 62.8 | 17.1 | 64 | SW | | | 5 | | 7 | | SW | 0 | 0 | | Royal Observatory |
| Maeseyck | | | 30.01 | 762.2 | 59.[illegible] | 15.2 | 65 | SW | | | 6 | | 9 | | | 0 | 0 | | |
| Verviers | | | 30.00 | 764.3 | 63.[illegible] | 17.4 | 65 | WSW | | | 4 | | 7 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.43 | 747.5 | 58.8 | 14.9 | | SW | 27 | 12.1 | | | 2 | | | 0.140 | 3.57 | Squally | William Boswell. |
| Ardrossan | | | 29.46 | 748.3 | 57 | 13.9 | | SW | | | 5 | | 5 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.46 | 748.3 | 56.9 | 13.8 | | SSW | 17 | 7.6 | | | 9 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.64 | 752.8 | 56.1 | 13.4 | | SW | 24 | 10.7 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.51 | 749.5 | 57.8 | 14.3 | | WSW | | | 3 | | 10 | | | | | Overcast | J. Dreyer. |
| Bradford, Yorkshire | | | 29.66 | 753.4 | 59.6 | 15.3 | | SW | | | 1 | | 10 | | | 0.72 | 18.3 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 80.0 | 26.7 | | NE | | | 1 | | 5 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.83 | 757.7 | 58.0 | 14.4 | | SSW | | | 4 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 29.84 | 757.9 | 58.4 | 14.7 | | | | | 4 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.97 | 761.2 | 57.2 | 14.0 | | SW | | | 4 | | 10 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 28.40 | 721.5 | 29.87 | 758.7 | 50.4 | 10.2 | | SW | | | 5 | | 10 | | | | | Rain and fog | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.48 | 748.8 | 60 | 15.6 | | SW | | | 4 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 29.98 | 761.5 | 56 | 13.3 | | SW | | | 5 | | 7 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.71 | 754.6 | 57.7 | 14.3 | | S | 3.6 | 1.6 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.85 | 758.2 | 57.7 | 14.3 | | SSW | | | 6 | | 9 | | | | | Squally | The Staff. |
| Fort Napier, (Natal) | 27.93 | 709.4 | 30.17 | 766.3 | 65.1 | 18.4 | | S | | | 3 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.96 | 761.0 | 86 | 30.0 | | W | | | 1 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.41 | 747.0 | 54 | 12.2 | | W | | | 7 | | 10 | | | | | Gloomy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.03 | 762.7 | 75.5 | 24.2 | | E | | | 2 | | 1 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.46 | 748.3 | 58.3 | 14.6 | | SSW | | | 5 | | 8 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 29.84 | 757.9 | 58 | 14.4 | | SW | | | 4 | | 6 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.91 | 759.7 | 57.6 | 14.2 | | SW | | | 4 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 29.97 | 761.2 | 58.5 | 14.7 | | SSW | | | 2 | | 10 | | | | | Gloomy | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 29.86 | 758.4 | 57 | 13.9 | | S | | | 6 | | 10n | | | | | Showery | M. P. Moyle. |
| Holyhead | | | 29.61 | 752.1 | 53 | 11.7 | | SSW | | | 4 | | 10 | | | | | Hazy | John Tilston. |
| Kew, Observatory | | | 29.91 | 759.7 | 56.0 | 13.3 | | SW | 27 | 12.1 | | | 10 | | | | | Hazy | The Staff. |
| Kingstown | | | 29.55 | 750.6 | 60 | 15.6 | | SW | | | 4 | | 9 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.75 | 755.6 | 56.8 | 13.8 | | SW | | | 4 | | 10 | | | | | Overcast | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.04 | 763.0 | 79.6 | 26.4 | | W | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.33 | 745.0 | 61 | 16.1 | | SW | | | 5 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.08 | 764.0 | 78.0 | 25.6 | | N | | | 2 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.74 | 755.4 | 58.3 | 14.6 | | SSW | | | 6 | | 10d | | SSW | 0.203 | 5.16 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.73 | 755.1 | 55.0 | 12.8 | | SSW | | | 5 | | 10 | | | | | Drizzling | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.83 | 757.7 | 59 | 15.0 | | SW | | | 5 | | 10 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 29.86 | 758.4 | 57.5 | 14.2 | | SSW | | | 6 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.61 | 752.1 | 54 | 12.2 | | SW | | | 5 | | 10 | | | | | Raining | W. Kennedy. |
| Saint Ann's Head | | | 29.70 | 754.4 | 54 | 12.2 | | SSW | | | 6 | | 8 | | | | | Foggy | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.01 | 762.2 | 59.6 | 15.3 | | SW | | | 6 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.29 | 744.0 | 53.2 | 11.8 | | SW | 22 | 9.8 | | | 2 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.87 | 758.7 | 71.8 | 22.1 | | Calm | | | 0 | | 3 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.68 | 753.9 | 58.0 | 14.4 | | SW | | | 3 | | 10 | | | 0.480 | 12.19 | Raining | W. F. Cooper. |
| Stilloth, Rectory | | | 29.56 | 750.8 | 61.5 | 16.4 | 67 | SW | | | 6 | | 3 | | | 0.135 | 3.43 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.65 | 753.1 | 57.1 | 13.9 | | S | | | 3 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.21 | 741.9 | 51 | 10.6 | | WSW | | | 7 | | 10 | | | | | Thunder-storm | John Smith. |
| Stratfield Turgiss | | | 29.89 | 759.2 | 55.1 | 12.8 | | SW | | | 2 | | 10 | | | | | Showery | Rev. C. H. Griffitt, F. M. S. |
| Thurso | | | 29.26 | 743.2 | 59 | 15.0 | | SW | | | 5 | | 5 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.86 | 758.4 | 59 | 15.0 | | S | | | 7 | | 10 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.52 | 749.8 | 53.5 | 11.9 | | SSW | 35 | 15.6 | | | 10 | | | | | Raining | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 52 | 11.1 | | S | | | 1 | 10 | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.33 | 770.4 | 62.6 | 17.0 | 60 | S | 0.4 | 0.2 | | 6 | 8 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.22 | 767.6 | 50.0 | 10.0 | 87 | Calm | | | 0 | | 10n | | | 0.06 | 1.5 | Covered | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 29.49 | 749.0 | 60.8 | 16.0 | | W | | | 5 | | 4ck | | | 0.18 | 4.6 | | Andrew Gibb. |
| Mauritius, Observatory | | | 30.13 | 765.3 | 74.0 | 23.3 | 74 | ESE | 20.1 | 9.0 | | 2 | 2 | WNW | ESE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.42 | 772.7 | 48.3 | 9.1 | 97 | NE | 5 | 2.2 | | | 0 | | | 0 | 0 | Heavy dew | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.22 | 742.2 | 50 | 10.0 | | SW | | | 7 | 5 | 5 | SW | | 0.4 | 10.2 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.29 | 744.0 | 48 | 8.9 | | SW | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the force by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105 ft., or 1,556.0 m.; Fort Napier, 2,200 ft., or 670.6 m.

## Marine Series.

| Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 52° 15′ W. 6° 5′ | | | 29.62 | 752.3 | 55.0 | 12.8 | | SSW | | | 3 | | 10 | | | *10 | SW | Showery | Capt. W. Watson. |
| S. S. Batavia, N. 49° 25′ W. 24° 25′ | | | | | 52.6 | 11.1 | | W | | | 2 | | 5 | | | 4 | NW | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 30° 25′ W. 79° 45′ | | | 30.26 | 768.6 | 76.0 | 24.4 | | ENE | | | 3 | | 3 | | | 4 | NE | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.56 | 750.8 | 55 | 12.8 | | SW | | | 3 | | 10 | | | 0 | | Raining | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the Minister of Foreign Affairs.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26 25 | 666 7 | | | 72.5 | 22.5 | 93 | NE | | | 2 | | 4cs | | E | Inap. | Inap. | | Federico Maison. |

Note.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.93 | 760.1 | 56.7 | 13.7 | 72 | WSW | | | 4 | | 10 | | | | | | |
| Faröe | | | 29.85 | 758.2 | 53.8 | 12.1 | 96 | WSW | | | 6 | | 10 | | | | | | |
| Godthaab, (Greenland) | | | 29.80 | 756.8 | 34.2 | 1.2 | 68 | SW | | | 4 | | 10 | | | | | | |
| Styrkisholm, (Iceland) | | | 29.17 | 748.6 | 38.7 | 3 7 | 80 | NE | | | 7 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.03 | 737.3 | 47.7 | 8 7 | 96 | Calm | | | 0 | | 10 | | | | | Rain & fog | |
| Vestervig | | | 29.78 | 756.4 | 55.8 | 13.2 | 89 | SW | | | 6 | | 3 | | | | | | |

Note.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.21 | 767.2 | 60.8 | 16 | 59 | WSW | | | 3 | | 5k | | WSW | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.05 | 763.3 | 68.4 | 20.2 | 59 | WSW | | | 3 | | 8 | | W | 0 | 0 | Very cloudy | Bouvarne, Director. |
| Avignon, Normal School | | | 30.14 | 765 5 | 74.1 | 23.4 | 36 | N | | | 2 | | 0 | | | 0.209 | 5.3 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.18 | 766.5 | 68.0 | 20.0 | 41 | SW | | | 3 | | 1 | | SW | 0.004 | 0.1 | Clear | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.11 | 764.9 | 66 7 | 19 3 | 59 | SW | | | 4 | | 8 | | WSW | 0.12 | 3. | Very cloudy | Normal School. |
| Besançon | | | 30.22 | 767.6 | 68.0 | 20 | 55 | S | | | 3 | | 0 | | | 0.409 | 10.4 | Clear | Normal School. |
| Bourgon Bresse | | | 30.12 | 765.1 | 69.3 | 20.7 | 72 | N | | | 2 | | 0 | | | 0.378 | 9.6 | Clear | Normal School. |
| Bourges, Normal School | | | 30.19 | 766.8 | 61.8 | 18.2 | 69 | S | | | 4 | | 0 | | | 0 | 0 | Clear | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.96 | 761.0 | 58.8 | 14.9 | 74 | SW | | | 6 | | 10 | | SW | 0 | 0 | Misty | The Staff. |
| Carcassonne, Normal School | | | 30.11 | 764.7 | 81.3 | 27.4 | 52 | W | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Chen | | | 30.06 | 763.5 | 66.6 | 19.2 | 54 | N | | | 6 | | 5 | | S | 0 | 0 | Partly cl'dy. | Normal School. |
| Charires, Normal School | | | 30.05 | 763.2 | 64.2 | 19 | 80 | WSW | | | 3 | | 3 | | E | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.15 | 765.7 | 67.6 | 19.8 | 46 | SSW | | | 4 | | 1c | | SSW | 0.004 | 0.1 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de Dôme | | | 30.12 | 765.0 | 73 4 | 23.0 | 42 | SE | | | 1 | | 1 | | ESE | 0.130 | 3.3 | Clear | Allnard, Director. |
| Commercy, Normal School | | | 30.13 | 765.3 | 64.6 | 18.1 | 72 | SW | | | 4 | | 5 | | SW | 0.08 | 2. | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30. 0 | 767.0 | 72.3 | 22.4 | 45 | NW | | | 2 | | 0 | | | 0.35 | 9. | | M. Kina. |
| Grenoble | | | 30.19 | 766.7 | 65.8 | 18.8 | 70 | SE | | | 2 | | 0 | | | 0.758 | 19.25 | Clear. | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.12 | 765.1 | 68 7 | 20.4 | 55 | SW | | | 1 | | 2 | | SSW | 0.008 | 0.2 | Slightly cl'dy | Mouillet, Director. |
| Le Mans, Normal School | | | 30.12 | 765.1 | 66 2 | 19 | 64 | W | | | 6 | | 5 | | W | 0 | 0 | Cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.19 | 766.8 | 64.6 | 18.1 | 73 | WNW | | | 2 | | 0 | | | 0.106 | 2.7 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 30.11 | 764.7 | 63.0 | 17.2 | 66 | SW | | | 7 | | 10 | | | 0 | 0 | Covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.16 | 766.0 | 63.5 | 17 5 | 72 | Calm | | | 0 | | 0 | | | 0.740 | 18.8 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.26 | 768.7 | 62.6 | 17 0 | 47 | S | | | 2 | 1c | | S | | 0.228 | 5.8 | | Normal School. |
| Mirecourt | | | 30.21 | 767.2 | 58 6 | 14.8 | 66 | SSW | | | 2 | | 2 | | NE | 0.008 | 0.2 | Slightly cov. | Normal School |
| Nismes, Normal School | | | 30.10 | 764.4 | 77.0 | 25 | 58 | N | | | 2 | c | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 30.10 | 764.6 | 67 6 | 19.8 | 57 | SW | | | 2 | | | | SW | 0 | 0 | | Normal School. |
| Paris, Observatory | | | 30.13 | 765 3 | 66.2 | 19.0 | 54 | S | | | 3 | | 5k | | SW | 0.003 | 0.08 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Ob's'y | | | 30.13 | 765.4 | 75.2 | 24.0 | 46 | SSW | | | 2 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.11 | 764.7 | 68.0 | 20.0 | 49 | S | | | 4 | | 5 | | S | 0.142 | 3.6 | Cloudy | F. Lucard, Director. |
| Tarbes, Normal School | | | 30.11 | 764.7 | 68.0 | 23 | 74 | W | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | 29.04 | 737.5 | 30.08 | 764.0 | 73.4 | 23 | 74 | W | | | 1 | | 0 | | | 0.39 | 10. | Clear | Vilot, Director. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 30.18 | 766.5 | 69.6 | 20.9 | 62 | SW | | | 1 | | 0 | | | 0.39 | 10. | Clear | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.93 | 760.1 | 81.3 | 27.4 | | | | | | | | | | | | | The Staff. |
| Mont-Louis | | | 30.11 | 764.7 | 74.5 | 23.6 | 51 | NW | | | 2–3 | | 0 | | | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | 25.08 | 636.9 | 30.39 | 771.9 | 62.1 | 16.7 | 30 | SSE | 11.2 | 5.00 | | | 4 | | SW | 0 | 0 | | Marie Davy, Director. |
| Perpignan | | | 30.12 | 765.1 | 64.0 | 18 3 | 54 | SW | | | 2–3 | | 5 | | SW | 0.004 | 0.1 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | | | 30.15 | 765.8 | 72.1 | 22.3 | 67 | S | 5.6 | 2.50 | | | 6 | | W | 0 | 0 | | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 21.45 | 544.7 | | | 51.3 | 10.7 | | W | | | 2 | | 6 | | | | | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | 22.72 | 577.1 | | | 56.3 | 13.5 | | W | | | 2 | | 6 | | | 0 | 0 | Fair | E. Renou. |
| Toulouse, Observatory | | | 30.13 | 765.3 | 66.4 | 19.1 | 56 | SSW | | | 3 | | 5 | | | 0 | 0 | Fair | The Staff |
| Tours | | | 30.19 | 766.8 | 72.5 | 22.5 | 44 | ENE | | | 2 | | 3 | | | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.13 | 765.4 | 69.4 | 20.8 | 50 | SW | | | 3 | | 4 | | WSW | 0 | 0 | | Dr. A Béringy. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.13 | 765.4 | 65.5 | 18.6 | 67 | W | | | 3 | | 7 | | | 0.007 | 0.18 | Fair | Marc Dechevrens, S. J |
| | | | 29.84 | 758.0 | 73.2 | 22.9 | 82 | SE | 8.3 | 3.7 | | | 0 | | | 0 | 0 | Clear. | |

Note.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4. The rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m. or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.15 | 765.7 | 64.9 | 18.3 | 54 | W | | | 3 | | 3 | W | | 0 | 0 | | Prof. T. Hoh |
| Berlin | | | 30.11 | 764.9 | 68.7 | 20.4 | 50 | S | | | 4 | | 6 | | | 0.559 | 14.2 | | Prof. Arndt. |
| Breslau | | | 30.18 | 766.6 | 66.4 | 19.1 | 44 | W | | | 3 | | 6 | | | 0.047 | 1.2 | | Royal University Obs'y. |
| Carlsruhe | | | 30.18 | 766.5 | 66.6 | 19.2 | 52 | S | | | 1 | | 1 | | | 0.512 | 13.0 | | Albert Senz. |
| Cassel | | | 30.17 | 766.4 | 66.4 | 19.1 | 53 | SE | | | 3 | | 4 | SW | | 0.134 | 3.4 | Thunder, lightn'g | Dr. H. Möhl. |
| Crefeld | | | 30.08 | 764.1 | 67.3 | 19.6 | 47 | SW | | | 5 | | 4 | | | 0 | 0 | Dust-haze | Director Lose. |
| Emden | | | 30.00 | 762.0 | 61.2 | 16.2 | 64 | WSW | | | 1 | | 10 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.22 | 767.6 | 68.5 | 20.3 | 43 | SSW | | | 3 | | 4 | | | 0.114 | 2.9 | | Physical Society. |
| Friedrichshafen | 28.80 | 731.6 | 30.22 | 767.6 | 63.7 | 17.6 | 64 | SW | | | 2 | | 1 | SW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.03 | 762.7 | 62.8 | 17.1 | 62 | SW | | | 6 | | 9n | SW | | 0.083 | 2.1 | Showery | Captain F. Hegemann. |
| Kiel | | | 29.97 | 761.2 | 59.2 | 15.1 | 85 | SW | | | 3 | | 10 | | | 0.240 | 6.1 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.07 | 763.7 | 61.7 | 16.5 | 72 | W | | | 2 | | 5 | | | 0.091 | 2.3 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.17 | 766.4 | 69.1 | 20.6 | 53 | SW | | | 3 | | 9 | SW | | 0.122 | 3.1 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.07 | 763.6 | 53.2 | 11.8 | 91 | SW | | | 5 | | 10cs,ks | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.07 | 763.6 | 65.5 | 18.6 | 70 | N | | | 1 | | 8 | SW | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.13 | 765.3 | 68.7 | 20.4 | 47 | NW | | | 7 | | 4 | | | 0 | 0 | | Dr. Mugener |
| Strassburg, (in Alsace) | | | 30.21 | 767.2 | 68.7 | 20.4 | 53 | Calm | | | 0 | | 10 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.16 | 766.1 | 68.9 | 20.5 | 43 | W | | | 2 | | 2 | W | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 30.04 | 763.1 | 66.0 | 18.9 | 51 | SW | | | 7 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.71 | 729.1 | 30.19 | 766.7 | 63.9 | 17.7 | 51 | WSW | | | 1 | | 7 | SW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.08 | 763.9 | 61.0 | 16.1 | 64 | SW | | | 4 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.93 | 760.1 | 85.6 | 29.8 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | 29.72 | 754.8 | 29.75 | 755.7 | 88.6 | 31.4 | 69 | W | 8.0 | 3.5 | | | 4 | NW | WNW | 0 | 0 | Dust-haze | |
| Poona | 27.73 | 704.4 | 29.70 | 754.3 | 86.7 | 30.4 | 42 | | | | | | | | SE | 0 | 0 | Dust-whirl | |
| Lahore | 28.84 | 732.6 | 29.57 | 751.1 | 85.6 | 29.8 | 55 | E | 6.6 | 2.9 | | | 5 | | | 0 | 0 | Dust-haze | |
| Belgaum | 27.12 | 688.7 | 29.60 | 751.8 | 83.1 | 28.4 | 64 | W | 15.0 | 6.7 | | | 5 | E | E&W | 0 | 0 | Thunder | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Rorkee | 28.74 | 730.1 | 29.64 | 752.8 | 79.8 | 26.6 | | Calm | 4.6 | 2.0 | | | 5 | | | 0.22 | 5.6 | | |
| Agra | 29.04 | 737.7 | 29.59 | 751.7 | 90.7 | 32.6 | 54 | N | 3.6 | 1.6 | | | 9 | | S | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.56 | 725.3 | 29.55 | 750.6 | 100.1 | 37.8 | 22 | NW | 6.3 | 2.8 | | | 6 | | | 0 | 0 | Gloomy | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.20 | 741.5 | 29.56 | 750.8 | 89.2 | 31.8 | 50 | SE | 5.7 | 2.5 | | | 7 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.28 | 743.8 | 29.59 | 751.6 | 81.7 | 27.6 | 75 | W | 2.9 | 1.2 | | | 10 | | NE | 0.05 | 1.3 | Overcast | |
| Patna | 29.41 | 747.0 | 29.59 | 751.5 | 90.1 | 32.3 | 53 | | 1.4 | 0.6 | | | 0 | | | 0 | 0 | Blue sky | |
| Hazaribagh | 27.61 | 701.3 | 29.58 | 751.2 | 90.0 | 32.2 | 36 | NNW | 8.0 | 3.5 | | | 0 | | | 0 | 0 | Thunder | |
| Cuttack | 29.54 | 750.4 | 29.63 | 752.5 | 85.0 | 29.4 | 60 | SSW | 5.4 | 2.4 | | | 8 | | E | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.59 | 751.5 | 29.61 | 752.0 | 83.7 | 28.7 | 65 | SSE | 9.0 | 4.0 | | | 5 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.29 | 744.0 | 29.68 | 753.9 | 79.4 | 26.3 | 79 | ESE | 12.0 | 5.3 | | | 9 | E | | 0 | 0 | Overcast | |
| Chittagong | 29.57 | 751.0 | 29.66 | 753.3 | 85.4 | 29.7 | 80 | SW | 6.4 | 2.8 | | | 5 | | | 0 | 0 | | |
| Sibsagar | 29.44 | 747.8 | 29.78 | 756.4 | 73.9 | 23.3 | 88 | ENE | 7.2 | 3.2 | | | 10 | W | W | 0.10 | 2.5 | Gloomy | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.36 | 720.2 | 29.68 | 753.8 | 95.0 | 35.1 | 28 | W | | | | | 8 | | | 0 | 0 | Overcast | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Házáribágh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | BAROMETER. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | CLOUDS. Amount. Up'er. 0—10. | Low'r. 0—10. | Direction. Upper. From— | Lower. From— | RAIN-FALL OR MELTED SNOW IN THE PAST 24 HOURS. Inches. | Millimeters. | WEATHER. | OBSERVER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.43 | 569.8 | 30.16? | 766.0? | 36.9 | 2.7 | 93 | W | | | 1 | | 0 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.31 | 566.7 | 29.69? | 761.0? | 44.1 | 6.7 | | SE | | | 1 | | 0 | | | 0.130 | 3.3 | | Signora Ernesta Manfredi. |
| Udine | | | 30.07 | 763.6 | 72.1 | 22.3 | 64 | SW | 1.3 | 0.6 | | | 2 | | | 0.390 | 9.9 | | Ab. Dom. Morgini. |
| Padua | | | 30.09 | 764.3 | 71.8 | 22.1 | 64 | SSE | 7.4 | 3.3 | | | 3 | | | 0.827 | 21.0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.08 | 764.0 | 75.4 | 24.1 | 55 | S | 4.9 | 2.2 | | | 2 | E | | 1.768 | 44.9 | | Conte Alm. Da Schio. |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | 28.81 | 731.8 | 30.08 | 763.9 | 71.6 | 22.0 | 53 | S | | | 1 | | 1 | | | 0.177 | 4.5 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.05 | 763.2 | 71.2 | 21.8 | 44 | SW | | | 4 | | 0 | | | 0.173 | 4.4 | | Prof. Giuseppe Calza. |
| Milan | | | 30.10 | 764.4 | 78.6 | 25.9 | 51 | E | | | 2 | | 3 | SW | | 0.425 | 10.8 | | Ab. Gio. Capelli. |
| Pavia | | | 30.09 | 764.3 | 72.5 | 22.5 | 45 | E | | | 2 | | 0 | | | 1.386 | 35.2 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.08 | 764.1 | 70.3 | 21.3 | 43 | SSW | 0 | 0 | | | 0 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.22 | 716.8 | 30.05 | 763.3 | 71.8 | 22.1 | 34 | NNW | | | 4 | | 0 | | | 0.114 | 2.9 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.15? | 765.7? | 69.8 | 21.0 | 66 | SW | | | 2 | | 0 | | | 0.094 | 2.4 | | Prof. L. Vassallo. |
| Genoa | | | 30.10 | 764.5 | 71.6 | 22.0 | 43 | SW | 4.9 | 2.2 | | | 0 | | | 1.102 | 28.0 | | Prof. G. M. Garibaldi. |
| Placenza | | | 30.11 | 764.7 | 73.6 | 23.1 | 44 | E | 0.7 | 0.3 | | | 0 | | | 0.630 | 16.0 | | Dott. G Manzi. |
| Parma | | | 30.09 | 764.3 | 77.0 | 25.0 | 50 | ESE | | | 4 | | 2 | | | 0.244 | 6.2 | | Prof. P. Pigorini. |
| Florence | | | 30.10 | 764.6 | 77.0 | 25.0 | 62 | NE | | | 4 | | 9 | | | 1,024 | 26.0 | | Cav. F. Meucci. |
| Leghorn | | | 30.11 | 764.7 | 69.8 | 21.0 | 69 | WSW | 8.1 | 3.6 | | | 7 | | | 0.591 | 15.0 | | Prof. P. Monte. |
| Siena | 28.89 | 733.7 | 30.04 | 763.0 | 71.8 | 22.1 | 49 | N | 3.1 | 1.4 | | | 7 | NE | | 0.496 | 12.6 | | Prof. L. Toscani. |
| Urbino | 28.59 | 726.1 | 30.08 | 764.1 | 63.1 | 17.3 | 89 | NNW | | | 4 | | 8 | | | 0.079 | 2.0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.10 | 764.6 | 71.8 | 22.1 | 75 | ENE | | | 1 | | 1 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.11 | 764.7 | 69.1 | 20.6 | 64 | NW | | | 4 | | 2 | | | 0.366 | 9.3 | | Prof. F. DeBosis. |
| Grosseto | | | 30.10 | 764.5 | 76.6 | 24.8 | 55 | NNW | | | 2 | | 6 | NE | | 0.287 | 7.3 | | Avv. P. Ponticelli. |
| Rome | | | 30.04 | 763.1 | 78.1 | 25.6 | 50 | WNW | 8.7 | 3.9 | | | 1 | NNE | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.05 | 763.3 | 78.4 | 25.8 | 51 | SW | | | 2 | | 5 | W | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.98 | 761.6 | 79.9 | 26.6 | 57 | NNE | 18.1 | 8.1 | | | 3 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.02 | 762.4 | 83.1 | 28.4 | 49 | SW | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.07 | 763.7 | 68.9 | 20.5 | 55 | N | | | 6 | | 0 | | | 0.012 | 0.3 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.08 | 764.0 | 80.4 | 26.9 | 55 | SE | | | 2 | | 3 | | | 0 | 0 | | Prof. F. Caflero. |
| Palermo | | | 30.06 | 763.4 | 75.7 | 24.3 | 52 | N | 16.8 | 7.5 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.10 | 713.8 | 29.97 | 761.2 | 80.2 | 26.8 | 31 | NW | | | 6 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.98 | 761.5 | 75.6 | 24.2 | 59 | E | | | 1 | | 5 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| SUB-SERIES. * | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.09 | 764.3 | 74.8 | 23.8 | 61 | WNW | 2.5 | 1.1 | | | 8 | W | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour: no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| STATIONS. | Bar. corr. Inches. | Millimeters. | Reduced Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind From— | Miles per hour. | Meters per second. | Force 0—10. | Clouds Up'er 0—10. | Low'r 0—10. | Upper From— | Lower From— | Rain Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.99 | 761.7 | 68 | 20.0 | 90 | Calm | 0 | 0 | | | 1 | | | 0.119 | 3.02 | Fair | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| STATIONS. | Bar. corr. Inches. | Millimeters. | Reduced Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind From— | Miles per hour. | Meters per second. | Force 0—10. | Clouds Up'er 0—10. | Low'r 0—10. | Upper From— | Lower From— | Rain Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.20 | 589.2 | 30.20 | 767.0 | 58.1 | 14.5 | 80 | W | 0.1 | 0.06 | | 10k | 10k | | | 0.181 | 4.6 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge. |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| STATIONS. | Bar. corr. Inches. | Millimeters. | Reduced Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind From— | Miles per hour. | Meters per second. | Force 0—10. | Clouds Up'er 0—10. | Low'r 0—10. | Upper From— | Lower From— | Rain Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.05 | 763.2 | 63.5 | 17.5 | | WSW | | | 5 | | | | | 0.016 | 0.4 | | |
| Groningen | | | 29.97 | 761.1 | 59.9 | 15.5 | | SW | | | 6 | | | | | 0.008 | 0.2 | | |
| Helder | | | 29.93 | 760.3 | 57.9 | 14.4 | | SSW | | | 6 | | | | | 0 | 0 | | |
| Utrecht | | | 29.99 | 761.8 | 61.5 | 16.4 | 62 | SW | | | 5 | | 8 | | | 0 | 0 | Very cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| STATIONS. | Bar. corr. Inches. | Millimeters. | Reduced Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind From— | Miles per hour. | Meters per second. | Force 0—10. | Clouds Up'er 0—10. | Low'r 0—10. | Upper From— | Lower From— | Rain Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.35 | 745.4 | 48.6 | 9.2 | 98 | S | 26.8 | 12.0 | | | 10 | | | 0.512 | 13.0 | Raining | |
| Bröno | | | 29.28 | 743.8 | 55.4 | 13.0 | 77 | S | 25 | 11 | | | 8 | | | 0 | 0 | | |
| Christiania | | | 29.55 | 750.6 | 52.0 | 11.1 | 96 | S | 11 | 5 | | | 10 | | | 0.024 | 0.6 | Light rain | |
| Tromsö | | | 29.50 | 749.4 | 51.8 | 11.0 | 85 | Calm | 0 | 0 | | | 9 | | | 0.020 | 0.5 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. Cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.80 | 756.8 | 65.1 | 18.4 | 94 | W | 12.[illegible] | 5.6 | | | 10 | | | 0.071 | 1.8 | Foggy | Dr. J. A. Sampaio |
| Campo Major | | | 29.95 | 760.8 | 84.7 | 29.3 | 24 | ESE | 4.9 | 2.17 | | | 2 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.13 | 765.4 | 69.6 | 20.9 | 66 | SW | 4.9 | 2.2 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.00 | 762.0 | 74.3 | 23.5 | 44 | N | 4.9 | 2.2 | | | 7 | WSW | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 29.89 | 759.1 | 63.7 | 17.6 | 96 | SW | 18.1 | 8.1 | | | 10 | | | 0.504 | 12.8 | Raining | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'dr. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.07 | 763.6 | 63.7 | 17.6 | 76 | WSW | 9 | 4 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 30.02 | 762.4 | 72.3 | 22.4 | 36 | S | 2 | 1 | | | 6 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.00 | 762.1 | 71.4 | 21.9 | 32 | S | 9 | 4 | | | 1 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.01 | 762.2 | 62.6 | 17.0 | 54 | WNW | 7 | 3 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.89 | 759.2 | 65.3 | 18.5 | 37 | S | 34 | 15 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 29.85 | 758.3 | 64.6 | 18.1 | 67 | N | 13 | 6 | | | 8 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.90 | 759.5 | 65.8 | 18.8 | 69 | S | 18 | 8 | | | 5 | | | | | | Kurdukof |
| Kertch | | | 30.03 | 762.8 | 67.6 | 19.8 | 73 | SSW | 7 | 3 | | | 10 | | | | | | Lagorio. |
| Moscow | | | 30.01 | 762.2 | 64.2 | 17.9 | 52 | NNW | 7 | 3 | | | 6 | | | | | | Meteorological Obs |
| Lugan | | | 29.83 | 757.6 | 63.5 | 17.5 | 72 | SE | 4 | 2 | | | 9 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 30.05 | 763.2 | 43.0 | 6.1 | 66 | WNW | 13 | 6 | | | 0 | | | | | | Ogorodnikof. |
| Tiflis | 28.58 | 726.0 | 29.95 | 760.8 | 73.4 | 23.0 | 36 | S | 9 | 4 | | | 5 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.98 | 761.5 | 71.1 | 21.7 | 27 | WSW | 7 | 3 | | | 6 | | | | | | Sebastianof. |
| Kasan | | | 29.89 | 759.3 | 65.8 | 18.8 | 31 | S | 4 | 2 | | | 2 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.02 | 762.4 | 66.4 | 19.1 | 84 | N | 11 | 5 | | | 0 | | | | | | Tschernischef. |
| Ekaterinburg | 29.02 | 737.0 | 29.96 | 760.9 | 53.2 | 11.8 | 51 | SSE | 7 | 3 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.91 | 759.7 | 71.1 | 21.7 | 33 | WNW | 9 | 4 | | | 9 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.22 | 716.7 | 29.82 | 757.4 | 81.7 | 27.6 | 42 | NW | 2 | 1 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 29.91 | 759.6 | 61.5 | 16.4 | 25 | ENE | 7 | 3 | | | 1 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.92 | 759.9 | 47.5 | 8.6 | 74 | W | 7 | 3 | | | 8 | | | | | Raining | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 36.9 | 2.7 | | NW | 9? | 4? | | | 5 | | | | | | Mossin. |
| Peking, (China) | | | 29.38 | 746.2 | 85.1 | 29.5 | 39 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.69 | 751.7 | 54.5 | 12.5 | 90 | SE | 16 | 7 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 48.2 | 9.0 | | SE | 20 | 9 | | | 10 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 30.01 | 762.2 | 82.4 | 28.0 | 34 | S | 14.2 | 6.33 | | 3 | 0 | SW | | 0 | 0 | Light clouds | The Staff. |
| San Fernando, Naval Obs'y | | | 29.94 | 760.5 | 81.7 | 29.2 | 35 | SE | 28.9 | 12.9 | | 0 | 8 | | SE | 0.008 | 0.2 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.06 | 763.4 | 80.8 | 27.1 | 70 | E | 2.2 | 1.0 | | 1c | 0 | | | 0.100 | 2.7 | Clear | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 30.02 | 762.6 | 85.0 | 29.8 | 70 | E | 5.2 | 2.31 | | 6cs | 1n | | E | 0 | 0 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

Note.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.86 | 758.4 | 59.7 | 15.4 | 49 | S | | | 4 | | 2 | | | 0 | 0 | | |
| Umea | | | 29.78 | 756.4 | 47.1 | 8.4 | 71 | S | | | 7 | | 10 | | | | | Raining | |
| Hernosand | | | 29.66 | 753.4 | 41.4 | 5.2 | 94 | S | | | 6 | | 10 | | | 0 | 0 | | |
| Stockholm | | | 29.76 | 755.8 | 59.7 | 15.4 | 72 | S | | | 2 | | 7 | | | 0.030 | 1.0 | | |
| Wisby | | | 29.91 | 759.8 | 61.9 | 16.6 | 75 | SSW | | | 6 | | 5 | | | 0.004 | 0.1 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.73 | 755.2 | 59.4 | 15.2 | 76 | S | 18.8 | 8.4 | | | 6 | SSW | SSW | 0.261 | 6.62 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.80 | 731.4 | 30.20 | 767.1 | 61.2 | 16.2 | 55 | NNE | | | 2 | | 0 | | | 0.350 | 8.9 | Clear | The Observatory. |
| Zurich | 28.60 | 726.5 | 30.20 | 767.0 | 67.5 | 19.7 | 58 | W | | | 1 | | 0 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +5.5 mm; Thermometer, —2.9 cent.; Relative Humidity, —1 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.93 | 760.1 | 75.9 | 24.4 | 52 | SSE | 2 | 1.0 | | | 3 | | NW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | | | | | | | | | | | | | | | | | |
| Salonica | | | 30.10 | 764.5 | 83.7 | 28.7 | | SE | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.08 | 764.0 | 81.6 | 29.2 | | SW | | | 1 | | 5 | | | 0 | 0 | Cloudy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.89 | 759.2 | 82.9 | 28.3 | 59 | WSW | | | 3 | | 1s | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.07 | 763.8 | 54.9 | 12.7 | 80 | Calm | 0 | 0 | | | 0 | | | | | | Hon. J. Ferguson. |
| *Brockville, Ontario | | | 30.04 | 763.0 | 72 | 22.2 | | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 30.10 | 764.5 | 55 | 12.8 | 77 | N | 2 | 0.9 | | 8c | Haze | NW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.16 | 766.1 | 58 | 14.4 | 69 | S | 8 | 3.6 | | | 10ks | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.99 | 761.7 | 64.9 | 18.3 | 77 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Hazy | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.09 | 764.3 | 52.7 | 11.5 | 79 | S | | | 1 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| *Fredericton, N. B. | | | 29.96 | 761.0 | 49.3 | 9.6 | 85 | Calm | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| Father Point, Quebec | | | 30.03 | 762.7 | 47 | 8.3 | 90 | W | 1 | 0.4 | | 0 | Haze | | W | 0 | 0 | Hazy | J. McWilliams. |
| *Fort Garry, Manitoba | | | 30.17 | 766.3 | 58.0 | 14.4 | 76 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | Smoky | Prof. Harrison. |
| Goderich, Ontario | | | 29.67 | 753.6 | 54 | 12.2 | 97 | N | 11 | 4.9 | | 5k | 5n | N | N | 0.28 | 7.1 | Cloudy | James Stewart. |
| Granton, Ontario | | | 30.03 | 762.7 | 67.4 | 19.7 | 82 | SW | | | 2 | 5ck | 2s | W | | Inap. | Inap. | Hazy | H. J. Strang, M. A. |
| *Halifax, N. S. | 28.93 | 734.8 | 30.10 | 762.0 | 63 | 17.2 | 81 | S | | | 1 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| Hamilton, Ontario | | | 30.21 | 767.3 | 55 | 12.8 | 73 | SE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | F. Allison, M. A. |
| Henry's Cove, N. F. | | | 30.02 | 762.5 | 63.2 | 17.3 | 62 | W | | | 2 | 10ck | 0 | W | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| *Kingston, Ontario | | | 30.28 | 769.1 | 45 | 7.2 | 61 | W | | | 2 | 0 | 0 | | | 0 | 0 | Clear | E. Weedon. |
| *Montreal, Quebec | | | 30.10 | 764.5 | 66 | 18.9 | 76 | S | 6 | 2.7 | | 8c | 0 | | | 0 | 0 | Fair | S. Woods, M. A. |
| *Parry Sound, Ontario | | | 30.04 | 763.0 | 71 | 21.7 | 64 | S | 6 | 2.7 | | 0 | 2s | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| Port Dover, Ontario | | | 29.96 | 761.0 | 70 | 21.1 | 70 | S | 7 | 3.1 | | 2cs | 2ks | SW | SW | Inap. | Inap. | Fair | Rev. R. Mosley. |
| Port Hastings, N. S. | | | 30.04 | 763.0 | 67 | 19.4 | 74 | SW | 10 | 4.5 | | 10k | 0 | SW | | 0 | 0 | Cloudy | H. Morgan. |
| Port Stanley, Ontario | | | 30.23 | 767.8 | 50.1 | 10.1 | | S | | | | | | | | 0 | 0 | Fine | Peter Grant |
| *Quebec, Quebec | | | 30.05 | 763.3 | 61 | 17.8 | 93 | W | 8 | 3.6 | | | 10ks | | SW | 0.04 | 1.0 | Cloudy | M. Payne. |
| *Stockliffe, Ontario | | | 30.08 | 764.0 | 66 | 18.9 | 79 | Calm | 0 | 0 | | | Haze | | | 0 | 0 | Hazy | Capt. Ashe, R. N |
| St. John, N. B. | | | 29.98 | 761.5 | 65 | 18.3 | 68 | Calm | 0 | 0 | | | 8n | | W | Inap | Inap. | Light rain | W. H. McIntyre. |
| *Saugeen, Ontario | | | 30.06 | 763.5 | 64 | 17.8 | 73 | S | 3 | 1.3 | | 10 | 0 | | | 0 | 0 | Fine | G. Murdock, C. E. |
| Stayner, Ontario | | | 30.00 | 762.0 | 67 | 19.4 | 79 | SW | 6 | 2.7 | | | Sm'c | | | 0 | 0 | Smoky | K. Stewart. |
| Stratford, Ontario | | | 29.95 | 760.7 | 70 | 21.1 | 75 | W | 4 | 1.8 | | | 10ks | | W | 0 | 0 | Cloudy | R. J. Cole. |
| *Sydney, C. B. | 28.77 | 730.7 | 30.00 | 762.0 | 66.8 | 19.3 | 78 | SW | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Toronto, Ontario | | | 30.25 | 768.3 | 58 | 14.4 | 65 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| Windsor, N. S. | | | 30.04 | 763.0 | 61 | 16.1 | 76 | E | 4 | 1.8 | | 5ck | 5s | W | W | 0 | 0 | Cloudy | Magnetic Observatory. |
| Woodstock, Ontario | | | 30.11 | 764.8 | 65.5 | 18.6 | 63 | SE | 8 | 3.6 | | 6c | 0 | | | 0 | 0 | Fair | Prof. John E. Oram. |
| SUB-SERIES. | | | 30.03 | 762.7 | 64.8 | 18.2 | 94 | S | 10 | 4.5 | | | 10s | | | Inap | Inap. | Cloudy | J. Montgomery. |
| St. Johns, Newfoundland | | | 30.37 | 771.4 | 46.0 | 7.8 | 65.1 | S | | | | 0 | 5s | | | 0.02 | 0.5 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10 | Clouds. Amount. Low'r. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.08 | 764.0 | 71 | 21.7 | 67 | Calm | 0 | 0 | | 5ks | Haze | W | | 0 | 0 | Fair | |
| Alpena, Mich. | | | 29.93 | 760.2 | 66 | 18.9 | 54 | SW | 14 | 6.3 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Atlantic City, N. J. | | | 30.17 | 766.3 | 65 | 18.3 | 78 | SW | 6 | 2.7 | | 2k | Haze | NW | | 0 | 0 | Hazy | |
| Augusta, Ga. | | | 30.27 | 768.8 | 70 | 21.1 | 75 | SE | 1 | 0.4 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Baltimore, Md. | | | 30.16 | 766.1 | 72 | 22.2 | 58 | SE | 1 | 0.4 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Barnegat, N. J. | | | 30.14 | 765.5 | 70 | 21.1 | 70 | W | 11 | 4.9 | | 2c | Haze | | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.09 | 713.5 | 29.74 | 755.4 | 41 | 5.0 | 82 | NW | 16 | 7.2 | | | 10s | | NW | 0.09 | 2.3 | Cloudy | |
| Boston, Mass. | | | 30.09 | 764.3 | 72 | 22.2 | 67 | W | 3 | 1.3 | | 5k | Haze | W | | 0 | 0 | Hazy | |
| Breckenridge, Minn. | | | 29.74 | 755.4 | 43 | 6.1 | 75 | SW | 14 | 6.3 | | 10k | 0 | SW | | Inap. | Inap. | Cloudy | |
| Buffalo, N. Y. | | | 30.01 | 762.2 | 73 | 22.8 | 42 | SW | 9 | 4.0 | | 5ck | 2s | SW | SW | 0 | 0 | Fair | |
| Burlington, Vt. | | | 30.08 | 764.0 | 71 | 21.7 | 76 | S | 5 | 2.2 | | 5k | Haze | SW | | 0.03 | 0.8 | Fair | |
| Cairo, Ill. | | | 30.12 | 765.0 | 69 | 20.6 | 90 | NE | 6 | 2.7 | | | 10s | | | 0.19 | 4.8 | Cloudy | |
| Campo, Cal. | 27.37 | 695.2 | 29.94 | 760.5 | 42 | 5.6 | 75 | E | 2 | 0.9 | | 2c | 0 | | | 0 | 0 | Fair | |
| Camp Verde, Arizona | | | | | 55 | 12.8 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.15 | 765.8 | 69 | 20.6 | 75 | NE | 8 | 3.6 | | 2c | 0 | NE | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.19 | 766.8 | 72 | 22.2 | 71 | SW | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Cape Lookout, N. C. | | | 30.25 | 768.3 | 71 | 21.7 | 71 | NE | 10 | 4.5 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 30.18 | 766.6 | 67 | 19.4 | 68 | S | 8 | 3.6 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.26 | 768.6 | 76 | 21.1 | 84 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.10 | 612.1 | 30.04 | 763.0 | 44 | 6.7 | 54 | NW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.99 | 761.7 | 69 | 20.6 | 65 | SW | 6 | 2.7 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Cincinnati, Ohio | | | 30.03 | 762.7 | 72 | 22.2 | 75 | SE | 3 | 1.3 | | 0 | 9ks | | W | 0.03 | 0.8 | Cloudy | |
| Cleveland, Ohio | | | 30.04 | 763.0 | 71 | 21.7 | 55 | SE | 6 | 2.7 | | 2k | 2ks | | S | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 30.08 | 764.0 | 72 | 22.2 | 85 | S | 6 | 2.7 | | 2cs | 8s | | S | Inap. | Inap. | Cloudy | |
| Davenport, Iowa | | | 30.02 | 762.5 | 65 | 18.3 | 58 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 30.05 | 763.3 | 73 | 22.8 | 85 | S | 10 | 4.5 | | | 10s | | S | 0 | 0 | Cloudy | |
| Denver, Col. | 24.86 | 631.4 | 30.08 | 764.0 | 47 | 8.3 | 48 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.00 | 762.0 | 70 | 21.1 | 71 | W | 4 | 1.8 | | 8k | 0 | NW | | Inap. | Inap. | Fair | |
| Dodge City, Kan. | 27.34 | 694.4 | 29.56 | 750.8 | 60 | 15.6 | 76 | S | 8 | 3.6 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Dubuque, Iowa | | | 29.95 | 760.7 | 66 | 18.9 | 54 | SW | 4 | 1.8 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.72 | 754.9 | 55 | 12.8 | 73 | SW | 10 | 4.5 | | 2k | 0 | SW | | 0 | 0 | Clear | |
| Eagle Pass, Texas | | | 29.94 | 760.5 | 75 | 23.9 | 76 | S | 12 | 5.4 | | 5ck | 5s | S | S | 0 | 0 | Cloudy | |
| Eastport, Me. | | | 30.15 | 765.8 | 53 | 11.7 | 73 | N | 2 | 0.9 | | 10k | Haze | | | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 30.02 | 762.5 | 73 | 22.8 | 54 | SW | 8 | 3.6 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Escanaba, Mich. | | | 29.86 | 758.4 | 58 | 14.4 | 76 | S | 9 | 4.0 | | 0 | 8s | | S | 0.30 | 7.6 | Cloudy | |
| Florence, Arizona | 28.33 | 719.6 | 29.93 | 760.2 | 79 | 26.1 | | W | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 30.00 | 762.0 | 74 | 23.3 | 81 | S | 8 | 3.6 | | 2cs | 5ks | SW | SW | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.75 | 730.2 | 28.97 | 761.2 | 73 | 22.8 | 85 | SE | 4 | 1.8 | | 2k | 5s | W | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.82 | 757.4 | 42 | 5.6 | 91 | SW | | | 1 | 0 | 2ks | | | Inap. | Inap. | Fair | |
| Fort Sill, Indian Ter. | 28.80 | 731.5 | 29.86 | 758.4 | 74 | 23.3 | 72 | SE | | | 1 | 2k | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.21 | 716.5 | 29.88 | 758.9 | 44 | 6.7 | 75 | SW | 6 | 2.7 | | 0 | 2s | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.12 | 765.0 | 78 | 25.6 | 77 | SE | 6 | 2.7 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 30.00 | 762.0 | 67 | 19.4 | 64 | S | 10 | 4.5 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Indianapolis, Ind. | | | 30.06 | 763.5 | 71 | 21.7 | 80 | SW | 5 | 2.2 | | 5cs | 2s | W | SW | 0.40 | 10.2 | Clearing | |
| Indianola, Tex. | | | 30.07 | 763.8 | 80 | 26.7 | 78 | SE | 11 | 4.9 | | 2c | 5ks | S | S | Inap. | Inap. | Fair | |
| Jacksonville, Fla. | | | 29.23 | 767.8 | 74 | 23.3 | 76 | NE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.96 | 761.0 | 72 | 22.2 | 75 | S | 4 | 1.8 | | 2c | 0 | S | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.06 | 763.5 | 75.5 | 24.2 | 90 | NE | 16 | 7.2 | | 1cs | 5n | E | NE | 0.03 | 0.8 | Threatening | |
| Kittyhawk, N. C. | | | 30.23 | 767.8 | 69 | 20.6 | 70 | W | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn. | | | 30.23 | 767.8 | 65 | 18.3 | 73 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.84 | 757.9 | 60 | 15.6 | 70 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.96 | 761.0 | 65 | 18.3 | 73 | Calm | 0 | 0 | | 2cs | Fog | | | 0 | 0 | Fair | |
| Louisville, Ky. | | | 30.08 | 764.0 | 72 | 22.2 | 71 | S | 4 | 1.8 | | 2cs | 8s | SW | S | 0 | 0 | Cloudy | |
| Lynchburg, Va. | | | 30.19 | 766.8 | 69 | 20.6 | 60 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 63 | 17.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.92 | 760.0 | 59 | 15.0 | 55 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mason, Texas | 28.42 | 721.9 | 30.15 | 765.8 | 77 | 25.0 | 69 | SE | 8 | 3.6 | | 2c | 2s | | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.16 | 766.1 | 75 | 23.9 | 63 | S | 6 | 2.7 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Milwaukee, Wis. | | | 28.98 | 761.5 | 63 | 17.2 | 57 | SW | 10 | 4.5 | | 0 | 0 | | | 0.37 | 9.4 | Clear | |
| Mobile, Ala. | | | 30.23 | 767.8 | 74 | 23.3 | 81 | E | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.24 | 768.1 | 72.5 | 22.5 | 58 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.09 | 738.9 | 30.11 | 764.8 | 69 | 20.6 | 61 | Calm | 0 | 0 | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 24.09 | 611.9 | 30.45 | 773.4 | 55 | 12.8 | 73 | NW | 5 | 2.2 | | 8k | Haze | SE | | Inap. | Inap. | Fair | |
| Nashville, Tenn. | | | 30.16 | 766.1 | 76 | 14.4 | 56 | Calm | 0 | 0 | | 2cs | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.12 | 765.0 | 72 | 22.2 | 67 | Calm | 0 | 0 | | 5ck | Haze | | | 0 | 0 | Fair | |
| New London, Conn. | | | 30.12 | 765.0 | 68 | 20.0 | 74 | Calm | 0 | 0 | | 2ck | Haze | NE | | 0 | 0 | Dense haze | |
| New Orleans, La. | | | 30.18 | 766.6 | 76 | 24.4 | 76 | E | 2 | 0.9 | | 4cs | Sm'e | W | NE | 0 | 0 | Fair | |
| Newport, R. I. | | | 30.10 | 764.5 | 70 | 21.1 | 67 | Calm | 0 | 0 | | 2k | Sm'e | W | | 0 | 0 | Smoky | |
| New York, N. Y. | | | 30.13 | 765.3 | 68 | 20.0 | 74 | W | 2 | 0.9 | | 0 | Fog | | | 0 | 0 | Clear | |
| Norfolk, Va. | | | 30.21 | 767.3 | 72 | 22.2 | 67 | SW | 1 | 0.4 | | 0 | Sm'e | | | 0 | 0 | Fair | |
| North Platte, Neb. | 27.12 | 688.8 | 29.66 | 753.4 | 52 | 11.1 | 72 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.89 | 733.8 | 29.94 | 760.5 | 61 | 16.1 | 60 | N | 5 | 2.2 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 30.06 | 763.5 | 73 | 22.8 | 54 | SE | 4 | 1.8 | | 8cs | Haze | | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 29.61 | 752.1 | 47 | 8.3 | 100 | N | 1 | 0.4 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Philadelphia, Pa. | | | 30.15 | 765.8 | 70 | 21.1 | 66 | W | 6 | 2.7 | | 5k | Haze | NW | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 69 | 20.6 | | SE | | | | 0 | 0 | | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.84 | 453.1 | 30.04 | 763.0 | 14 | —10.0 | 91 | NW | 21 | 9.4 | | 0 | 2s | | | 0 | 0 | Fair | |
| Pittsburgh, Pa. | | | 30.09 | 764.3 | 66 | 18.9 | 68 | S | 3 | 1.3 | | 5k | Sm'e | S | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.98 | 761.5 | 69 | 20.6 | 79 | SW | 8 | 3.6 | | 2c | 2s,hz | W | W | 0 | 0 | Hazy | |
| Portland, Me. | | | 30.09 | 764.3 | 66 | 18.9 | 68 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Portland, Oregon | | | 30.02 | 762.5 | 51 | 10.6 | 78 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.84 | 630.9 | 30.20 | 767.1 | 42 | 5.6 | 57 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.12 | 765.0 | 75 | 23.9 | 68 | NE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.03 | 762.7 | 71 | 21.7 | 49 | SW | 8 | 3.6 | | 5c | Haze | | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.70 | 652.8 | 30.03 | 762.7 | 47 | 8.3 | 55 | S | 4 | 1.8 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Sandy Hook, N. J. | | | 30.13 | 765.3 | 69 | 20.6 | 75 | W | 6 | 2.7 | | 2c | Haze | SW | | 0 | 0 | Fair | |
| San Antonio, Tex. | | | 29.91 | 759.7 | 77 | 25.0 | 82 | SE | 3 | 1.3 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.99 | 761.7 | 60 | 15.6 | 81 | SW | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.00 | 762.0 | 51 | 10.6 | 86 | W | 10 | 4.5 | | 0 | 5s | | W | 0 | 0 | Fair | |
| Santa Fé, N. M. | 23.3 | 592.6 | 29.87 | 758.7 | 46.5 | 8.1 | 22 | N | 7 | 3.1 | | 2cs | 5s | SW | SW | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.27 | 768.8 | 68 | 20.0 | 90 | N | 2 | 0.9 | | 0 | Fog | | NE | 0 | 0 | Foggy | |
| Shreveport, La. | | | 30.23 | 767.8 | 7 | 24.4 | 81 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.25 | 768.3 | 65 | 18.3 | 83 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.12 | 765.0 | 71.5 | 21.9 | 66 | W | 1 | 0.4 | | 5ck | Haze | N | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.03 | 762.7 | 70 | 21.1 | 80 | S | 12 | 5.4 | | 0 | 0 | | | 1.33 | 33.8 | Clear | |
| St. Marks, Fla. | | | 30.23 | 767.8 | 68 | 20.0 | 84 | E | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.76 | 755.9 | 57 | 13.9 | 57 | S | 12 | 5.4 | | 1c | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 58 | 14.4 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.98 | 685.3 | 29.98 | 761.5 | 68 | 20.0 | 90 | Calm | 0 | 0 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Thatcher's Island, Mass | | | 30.09 | 764.3 | 65 | 18.3 | 83 | W | 4 | 1.8 | | 1k | 0 | | | 0 | 0 | Smoky | |
| Tucson, Arizona | | | 30.02 | 762.5 | 74 | 23.3 | 72 | SW | 7 | 3.1 | | 2ck | 2ks | W | W | 0.02 | 0.5 | Fair | |
| Tybee Island, Ga | 27.52 | 699.0 | 30.07 | 763.8 | 65 | 18.3 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.24 | 768.1 | 68 | 20.0 | 100 | N | 4 | 1.8 | | | Fog | | | 0 | 0 | Foggy | |
| Virginia City, M. T | | | 30.22 | 767.6 | 74 | 23.3 | 76 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | 24.33 | 618.0 | 29.81 | 757.2 | 36.5 | 2.5 | 85 | SE | 7 | 3.1 | | 1k | 0 | W | | 0.01 | 0.3 | Clear | |
| Wickenburg, Arizona | | | 30.17 | 766.3 | 71 | 21.7 | 63 | S | 4 | 1.8 | | 5c | Haze | | | 0 | 0 | Hazy | |
| Wilmington, N. C | | | | | 64 | 17.8 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 30.26 | 768.6 | 64 | 17.8 | 94 | NE | 3 | 1.3 | | | Fog | | | 0 | 0 | Foggy | |
| Yankton, Dakota | | | 30.15 | 765.8 | 62 | 16.7 | 77 | S | 4 | 1.8 | | 8c,k | 0 | SW | | 0 | 0 | Cloudy | |
| Yuma, Arizona | 28.71 | 729.2 | 29.98 | 761.5 | 56 | 13.3 | 51 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| | | | | | | | | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.18 | 766.6 | 82 | 27.8 | 83 | SE | 11 | 4.9 | | 8c | 5s | SE | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | ESE | | | 4 | | | | | 1.96 | 49.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.05 | 763.3 | 81 | 27.2 | 83 | E | | | 3 | | 8ks | | | 0.600 | 15.24 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | | | | | | | | | | | | | | | | | | | Thomas Herran. |
| York Factory, B. A | 25.24 | 641.1 | | | 68.8 | 20.4 | 78 | Calm | | | 0 | 0 | 2ks | | | Inap. | Inap. | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 29.90 | 759.4 | 29.0 | — 1.7 | 94 | E | 10 | 4.5 | | 2k | 0 | N | | 0 | 0 | Fair | Daniel Smith. |
| Makawao, Maui, H. I | | | 30.15 | 765.8 | 73 | 22.8 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,67[illegible] feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft. or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,80[illegible] ft., or 881.5 m.; Denver, 5,185 ft., or 1,566.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Muson, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Muson, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft. or 1,329.6 m.; Santa Fe, 8,862.[illegible] (?) ft., or 2,011.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3,488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.26 | 768.6 | 76 | 24.4 | 69 | 20.6 | 65 | S | | | 1 | | 0 | | | 0 | 0 | | | Hazy | |
| Navy Yard, Mare Island, Cal. | 30.04 | 763.0 | 60 | 15.6 | 54 | 12.2 | | SW | | | 4 | | 3 | | NE | 0 | 0 | | | Pleasant | |
| Navy Yard, Pensacola, Fla. | 30.32 | 770.1 | | | 72 | 22.2 | 80 | NE | 8 | 3.6 | | | 7 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.22 | 767.6 | 81 | 27.2 | 73 | 22.8 | 80 | SW | | | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.87 | 758.7 | 70 | 21.1 | 67.5 | 19.7 | 90 | SSW | | | 1 | | 0 | | | 0 | 0 | | | Clear | |
| Alert, N. 20° 03′ 18″ E. 145° 47′ | 30.12† | 765.0† | 83 | 28.3 | 83 | 28.3 | 96 | E | | | 2 | | 2 | | E | | | Long | E | D. clouds | |
| Alliance, Beirut, Syria | 29.96 | 761.0 | 76 | 24.4 | 74 | 23.3 | 76 | WSW | | | 3 | | 3 | | | | | Light | WNW | Clear | |
| Ashuelot, Swatow, China | 29.96 | 761.0 | 82 | 27.8 | 80 | 26.7 | 91 | SSE | | | 2 | | 1 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.20 | 767.1 | 54 | 12.2 | 74 | 23.3 | 81 | E | | | 1 | | 2 | | E | | | | | Fair | |
| Colorado, New York, N. Y | 30.20 | 767.1 | 66 | 18.9 | 69 | 20.6 | 65 | SW | 1 | 0.4 | | | 0 | | | 0 | 0 | | | Hazy | |
| Despatch, N. 38° 14′ E. 14° 03′ | 30.24 | 768.1 | 75 | 23.9 | 76 | 24.4 | 82 | NNW | | | 1 | | 1 | | | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 30.26 | 768.6 | 64 | 17.8 | 68 | 20.0 | 100 | WSW | 4 | 1.8 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Frolic, Rio de Janeiro, Brazil | 30.07 | 763.8 | 71 | 21.7 | 72 | 22.2 | 90 | N | | | 2 | | 6k | | | 0 | 0 | | | D clouds | |
| ‡Gettysburg, Genoa, Italy | 29.94 | 760.5 | | | 77 | 25.0 | 91 | SSE | | | 1 | | 0 | | | Blank | Blank | | | Blue sky | |
| Hartford, N. 30° 16′ 16″ W. 77° 44′ 45″ | 30.50 | 774.7 | 76 | 24.4 | 71 | 21.7 | 90 | N | 2.4 | 1.1 | | | 3 | | | 0 | 0 | | | Pleasant | |
| Huron, N. 13° 00′ W. 73° 58′ | 30.04 | 763.0 | 84 | 28.9 | 86 | 30.0 | 96 | SSE | | | 3 | | 4 | | ESE | 0 | 0 | Smooth | ENE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.06 | 763.5 | 74 | 23.3 | 71 | 21.7 | 85 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Blue sky | |
| Lackawanna, Pichilingue Bay, Mexico | | | | | | | | | | | | | | | | | | | | | |
| Marion, Smyrna, Turkey | 29.91 | 759.7 | 79 | 26.1 | 80 | 26.7 | 100 | WSW | | | 2 | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.51 | 749.5 | 72 | 22.2 | 71 | 21.7 | 71 | S | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, N. 38° 10′ E. 120° 15′ | 29.41 | 747.0 | 68 | 20.0 | 67 | 19.4 | 95 | SW | | | 5–6 | | 9 | | SW | 0 | 0 | Moderate. | SW | D. clouds | |
| Monongahela, N. 39° 21′ W. 72° 59′ | 30.23 | 767.8 | 63 | 17.2 | 63 | 17.2 | 78 | W | | | 2 | | 0 | | | 0 | 0 | Light | S&E | Hazy | |
| New Hampshire, Port Royal, S. C | 30.52 | 775.2 | | | 71 | 21.7 | 80 | N | 6 | 2.7 | | | 2 | | SE | 0 | 0 | | | D. clouds | |
| Omaha, Payta, Peru | 30.06 | 763.5 | 74.7 | 23.6 | 73 | 22.8 | 83 | ESE | 5 | 2.2 | | | 8 | | SE | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, Port Royal, S. C | 30.25 | 768.3 | 73 | 22.8 | 73 | 22.8 | 85 | ENE | | | 1 | | 2 | | ENE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.92 | 760.0 | 76 | 24.4 | 74 | 23.3 | 90 | SSE | | | 3 | | 0 | | | 0 | 0 | | | Clear | |
| Pensacola, Pichilingue Bay, Mexico | 30.03 | 762.7 | | | 73 | 22.8 | 81 | S | | | 2 | | 4 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Off Vera Cruz, Mexico | 30.06 | 763.5 | 84 | 28.9 | 83 | 28.3 | 91 | NE | | | 1 | | 10 | | N | 0 | 0 | Moderate | N&E | Cloudy | |
| Ranger, Valetta, Malta | 30.30 | 769.6 | | | 74 | 23.3 | 95 | SE | | | 3 | | 2 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.13 | 765.3 | 70.0 | 21.1 | 69.0 | 20.6 | 87 | N | | | 2 | | 0 | | | 0 | 0 | | | Blue sky | |
| Rio Bravo, Matamoras, Mexico | 29.91 | 759.7 | | | 72 | 22.2 | 95 | SE | | | 1 | | 5 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.24 | 768.1 | 77 | 25.0 | 70 | 21.1 | 61 | WSW | | | 1 | | 1 | | W | 0 | 0 | | | Hazy | |
| St. Louis, League Island, Pa | 30.07 | 763.8 | 69 | 20.6 | 69. | 20.6 | 75 | SW | 3 | 1.3 | | | 4 | | WSW | 0 | 0 | | | Fair | |
| Swatara, Aspinwall, Panama | 30.02 | 762.5 | 83 | 28.3 | 81 | 27.2 | 91 | Calm | | | 0 | | 3ck | | N | Blank | Blank | | | Fair | |
| Tennessee, Yokohama, Japan | 29.97 | 761.2 | 72 | 22.2 | 72 | 22.2 | 95 | S | | | 1 | | | | | | | Smooth | | Blue sky | |
| Trenton, Smyrna, Turkey | 29.80† | 756.9† | 80 | 26.7 | 85 | 29.4 | 79 | WNW | 16.1 | 7.2 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.97 | 761.2 | 66 | 18.9 | 67 | 19.4 | 95 | S | | | 1 | | 1 | | S | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.20 | 767.1 | 70 | 21.1 | 75 | 23.9 | 68 | NW | 4 | 1.8 | | | 0 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.34† | 770.6† | 70 | 21.1 | 71 | 21.7 | | SW | | | 1 | | | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 42° 59′ W. 167° 11′ | | | 30.04 | 763.0 | 50 | 10.0 | 86 | WNW | | | 2 | | 10ks | | | Smooth | | Overcast | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

**WHITE STAR LINE MARINE SERIES.**

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig, N. 42° 38′ W. 49° 49′ | 8 72 W | 11¼ | 30.23 | 767.8 | 45 | 7.2 | | NNE | | | 4 | | | | | Swell | SW | Misty | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction From— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Brunswick, Ga. | | | 30.14 | 765.5 | 72 | 22.2 | 85 | N | 6 | 2.7 | | 0 | 0 | | | | | Clear. | Capt. James Jorgensen. |

Note.—The original give the barometer as read off; the wind-force by the scale of 12.

Note.—The schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e. are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 3, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.92 | 759.9 | 74.3 | 23.5 | 73 | Calm | | | 0 | | 6 | | | 0.091 | 2.3 | Fair | Charnot. |
| Algiers | | | 29.98 | 761.4 | 73.0 | 22.8 | 76 | E | | | 1 | | 10 | | | 0 | 0 | Hidden | Peter. |
| La Calle | | | 30.00 | 762.0 | 74.5 | 23.6 | 76 | NE | | | 2 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.08 | 763.9 | 84.2 | 29.0 | | NW | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.07 | 763.8 | 80.6 | 27.0 | | E | | | 3 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.04 | 763.0 | 90.3 | 32.4 | | NNW | | | 3 | | 5 | | | 0 | 0 | Fair | Millot. |
| Tebessa | | | 30.16 | 766.0 | 85.5 | 29.7 | | SW | | | 1 | | 0 | | | 0.236 | 6.0 | Clear | Bourgeois. |
| Geriville | | | 30.07 | 763.6 | 86.7 | 30.4 | | SE | | | 3 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.13 | 765.2 | 88.7 | 31.5 | 88 | W | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.09 | 764.3 | 97.2 | 36.2 | | SW | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.13 | 765.2 | 76.5 | 24.7 | 52 | NE | | | 3 | | 5 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.19 | 766.9 | 70.9 | 21.6 | 55 | NE | | | 1 | | 0 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.14 | 765.6 | 68.0 | 20.0 | 55 | N | | | 2 | | 5c,s | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.95 | 735.3 | 30.17 | 766.2 | 70.2 | 21.2 | 55 | SW | | | 2 | | 0 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.71 | 729.3 | 30.08 | 764.1 | 73.0 | 22.8 | 42 | E | | | 3 | | 2 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.72 | 729.6 | 30.02 | 762.5 | 70.2 | 21.2 | 55 | E | | | 5 | | 0 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 30.12 | 765.1 | 70.5 | 21.4 | 65 | NW | | | 1 | | 5 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.05 | 763.2 | 73.9 | 23.3 | 44 | WNW | | | 2 | | 3cs | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Segedin | | | 30.10 | 764.5 | 68.0 | 20.0 | 59 | | | | | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.11 | 764.9 | 78.3 | 25.7 | 40 | ENE | | | 2 | | 0 | | | 0 | 0 | Clear. | P. Busin. |
| Vienna | | | 30.12 | 765.0 | 75.6 | 24.2 | 41 | SE | | | 1 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.52 | 724.5 | 29.97 | 761.3 | 72.7 | 22.6 | 37 | S | | | 2 | | 1 | | | 0 | 0 | | |
| Brussels | | | 29.90 | 759.5 | 74.1 | 23.4 | 44 | SSE | | | 2 | 4c | | SW | | 0 | 0 | Solar halo | Royal Observatory |
| Furnes | | | 29.85 | 758.2 | 78.6 | 25.9 | 49 | SSE | | | 2 | | 1 | | | 0 | 0 | | |
| Maeseyck | | | 29.96 | 761.0 | 76.5 | 24.7 | 47 | ESE | | | 2 | | 3 | | | 0.028 | 0.7 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.49 | 749.0 | 57.4 | 14.1 | | S | 24 | 10.7 | | | 6 | | | 0.005 | 0.13 | D. clouds | William Boswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 29.39 | 746.5 | 56.0 | 13.3 | | S | 24 | 10.7 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.56 | 750.8 | 68.1 | 20.1 | | SSE | 20 | 8.9 | | | 5 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.38 | 746.2 | 55.6 | 13.1 | | SSE | | | 1-2 | | 10 | | | | | Raining | J. Dreyer. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0.07 | 1.8 | | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.94 | 760.5 | 80.0 | 26.7 | | NE | | | 2 | | 5 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.74 | 755.4 | 76.8 | 24.9 | | S | | | 3 | | 1 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.75 | 755.6 | 76.4 | 24.7 | | | | | 4 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 29.83 | 757.7 | 78.2 | 25.7 | | Calm | | | 0 | | 10 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.26 | 717.8 | 29.69 | 754.1 | 60.2 | 15.7 | | S | | | 5 | | 2 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.43 | 747.5 | 54 | 12. | | S | | | 6 | | 10 | | | | | Overcast | J. Mac Gowan. |
| Dover | | | 29.82 | 757.4 | 67 | 19.4 | | S | | | 2 | | 0 | | | | | Clear | J. Costello. |
| Eccles, (near Manchester) | | | 29.61 | 752.1 | 72.8 | 22.7 | | S | 12.0 | 5.4 | | | 5 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.64 | 752.8 | 61.0 | 16.1 | | S | | | 4 | | 4 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27 92 | 709.2 | 30.15 | 765.8 | 61.5 | 16.4 | | E | | | 2 | | 4 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.00 | 762.0 | 88 | 31.1 | | NE | | | 1 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.39 | 746.5 | 53 | 11.7 | | W | | | 5 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.95 | 760.7 | 76.0 | 24.4 | | SW | | | 3 | | 4 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29 47 | 748.5 | 55.2 | 12.9 | | WSW | | | 3 | | 8 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 29.84 | 757.9 | 61 | 16.1 | | SSE | | | 4 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.78 | 756.4 | 76.0 | 24.4 | | SSE | | | 4 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 29.68 | 753.9 | 71.5 | 21.9 | | SSE | | | 4 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.67 | 753.6 | 62 | 16.7 | | S | | | 4 | | 2c | | | 0.3 | 8. | Fine | M. P. Moyle. |
| Holyhead | | | 29.54 | 750.3 | 63 | 17.2 | | SSW | | | 6 | | 2 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.85 | 758.2 | 74.5 | 23.6 | | S | 19 | 8.5 | | | 5 | | | | | D. clouds | The Staff. |
| Kingstown | | | 29.48 | 748.8 | 55 | 12.8 | | SSE | | | 4 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 29.69 | 754.1 | 72.4 | 22.4 | | S | | | 5 | | | | | | | Blue sky | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.99 | 761.7 | 79.0 | 26.1 | | NE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.35 | 745.5 | 64 | 17 8 | | SW | | | 5 | | 5 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.14 | 765.5 | 77.0 | 25.0 | | N | | | 2 | | 2 | | | | | D clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.76 | 755.9 | 76.2 | 24.6 | | S | | | 6 | | 1c | | S | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.64 | 752.8 | 72.7 | 22.6 | | S | | | 6 | | 0 | | | | | Blue sky | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.71 | 754.6 | 76 | 24.4 | | SSE | | | 3 | | 1 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 29.67 | 753.6 | 64.5 | 18.1 | | S | | | 3 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 29.45 | 748.0 | 54 | 12.2 | | SSW | | | 6 | | 10 | | | | | Raining | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.71 | 754.6 | 71.5 | 21.9 | | SSE | | | 2 | | 2 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.36 | 745.7 | 52.5 | 11.4 | | SSE | 25 | 11.2 | | | 10 | | | | | Raining | Rev. C. Clouston, LL.B. |
| Scutari, Cemetery, (Turkey | | | 29.96 | 761.0 | 72.6 | 22 6 | | NE | | | 2 | | 7 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.64 | 752.8 | 73.1 | 22.8 | | SW | | | 6 | | 2 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 29.52 | 749.8 | 69.8 | 21.0 | 49 | SW | | | 7 | | 1 | | | 0.060 | 1.52 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.59 | 751.6 | 67.9 | 19.9 | | S | | | 5 | | 10 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.21 | 741.9 | 51 | 10.6 | | SSW | | | 8 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgis | | | 29.72 | 754.9 | 73 3 | 22.9 | | SE | | | 2 | | 0 | | | | | Squally | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.32 | 744.7 | 60 | 15.6 | | S | | | 5 | | 8 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 29.69 | 754.1 | 64 | 17.8 | | S | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.42 | 747.3 | 53.6 | 12.0 | | WSW | 14 | 6.3 | | | 10 | | | | | Overcast | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | S | | | 1 | 10 | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.21 | 767.3 | 60.8 | 16.0 | 76 | S | 17 | 7.6 | | 5 | 9 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.23 | 767 8 | 51.9 | 10.6 | 86 | | | | 2 | | 4k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.52 | 749.8 | 63.0 | 17.2 | | SW | | | 4 | | 10k | | | 0.08 | 2.0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.17 | 766.3 | 74.1 | 23.4 | 62 | ESE | 19.3 | 8.6 | | 1 | 1 | | ESE | 0 | 0 | Blue sky | C. Meldrum. |
| Melbourne, Observatory | | | 30.46 | 773.7 | 47.0 | 8.3 | 90 | NW | 5 | 2.2 | | | 0 | | | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.18 | 741.2 | 51 | 10.6 | | S | | | 7 | | 10 | | | 0.5 | 13. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.44 | 747.8 | 48 | 8.9 | | S | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | Capt. W. Watson |
| S. S. Batavia, N. 50° 35′ W. 17° 5′ | | | | | 54.0 | 12.2 | | SW | | 4 | | 5 | | | 4 | SW | D. clouds | Capt. J. E. Moulard. |
| Ship Camperdown, N. 31° 20′ W. 79° 40′ | | | 30.27 | 768.8 | 74.0 | 23.3 | | WNW | | 2 | | 2 | | | 2 | SE | Hazy | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.39 | 746.5 | 53 | 11.7 | | WNW | | 3 | | 8 | | | 0 | | Raining | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Barometer. Corrected for instru-m'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.25 | 666.7 | | | 70.7 | 21.5 | 87 | E | | | 2 | | 1ck | | E | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Barometer. Corrected for instru-m'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.07 | 763.7 | 67.5 | 19.7 | 55 | SSW | | | 4 | | 0 | | | | | | |
| Faröe | | | 29.99 | 761.7 | 64.9 | 18.3 | 78 | SW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 29.57 | 751.0 | 31.8 | — 0.1 | 79 | Calm | | | 0 | | 8 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.44 | 747.8 | 38.7 | 3.7 | 80 | NE | | | 8 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.33 | 745.0 | 53.4 | 11.9 | 84 | S | | | 4 | | 3 | | | | | | |
| Vestervig | | | 29.93 | 760.2 | 59.7 | 15.4 | 81 | SSW | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Barometer. Corrected for instru-m'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 29.90 | 759.5 | 62.6 | 17 | 54 | SW | | | 1 | 5c | | SW | | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 29.81 | 757.2 | 81.3 | 27.4 | 48 | E | | | 2 | | 0 | | | 0 | 0 | Clear | Bonvarne, Director. |
| Avignon, Normal School | | | 30.10 | 764.6 | 79.5 | 26.4 | 42 | S | | | 1 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.91 | 759.8 | 79.0 | 26.1 | 39 | SW | | | 3 | 5c | | SW | | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.87 | 758.8 | 73.9 | 23.3 | 59 | SSE | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Besançon | | | 29.98 | 761.6 | 79.2 | 26.2 | 61 | SE | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourgen Bresse | | | 30.07 | 763.8 | 78.1 | 25.6 | 50 | S | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.01 | 762.2 | 72.5 | 22.5 | 81 | SE | | | 4 | | 2 | | NE | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.66 | 753.3 | 67.1 | 19.5 | 66 | SW | | | 3 | | 0 | | | 0 | 0 | Clear | The Staff. |
| Carcassonne, Normal School | | | 30.00 | 762.0 | 75.4 | 24.1 | 90 | E | | | 6 | | 5 | | E | 0 | 0 | Partly cl'dy | Vateau, Director. |
| Caen | | | 29.76 | 755.8 | 79.9 | 26.6 | 69 | SE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Chartres, Normal School | | | 29.80 | 756.9 | 76.5 | 24.7 | 79 | S | | | 2 | | 5 | | NE | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.91 | 759.8 | 79.7 | 26.5 | 48 | S | | | 3 | 5c | | S | | 0 | 0 | Cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de Dôme | | | 29.84 | 758.0 | 83.8 | 28.8 | 35 | S | | | 3 | | 5 | | | 0 | 0 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 29.94 | 760.5 | 73.4 | 23 | 60 | SE | | | 4 | | 5 | | SE | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.13 | 765.3 | 80.2 | 26.8 | 28 | S | | | 4 | | 2 | | S | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.03 | 762.7 | 71.6 | 22 | 66 | NW | | | 4 | | 2ks | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.78 | 756.4 | 76.3 | 24.6 | 64 | SE | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Mouillet, Director. |
| Le Mans, Normal School | | | 29.82 | 757.5 | 79.2 | 26.2 | 49 | S | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.02 | 762.4 | 77.0 | 25 | 48 | S | | | 4 | | 5 | | | 0 | 0 | Cloudy | Pin, Director. |
| Lorient, Naval Observatory | | | 29.76 | 756.0 | 66.9 | 19.4 | 73 | S | | | 3 | | 2 | | S | 0 | 0 | ¼ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.03 | 762.8 | 72.9 | 22.7 | 65 | S | | | 4 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.05 | 763.2 | 72.5 | 22.5 | 45 | ESE | | | 2 | | 5es | | E | 0 | 0 | | Normal School. |
| Mirecourt | | | 29.92 | 760.0 | 71.4 | 21.9 | 62 | SSW | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School |
| Nismes, Normal School | | | 30.06 | 763.6 | 79.5 | 26.4 | 48 | S | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.79 | 756.6 | 80.2 | 26.8 | 34 | S | | | 2 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 29.86 | 758.5 | 76.5 | 24.7 | 44 | SE | | | 3 | c | ck | N | S | 0 | 0 | Cloudy | National Observatory. |
| Pavas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.85 | 758.1 | 80.6 | 27.0 | 47 | SSE | | | 3 | | 8 | | SE | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.82 | 757.3 | 79.3 | 26.3 | 42 | SE | | | 4 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | | | 29.82 | 757.3 | 80.6 | 27 | 42 | W | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | T. Hugues, Director. |
| Villefranche | 28.77 | 730.7 | 29.95 | 760.6 | 81.9 | 27.7 | 58 | ESE | | | 4 | | 5 | | | 0 | 0 | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.05 | 763.2 | 79.0 | 26.1 | 35 | SE | | | 2–3 | | 4 | | | 0 | 0 | Partly cl'dy | The Staff. |
| Mont-Louis | 24.95 | 633.8 | 30.27 | 768.8 | 72.5 | 22.5 | 37 | SSW | 14.9 | 6.66 | | | 6 | | SSW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.87 | 758.8 | 80.6 | 27.0 | 41 | SSE | | | 1 | | 7 | | | 0 | 0 | | Marie Davy, Director. |
| Perpignan | | | 30.01 | 762.2 | 70.9 | 21.6 | 70 | E | 11.2 | 5.00 | | | 10 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.37 | 542.7 | | | 48.2 | 9.0 | | SW | | | 4 | | 10 | | | | | Cloudy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.64 | 575.1 | | | 54.0 | 12.2 | | SW | | | 4 | | 10 | | | 0 | 0 | Cloudy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.87 | 758.8 | 80.6 | 27.0 | 47 | SE | | | 2 | | 4 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 29.97 | 761.1 | 72.1 | 22.3 | 51 | SSE | | | 4 | | 8 | | | 0 | 0 | | The Staff |
| Tours | | | 29.83 | 757.6 | 83.8 | 28.8 | 40 | SSW | | | 3 | | 6 | | W | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.89 | 759.3 | 80.6 | 27.0 | 60 | S | | | 3 | | 7 | | | 0 | 0 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.82 | 757.5 | 75.2 | 24.0 | 78 | SSE | 17.0 | 7.6 | | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.1 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135, millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhone.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. (0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.06 | 763.5 | 73.8 | 23 2 | 42 | S | | | 5 | | 1 | S | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.13 | 765.2 | 75.0 | 23.9 | 64 | S | | | 1 | | 0 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.22 | 767.6 | 74.3 | 23.5 | 47 | SE | | | 3 | | 0 | | | 0 | 0 | | Royal University Ob'y. |
| Carlsruhe | | | 29.96 | 761.0 | 79.5 | 26.4 | 48 | NE | | | 1 | | 1 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.05 | 763.3 | 76.8 | 24.9 | 48 | SE | | | 2 | | 2 | W | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.94 | 760.5 | 79.7 | 26.5 | 37 | SE | | | 4 | | 4 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.90 | 759.5 | 75.4 | 24.1 | 47 | SSW | | | 3 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.06 | 763.4 | 78.4 | 25.8 | 33 | ESE | | | 3 | | 1 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.64 | 727.4 | 30.04 | 762.9 | 66.9 | 19.4 | 61 | WSW | | | 1 | | 2 | WSW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.04 | 763.1 | 73.9 | 23.3 | 44 | SSE | | | 5 | | 0 | | | 0 | 0 | Clear | Captain F. Hegemann. |
| Kiel | | | 30.02 | 762.6 | 70.7 | 21.5 | 71 | S | | | 2 | | 3 | | | 0.024 | 0.6 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.19 | 766.9 | 68.0 | 20.0 | 54 | SW | | | 2 | | 5 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.13 | 765.2 | 77.5 | 25 3 | 45 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.21 | 767.2 | 59.7 | 15.4 | 70 | WSW | | | 3 | | 7c | WNW | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.19 | 766.9 | 62.6 | 17.0 | 77 | NE | | | 2 | | 5 | WSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.18 | 766.5 | 76.1 | 24.5 | 40 | WSW | | | 5 | | 1 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.00 | 762.1 | 74.3 | 23.5 | 56 | SE | | | 1 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.97 | 761.3 | 78.8 | 26.0 | 31 | SE | | | 1 | | 4 | S | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.85 | 758.2 | 78.6 | 25.9 | 32 | SW | | | 5 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.55 | 725.2 | 29.99 | 761.7 | 75.6 | 24.2 | 39 | ESE | | | 4 | | 2 | SW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.17 | 766.3 | 74.1 | 23.4 | 52 | S | | | 1 | | 0 | | | 0 | 0 | | E. F Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.86 | 758.5 | 82.0 | 27.8 | | NE | | | Very strong | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | | | | | | | | | | | | | | | | | | | |
| Deesa | | | | | | | | | | | | | | | | | | | |
| Bombay | 29.71 | 754.7 | 29.75 | 755.6 | 88.2 | 31.2 | 70 | WNW | 17 0 | 7.5 | | | 1 | WNW | SW | 0 | 0 | | Dust-haze. |
| Poona | 27.74 | 704.5 | 29.69 | 754.2 | 89.5 | 31.9 | 49 | | | | | | | | E | 0 | 0 | | Dust-whirl. |
| Lahore | 28.91 | 734.4 | 29.64 | 752.9 | 87.0 | 30.6 | 55 | W | 4.3 | 1.9 | | | 6 | | | 0 | 0 | | Cloudy |
| Belgaum | 27.11 | 688.6 | 29.63 | 752.5 | 76.0 | 24.4 | 78 | W | 7.0 | 3.1 | | | 5 | E | E | 0.37 | 9.4 | | Thunder-storm. |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.67 | 728.2 | 29.54 | 750.3 | 89.6 | 32.0 | | SW | 3.5 | 1.5 | | | 3 | | | 0 | 0 | | |
| Agra | 29.06 | 738.0 | 29.60 | 751.9 | 94.7 | 34.8 | 47 | E | 4.2 | 1.8 | | | 2 | | | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.57 | 725.6 | 29.56 | 750.9 | 100.4 | 38.0 | 24 | NW | 6.7 | 2.9 | | | 9 | | | 0 | 0 | | Threatening |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.25 | 743.0 | 29.62 | 752.4 | 79.5 | 26.4 | 80 | ENE | 5.1 | 2.2 | | | 7 | | | 0 | 0 | | D. clouds. |
| Allanabad | 29.29 | 743.8 | 29.58 | 751.4 | 95.5 | 35.3 | 46 | ENE | 2.6 | 1.1 | | | 4 | N | | 0 | 0 | | D. clouds. |
| Patna | 29.46 | 748.2 | 29.64 | 752.7 | 91.3 | 32.9 | 55 | Calm | 1.9 | 0.8 | | | 4 | | | 0 | 0 | | D. clouds. |
| Hazaribagh | 27.67 | 702.9 | 29.68 | 753.7 | 78.3 | 25.7 | 75 | WSW | 7.4 | 3.3 | | | 6 | SW | S | 1.72 | 43.7 | | Thunder-storm. |
| Cuttack | 29.62 | 752.3 | 29.70 | 754.4 | 76.0 | 24.4 | 76 | NNW | 11.0 | 4.9 | | | 10 | | | 0 | 0 | | Thunder, lightn'g |
| Calcutta, (Alipore) | 29.64 | 752.9 | 29.66 | 753.4 | 85.8 | 29 9 | 71 | SE | 5.0 | 2.2 | | | 2 | | | 0 | 0 | | D. clouds. |
| Goalpara | 29.28 | 743.6 | 29.66 | 753.4 | 84.4 | 29.1 | 68 | ENE | 4.4 | 1.9 | | | 1 | NNW | | 0 | 0 | | D. clouds. |
| Chittagong | 29.66 | 753.4 | 29.75 | 755.7 | 76.9 | 24.9 | 90 | ENE | 19.9 | 8.8 | | | 4 | | | 0.10 | 2.5 | | Gloomy. |
| Sibsagar | 29.38 | 746.2 | 29.71 | 754.6 | 84.4 | 29.1 | 74 | E | 3.2 | 1.4 | | | 10 | | | 0 | 0 | | D. clouds. |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.38 | 720.8 | 29.74 | 755.3 | 81.5 | 27 5 | 73 | NW | | | | | 9 | | | 0.90 | 22.9 | | Overcast |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,026 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.44 | 569.0 | 30.162 | 766.1? | 41.0 | 5.0 | 94 | WNW | | | 1 | | 2 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.40 | 569.9 | 30.05 | 763.3 | 45.5 | 7.5 | | SSW | | | 1 | | 0 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.09 | 764.3 | 75.4 | 24.1 | 46 | NE | 0.7 | 0.3 | | | 5 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.11 | 764.9 | 73.9 | 23.3 | 56 | E | 3.1 | 1.4 | | | 3 | W | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.10 | 764.6 | 76.5 | 24.7 | 51 | SE | 2.5 | 1.1 | | | 1 | W | | | | | Conte Alm. Da Schio. |
| Verona | | | | | | | | | | | | | | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.82 | 732.0 | 30.08 | 764.1 | 75.6 | 24.2 | 50 | S | | | 2 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.07 | 763.7 | 74.3 | 23.5 | 52 | SW | | | 4 | | 3 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.11 | 764.7 | 81.9 | 27.7 | 57 | E | | | 2 | | 2 | ENE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.12 | 765.0 | 74.7 | 23.7 | 55 | NE | | | 2 | | 1 | NE | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.10 | 764.5 | 74.5 | 23.6 | 55 | SSE | 2.5 | 1.1 | | | 2 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.25 | 717.5 | 30.08 | 764.0 | 72.3 | 22.4 | 41 | ENE | | | 4 | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.162 | 766.1? | 72.5 | 22.5 | 57 | E | | | 2 | | 2 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.10 | 764.4 | 73.4 | 23.0 | 59 | SW | 3.8 | 1.7 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.13 | 765.2 | 75.9 | 24.4 | 50 | E | 8.7 | 3.9 | | | 1 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 30.10 | 764.5 | 78.4 | 25.8 | 44 | ESE | | | 2 | | 0 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.10 | 764.4 | 78.3 | 25.7 | 40 | N | | | 6 | | 0 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.07 | 763.8 | 76.1 | 24.5 | 57 | W | 8.7 | 3.9 | | | 0 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.91 | 734.2 | 30.06 | 763.5 | 76.5 | 24.7 | 24 | NNE | 1.3 | 0.6 | | | 1 | NE | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.63 | 727.2 | 30.13 | 765.3 | 68.4 | 20.2 | 53 | NE | | | 2 | | 4 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.14 | 765.6 | 69.6 | 20.9 | 81 | NW | 19.2 | 8.6 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.10 | 764.4 | 72.0 | 22.2 | 60 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.07 | 763.7 | 80.2 | 26.8 | 32 | NNE | | | 4 | | 2 | NE | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.03 | 762.7 | 81.5 | 27.5 | 41 | W | 8.7 | 3.9 | | | 0 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.04 | 763.0 | 81.3 | 27.4 | 29 | NE | | | 6 | | 1 | | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.94 | 760.5 | 73.8 | 23.2 | 48 | N | 36.0 | 16.1 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.98 | 761.6 | 80.6 | 27.0 | 67 | NE | 4.9 | 2.2 | | | 7 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.01 | 762.2 | 76.3 | 24.6 | 57 | S | | | 2 | | 7 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Ribosto, (Sicily) | | | 29.98 | 761.5 | 79.5 | 26.4 | 46 | NE | | | 6 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.00 | 761.9 | 73.4 | 23.0 | 55 | ENE | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.03 | 711.9 | 29.89 | 759.3 | 75.7 | 24.3 | 30 | S | | | 2 | | 4 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.92 | 759.9 | 75.9 | 24.4 | 56 | SE | | | 1 | | 5 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.05 | 763.3 | 79.5 | 26.4 | 42 | WNW | 1.8 | 0.8 | | | 3 | E | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.4 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.98 | 761.5 | 70 | 21.1 | 78 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.17 | 588.4 | 30.16 | 766.1 | 54.5 | 12.5 | 80 | NW | 0.4 | 0.18 | | 0 | 18 | | | 0.079 | 2.0 | Fair | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.91 | 759.7 | 70.9 | 21.6 | | SSE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.90 | 759.5 | 73.4 | 23.0 | | S | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.92 | 759.9 | 73.6 | 23.1 | | S | | | 3 | | | | | 0 | 0 | | |
| Utrecht | | | 29.90 | 759.4 | 75.0 | 23.9 | 40 | SSE | | | 4 | | 2 | | | 0 | 0 | Light cloudy. | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.60 | 751.8 | 51.4 | 10.8 | 98 | S | 23.5 | 10.5 | | | 10 | | | Inap. | Inap. | Raining | |
| Brönö | | | 29.55 | 750.5 | 49.3 | 9.6 | 75 | SSW | 25 | 11 | | | 8 | | | 0.366 | 9.3 | Raining | |
| Christiania | | | 29.81 | 757.1 | 55.1 | 13.1 | 85 | S | 16 | 7 | | | 9 | | | 0 | 0 | | |
| Tromsö | | | 29.43 | 747.4 | 48.0 | 8.9 | 88 | SW | 7 | 3 | | | 10 | | | 0.268 | 6.8 | Raining | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.95 | 760.6 | 59.7 | 15.4 | 75 | N | 8.1 | 3.6 | | | 6 | | | 0.283 | 7.2 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.87 | 758.7 | 78.1 | 25.6 | 50 | SSW | 9.9 | 4.44 | | | 7 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos |
| Funchal, (Madeira) | | | 30.00 | 761.9 | 72.0 | 22.2 | 62 | W | 9.8 | 4.4 | | | 2 | | | 0 | 0 | | Capt. D. A. de Cunha |
| Lisbon, Observatory | | | 29.94 | 760.4 | 65.5 | 18.6 | 64 | SW | 13.8 | 6.1 | | | 3 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 29.92 | 760.0 | 62.6 | 17.0 | 59 | N | 9.8 | 4.4 | | | 5 | | | 0.272 | 6.9 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.21 | 767.3 | 70.0 | 21.1 | 52 | SW | 4 | 2 | | | 1 | | | | | | Astronomical Obs. |
| Wilna | | | 30.18 | 766.6 | 67.1 | 19.5 | 50 | NW | 7 | 3 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.06 | 763.5 | 64.2 | 17.9 | 41 | W | 13 | 6 | | | 0 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.96 | 761.0 | 56.1 | 13.4 | 64 | NW | 20 | 9 | | | 3 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.72 | 754.8 | 59.0 | 15.0 | 64 | WSW | 27 | 12 | | | 8 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 30.10 | 764.5 | 68.2 | 20.1 | 45 | NNE | 4 | 2 | | | 2 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.06 | 763.5 | 68.0 | 20.0 | 63 | NE | 13 | 6 | | | 10 | | | | | | Kurdakof. |
| Kertch | | | 30.02 | 762.4 | 72.3 | 22.4 | 71 | NE | 4 | 2 | | | 1 | | | | | | Lagorio. |
| Moscow | | | 30.01 | 762.2 | 70.0 | 21.1 | 35 | SW | 0 | 0 | | | 0 | | | | | | Meteorological Obs. |
| Lugan | | | 29.88 | 759.0 | 68.5 | 20.3 | 68 | NNW | 9 | 4 | | | 7 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.86 | 758.4 | 66.0 | 18.9 | 35 | E | 7 | 3 | | | 0 | | | | | | Ogorodnikof. |
| Tiflis | 28.54 | 725.0 | 29.93 | 760.1 | 68.0 | 20.0 | 41 | S | 13 | 6 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.00 | 762.0 | 72.7 | 22.6 | 37 | SSW | 9 | 4 | | | 4 | | | | | | Sebastianof. |
| Kasan | | | 29.77 | 756.1 | 59.9 | 15.5 | 71 | N | 9 | 4 | | | 8 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.90 | 759.4 | 79.3 | 26.3 | 87 | S | 16 | 7 | | | 0 | | | | | | Tschernischef. |
| Ekaterinburg | 28.89 | 733.8 | 29.82 | 757.4 | 57.7 | 14.3 | 54 | S | 2 | 1 | | | 7 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.99 | 761.7 | 72.5 | 22.5 | 36 | NNW | 7 | 3 | | | 7 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.33 | 719.5 | 29.98 | 761.4 | 72.3 | 22.4 | 34 | NNW | 18 | 8 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 29.75 | 755.6 | 68.4 | 20.2 | 34 | NE | 2 | 1 | | | 9 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.88 | 758.9 | 56.1 | 13.4 | 60 | E | 2 | 1 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 38.3 | 3.5 | | Calm | 0 | 0 | | | 1 | | | | | | Mossin. |
| Peking, (China) | | | 29.69 | 754.0 | 77.5 | 25.3 | 22 | NNE | 18 | 8 | | | 3 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.57 | 751.1 | 55.6 | 13.1 | 91 | Calm | 0 | 0 | | | 0 | | | | | Lightning | |
| Nikolaievsk, on the Amoor | | | | | 48.6 | 9.2 | | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.90 | 759.4 | 73.9 | 23.3 | 47 | S | 15.0 | 6.67 | | 0 | 9 | | | 0.008 | 0.2 | Almost cov'd | The Staff. |
| San Fernando, Naval Obs'y | | | 29.99 | 761.8 | 71.4 | 21.9 | 76 | SW | 11.2 | 5.0 | | 0 | 10 | | SW | 0 | 0 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.11 | 764.8 | 80.4 | 26.9 | 80 | ENE | 11.4 | 5.1 | | 0 | 1k | | | 0.230 | 6.0 | Clear | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 30.01 | 762.2 | 85.3 | 29.6 | 78 | E | 3.2 | 1.41 | | 4cs | 1k | | E | 0.207 | 5.25 | Clear | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:10 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson, Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.60 | 751.8 | 39.4 | 4.1 | 95 | S | | | 2 | | 10 | | | 0.079 | 2.0 | Foggy | |
| Umea | | | 29.69 | 754.0 | 50.0 | 10.0 | 89 | SW | | | 6 | | 9 | | | 0.118 | 3.0 | | |
| Hernosand | | | 29.70 | 754.3 | 53.2 | 11.8 | 56 | S | | | 2 | | 10 | | | 0.311 | 7.9 | Raining | |
| Stockholm | | | 29.91 | 759.7 | 65.8 | 18.8 | 60 | SW | | | 2 | | 8 | | | 0.063 | 1.6 | | |
| Wisby | | | 30.05 | 763.2 | 64.4 | 18.0 | 67 | SW | | | 6 | | 3 | | | 0.154 | 3.9 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.89 | 759.3 | 59.4 | 15.2 | 75 | SW | 16.1 | 7.2 | | | 10 | | WSW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.64 | 727.5 | 30.02 | 762.6 | 70.2 | 21.2 | 48 | N | | | 2 | | 2 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.43 | 722.1 | 29.99 | 761.8 | 77.7 | 25.4 | 47 | W | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +1.6 mm; Thermometer, +2.0 cent.; Relative Humidity, —8 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.01 | 762.3 | 67.6 | 19.8 | 55 | NNE | 22 | 10.0 | | | 7 | | NNE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.99 | 761.7 | 87.8 | 31.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.05 | 763.2 | 77.5 | 25.3 | | NE | | | 3 | | 3 | | | | | | B. Stéfanidès. |
| Valona | | | 30.00 | 762.0 | 77.4 | 25.2 | | NW | | | 2 | | 5 | | | 0 | 0 | Cloudy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.83 | 757.6 | 77.9 | 25.5 | 64 | W | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson |
| Brockville, Ontario | | | 29.95 | 760.7 | 62 | 16.7 | | SW | 5 | 2.2 | | Haze | Sm'e | SW | SW | 0 | 0 | Foggy | W. R. Bigg. |
| *Chatham, N. B | | | 29.77 | 756.1 | 68 | 20.0 | 71 | SW | 9 | 4.0 | | 10ck | 0 | SW | | 0.06 | 1.5 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.86 | 758.4 | 59 | 15.0 | 72 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.90 | 759.4 | 68.6 | 20.3 | 66 | SW | | | 2 | Haze | 0 | | | 0 | 0 | Hazy | James Smith, M. A. |
| Dalhousie, N. B | | | | | 69.8 | 21.0 | 72 | W | | | 2 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| Esquimault, B. C | | | 29.99 | 761.7 | 53.7 | 12.1 | 93 | Calm | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.76 | 755.9 | 59 | 15.0 | 68 | SW | 17 | 7.6 | | 0 | Sm'e | | SW | 0.01 | 0.3 | Smoky | J. McWilliams. |
| Fredericton, N. B | | | 29.90 | 759.4 | 64 | 17.8 | 73 | SE | 4 | 1.8 | | | Sm'e | | | 0 | 0 | Smoky | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.89 | 759.2 | 46 | 7.8 | 98 | N | 4 | 1.8 | | 5k | 5n | N | N | 0.07 | 1.8 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.81 | 757.2 | 62.5 | 16.9 | 87 | SW | | | 2 | 5k | 4n | W | | 0.051 | 1.30 | Unsettled | H. J. Strang, M. A |
| Granton, Ontario | 28.83 | 732.3 | 29.89 | 759.2 | 66 | 18.9 | 89 | S | | | 1 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| *Halifax, N. S | | | 29.91 | 759.7 | 57 | 13.9 | 76 | SE | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.93 | 760.2 | 64.2 | 17.9 | 67 | SW | | | 1 | 8ck | 0 | W | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Herr's Content, N. F | | | 29.99 | 761.7 | 49 | 9.4 | 81 | SW | | | 3 | | 10 | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.01 | 762.2 | 60 | 15.6 | 94 | S | 7 | 3.1 | | Haze | Sm'e | | S | 0.01 | 0.3 | Fair | S. Woods, M. A |
| *Montreal, Quebec | | | 29.91 | 759.7 | 66 | 18.9 | 85 | N | 16 | 7.2 | | Sm'e | Haze | | | 0 | 0 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.89 | 759.2 | 59 | 15.0 | 67 | S | 9 | 4.0 | | | 10n | | S | Inap. | Inap | Light rain | Rev. R. Mosley. |
| Peterboro, Ontario | | | 29.89 | 759.2 | 70.7 | 21.5 | 74 | SW | | | 1 | | 7n | | | 0.69 | 17.5 | Cloudy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.94 | 760.5 | 62 | 16.7 | 94 | S | 6 | 2.7 | | 10k | 0 | SW | | 0.01 | 0.3 | Fair | H. Morgan. |
| Port Hastings, N. S | | | | | | | | | | | | | | | | | | | Peter Grant |
| Port Stanley, Ontario | | | 29.95 | 760.7 | 65 | 18.3 | 89 | SW | 3 | 1.3 | | | 10cs | | SW | 0 | 0 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.88 | 758.9 | 69 | 20.6 | 80 | SW | 5 | 2.2 | | | 10n | | SW | 0 | 0 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.85 | 758.2 | 57 | 13.9 | 78 | Calm | 0 | 0 | | 5ck | 0 | W | | Inap. | Inap. | Fair | W. H. McIntyre. |
| St. John, N. B | | | 29.94 | 760.5 | 52 | 11.1 | 79 | S | 10 | 4.5 | | 6ck | 0 | | | 0 | 0 | Fair | G. Murdock, C. E |
| *Saugeen, Ontario | | | | | 51 | 10.6 | 93 | NW | 1 | 0.4 | | | 10ks | | W | 0.17 | 4.3 | Heavy rain | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.64 | 757.9 | 29.86 | 758.4 | 66.8 | 19.3 | 84 | W | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.89 | 759.2 | 68 | 20.0 | 66 | SW | 9 | 4.0 | | 0 | Sm'e | | | 0 | 0 | Hazy | T. C. Hill. |
| *Toronto, Ontario | | | 29.92 | 760.0 | 61 | 16.1 | 89 | E | 2 | 0.9 | | 8cs | Haze | W | | 0.08 | 2.0 | Cloudy | Magnetic Observatory |
| Windsor, N. S | | | 29.82 | 757.4 | 68.0 | 20.0 | 69 | S | 4 | 1.8 | | 2c | 0 | NW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.89 | 759.2 | 67.4 | 19.7 | 92 | S | 9 | 4.0 | | | 9s | | | 0.02 | 0.5 | Cloudy | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.04 | 763.0 | 57.0 | 13.9 | 69 | SW | | | | Sm'e | Sm'e | | | 0 | 0 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y | | | 29.96 | 761.0 | 75 | 23.9 | 81 | Calm | 0 | 0 | | 1c | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich | | | 29.88 | 758.9 | 55 | 12.8 | 68 | SW | 4 | 1.8 | | 2ck | Sm'e | SW | | 0.06 | 1.5 | Fair | |
| Atlantic City, N. J | | | 30.00 | 762.0 | 73 | 22.8 | 63 | W | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Augusta, Ga | | | 30.22 | 767.6 | 73 | 22.8 | 67 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md | | | 30.03 | 762.7 | 76 | 24.4 | 60 | S | 8 | 3.6 | | 8k | Sm'e | W | | 0 | 0 | Cloudy | |
| Barnegat, N. J | | | 29.98 | 761.5 | 77 | 25.0 | 57 | W | 10 | 4.5 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 28.25 | 717.5 | 29.89 | 759.2 | 48 | 8.9 | 77 | NW | 6 | 2.7 | | | 10s | | NW | Inap. | Inap. | Cloudy | |
| Boston, Mass | | | 29.93 | 760.2 | 72 | 22.2 | 62 | NW | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Breckenridge, Minn | | | 29.98 | 761.5 | 46 | 7.8 | 92 | W | 11 | 4.9 | | | 10ks | | W | 0.03 | 0.8 | Cloudy | |
| Buffalo, N. Y | | | 29.88 | 758.9 | 70 | 21.1 | 75 | SW | 4 | 1.8 | | 2c | Haze | | | 0.20 | 5.1 | Fair | |
| Burlington, Vt | | | 29.96 | 761.0 | 71 | 21.7 | 75 | Calm | 0 | 0 | | | 10s | | | 0.10 | 2.5 | Cloudy | |
| Cairo, Ill | | | 30.07 | 763.8 | 67 | 19.4 | 94 | SW | 5 | 2.2 | | | 10n | | W | 1.06 | 26.9 | Light rain | |
| Campo, Cal | 27.39 | 695.7 | 29.96 | 761.0 | 44 | 6.7 | 75 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 54 | 12.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C | | | 30.08 | 764.0 | 71 | 21.7 | 80 | SW | 10 | 4.5 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Cape Henry, Va | | | 30.04 | 763.0 | 76 | 24.4 | 56 | SW | 16 | 7.2 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Cape Lookout, N. C | | | 30.17 | 766.3 | 72 | 22.2 | 81 | W | 20 | 8.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape May, N. J | | | 30.01 | 762.2 | 69 | 20.6 | 75 | SW | 8 | 3.6 | | 2k | Haze | W | | 0 | 0 | Hazy | |
| Charleston, S. C | | | 30.24 | 768.1 | 72 | 22.2 | 75 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.07 | 611.4 | 30.01 | 762.2 | 45 | 7.2 | 60 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill | | | 29.94 | 760.5 | 68 | 20.0 | 56 | NW | 5 | 2.2 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.96 | 761.0 | 69 | 20.6 | 95 | SE | 2 | 0.9 | | | 10n | | | 0.23 | 5.8 | Heavy rain | |
| Cleveland, Ohio | | | 29.92 | 760.0 | 72 | 22.2 | 71 | S | 10 | 4.5 | | | 10ks | | S | 0 | 0 | Threatening | |
| Corsicana, Tex | | | 30.11 | 764.8 | 69 | 20.6 | 90 | SE | 6 | 2.7 | | 5cs | 5s | SE | SE | Inap. | Inap. | Cloudy | |
| Davenport, Iowa | | | 30.01 | 762.2 | 65 | 18.3 | 63 | NW | 1 | 0.4 | | 0 | 8ks | | W | 0 | 0 | Fair | |
| Denison, Tex | | | 30.08 | 764.0 | 71 | 21.7 | 90 | S | 5 | 2.2 | | 2cs | 8s | | | 0.25 | 6.3 | Cloudy | |
| Denver, Col | 24.87 | 631.7 | 30.09 | 764.3 | 55 | 12.8 | 38 | S | 4 | 1.8 | | 0 | 5s | | | 0 | 0 | Fair | |
| Detroit, Mich | | | 29.89 | 759.2 | 68 | 20.0 | 69 | W | 2 | 0.9 | | 5k | 5s | W | W | 0 | 0 | Cloudy | |
| Dodge City, Kan | 27.42 | 696.5 | 29.65 | 753.1 | 62 | 16.7 | 88 | N | 12 | 5.4 | | | 10n | | N | 0.02 | 0.5 | Light rain | |
| Dubuque, Iowa | | | 29.96 | 761.0 | 61 | 16.1 | 60 | W | 3 | 1.3 | | 0 | Haze | | | 0 | 0 | Clear | |
| Duluth, Minn | | | 29.84 | 757.9 | 53 | 11.7 | 79 | W | 10 | 4.5 | | | 10s | | | 0.18 | 4.6 | Cloudy | |
| Eagle Pass, Texas | | | 29.97 | 761.2 | 75 | 23.9 | 83 | SE | 12 | 5.4 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Eastport, Me | | | 29.91 | 759.7 | 53 | 11.7 | 79 | Calm | 0 | 0 | | 5k | Haze | | | 0 | 0 | Hazy | |
| Erie, Pa | | | 29.88 | 758.9 | 73 | 22.8 | 76 | S | 12 | 5.4 | | 5c | 2k | S | S | 0.03 | 0.8 | Cloudy | |
| Escanaba, Mich | | | 29.83 | 757.7 | 53 | 11.7 | 73 | W | 4 | 1.8 | | | 10s | | W | 0 | 0 | Cloudy | |
| Florence, Arizona | 28.34 | 719.8 | 29.94 | 760.5 | 78 | 25.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter | | | 30.00 | 762.0 | 68 | 20.0 | 90 | E | 12 | 5.4 | | | 10s | | SW | 0.64 | 16.3 | Cloudy | |
| Fort Griffin, Tex | 28.75 | 730.2 | 29.98 | 761.5 | 71 | 21.7 | 85 | E | 4 | 1.8 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.81 | 757.2 | 40 | 4.4 | 100 | SW | | | 4 | | Fog | | SW | 0 | 0 | Foggy | |
| Fort Sill, Indian Ter | 28.82 | 732.0 | 29.89 | 759.2 | 67 | 19.4 | 79 | E | | | 1 | 8k | 0 | | | 1.10 | 27.9 | Cloudy | |
| Fort Sully, Dakota | 28.33 | 719.6 | 30.00 | 762.0 | 47 | 8.3 | 85 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex | | | 30.13 | 765.3 | 78 | 25.6 | 73 | SE | 3 | 1.3 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Grand Haven, Mich | | | 29.92 | 760.0 | 62 | 16.7 | 71 | W | 10 | 4.5 | | 1c | 0 | | | 0.06 | 1.5 | Clear | |
| Indianapolis, Ind | | | 29.99 | 761.7 | 72 | 22.2 | 67 | SW | 4 | 1.8 | | 2cs | 2s | | | 0 | 0 | Fair | |
| Indianola, Tex | | | 30.09 | 764.3 | 79 | 26.1 | 65 | SE | 5 | 2.2 | | 2k | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla | | | 30.24 | 768.1 | 72 | 22.2 | 80 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.92 | 760.0 | 66 | 18.9 | 84 | SW | 2 | 0.9 | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Key West, Fla | | | 30.12 | 765.0 | 77.5 | 25.3 | 82 | NE | 10 | 4.5 | | 0 | 5ks | | NE | 0.01 | 0.3 | Fair | |
| Kittyhawk, N. C | | | 30.10 | 764.5 | 72 | 22.2 | 67 | SW | 16 | 7.2 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Knoxville, Tenn | | | 30.14 | 765.5 | 68 | 20.0 | 69 | S | 1 | 0.4 | | 3cs | 0 | | | 0 | 0 | Fair | |
| LaCrosse, Wis | | | 29.96 | 761.0 | 54 | 12.2 | 67 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan | | | 29.91 | 759.7 | 62 | 16.7 | 94 | S | 4 | 1.8 | | | 10s | | | 0.08 | 2.0 | Cloudy | |
| Louisville, Ky | | | 30.01 | 762.2 | 71 | 21.7 | 84 | SW | 4 | 1.8 | | 2ck | 8ks | SW | SW | 0.12 | 3.0 | Cloudy | |
| Lynchburg, Va | | | 30.06 | 763.5 | 76 | 24.4 | 56 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 79 | 26.1 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich | | | 29.81 | 757.2 | 55 | 12.8 | 68 | SW | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Texas | 28.43 | 722.1 | 30.12 | 765.0 | 75 | 23.9 | 63 | SE | 4 | 1.8 | | 0 | 2s | | | 0 | 0 | Clear | |
| Memphis, Tenn | | | 30.12 | 765.0 | 77 | 25.0 | 69 | S | 4 | 1.8 | | 5c | 1ks | SW | SW | 0.03 | 0.8 | Fair | |
| Milwaukee, Wis | | | 29.94 | 760.5 | 60 | 15.6 | 64 | SW | 7 | 3.1 | | 2c | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala | | | 30.22 | 767.6 | 74 | 23.3 | 76 | S | 4 | 1.8 | | 2c | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala | | | 30.25 | 768.3 | 73 | 22.8 | 63 | W | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va | 29.00 | 736.6 | 30.00 | 762.0 | 75 | 23.9 | 59 | SW | 5 | 2.2 | | 10c | 0 | SW | | 0.01 | 0.3 | Cloudy | |
| Mt. Washington, N. H | 23.90 | 607.0 | 30.26 | 768.6 | 46 | 7.8 | 61 | NW | 25 | 11.2 | | 8s | 8s | NW | NW | 0.70 | 17.8 | Cloudy | |
| Nashville, Tenn | | | 30.08 | 764.0 | 73 | 22.8 | 76 | SW | 4 | 1.8 | | 10k | 0 | SW | | 0.01 | 0.3 | Cloudy | |
| New Haven, Conn | | | 29.95 | 760.7 | 77 | 25.0 | 60 | N | 5 | 2.2 | | Haze | Haze | | | 0 | 0 | Clear | |
| New London, Conn | | | 29.96 | 761.0 | 70 | 21.1 | 75 | W | 4 | 1.8 | | 2s | Haze | | | 0 | 0 | Fair | |
| New Orleans, La | | | 30.18 | 766.6 | 74 | 23.3 | 76 | S | 2 | 0.9 | | 1cs | 0 | | | 0 | 0 | Clear | |
| Newport, R. I | | | 29.96 | 761.0 | 65 | 18.3 | 78 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| New York, N. Y | | | 30.00 | 762.0 | 75 | 23.9 | 51 | NW | 4 | 1.8 | | 2c | Fog | | | 0 | 0 | Fair | |
| Norfolk, Va | | | 30.07 | 763.8 | 76 | 24.4 | 59 | SW | 11 | 4.9 | | Haze | Haze | | | 0 | 0 | Hazy | |
| North Platte, Neb | 27.07 | 687.6 | 29.54 | 750.3 | 64 | 17.8 | 61 | NE | 3 | 1.3 | | 5c | 0 | N | | 0 | 0 | Fair | |
| Omaha, Neb | 28.90 | 734.0 | 29.96 | 761.0 | 60 | 15.6 | 70 | N | 5 | 2.2 | | 2c | 0 | | | 0 | 0 | Clear | |
| Oswego, N. Y | | | 29.97 | 761.2 | 66 | 18.9 | 86 | SE | 4 | 1.8 | | 0 | Haze | | | Inap. | Inap. | Clear | |
| Pembina, Dakota | | | 29.98 | 761.5 | 41.5 | 5.3 | 96 | NW | 12 | 5.4 | | | 10s | | | 0.15 | 3.8 | Cloudy | |
| Philadelphia, Pa | | | 30.01 | 762.2 | 75 | 23.9 | 48 | N | 4 | 1.8 | | 1ck | Haze | SW | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 68 | 20.0 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col | 17.85 | 453.4 | 30.06 | 763.5 | 20 | — 6.7 | 92 | SW | 30 | 13.4 | | 2c | 5ks | SW | | 0.19 | 4.8 | Fair | |
| Pittsburgh, Pa | | | 29.96 | 761.0 | 72 | 22.2 | 75 | SW | 7 | 3.1 | | 5k | 2ks | W | W | 0 | 0 | Fair | |
| Port Huron, Mich | | | 29.87 | 758.7 | 65 | 18.3 | 83 | S | 5 | 2.2 | | | 10n | | SW | 0.07 | 1.8 | Light rain | |
| Portland, Me | | | 29.92 | 760.0 | 73 | 22.8 | 67 | N | 3 | 1.3 | | 5k,hz | Haze | | | Inap. | Inap. | Hazy | |
| Portland, Oregon | | | 30.09 | 764.3 | 59 | 15.0 | 88 | S | 4 | 1.8 | | | 10ks | | | 0.09 | 2.3 | Cloudy | |
| Prescott, Arizona | 24.85 | 631.2 | 30.21 | 767.3 | 49 | 9.4 | 37 | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla | | | 30.18 | 766.6 | 75 | 23.9 | 64 | NE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y | | | 29.92 | 760.0 | 68 | 20.0 | 79 | SW | 7 | 3.1 | | Haze | 2s | | | 0.21 | 5.3 | Fair | |
| Salt Lake City, Utah | 25.62 | 650.7 | 29.95 | 760.7 | 60 | 15.6 | 44 | NE | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Sandy Hook, N. J | | | 29.99 | 761.7 | 70 | 21.1 | 75 | W | 8 | 3.6 | | 5ck | Haze | W | | 0 | 0 | Fair | |
| San Antonio, Tex | | | 29.93 | 760.2 | 71 | 21.7 | 90 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Diego, Cal | | | 30.02 | 762.5 | 58 | 14.4 | 87 | E | 4 | 1.8 | | | 10s | | E | 0 | 0 | Cloudy | |
| San Francisco, Cal | | | 30.02 | 762.5 | 54 | 12.2 | 93 | SW | 4 | 1.8 | | | Fog | | | 0 | 0 | Foggy | |
| Santa Fé, N. M | 23.31 | 592.1 | 29.85 | 758.2 | 54 | 12.2 | 33 | SE | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Savannah, Ga | | | 30.25 | 768.3 | 76 | 24.4 | 69 | W | 3 | 1.3 | | 8c | 0 | W | | 0 | 0 | Fair | |
| Shreveport, La | | | 30.24 | 768.1 | 74 | 23.3 | 72 | Calm | 0 | 0 | | 8cs | 0 | S | | 0 | 0 | Fair | |
| Smithville, N. C | | | 30.21 | 767.3 | 72 | 22.2 | 75 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass | | | 29.97 | 761.2 | 73 | 22.8 | 65 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| St. Louis, Mo | | | 30.06 | 763.5 | 65 | 18.3 | 89 | W | 4 | 1.8 | | | 10s | | | 1.37 | 34.8 | Cloudy | |
| St. Marks, Fla | | | 30.24 | 768.1 | 73 | 22.8 | 76 | Calm | 0 | 0 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| St. Paul, Minn | | | 29.92 | 760.0 | 54 | 12.2 | 73 | SW | 12 | 5.4 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 59 | 15.0 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Stockton, Tex | 26.97 | 685.0 | 29.97 | 761.2 | 69 | 20.6 | 84 | SE | 16 | 7 2 | | 8cs | 0 | SE | | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 29.94 | 760.5 | 63 | 17.2 | 83 | NW | 4 | 1.8 | | 1c | 0 | NW | | 0 | 0 | Smoky | |
| Toledo, Ohio | | | 29.89 | 759.2 | 71 | 21.7 | 80 | SW | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Tucson, Arizona | 27.56 | 700.0 | 30.10 | 764.5 | 72 | 22.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.23 | 767.8 | 67 | 19.4 | 90 | W | 6 | 7.2 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.23 | 767.8 | 73 | 22.8 | 75 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear. | |
| Virginia City, M. T | 24.24 | 615.9 | 29.73 | 755.1 | 42 | 5.6 | 58 | SE | 2 | 0.9 | | 8c,k | 0 | SW | | 0 | 0 | Cloudy | |
| Washington, D. C | | | 30.04 | 763.0 | 73.5 | 23.1 | 72 | S | 1 | 0.4 | | 2c,hz | 2s,hz | | W | 0 | 0 | Hazy | |
| Wickenburg, Arizona | | | | | 70 | 21.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.18 | 766.6 | 72 | 22.2 | 63 | W | 10 | 4.5 | | 5ck | 0 | NE | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 29.97 | 761.2 | 63 | 17.2 | 83 | SW | 7 | 3.1 | | 5k | Sm'e | W | SW | 0 | 0 | Fair | |
| Yankton, Dakota | 28.77 | 730.7 | 30.05 | 763.3 | 52 | 11.1 | 73 | W | 1 | 0.4 | | 0 | 8s | | W | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | | | | | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamnica, W. I | | | 30.22 | 767.6 | 80 | 26.7 | 78 | Calm | 0 | 0 | | 8c | 0 | | | 0 | 0 | | James Gall. |
| Nayassa, W. I | | | | | 80 | 26.7 | | NE | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.05 | 763.3 | 80 | 26.7 | 91 | E | | | 1 | 5k | 7ks | E | | 0.270 | 6.86 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | | | | | 69.5 | 20.8 | 78 | Calm | | | 0 | 5cs | 3ks | | | 0.11 | 2.8 | Cloudy | Thomas Herran. |
| York Factory, B. A | 25.25 | 641.3 | | | 28 | — 2.2 | 94 | E | 4 | 1.8 | | Fog | Fog | | | 0 | 0 | Foggy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 29.85 | 758.2 | | | | NE | | | 3 | | | | | | | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | 30.16 | 766.1 | 73 | 22.8 | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Fort Garrick is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Naval Hospital,** Annapolis, Md | 30.14 | 765.5 | 78 | 25.6 | 74 | 23.3 | 68 | S | | | 1 | | 6 | | NW | 0 | 0 | | | Fair | |
| **Navy Yard,** Mare Island, Cal. | 30.08 | 764.0 | 62 | 16.7 | 54 | 12.2 | | SW | | | 1 | | 5 | | NE | 0 | 0 | | | Pleasant. | |
| **Navy Yard,** Pensacola, Fla. | 30.32 | 770.1 | | | 74 | 23.3 | 81 | ENE | 6 | 2.7 | | | 4 | | | 0 | 0 | | | D. clouds | |
| **Navy Yard,** Portsmouth, N.H. | 29.93 | 760.2 | 74 | 23.3 | 74 | 23.3 | 72 | S | 3 | 1.3 | | | | | | 0 | 0 | | | Smoky | |
| **Naval Hospital,** Yokohama, Japan | 29.92 | 760.0 | 71.5 | 21.9 | 69.5 | 20.8 | 80 | SW | | | 5 | | 1c | | SW | 0 | 0 | | | Fair | |
| **Alert,** N. 18° 35′ 54″ E. 145° 43′ 00″ | 30.12† | 765.0† | 82 | 27.8 | 83 | 28.3 | 91 | ESE | | | 2–4 | | 2 | | E | | | Long | E | D. clouds | |
| **Alliance,** Beirut, Syria | 29.95 | 760.7 | 76 | 24.4 | 76 | 24.4 | 68 | NW | | | 0–1 | | 1 | | | | | Smooth | | Clear | |
| **Ashuelot,** Swatow, China | 30.02 | 762.5 | 79 | 26.1 | 77 | 25.0 | 95 | E | | | 4 | | 4 | | E | | | Smooth | | D. clouds | |
| **Canonicus,** New Orleans, La | 30.17 | 766.3 | 54 | 12.2 | 74 | 23.3 | 81 | SE | | | 2 | | 1 | | S&E | | | | | Clear | |
| **Colorado,** New York, N. Y | 30.08 | 764.0 | 68 | 20.0 | 72 | 22.2 | 76 | SW | 1 | 0.4 | | | 1 | | | 0 | 0 | | | Hazy | |
| **Despatch,** N. 36° 56′ E. 18° 47′ | 30.08 | 764.0 | 74 | 23.3 | 74 | 23.3 | 90 | N | | | 4 | | 2 | | N | | | Moderate. | N | Clear | |
| **Franklin,** Norfolk, Va. | 30.12 | 765.0 | 64 | 17.8 | 72 | 22.2 | 95 | WSW | 4 | 1.8 | | | 0 | | | 0 | 0 | | | Blue sky | |
| **Frolic,** Rio de Janeiro, Brazil | 30.12 | 765.0 | 74 | 23.3 | 76 | 24.4 | 95 | Calm | | | 0 | | 6k | | | 0 | 0 | | | D. clouds | |
| ‡**Gettysburg,** Genoa, Italy | 29.95 | 760.7 | | | 81 | 27.2 | 91 | W | | | 1 | | 1 | | | 0 | 0 | | | D. clouds | |
| **Hartford,** N. 34° 24′ 17″ W. 76° 10′ | 30.43 | 772.9 | 74 | 23.3 | 75 | 23.9 | 81 | W | 6.0 | 2.7 | | | 2 | | | 0 | 0 | | | Pleasant | |
| **Huron,** Santa Marta, N. G. | 30.00 | 762.0 | 84 | 28.9 | 83 | 28.3 | 79 | Var. | | | 0–1 | | 3 | | | 0 | 0 | Smooth | | D. clouds | |
| **Kearsarge,** Nagasaki, Japan | 30.13 | 765.3 | 77 | 25.0 | 75 | 23.9 | 90 | Calm | | | 0 | | 2 | | | 0 | 0 | | | Hazy | |
| **Lackawanna,** Pichilingue Bay, Mexico | 30.00 | 762.0 | | | 76 | 24.4 | 77 | W | | | 1 | | 5 | | S&E | | | Long | WSW | D. clouds | |
| **Marion,** Smyrna, Turkey | 29.84 | 757.9 | 82 | 27.8 | 83 | 28.3 | 67 | W | | | 2 | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| **Michigan,** Erie, Pa | 29.47 | 748.5 | 73 | 22.8 | 73 | 22.8 | 76 | SW | | | 1 | | 2 | | SW | | | | | Partly cl'dy. | |
| **Monocacy,** Ta-koo, China | 29.52 | 749.8 | 74 | 23.3 | 73 | 22.8 | 90 | SSE | | | 3–6 | | 8 | | SE | | | | | Showery | |
| **Monongahela,** N. 39° 33′ W. 72° 30′ | 30.08 | 764.0 | 66 | 18.9 | 65 | 18.3 | 78 | WSW | | | 3 | | 1c | | | 0 | 0 | Calm | None | D. clouds | |
| **New Hampshire,** Port Royal, S. C | 30.50 | 774.7 | | | 70 | 21.1 | 90 | W | 12 | 5.4 | | | 3 | | S | 0 | 0 | | | D. clouds | |
| **Omaha,** S. 5° 05′ W. 81° 10′ | 30.05 | 763.3 | 75 | 23.9 | 74 | 23.3 | 76 | SSE | 1 | 0.4 | | | 5 | | SE | 0 | 0 | Slight | S | Pleasant | |
| **Ossipee,** N. 33° 08′ W. 78° 38′ | 30.26 | 768.6 | 72 | 22.2 | 74 | 23.3 | 90 | WSW | | | 1 | | 2 | | | | | Light | E | D. clouds | |
| **Palos,** Shanghai, China | 29.92 | 760.0 | 78 | 25.6 | 77 | 25.0 | 91 | SSE | | | 4–5 | | 0 | | | 0 | 0 | | | Clear | |
| **Pensacola,** Pichilingue Bay, Mexico | 30.04 | 763.0 | | | 73 | 22.8 | 76 | SSE | | | 1 | | 1 | | | 0 | 0 | | | Pleasant | |
| **Plymouth,** Off Vera Cruz, Mexico | 30.09 | 764.3 | 84 | 28.9 | 83 | 28.3 | 83 | N&W | | | 1 | | 9 | | N&W | 0 | 0 | Smooth | | Sultry | |
| **Ranger,** Valetta, Malta | 30.22 | 767.6 | | | 73 | 22.8 | 85 | N | | | 1–2 | | 2 | | | | | Smooth | | Clear | |
| **Richmond,** Rio de Janeiro, Brazil | 30.13 | 765.3 | 75.0 | 23.9 | 74.0 | 23.3 | 94 | SSE | | | 3 | | 7 | | W | | | | | Showery | |
| **Rio Bravo,** Matamoras, Mexico | 29.93 | 760.2 | | | 69 | 20.6 | 95 | SE | | | 1 | | 1 | | | | | | | D. clouds | |
| **Santee,** Annapolis, Md | 30.12 | 765.0 | 75 | 23.9 | 74 | 23.3 | 63 | NW | | | 0–1 | | 9 | | | 0 | 0 | | | Cloudy | |
| **St. Louis,** League Island, Pa | 29.96 | 761.0 | 72 | 22.2 | 70 | 21.1 | 80 | NW | 4 | 1.8 | | | 2 | | NW | 0 | 0 | | | Fair | |
| **Swatara,** Aspinwall, Panama | 30.00 | 762.0 | 83 | 28.3 | 82 | 27.8 | 91 | ENE | | | 1 | | 10n | | | | | | | Rainy | |
| **Tennessee,** Yokohama, Japan | 29.89 | 759.2 | 74 | 23.3 | 75 | 23.9 | 86 | S | | | 3 | | | | | | | Smooth | | Blue sky | |
| **Trenton,** Smyrna, Turkey | 29.73† | 755.1† | 83 | 28.3 | 86 | 30.0 | 80 | W | 7.3 | 3.3 | | | 1 | | | 0 | 0 | | | D. clouds | |
| **Vandalia,** Constantinople, Turkey | 30.07 | 763.8 | 70 | 21.1 | 69 | 20.6 | 90 | NNE | | | 2 | | 7 | | NNE | | | | | D. clouds | |
| **Wabash,** Boston, Mass | 29.99 | 761.7 | 71 | 21.7 | 76 | 24.4 | 64 | NW | 6 | 2.7 | | | 1 | | | 0 | 0 | | | D. clouds | |
| **Wyoming,** Washington, D. C | 30.19† | 766.8† | 74 | 23.3 | 79 | 26.1 | | Calm | | | 0 | | 3 | | | | | | | Hazy | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 42° 55′ W. 160° 51′ | | | 30.09 | 764.3 | 50 | 10.0 | 86 | SE | | | 2 | | 10ns | | | Smooth | | Misty | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |
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| Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 37° 6′ W. 74° 2′ | E¾N | 9 | 30.08 | 764.0 | 65.8 | 18.8 | | SW | | | 4 | | Haze | | | Tranq'l | | Hazy | Capt. C. Pohle. |
| S. S. Braunschweig, N. 41° 31′ W. 56° 21′ | S 76 W | 12 | 30.12 | 765.0 | 61 | 16.1 | | S | | | 3 | | Fog | | | Smooth | | Fog & mist. | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 31° 21′ W. 80° 52′ | NE | 0.5 | 30.18 | 766.6 | 74 | 23.3 | 86 | NW | 3 | 1.3 | | 5ck | Haze | | | Smooth | | Hazy | Capt. James Jorgensen. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 4, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:30 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.18 | 766.5 | 74.5 | 23.6 | 74 | Calm | | | 0 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.10 | 766.9 | 77.7 | 25.4 | 65 | N | | | 4 | | 4 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.94 | 760.5 | 76.5 | 24.7 | 69 | E | | | 3 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.04 | 763.1 | 80.6 | 27.0 | | E | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.06 | 763.5 | 77.0 | 25.0 | | E | | | 3 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.05 | 763.2 | 96.8 | 36.0 | | SSW | | | 5 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.12 | 765.0 | 83.5 | 28.6 | | ENE | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.02 | 762.5 | 88.5 | 31.4 | | SE | | | 5 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.08 | 764.1 | 92.3 | 33.5 | 88 | S | | | 2 | | 0 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.06 | 763.4 | 99.1 | 37.3 | | SE | | | 1 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.07 | 763.8 | 81.3 | 27.4 | 39 | NE | | | 2 | | 5 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.11 | 764.8 | 77.0 | 25.0 | 53 | NE | | | 1 | | 0 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.11 | 764.8 | 75.0 | 24.2 | 53 | S | | | 1 | | 1cs | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.87 | 733.4 | 30.08 | 764.1 | 73.9 | 23.3 | 62 | E | | | 2 | | 1 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.76 | 730.6 | 30.13 | 765.3 | 74.8 | 23.8 | 38 | E | | | 1 | | 0 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.67 | 728.2 | 29.95 | 761.7 | 74.8 | 23.8 | 52 | NE | | | 2 | | 3 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 30.11 | 764.9 | 74.8 | 23.8 | 59 | S | | | 2 | | 0 | | | 0 | 0 | | Dr. T. Stanecki. |
| Polt | | | | | | | | | | | | | | | | | | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.07 | 763.6 | 76.5 | 24.7 | 66 | WNW | | | 1 | | 1ks | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.03 | 764.2 | 68.9 | 20.5 | 58 | | | | | | 3 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 30.09 | 764.3 | 75.2 | 24.0 | 60 | W | | | 1 | | 2 | | | 0 | 0 | Clear | I. R. Central Met. Obs'y. |
| | | | 30.02 | 762.5 | 80.4 | 26.9 | 38 | SSE | | | 3 | | 0 | | | 0 | 0 | | |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | | | | | | | | | | | | | | | | | | | |
| Brussels | 28.47 | 723.2 | 29.90 | 759.5 | 78.6 | 25.9 | 47 | S | | | 2 | | 1 | | | 0 | 0 | | |
| Furnes | | | 29.83 | 757.7 | 81.7 | 27.6 | 59 | SW | | | 1 | 8c | 4k | S | SW | 0 | 0 | | Royal Observatory |
| Mucseyck | | | 29.80 | 756.8 | 77.9 | 25.5 | 73 | ESE | | | 2 | | 6 | | | 0.154 | 3.9 | | |
| | | | 29.88 | 758.9 | 84.2 | 29.0 | 44 | SSW | | | 2 | | 2 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.69 | 754.1 | 57.8 | 14.3 | | S | 17 | 7.6 | | | 4 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 29.70 | 754.4 | 55 | 12.8 | | | | | | | 8 | | | | | Overcast | William McNeil. |
| Armagh, Observatory | | | 29.68 | 753.9 | 54.8 | 12.7 | | SSE | 9 | 4.0 | | | 10 | | | | | Gloomy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.60 | 754.1 | 65.9 | 18.8 | | E | 14 | 6.3 | | | 8 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.65 | 753.1 | 56.1 | 13.4 | | ESE | | | 1 | | 10 | | | | | Overcast | J. Dreyer. |
| Bradford, Yorkshire | | | 29.73 | 755.1 | 69.2 | 20.7 | | S | | | 1 | | 4 | | | 0 | 0 | D. clouds | J. McLandsborough, A. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 81.5 | 27.5 | | NE | | | 2 | | 5 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.75 | 755.6 | 76.9 | 24.9 | | S | | | 1 | | 5 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.75 | 755.6 | 75.4 | 24.1 | | | | | 1 | | 6 | | | | | D. clouds | John McLaren. |
| Chatham, School M. E. | | | 29.82 | 757.4 | 78.2 | 25.7 | | Calm | | | 0 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.25 | 717.5 | 29.68 | 753.9 | 61.8 | 16.6 | | E | | | 4 | | 3 | | | Blank | Blank | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.68 | 753.9 | 53 | 11.7 | | SSW | | | 4 | | 10 | | | | | Overcast | J. Mac Gowan. |
| Dover | | | 29.76 | 755.9 | 69 | 20.6 | | ENE | | | 1 | | 3 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.69 | 754.1 | 68.6 | 20.3 | | S | 0.2 | 0.1 | | | 10 | | | | | Overcast | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.60 | 751.8 | 58.9 | 14.9 | | ESE | | | 4 | | 3 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.88 | 708.1 | 30.11 | 764.8 | 63.1 | 17.3 | | E | | | 2 | | 2 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 760.2 | 85 | 29.4 | | E | | | 1 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.58 | 751.3 | 57 | 13.9 | | S | | | 2 | | 8 | | | | | Gloomy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.96 | 761.0 | 77.0 | 25.0 | | SW | | | 4 | | 2 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.69 | 754.1 | 58.3 | 14.6 | | W | | | 2 | | 10 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 29.80 | 756.9 | 63 | 17.2 | | SSE | | | 1 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.76 | 755.9 | 77.4 | 25.2 | | SSE | | | 1 | | 6 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.65 | 753.1 | 66 | 18.9 | | ESE | | | 2 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.63 | 752.6 | 63 | 17.2 | | E | | | 4 | | 1c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.67 | 753.6 | 57 | 13.9 | | E | | | 2 | | 10 | | | | | Hazy | John Tilston. |
| Kew, Observatory | | | 29.74 | 755.4 | 72.2 | 22.3 | | SE | 10 | 4.5 | | | 5k | | | | | Threatening | The Staff. |
| Kingstown | | | 29.69 | 754.1 | 55 | 12.8 | | SE | | | 3 | | 10 | | | | | Drizzling | George Mitchell. |
| Leicester, Museum | | | 29.72 | 754.9 | 71.4 | 21.9 | | SW | | | 2 | | 5 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.00 | 762.0 | 72.8 | 22.7 | | NW | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.62 | 752.3 | 63 | 17.2 | | SW | | | 3 | | 2 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.14 | 765.5 | 78.5 | 25.8 | | NE | | | 1 | | 8 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.73 | 755.1 | 76.2 | 24.6 | | SSE | | | 3 | | 5c | | SSE | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.70 | 754.4 | 68.0 | 20.0 | | SE | | | 2 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.72 | 754.9 | 71 | 21.7 | | S | | | 1 | | 10 | | | | | Gloomy | F. Lucas. |
| Plymouth | | | 29.64 | 752.8 | 66.1 | 18.9 | | E | | | 5 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 29.60 | 751.8 | 58 | 14.4 | | E | | | 4 | | 10 | | | | | Raining | W. Kennedy. |
| Saint Ann's Head | | | 29.64 | 752.8 | 58 | 14.4 | | ESE | | | 2 | | 10 | | | | | Overcast | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.66 | 753.4 | 78.5 | 25.8 | | SSE | | | 3 | | 2 | | | | | ¼ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.64 | 752.8 | 54 | 12.2 | | WSW | 16 | 7.2 | | | 10 | | | | | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.03 | 762.7 | 69.6 | 20.9 | | NE | | | 2 | | 7 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.71 | 754.6 | 72.0 | 22.2 | | S | | | 1 | | 9 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.73 | 755.1 | 64.6 | 18.1 | 56 | Calm | | | 0 | | 6 | | | 0.040 | 1.0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.70 | 754.4 | 65.0 | 18.3 | | SE | | | 1 | | 9 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.57 | 751.1 | 57 | 13.9 | | SW | | | 6 | | 5 | | | | | D. clouds | John Smith. |
| Stratfield Turgis | | | 29.75 | 755.6 | 70.9 | 21.6 | | SE | | | 1 | | 8 | | | | | Overcast | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 29.58 | 751.3 | 64 | 17.8 | | SSW | | | 4 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.61 | 752.1 | 66 | 18.9 | | E | | | 7 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.60 | 751.8 | 53.9 | 12.2 | | NNE | 6 | 2.7 | | | 10 | | | | | Raining | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 54 | 12.2 | | SE | | | 3 | 5 | | | | 0.12 | 3.0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.26 | 768.6 | 61.7 | 16.5 | 72 | S | 24 | 10.7 | | 0 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.34 | 770.6 | 48.0 | 8.9 | 76 | Calm | | | 0 | | 4k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.72 | 754.9 | 62.0 | 16.7 | | E | | | 2 | | 3ck | | | 0.03 | 0.8 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.16 | 766.1 | 75.4 | 24.2 | 72 | ESE | 17.0 | 7.6 | | 0 | 2 | | E | 0 | 0 | Blue sky | C. Meldrum. |
| Melbourne, Observatory | | | 30.59 | 774.7 | 48.1 | 8.9 | 91 | NE | 3 | 1.3 | | | 3 | | | 0 | 0 | Very fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.50 | 749.3 | 51 | 10.6 | | S | | | 4 | 5 | 5 | S | | 0 | 0 | | J. Youngclauss. |
| North Unst, (Shetland Is.) | | | 29.59 | 751.6 | 49 | 9.4 | | SW | | | 4 | 5 | 2 | SW | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation: the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

## MARINE SERIES.

| VESSELS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 32° 30′, W. 78° 10′ | | | 30.17 | 766.3 | 76.5 | 24.7 | | WSW | | | 4 | | 3 | | | 3 | SW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.55 | 750.6 | 52 | 11.1 | | SE | | | 3 | | 10 | | | 0 | | Raining | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26 24 | 666.5 | | | 70 7 | 21.5 | 84 | E | | | 2 | | 1ck | | E | 0.6 | 15. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.96 | 760.9 | 71.1 | 21.7 | 65 | SE | | | 4 | | 0 | | | | | | |
| Faröe | | | 29.83 | 757.7 | 70.7 | 21.5 | 94 | SSW | | | 4 | | 0 | | | | | | |
| Godthaab, (Greenland) | | | 29.66 | 753.3 | 36.5 | 2.5 | 72 | NW | | | 4 | | 9 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.42 | 747.2 | 38.5 | 3 6 | 87 | NE | | | 7 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.43 | 747.5 | 48.9 | 9.4 | 75 | W | | | 3 | | 7 | | | | | | |
| Vestervig | | | 29.83 | 757.7 | 72.0 | 22.2 | 66 | SSW | | | 4 | | 2 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 29.88 | 759.0 | 64.4 | 18 | 55 | SW | | | 1 | | 2ck | | SW | 0 | 0 | Slightly cl'dy | Collignon, Director. |
| Amiens, Naval Observatory | | | 29.76 | 755.9 | 83.5 | 28.6 | 59 | SE | | | 2 | | 2 | | SW | 0.047 | 1.2 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.02 | 762.6 | 81.5 | 27.5 | 47 | SW | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.87 | 758.6 | 80.8 | 27.1 | 36 | SSW | | | 2 | 5c | | | | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.82 | 757.3 | 78.3 | 25.7 | 57 | S | | | 2 | | 5 | | SSW | 0.12 | 3. | Cloudy | Normal School. |
| Besançon | | | 29.93 | 760.2 | 85.1 | 29.5 | 40 | S | | | 3 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourgen Bresse | | | 30.06 | 763.4 | 79.7 | 26.5 | 55 | S | | | 6 | 2c | | N | | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges, Normal School | | | 29.92 | 760.0 | 79.7 | 26.5 | 53 | ESE | | | 6 | | 5 | | NE | 0 | 0 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.56 | 750.9 | 71.8 | 22 1 | 62 | SW | | | 4 | 1c | | SW | | 0.010 | 0.2 | | The Staff. |
| Carcassonne, Normal School | | | 29.93 | 760.3 | 61.8 | 21 | 80 | E | | | 4 | | 5 | | E | 0 | 0 | Partly cl'dy. | Vateau, Director. |
| Caen | | | 29.72 | 754.8 | 80 6 | 27 | 40 | ESE | | | 4 | | 2 | | S | 0.08 | 2. | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 29.76 | 755.9 | 79 3 | 26.2 | 78 | SSE | | | 1 | | 4 | | NE | 0.031 | 0.8 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.85 | 758.3 | 80 1 | 26.7 | 52 | S | | | 3 | | 8ck | | S | 0 | 0 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de Dôme | | | 29.82 | 757.5 | 80.6 | 27.0 | 33 | S | | | 2 | | 5 | | | 0 | 0 | Cloudy | Allnard, Director. |
| Commercy, Normal School | | | 29.90 | 759.5 | 77.2 | 25.1 | 76 | SSE | | | 2 | | 5 | | SSE | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.09 | 764.2 | 83.8 | 28.8 | 31 | SE | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.95 | 760.6 | 75.9 | 24.4 | 51 | WNW | | | 4 | | 2cs | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 29.74 | 755.4 | 75.0 | 24.3 | 69 | E | | | 6 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Monillet, Director. |
| Le Mans, Normal School | | | 29.75 | 755.6 | 80.1 | 26.7 | 50 | S | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 29.95 | 760 6 | 77.2 | 25.1 | 53 | W | | | 4 | | 5 | | | 0 | 0 | Cloudy | Pin, Director. |
| Lorient, Naval Observatory | | | 29.70 | 754.3 | 68 4 | 20.2 | 64 | S | | | 5 | | 8 | | S | 0 | 0 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.92 | 759.9 | 78.1 | 25.6 | 56 | W | | | 4 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.00 | 762.1 | 76.0 | 24.8 | 44 | S | | | 3 | 7c | | SE | | 0 | 0 | | Normal School. |
| Mirecourt | | | 29.88 | 758.9 | 72 5 | 22.5 | 47 | SSE | | | 2 | | 2 | | NNW | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 30.04 | 763.9 | 83.8 | 28.8 | 52 | S | | | 4 | | n | | S | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.79 | 756.6 | 82.4 | 28 | 44 | E | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 29.82 | 757.4 | 81.0 | 27.2 | 50 | S | | | 2 | | 5ck | | N | 0 | 0 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.76 | 755.8 | 84.9 | 29.4 | 46 | SSE | | | 3 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.77 | 756.1 | 82.2 | 27.9 | 47 | SSE | | | 2 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 28 72 | 729 6 | 29.81 | 757.2 | 87.8 | 31 | 68 | W | | | 1 | | 5 | | W | 0 | 0 | Cloudy | T. Hugues, Director. |
| Villefranche | | | 29.88 | 758.9 | 82.8 | 28.2 | 70 | SSE | | | 4 | | 5 | | SW | 0 | 0 | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.89 | 759.3 | 81.0 | 27.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.99 | 761 7 | 82 2 | 27.9 | 38 | SE | | | 2 | | 4 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 24.91 | 632.8 | 30.23 | 767.8 | 65 1 | 18.4 | 52 | SSW | 31.7 | 14.17 | | | 8 | | SW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.83 | 757.6 | 83.5 | 28.6 | 45 | S | | | 2 | | 4 | | SSW | Inap. | Inap. | | Marie Davy, Director. |
| Perpiguan | | | 29.98 | 761.4 | 69.3 | 20.7 | 85 | SE | 22.4 | 10.00 | | | 6 | | SW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.26 | 540.1 | | | 43.2 | 6.2 | | SW | | | 6 | | 10 | | | | | Cloudy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.54 | 572.5 | | | 51.4 | 10.8 | | SW | | | 6–8 | | 10 | | | 0 | 0 | Cloudy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.83 | 757.7 | 81.1 | 27.3 | 47 | ESE | | | 1 | | 3 | | | 0.008 | 0.2 | | E. Renou. |
| Toulouse, Observatory | | | 29.88 | 758.9 | 71.8 | 22.1 | 46 | SSE | | | 6 | | 7 | | | 0 | 0 | | The Staff |
| Tours | | | 29.75 | 755.6 | 84.2 | 29.0 | 44 | S | | | 1 | | 2 | | W | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.83 | 757.7 | 81.3 | 27.4 | 49 | S | | | 3 | | 7 | | | 0 | 0 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.73 | 755.2 | 79.2 | 26.2 | 72 | SSW | 8.1 | 3 6 | | | 10k | | | 0 | 0 | Dark sky | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.98 | 761.5 | 81.3 | 27.4 | 36 | S | | | 3 | | 0 | | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.98 | 761.5 | 81.7 | 27.6 | 36 | S | | | 1 | | 0 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.09 | 764.3 | 80.4 | 26.9 | 42 | SSE | | | 4 | | 1 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.95 | 760.7 | 81.7 | 27.6 | 52 | SW | | | 1 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.98 | 761.6 | 83.3 | 28.5 | 48 | WSW | | | 3 | | 3 | W | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.84 | 758.0 | 88.7 | 31.5 | 34 | SE | | | 4 | | 0 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.76 | 755.9 | 80.8 | 27.1 | 62 | S | | | 1 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.97 | 761.3 | 85.8 | 29.9 | 30 | SSW | | | 1 | | 3 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.60 | 726.3 | 29.98 | 761.4 | 72.3 | 22.4 | 67 | SW | | | 2 | | 1 | SW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 29.90 | 759.4 | 83.5 | 28.6 | 44 | SSE | | | 3 | | 2c | | | 0 | 0 | Clear | Captain F. Hegemann. |
| Kiel | | | 29.89 | 759.2 | 76.5 | 24.7 | 68 | S | | | 2 | | 0 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.12 | 765.0 | 82.4 | 28.0 | 38 | SE | | | 2 | | 2 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 29.98 | 761.5 | 84.2 | 29.0 | 31 | SE | | | 2 | | 3 | | | 0 | 1 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.18 | 766.6 | 73.9 | 23.3 | 50 | SW | | | 1 | | 0 | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.11 | 764.8 | 78.8 | 26.0 | 51 | SSE | | | 3 | | 4 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.06 | 763.5 | 82.9 | 28.3 | 38 | S | | | 7 | | 1 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.91 | 759.8 | 84.7 | 29.3 | 45 | SE | | | 1 | | 8 | SW | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.90 | 759.4 | 84.2 | 29.0 | 40 | SE | | | 1 | | 2 | W | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.78 | 756.3 | 82.9 | 28.3 | 40 | W | | | 5 | | 2 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.51 | 724.1 | 29.92 | 760.0 | 82.4 | 28.0 | 34 | NW | | | 1 | | 4 | | | 0 | 0 | | T. V. Dicknether |
| Wustrow, Naval School | | | 30.01 | 762.3 | 82.6 | 28.1 | 44 | SSE | | | 4 | | 0 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | 0 | 0 | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2.5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2.0, instead of 1.51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.99 | 761.8 | 75.0 | 23.9 | | NE | | | Strong | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.61 | 752.2 | 29.66 | 753.4 | 86.1 | 30.1 | 76 | WSW | | | | | 3 | | WSW | 0 | 0 | D. clouds | |
| Deesa | | | | | | | | | | | | | | | | 1.82 | 46.2 | | |
| Bombay | 29.68 | 753.8 | 29.71 | 754.7 | 87.4 | 30.8 | 72 | WNW | 19 | 8.4 | | | 2 | NNW | | 0 | 0 | Dust-haze | |
| Poona | 27.72 | 704.2 | 29.69 | 754.0 | 86.7 | 30.4 | 62 | | | | | | | | SE | 0.28 | 7.1 | Thunder-storm | |
| Lahore | 28.87 | 733.3 | 29.58 | 751.4 | 97.2 | 36.2 | 37 | N | 1.9 | 0.8 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.08 | 687.8 | 29.57 | 751.0 | 81.4 | 27.4 | 73 | W | 18 | 8.0 | | | 4 | E | E&W | 0 | 0 | Thunder, lightn'g | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.75 | 730.2 | 29.62 | 752.3 | 93.6 | 34.2 | | SE | 3.5 | 1.5 | | | 4 | | | 0 | 0 | | |
| Agra | 29.06 | 738.0 | 29.60 | 752.0 | 90.7 | 32.6 | 52 | E | 12.0 | 5.3 | | | 1 | | | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.55 | 725.2 | 29.55 | 750.6 | 98.5 | 36.9 | 23 | NW | 7.1 | 3.1 | | | 5 | | | 0 | 0 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.28 | 743.8 | 29.65 | 753.1 | 86.2 | 30.1 | 63 | NNE | 3.6 | 1.6 | | | 5 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.33 | 745.0 | 29.64 | 752.9 | 79.0 | 26.1 | 89 | W | 3.4 | 1.5 | | | 10 | | | 0.04 | 1.0 | Overcast | |
| Patna | 29.48 | 748.6 | 29.65 | 753.1 | 92.1 | 33.4 | 51 | E | 2.6 | 1.1 | | | 6 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.68 | 703.1 | 29.67 | 753.6 | 82.3 | 27.9 | 72 | ENE | 4.3 | 1.9 | | | 7 | | | 0.54 | 13.7 | Thunder-storm | |
| Cuttack | 29.60 | 751.9 | 29.68 | 753.9 | 85.1 | 29.5 | 77 | S | 2.9 | 1.2 | | | 7 | | | 0.80 | 20.3 | D. clouds | |
| Calcutta, (Alipore) | 29.69 | 754.1 | 29.71 | 754.7 | 80.6 | 27.0 | 84 | SE | 2.0 | 0.8 | | | 3 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.33 | 745.1 | 29.72 | 754.8 | 84.3 | 29.1 | 69 | SSW | 3.1 | 1.3 | | | 0 | | | 0 | 0 | D. clouds | |
| Chittagong | 29.67 | 753.5 | 29.76 | 755.9 | 77.9 | 25.5 | 85 | ENE | 5.9 | 2.6 | | | 10 | | | | | Raining | |
| Sibsagar | 29.40 | 746.8 | 29.73 | 755.2 | 87.7 | 30.9 | 68 | Calm | 3.2 | 1.4 | | | 10 | | | 0 | 0 | Overcast | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.26 | 717.8 | 29.61 | 752.1 | 82.0 | 27.8 | 79 | N | | | | | 2 | | | 0 | 0 | Blue sky | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,026 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.43 | 569.7 | 30.15? | 765.9? | 46.2 | 7.9 | 90 | NNE | | | 1 | | 10 | NE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.41 | 569.1 | 30.06 | 763.4 | 38.2 | 9.0 | | S | | | 1 | | 3 | N | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.04 | 763.0 | 79.9 | 26.6 | 50 | S | 0.7 | 0.3 | | | 3 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.05 | 763.2 | 77.4 | 25.2 | 55 | SE | 4.9 | 2.2 | | | 5 | E | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.06 | 763.4 | 81.5 | 27.5 | 44 | SE | 3.1 | 1.4 | | | 2 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | 28.78 | 731.0 | 30.04 | 763.1 | 77.7 | 25.4 | 53 | SE | | | 2 | | 5 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.02 | 762.5 | 77.4 | 25.2 | 53 | S | | | 2 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.04 | 763.1 | 83.1 | 28.4 | 66 | SSE | | | 1 | | 2 | S | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.06 | 763.5 | 78.3 | 25.7 | 45 | E | | | 2 | | 3 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.06 | 763.5 | 77.9 | 25.5 | 52 | SSW | 1.3 | 0.6 | | | 6 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.21 | 716.6 | 30.04 | 763.1 | 75.0 | 23.9 | 44 | NNE | | | 4 | | 4 | NW | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.11? | 764.8? | 72.9 | 22.7 | 59 | E | | | 2 | | 9 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.05 | 763.2 | 75.9 | 24.4 | 55 | SE | 1.8 | 0.8 | | | 4 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.08 | 763.9 | 77.9 | 25.5 | 53 | N | 1.8 | 0.8 | | | 4 | W | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.07 | 763.7 | 80.6 | 27.0 | 51 | NE | | | 4 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.07 | 763.6 | 82.4 | 28.0 | 36 | NE | | | 2 | | 1 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.05 | 763.2 | 73.2 | 22.9 | 65 | NNW | 8.1 | 3.6 | | | 7 | W | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.86 | 733.1 | 30.02 | 762.4 | 79.3 | 26.3 | 39 | E | 0 | 0 | | | 1 | E | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.59 | 726.2 | 30.09 | 764.3 | 72.0 | 22.2 | 53 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.09 | 764.3 | 71.4 | 21.9 | 79 | N | 26.2 | 11.7 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.08 | 764.0 | 75.2 | 24.0 | 60 | N | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.05 | 763.2 | 82.0 | 27.8 | 53 | SSW | | | 4 | | 3 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.03 | 762.7 | 84.2 | 29.0 | 39 | SW | 4.9 | 2.2 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.04 | 763.1 | 86.0 | 30.0 | 41 | SW | | | 2 | | 4 | NE | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.02 | 762.4 | 75.2 | 24.0 | 46 | NE | 18.6 | 8.3 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.98 | 761.5 | 83.5 | 28.6 | 68 | NE | 3.8 | 1.7 | | | 4 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.99 | 761.7 | 77.4 | 25.2 | 46 | S | | | 2 | | 1 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.02 | 762.5 | 81.7 | 27.6 | 48 | E | | | 2 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Pa'ermo | | | 29.99 | 761.7 | 75.0 | 23.9 | 48 | ENE | 3.1 | 1.4 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.06 | 712.7 | 29.93 | 760.1 | 77.5 | 25.3 | 39 | SSW | | | 4 | | 5 | SE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.94 | 760.4 | 76.6 | 24.8 | 62 | NE | | | 4 | | 3 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.07 | 763.7 | 82.9 | 28.3 | 44 | E | 0.7 | 0.3 | | | 3 | E | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.93 | 760.2 | 69 | 20.6 | 82 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.14 | 587.8 | 30.13 | 765.2 | 59.5 | 15.3 | 79 | NW | 0.6 | 0.28 | | 4c | 5c | | | 0 | 0 | Foggy | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the cooperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.84 | 758.0 | 78.1 | 25.6 | | ENE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.80 | 756.8 | 81.5 | 27.5 | | S | | | 4 | | | | | 0 | 0 | | |
| Helder | | | 29.84 | 757.8 | 67.6 | 19.8 | | SW | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 29.80 | 756.9 | 86.5 | 30.3 | 50 | S | | | 4 | | 2 | | | 0.004 | 0.1 | Light cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.72 | 755.0 | 55.0 | 12.8 | 89 | S | 26.4 | 11.8 | | | 10 | | | 0 | 0 | | |
| Brönö | | | 29.56 | 750.8 | 53.6 | 12.0 | 65 | SW | 18 | 8 | | | 10 | | | 0.098 | 2.5 | | |
| Christiania | | | 29.80 | 757.0 | 68.7 | 20.4 | 86 | SSW | 9 | 4 | | | 8 | | | 0 | 0 | | |
| Tromsö | | | 29.54 | 750.2 | 55.8 | 13.2 | 60 | Calm | 0 | 0 | | | 5 | | | 0.079 | 2.0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.21 | 767.3 | 61.2 | 16.2 | 66 | W | 10.5 | 4.7 | | | 5 | | | 0.055 | 1.4 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.90 | 759.5 | 66.2 | 19.0 | 66 | SW | 17.0 | 7.58 | | | 8 | SW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.10 | 764.4 | 69.3 | 20.7 | 57 | SW | 8.1 | 3.6 | | | 5 | | | 0.126 | 3.2 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.98 | 761.4 | 60.4 | 15.8 | 90 | SW | 9.8 | 4.4 | | | 10 | NW | | 0.346 | 8.8 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.23 | 767.7 | 66.2 | 19.0 | 57 | WNW | 3.8 | 1.7 | | | 6 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.14 | 765.6 | 78.3 | 25.7 | 49 | SE | 11 | 5 | | | 0 | | | | | | Astronomical Obs. |
| Wilna | | | 30.20 | 767.0 | 76.3 | 24.6 | 40 | SW | 2 | 1 | | | 2 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.10 | 764.5 | 69.8 | 21.0 | 50 | W | 13 | 6 | | | 0 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.99 | 761.7 | 59.2 | 15.1 | 66 | WNW | 18 | 8 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.88 | 759.0 | 63.7 | 17.6 | 61 | NW | 13 | 6 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 30.16 | 766.0 | 70.9 | 21.6 | 71 | N | 7 | 3 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.21 | 767.3 | 76.5 | 24.7 | 45 | Calm | 0 | 0 | | | 0 | | | | | | Kurdakof |
| Kertch | | | 30.15 | 765.9 | 75.0 | 23.9 | 60 | NNE | 7 | 3 | | | 1 | | | | | | Lugorio. |
| Moscow | | | 30.05 | 763.2 | 65.7 | 18.7 | 58 | ESE | 4 | 2 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 30.01 | 762.2 | 71.8 | 22.1 | 47 | NNW | 4 | 2 | | | 5 | | | | | | Meteorological Obs. |
| Archangel | | | 29.76 | 755.9 | 55.6 | 13.1 | 75 | NW | 18 | 8 | | | 8 | | | | | | Ogorodnikof. |
| Tiflis | 28.61 | 726.7 | 29.97 | 761.1 | 78.8 | 26.0 | 22 | N | 9 | 4 | | | 3 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.02 | 762.5 | 71.2 | 21.8 | 51 | SW | 9 | 4 | | | 8 | | | | | | Sebastianof. |
| Kasan | | | 29.76 | 756.0 | 67.6 | 19.8 | 43 | WSW | 7 | 3 | | | 7 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.85 | 758.3 | 81.5 | 27.5 | 87 | W | 9 | 4 | | | 5 | | | | | | Tschernischef. |
| Ekaterinburg | 28.84 | 732.4 | 29.76 | 756.0 | 57.6 | 14.2 | 69 | SSE | 13 | 6 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | 30.04 | 763.1 | 76.3 | 24.6 | 33 | NNE | 9 | 4 | | | 6 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.53 | 724.7 | 30.20 | 767.1 | 69.1 | 20.6 | 69 | Calm | 0 | 0 | | | 4 | | | | | | Michelson. |
| Barnaul | | | 29.68 | 753.9 | 67.5 | 19.7 | 56 | SW | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.78 | 756.4 | 66.0 | 18.9 | 40 | SSE | 2 | 1 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 42.3 | 5.7 | | NW | | | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.69 | 754.0 | 62.2 | 16.8 | 53 | SSW | 22 | 10 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.71 | 754.5 | 54.3 | 12.4 | 95 | Calm | 0 | 0 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 38.7 | 3.7 | | W | 4 | 2 | | | 10 | | | | | Raining | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet: Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.84 | 757.8 | 76.1 | 24.5 | 55 | SW | 9.7 | 4.34 | | 0 | 5 | | | 0.299 | 7.6 | Cloudy | The Staff. |
| San Fernando, Naval Obs'y | | | 30.02 | 762.5 | 72.0 | 22.2 | 66 | WSW | 7.6 | 3.4 | | 0 | 4 | | WSW | 0.004 | 0.1 | | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.11 | 764.8 | 82.2 | 27.9 | 80 | E | 5.4 | 2.4 | | 0 | 1k | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.98 | 761.4 | 84.7 | 29.3 | 80 | E | 8.4 | 3.77 | | 7cs | 1n | | E | 0.108 | 2.75 | Cloudy | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.87 | 758.6 | 45.0 | 7.2 | 74 | S | | | 2 | | 10 | | | 0.157 | 4.0 | | |
| Umea | | | 29.84 | 757.9 | 50.7 | 10.4 | 76 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Hernosand | | | 29.78 | 756.3 | 61.2 | 16.2 | 56 | SSW | | | 6 | | 1 | | | 0 | 0 | | |
| Stockholm | | | 29.95 | 760.6 | 73.0 | 22.8 | 44 | SSW | | | 4 | | 0 | | | 0 | 0 | | |
| Wisby | | | 30.04 | 763.0 | 74.1 | 23.4 | 48 | SW | | | 6 | | 0 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.93 | 760.1 | 75.4 | 24.1 | 41 | S | 17.4 | 7.8 | | | 0 | | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.58 | 726.0 | 29.96 | 761.0 | 71.4 | 21.9 | 62 | NNE | | | 2 | | 2 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.38 | 720.9 | 29.92 | 760.0 | 84.0 | 29.2 | 42 | W | | | 2 | | 1 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, 0.0 mm; Thermometer, +2.6 cent.; Relative Humidity, +6 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.08 | 764.0 | 66.9 | 19.4 | 66 | NE | 22 | 10.0 | | | 10 | | NE | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 30.06 | 763.5 | 78.8 | 26.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.17 | 766.2 | 81.1 | 27.3 | | SE | | | 0 | | 0 | | | Blank | Blank | | B. Stéfanidès. |
| Valona | | | 30.11 | 764.7 | 81.5 | 27.5 | | SW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sun-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.87 | 758.7 | 77.9 | 25.5 | 70 | NNW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.68 | 753.9 | 47.0 | 8.3 | 98 | E | 15 | 6.7 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.82 | 757.4 | 66 | 18.9 | | SW | 9 | 4.0 | | 0 | 2s | | SW | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.65 | 753.1 | 48 | 8.9 | 94 | NE | 7 | 3.1 | | | 10s | | NE | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.65 | 753.1 | 64 | 17.8 | 73 | Calm | 0 | 0 | | | 10ks | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.64 | 752.8 | 61.4 | 16.3 | 70 | SW | | | 6 | 1k | 0 | | | 0.035 | 0.89 | Clearing | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.67 | 753.6 | 46.5 | 8.1 | 98 | E | | | 3 | | | | | 0.07 | 1.8 | Raining | H. A. Johnson. |
| Esquimault, B. C. | | | 29.99 | 761.7 | 52.3 | 11.3 | 100 | S | | | | | 10 | | | 0.40 | 10.2 | Rainy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.53 | 750.0 | 51 | 10.6 | 93 | NW | 5 | 2.2 | | 5k | 5n | SW | SW | 0.85 | 21.6 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.66 | 753.4 | 61 | 16.1 | 88 | Calm | 0 | 0 | | | 10n | | | 0.06 | 1.5 | Raining | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.99 | 761.7 | 48 | 8.9 | 97 | E | 3 | 1.3 | | 0 | 2ks | | SE | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.95 | 760.7 | 56.4 | 13.6 | 77 | W | | | 3 | 10k | 0 | W | | 0 | 0 | Cloudy | H. J. Strang, M. A |
| Grantton, Ontario | 28.82 | 732.0 | 29.88 | 758.9 | 62 | 16.7 | 72 | W | | | 1 | 0 | 0 | | | 0.09 | 2.3 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.67 | 753.6 | 62 | 16.7 | 77 | SW | 6 | 2.7 | | | 10ks | | | 0 | 0 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.92 | 760.0 | 61.9 | 16.6 | 62 | SW | | | 3 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.84 | 757.9 | 42 | 5.6 | 91 | NE | | | 3 | | 10 | | | 0.16 | 4.1 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 29.90 | 759.4 | 56 | 13.3 | 82 | SW | 15 | 6.7 | | 5c | Sm'c | | SW | Inap. | Inap | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.71 | 754.6 | 61 | 16.1 | 67 | W | 10 | 4.5 | | 0 | Sm'c | | | 0.13 | 3.3 | Clear. | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.86 | 758.4 | 52 | 11.1 | 81 | S | 15 | 6.7 | | 2x | 8ks | W | W | 0.18 | 4.6 | Cloudy | Rev. R. Mosley |
| Peterboro, Ontario | | | 29.87 | 758.7 | 62.2 | 16.8 | 76 | W | | | 1 | 0 | 0 | | | 0.065 | 1.65 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.91 | 759.7 | 62 | 16.7 | 72 | W | 6 | 2.7 | | 2ck | 0 | SW | | 0.28 | 7.1 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.89 | 759.2 | 55.5 | 13.1 | | Calm | | | | | | | | 0 | 0 | Fine | Peter Grant |
| *Port Stanley, Ontario | | | 29.95 | 760.7 | 61 | 16.1 | 77 | W | 4 | 1.8 | | 0 | 0 | | | 0.22 | 5.6 | Clear. | M. Payne. |
| *Quebec, Quebec | | | 29.60 | 751.8 | 64 | 17.8 | 83 | SW | 17 | 7.6 | | 0 | 2ks | | SW | 0.02 | 0.5 | Clear. | Capt. Ashe, R. N |
| *Rockliffe, Quebec | | | 29.76 | 755.9 | 56 | 13.3 | 74 | NW | 8 | 3.6 | | | 8s | | NW | 0.12 | 3.0 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 29.66 | 753.4 | 52 | 11.1 | 86 | S | 7 | 3.1 | | | 10s | | | 0 | 0 | Cloudy | G. Murdock, C. E |
| *Saugeen, Ontario | | | | | 52 | 11.1 | 79 | Calm | 0 | 0 | | 0 | Sm'c | | | 0.10 | 2.5 | Clear. | K. Stewart. |
| Stayner, Ontario | | | 29.83 | 757.7 | 63 | 17.2 | 54 | NW | 13 | 5.8 | | 5ck | 0 | W | | 0 | 0 | Fair | R. J. Cole. |
| *Stratford, Ontario | 28.64 | 727.4 | 29.89 | 759.2 | 59.9 | 15.5 | 62 | NW | 8 | 3.6 | | 0 | 0 | | | 0.057 | 1.45 | Clear. | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.73 | 755.1 | 59 | 15.0 | 80 | NW | 2 | 0.9 | | 0 | Sm'c | | | 0 | 0 | Hazy | T. C. Hill. |
| *Toronto, Ontario | | | 29.89 | 759.2 | 58 | 14.4 | 67 | W | 2 | 0.9 | | 0 | Huzc | | W | 0.08 | 2.0 | Clear. | Magnetic Observatory |
| Windsor, N. S. | | | 29.59 | 751.6 | 66.5 | 19.2 | 76 | S | 6 | 2.7 | | 3c | 3k | | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.89 | 759.2 | 62.0 | 16.7 | 74 | W | 10 | 4.5 | | 3k | 0 | | | 0 | 0 | Fair. | J. Montgomery. |
| Sun-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.92 | 760.0 | 41.0 | 5.0 | 100 | E | | | | 10k | 10s | | | 0.12 | 3.0 | Cloudy | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Chatham is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.91 | 759.7 | 65 | 18.3 | 72 | Calm | 0 | 0 | | Haze | Haze | | | 0.02 | 0.5 | Hazy | |
| Alpena, Mich. | | | 29.92 | 760.0 | 57 | 13.9 | 63 | NW | 14 | 6.3 | | 0 | 2ks | | NW | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 29.96 | 761.0 | 71 | 21.7 | 75 | NW | 4 | 1.8 | | | 10s | | NW | 0.05 | 1.3 | Cloudy | |
| Augusta, Ga. | | | 30.14 | 765.5 | 73 | 22.8 | 67 | S | 3 | 1.3 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Baltimore, Md. | | | 30.00 | 762.0 | 72 | 22.2 | 62 | SW | 6 | 2.7 | | | 10s | | SW | Inap. | Inap. | Cloudy | |
| Barnegat, N. J. | | | 29.94 | 760.5 | 69 | 20.6 | 77 | NW | 8 | 3.6 | | | 10s | | NW | 0.19 | 4.8 | Cloudy | |
| Bismarck, Dakota | 28.21 | 716.5 | 29.84 | 757.9 | 51 | 10.6 | 72 | NW | 2 | 0.9 | | Haze | 1s | | | 0 | 0 | Clear | |
| Boston, Mass. | | | 29.76 | 755.9 | 70.5 | 21.4 | 63 | SW | 6 | 2.7 | | | 10s,hz | | SW | 0 | 0 | Cloudy | |
| Breckenridge, Minn. | | | 29.96 | 761.0 | 55 | 12.8 | 80 | E | 4 | 1.8 | | 2k | 0 | | | 0 | 0 | Fair | |
| Buffalo, N. Y. | | | 29.86 | 758.4 | 60 | 15.6 | 88 | W | 9 | 4.0 | | 5k | 2ks | W | W | 0.18 | 4.6 | Fair | |
| Burlington, Vt. | | | 29.76 | 755.9 | 67 | 19.4 | 55 | W | 8 | 3.6 | | 5c | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.00 | 762.0 | 70 | 21.1 | 84 | SE | 2 | 0.9 | | | 10s | | | 0.10 | 2.5 | Cloudy | |
| Campo, Cal. | 27.45 | 697.2 | 30.02 | 762.5 | 51 | 10.6 | 86 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 54 | 12.2 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.98 | 761.5 | 73 | 22.8 | 76 | SW | 14 | 6.3 | | 5cs | Haze | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.01 | 762.2 | 82 | 27.8 | 56 | W | 8 | 3.6 | | 5k | Haze | W | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.10 | 764.5 | 73 | 22.8 | 81 | SW | 20 | 8.9 | | 2ck | Haze | SW | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.97 | 761.2 | 69 | 20.6 | 84 | W | 8 | 3.6 | | | 10s | | W | 0.01 | 0.3 | Cloudy | |
| Charleston, S. C. | | | 30.16 | 766.1 | 75 | 23.9 | 76 | SW | 11 | 4.9 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.02 | 610.1 | 29.96 | 761.0 | 50 | 10.0 | 59 | NW | 12 | 5.4 | | 8ck | 2s | NW | | 0.04 | 1.0 | Cloudy | |
| Chicago, Ill. | | | 29.97 | 761.2 | 67 | 19.4 | 69 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.96 | 761.0 | 71 | 21.7 | 80 | NW | 3 | 1.3 | | 5ck | Sm'e | | NW | 0.09 | 2.3 | Fair | |
| Cleveland, Ohio | | | 29.95 | 760.7 | 66 | 18.9 | 68 | SW | 11 | 4.9 | | 2ck | 0 | W | | 0.25 | 6.3 | Fair | |
| Corsicana, Tex. | | | 29.96 | 761.0 | 70 | 21.1 | 90 | S | 12 | 5.4 | | 2ck | 2s | W | S | 0 | 0 | Fair | |
| Davenport, Iowa | | | 29.97 | 761.2 | 65 | 18.3 | 73 | E | 5 | 2.2 | | | 8ks | | | 0 | 0 | Cloudy | |
| Denison, Tex. | | | 29.96 | 761.0 | 72 | 22.2 | 80 | S | 5 | 2.2 | | | 10s | | S | 0 | 0 | Threatening | |
| Denver, Col. | 24.79 | 629.6 | 30.01 | 762.2 | 52 | 11.1 | 66 | S | 5 | 2.2 | | | 8s | | | 0.05 | 1.3 | Cloudy | |
| Detroit, Mich. | | | 29.92 | 760.0 | 64 | 17.8 | 52 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.34 | 694.4 | 29.55 | 750.6 | 61 | 16.1 | 88 | SW | 2 | 0.9 | | | 10s | | SW | 0.45 | 11.4 | Cloudy | |
| Dubuque, Iowa | | | 29.99 | 761.7 | 58 | 14.4 | 81 | NW | 1 | 0.4 | | 0 | Haze | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.98 | 761.5 | 55 | 12.8 | 73 | NW | 1 | 0.4 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Eagle Pass, Texas | | | 29.87 | 758.7 | 70 | 21.1 | 90 | S | 4 | 1.8 | | 5cs | 5s | S | | 0 | 0 | Fair | |
| Eastport, Me. | | | 29.63 | 752.6 | 53 | 11.7 | 79 | Calm | 0 | 0 | | 10k | Haze | | | Inap. | Inap. | Cloudy | |
| Erie, Pa. | | | 29.88 | 758.9 | 64 | 17.8 | 83 | SW | 15 | 6.7 | | 2k | 2ks | W | W | 0.87 | 22.1 | Fair | |
| Escanaba, Mich. | | | 29.96 | 761.0 | 54 | 12.2 | 67 | N | 6 | 2.7 | | | 10s | | N | Inap. | Inap. | Cloudy | |
| Florence, Arizona | 28.32 | 719.3 | 29.92 | 760.0 | 79 | 26.1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.90 | 759.4 | 66 | 18.9 | 90 | E | 7 | 3.1 | | 5cs | 5s | | SW | 0.47 | 11.9 | Cloudy | |
| Fort Griffin, Tex. | 28.70 | 729.0 | 29.96 | 761.0 | 70 | 21.1 | 90 | Calm | 0 | 0 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.75 | 755.6 | 41 | 5.0 | 91 | NE | | | 1 | | 10ks | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.72 | 729.5 | 29.79 | 756.7 | 63 | 17.2 | 83 | SE | 8 | 3.6 | | 2k | 0 | | | 1.48 | 37.6 | Fair | |
| Fort Sully, Dakota | 28.30 | 718.8 | 29.94 | 760.5 | 52 | 11.1 | 86 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 30.07 | 763.8 | 78 | 25.6 | 77 | SE | 6 | 2.7 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.98 | 761.5 | 65 | 18.3 | 63 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 29.99 | 761.7 | 65 | 18.5 | 90 | Calm | 0 | 0 | | | 8s,fg | | | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 30.02 | 762.5 | 77 | 25.0 | 82 | SE | 11 | 4.9 | | 2k | 2ks | | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.18 | 766.6 | 75 | 23.9 | 72 | SE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.86 | 758.4 | 67 | 19.4 | 90 | E | 6 | 2.7 | | | 10s | | E | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 30.11 | 764.8 | 79.5 | 26.4 | 80 | E | 8 | 3.6 | | 8k | 0 | SE | | 0 | 0 | Cloudy | |
| Kittyhawk, N. C. | | | 30.02 | 762.5 | 75 | 23.9 | 68 | W | 12 | 5.4 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Knoxville, Tenn. | | | 30.05 | 763.3 | 73 | 22.8 | 67 | Calm | 0 | 0 | | 3ck | 0 | SW | | 0 | 0 | Fair | |
| LaCrosse, Wis. | | | 29.99 | 761.7 | 55 | 12.8 | 87 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| Leavenworth, Kan. | | | 29.90 | 759.4 | 63 | 17.2 | 88 | W | 1 | 0.4 | | | 10s | | | 0.07 | 1.8 | Cloudy | |
| Louisville, Ky. | | | 30.00 | 762.0 | 75 | 23.9 | 72 | S | 4 | 1.8 | | 5ck | 2ks | SW | SW | Inap. | Inap. | Fair | |
| Lynchburg, Va. | | | 30.00 | 762.0 | 77 | 25.0 | 60 | Calm | 0 | 0 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Maricopa Wells, Arizona | | | | | 71 | 21.7 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.94 | 760.5 | 54 | 12.2 | 73 | NW | 4 | 1.8 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Mason, Texas | 28.35 | 720.1 | 30.03 | 762.7 | 75 | 23.9 | 63 | SE | 8 | 3.6 | | 2c | 2s | | W | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.05 | 763.3 | 77 | 25.0 | 65 | SW | 2 | 0.9 | | 0 | 5s | | SW | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 30.02 | 762.5 | 61 | 16.1 | 57 | N | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.16 | 766.1 | 76 | 24.4 | 76 | S | 1 | 0.4 | | 2k | 0 | S | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.17 | 766.3 | 72.5 | 22.5 | 73 | SW | 4 | 1.8 | | 10c | 0 | W | | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 28.97 | 735.8 | 29.98 | 761.5 | 68 | 20.0 | 79 | NW | 4 | 1.8 | | 8c | 0 | W | | 0.41 | 10.4 | Cloudy | |
| Mt. Washington, N. H. | 23.52 | 597.4 | 29.88 | 758.9 | 30 | 3.9 | 91 | NW | 60 | 26.8 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn. | | | 30.04 | 763.0 | 75 | 23.9 | 72 | NW | 3 | 1.3 | | 8ck | 0 | N | | 0 | 0 | Fair | |
| New Haven, Conn. | | | 29.86 | 758.4 | 72 | 22.2 | 58 | NW | 7 | 3.1 | | 2k | 5s | NW | NW | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.86 | 758.4 | 70 | 21.1 | 75 | W | 4 | 1.8 | | 2ck | 8s | W | | Inap. | Inap. | Cloudy | |
| New Orleans, La. | | | 30.12 | 765.0 | 73 | 22.8 | 76 | S | 4 | 1.8 | | 4cs | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.83 | 757.7 | 68 | 20.0 | 79 | SW | 12 | 5.4 | | | 10ks | | | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 29.93 | 760.2 | 68 | 20.0 | 64 | W | 8 | 3.6 | | | 10ks | | | 0.18 | 4.6 | Cloudy | |
| Norfolk, Va. | | | 30.02 | 762.5 | 77 | 25.0 | 65 | NW | 3 | 1.3 | | 8c | 0 | S | | 0 | 0 | Fair | |
| North Platte, Neb. | 27.04 | 686.8 | 29.55 | 750.6 | 57 | 13.9 | 81 | Calm | 0 | 0 | | 2c | Fog | | | 0 | 0 | Fair | |
| Omaha, Neb. | 28.80 | 731.5 | 29.84 | 757.9 | 62 | 16.7 | 88 | Calm | 0 | 0 | | 10c | 0 | | | 0.02 | 0.5 | Cloudy | |
| Oswego, N. Y. | | | 29.89 | 759.2 | 60 | 15.6 | 59 | SW | 7 | 3.1 | | 0 | Sm'e | | | Inap. | Inap. | Clear | |
| Pembina, Dakota | | | 29.97 | 761.2 | 52 | 11.1 | 93 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Philadelphia, Pa. | | | 29.96 | 761.0 | 71 | 21.7 | 62 | N | 9 | 4.0 | | 2ck | 5s | SW | W | 0.55 | 14.0 | Cloudy | |
| Phœnix, Arizona | | | | | 70 | 21.1 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.79 | 451.8 | 30.00 | 762.0 | 19 | -7.2 | 100 | W | 42 | 18.8 | | | Fog | | | 0.30 | 7.6 | Heavy snow | |
| Pittsburgh, Pa. | | | 29.95 | 760.7 | 66 | 18.9 | 84 | W | 7 | 3.1 | | 2c | 2s | NW | NW | 0.15 | 3.8 | Fair | |
| Port Huron, Mich. | | | 29.89 | 759.2 | 63 | 17.2 | 62 | NW | 11 | 4.9 | | Haze | 0 | | | 0.10 | 2.5 | Hazy | |
| Portland, Me. | | | 29.68 | 753.9 | 73 | 22.8 | 50 | W | 9 | 4.0 | | 8k | Haze | | | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.14 | 765.5 | 57 | 13.9 | 80 | S | 4 | 1.8 | | | 10s | | | 0.08 | 2.0 | Cloudy | |
| Prescott, Arizona | 24.88 | 631.9 | 30.24 | 768.1 | 48 | 8.9 | 62 | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.16 | 766.1 | 76 | 24.4 | 64 | E | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.86 | 758.4 | 60 | 15.6 | 70 | SW | 5 | 2.2 | | 5s | Haze | W | | 0.31 | 7.9 | Fair | |
| Salt Lake City, Utah | 25.71 | 653.0 | 30.04 | 763.0 | 56 | 13.3 | 45 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.94 | 760.5 | 69 | 20.6 | 75 | W | 15 | 6.7 | | 10ck | 0 | W | | 0.10 | 2.5 | Cloudy | |
| San Antonio, Tex. | | | 29.85 | 758.2 | 77 | 25.0 | 76 | SE | 4 | 1.8 | | 5c | 5ks | SW | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.00 | 762.0 | 60 | 15.6 | 88 | NE | 4 | 1.8 | | | 10s | | NE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.03 | 762.7 | 52 | 11.1 | 86 | SW | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.32 | 592.3 | 29.86 | 758.4 | 51 | 10.6 | 27 | NE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.17 | 766.3 | 79 | 26.1 | 61 | SW | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Shreveport, La. | | | 30.12 | 765.6 | 72 | 22.2 | 80 | S | 6 | 2.7 | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.12 | 765.0 | 73 | 22.8 | 76 | W | 15 | 6.7 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Springfield, Mass. | | | 29.83 | 757.7 | 73.5 | 23.1 | 54 | W | 9 | 4.0 | | 5c | Haze | W | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.95 | 760.7 | 66 | 18.9 | 94 | SE | 12 | 5.4 | | | 10s | | | 0.28 | 7.1 | Cloudy | |
| St. Marks, Fla. | | | 30.17 | 766.3 | 70 | 21.1 | 75 | N | 3 | 1.3 | | Haze | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.95 | 760.7 | 59 | 15.0 | 64 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 59 | 15.0 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | | | | | 63 | 17.2 | 100 | S | 1 | 0.4 | | | Sm'e | | | 1.36 | 34.5 | Smoky | |
| Thatcher's Island, Mass | 29.92 | 683.8 | 29.92 | 760.0 | 70 | 21.1 | 61 | W | 16 | 7.2 | | 8c,k | 0 | W | | 0 | 0 | Smoky | |
| Toledo, Ohio | | | 29.74 | 755.4 | 70 | 21.1 | 52 | SW | 4 | 1.8 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Tucson, Arizona | | | 29.97 | 761.2 | 70 | 21.1 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | 27.58 | 700.5 | 30.12 | 765.0 | 70 | 21.1 | | SW | | | | 1c | 0 | SW | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.16 | 766.1 | 76 | 24.4 | 72 | SW | 8 | 3.6 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| Virginia City, M. T | | | 30.14 | 765.5 | 74 | 23.3 | 78 | SE | 4 | 1.8 | | 1c | 0 | W | | 0.01 | 0.3 | Clear | |
| Washington, D. C | 24.33 | 618.0 | 29.81 | 757.2 | 41 | 5.0 | 83 | Calm | 0 | 0 | | 1c | 10s | | W | 0.22 | 5.6 | Cloudy | |
| Wickenburg, Arizona | | | 30.02 | 762.5 | 70 | 21.1 | 75 | W | 4 | 1.8 | | | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | | | 70 | 21.1 | | S | | | | 8cs | 0 | | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 30.10 | 764.5 | 76 | 24.4 | 52 | SW | 10 | 4.5 | | 8ck,cs | 0 | W | | 0 | 0 | Cloudy | |
| Yankton, Dakota | | | 29.82 | 757.4 | 67 | 19.4 | 79 | NW | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | 28.69 | 728.7 | 29.96 | 761.0 | 58 | 14.4 | 70 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| | | | | | | | | SW | | | | 0 | 0 | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | | | | | | | | | | | | | | | | | |
| Navassa, W. I | | | 30.21 | 767.3 | 80 | 26.7 | 78 | Calm | 0 | 0 | | 5c | 2s | | | 0 | 0 | | James Gall. |
| Clifton, Ja., W. I | | | | | 80 | 26.7 | | NE | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Paramaribo, D. Guiana, S. A | | | 30.01 | 762.2 | 82 | 27.8 | 88 | E | | | 2 | 5k | 6ks | E | | 0.670 | 17.02 | Cloudy | C. Partridge. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | C. J. Hering. |
| Medellin, Colombia, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| York Factory, B. A | 25.24 | 641.1 | | | 69.5 | 20.8 | 76 | Calm | | | 0 | 1cs | 1ks | | | 0 | 0 | Fair | Thomas Herran. |
| Honolulu, Oahu, H. I | | | 29.97 | 761.2 | 86 | 2.2 | 95 | N | 2 | 0.9 | | 1k | 0 | N | | 0.40 | 10.2 | Fair | J. Fortescue, W. Wood. |
| Makawao, Maui, H. I | | | 30.17 | 766.3 | 73 | 22.8 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft. or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft. or 1,329.6 m.; Santa Fe, 6,862.9 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 1—10 | Clouds. Amount. Low'r 1—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.10 | 764.5 | 77 | 25.0 | 70 | 21.1 | 85 | W | | | 1 | | 8 | | W | 0.40 | 10.2 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.10 | 764.5 | 61 | 16.1 | 57 | 13.9 | | SW | | | 1 | | 3 | | NE | 0 | 0 | | | Pleasant | |
| Navy Yard, Pensacola, Fla. | 30.30 | 769.6 | | | 75 | 23.9 | 72 | ESE | 5 | 2.2 | | | 2 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.82 | 757.4 | 79 | 26.1 | 70 | 21.1 | 66 | NNW | 7 | 3.1 | | | | | | 0 | 0 | | | Hazy | |
| Naval Hospital, Yokohama, Japan | 29.85 | 759.2 | 72.5 | 22.5 | 69.5 | 20.8 | 85 | SW | | | 2 | | 0 | | | 0 | 0 | | | Clear | |
| Alert, N. 16° 41′ 57″ E. 145° 22′ 15″ | 30.12† | 765.0† | 83 | 28.3 | 82 | 27.8 | 100 | ENE | | | 5 | | 2 | | E | | | Long | E | D. clouds | |
| Alliance, Beirut, Syria | 29.99 | 759.4 | 77 | 25.0 | 75 | 23.9 | 77 | NW | | | 0–1 | | 1 | | | | | Smooth | | Clear | |
| Ashuelot, Swatow, China | 30.03 | 762.7 | 82 | 27.8 | 82 | 27.8 | 87 | S | | | 0–1 | | 10 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.13 | 765.3 | 55 | 12.8 | 75 | 23.9 | 77 | SSE | | | 1 | | 3 | | | | | | | Clear | |
| Colorado, New York, N. Y | 29.98 | 761.5 | 66 | 18.9 | 68 | 20.0 | 74 | W | 1 | 0.4 | | | 3 | | | 1.25 | 31.7 | | | Hazy | |
| Despatch, Vatika Bay, Greece | 30.03 | 762.7 | 70 | 21.1 | 71 | 21.7 | 95 | NE | | | 6–7 | | 3 | | NE | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 30.06 | 763.5 | 74 | 23.3 | 75 | 23.9 | 100 | NE | 2 | 0.9 | | | 8 | | NE | 0 | 0 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.18 | 766.6 | 74 | 23.3 | 76 | 24.4 | 91 | NNE | | | 1 | | 6k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Genoa, Italy | 29.95 | 760.7 | | | 79 | 26.1 | 95 | SW | | | 1 | | 7 | | | 0 | 0 | | | D. clouds | |
| Hartford, N. 37° 03′ 26″ W. 75° 03′ 31″ | 30.23 | 768.6 | 75 | 23.9 | 69 | 20.6 | 85 | NW | 4.8 | 2.1 | | | 5 | | | 0 | 0 | | | Pleasant | |
| Huron, Santa Marta, N. G. | 30.07 | 763.8 | 85 | 29.4 | 85 | 29.4 | 76 | SW | | | 0–1 | | 1 | | SW | 0 | 0 | | | D clouds | |
| Kearsarge, Nagasaki, Japan | 30.05 | 763.3 | 78 | 25.6 | 75 | 23.9 | 86 | SSE | | | 1 | | 4 | | | 0 | 0 | | | Pleasant | |
| Lackawana, N. 22° 44′ W. 109° 51′ | 30.00 | 762.0 | | | 68 | 20.0 | 84 | NW | | | 3–5 | | 4 | | | | | Moderate. | N&W | D. clouds | |
| Marion, Smyrna, Turkey | 29.91 | 759.7 | 79 | 26.1 | 87 | 27.2 | 52 | W | | | 1 | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.44 | 747.8 | 65 | 18.3 | 65 | 18.3 | 78 | SW | | | 2 | | 2 | | SW | | | | | Partly cl'dy | |
| Monocacy, Tientsin, China | 29.62 | 752.3 | 62 | 16.7 | 58 | 14.4 | 88 | SE | | | 2 | | 3 | | SE | Light | Light | | | D. clouds | |
| Monongahela, N. 39° 40′ W. 72° 25′ | 29.97 | 761.2 | 66 | 18.9 | 65 | 18.3 | 89 | WNW | | | 2–3 | | 2ck | | S&E | Light | Light | Calm | None | Hazy | |
| New Hampshire, Port Royal, S. C | 30.42 | 772.7 | | | 72 | 22.2 | 85 | WSW | 15 | 6.7 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Omaha, S. 7° 15′ W. 80° 40′ | 30.10 | 764.5 | 75 | 23.9 | 74.5 | 23.6 | 86 | SE | 6 | 2.7 | | | 6 | | SE | 0 | 0 | Moderate | S | Pleasant | |
| Ossipee, N. 34° 35′ W. 75° 58′ | 30.14 | 765.5 | 73 | 22.8 | 74 | 23.3 | 81 | SW | | | 4 | | 8 | | N | | | Light | SW | D. clouds | |
| Palos, Shanghai, China | 29.85 | 758.2 | 82 | 27.8 | 82 | 27.8 | 83 | SW | | | 2 | | 10 | | N&W | 0 | 0 | | | Cloudy | |
| Pensacola, Pichilingue Bay, Mexico | 30.01 | 762.2 | | | 76 | 24.4 | 73 | SE | | | 0–1 | | 3 | | | 0 | 0 | | | Pleasant | |
| Plymouth, Off Vera Cruz, Mexico | 30.06 | 763.5 | 83 | 28.3 | 79 | 26.1 | 91 | WNW | | | 2 | | 7 | | W | 0.15 | 3.8 | Smooth | | Hazy | |
| Ranger, Valetta, Malta | 30.20 | 767.1 | | | 73 | 22.8 | 74 | NNE | | | 1–2 | | 3 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.20 | 767.1 | 73.0 | 22.8 | 72.8 | 22.7 | 90 | Calm | | | 0 | | 2 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.89 | 759.2 | | | 70 | 21.1 | 95 | SE | | | 1 | | 2 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.09 | 764.3 | 73 | 22.8 | 69 | 20.6 | 80 | W | | | 0–1 | | 10 | | | 0.80 | 20.3 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.92 | 760.0 | 71 | 21.7 | 70 | 21.1 | 80 | NW | 3 | 1.3 | | | 8 | | NW | 0.34 | 8.6 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 83 | 28.3 | 81 | 27.2 | 91 | NNE | | | 1 | | 8c | | N | | | | | Rainy | |
| Tennessee, Yokohama, Japan | 29.86 | 758.4 | 75 | 23.9 | 75 | 23.9 | 90 | S | | | 1 | | 0 | | | 0 | 0 | Smooth | | Blue sky | |
| Trenton, Smyrna, Turkey | 29.79† | 756.7† | 81 | 27.2 | 81 | 27.2 | 91 | ENE | 9.2 | 4.1 | | | 1 | | N&E | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.13 | 765.3 | 68 | 20.0 | 67 | 19.4 | 89 | NE | | | 2 | | 7 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.84 | 757.9 | 71 | 21.7 | 72 | 22.2 | 71 | W | 14 | 6.3 | | | 8 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.16† | 766.1† | 74 | 23.3 | 73 | 22.8 | | SW | | | 1 | | 10 | | | | | | | Showery | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 42° 57′, W. 154° 47′ | | | 29.98 | 761.5 | 51 | 10.6 | 93 | SE | | | 6 | | 10m | | | Chop'd | SE | Raining | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Millimeters. | Temperature of the air. Fahrenheit. | Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea-swell. Character. | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 37° 56′, W. 68° 36′ | E by N | 11 | 20.99 | 761.7 | 78.1 | 25.6 | | WSW | | | 5 | | d | | NW | Tranq'l | | Overcast | Capt. C. Pohle. |
| S. S. Braunschweig, N. 40° 11′, W. 62° 0′ | S 72 W | 11 | 20.91 | 759.7 | 74 | 23.3 | | WSW | | | 4 | | 3c | | W | Smooth | | Blue sky | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | Up'er 0—10. | Lo'wr 0—10. | Upper. From— | Lower. From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 31° 48′, W. 79° 33′ | ENE | 4 | 30.12 | 765.0 | 75 | 23.9 | 68 | SW | 11 | 4.9 | ..... | 0 | 0 | ..... | ..... | Smooth | ..... | Clear | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 5, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.08 | 764.1 | 75.4 | 24.1 | 56 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.12 | 765.0 | 77.0 | 25.0 | 61 | NW | | | 3 | | 0 | | | Inap. | Inap. | Clear | Peter. |
| La Calle | | | 30.04 | 762.9 | 76.3 | 24.6 | 69 | NNW | | | 3 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.09 | 764.3 | 80.6 | 27.0 | | E | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Stax | | | 30.12 | 765.0 | 77.0 | 25.0 | | ESE | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.12 | 765.1 | 77.6 | 25.3 | | N | | | 3 | | 1 | | | Inap. | Inap. | Clear | Millot. |
| Tobessa | | | 30.17 | 766.3 | 84.4 | 29.1 | | N | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.07 | 763.6 | 91.0 | 32.8 | | SE | | | 2 | | 1 | | | Inap | Inap. | Clear. | Lemaillot. |
| Laghount | | | 30.12 | 765.0 | 93.2 | 34.0 | 22 | S | | | 2 | | 0 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.12 | 765.1 | 94.8 | 34.9 | | SW | | | 2 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tobessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.06 | 763.4 | 81.1 | 27.3 | 47 | NE | | | 1 | | 4 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.11 | 764.9 | 80.2 | 26.8 | 49 | NE | | | 1 | | 5 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.11 | 764.7 | 79.2 | 26.2 | 51 | S | | | 2 | | 2c | | | 0 | 0 | | Julius Mikolik. |
| Gratz | | | 30.08 | 763.9 | 75.0 | 23.9 | 64 | SE | | | 3 | | 1 | | | 0 | 0 | | Andreas Rosplini. |
| Hermannstadt | 28.87 | 733.3 | 30.12 | 765.0 | 77.0 | 25.0 | 42 | ESE | | | 2 | | 0 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.76 | 730.4 | 29.97 | 761.1 | 75.2 | 24.0 | 50 | NE | | | 2 | | 2 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | 28.69 | 728.6 | 30.11 | 764.8 | 77.0 | 25.5 | 62 | S | | | 2 | | 0 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.07 | 763.8 | 78.8 | 26.0 | 64 | WSW | | | 1 | | 1cs | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.13 | 765.4 | 73.8 | 23.2 | 62 | S | | | 1 | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.10 | 764.5 | 76.3 | 24.6 | 61 | W | | | 1 | | 0 | | | 0 | 0 | Clear. | P. Busin. |
| Vienna | | | 30.04 | 763.0 | 77.7 | 25.4 | 45 | SSE | | | 3 | | 8 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.62 | 726.9 | 30.07 | 763.8 | 72.3 | 22.4 | 61 | SW | | | 2 | | 9 | | | 0.185 | 4.7 | | |
| Brussels | | | 30.09 | 764.2 | 64.4 | 18.0 | 71 | WSW | | | 2 | | 9k | | W | 0.067 | 1.70 | | Royal Observatory |
| Furnes | | | 30.05 | 763.3 | 63.0 | 17.2 | 65 | SW | | | 6 | | 10 | | | 0.008 | 0.2 | | |
| Maeseyck | | | 30.10 | 764.4 | 64.0 | 17.8 | 74 | WSW | | | 4 | | 10 | | | 0.008 | 0.2 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. Ed., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Upper 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.47 | 748.5 | 60.0 | 15.6 | | SW | 26 | 11.6 | | | 2 | | | 0.490 | 12.45 | Blue sky | William Boswell. |
| Ardrossan | | | 29.64 | 752.8 | 56 | 13.3 | | SW | | | 3 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.71 | 754.6 | 55.5 | 13.1 | | SW | 16 | 7.2 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.85 | 758.2 | 59.2 | 15.1 | | SW | 27 | 12.1 | | | 9 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.75 | 755.6 | 57.4 | 14.1 | | SSW | | | 2– | | 10 | | | | | D. clouds | J. Breyer. |
| Bradford, Yorkshire | | | 29.84 | 757.9 | 55.7 | 13.2 | | SW | | | 1 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.01 | 762.2 | 82.0 | 27.8 | | NE | | | 2 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.95 | 760.7 | 60.9 | 16.1 | | SSW | | | 3–4 | | 10 | | | | | D. clouds | H. Todd. |
| Cardington | | | 29.98 | 761.5 | 70.0 | 21.1 | | | | | 3 | | 8 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.03 | 762.7 | 65.2 | 18.4 | | W | | | 2 | | 8 | | | | | Threatening | Capt. Fellowes, R. E. |
| Dartmoor | 28.57 | 725.7 | 30.04 | 763.0 | 53.0 | 11.7 | | W | | | 4 | | 3 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.71 | 754.6 | 55 | 12.8 | | SW | | | 0 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.07 | 763.8 | 58 | 14.4 | | SW | | | 4 | | 5 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.84 | 757.9 | 58.7 | 14.8 | | SW | 12.4 | 5.5 | | | 10 | | | | | Overcast | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.02 | 762.5 | 60.2 | 15.7 | | SW | | | 4 | | 4 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.95 | 710.3 | 30.18 | 766.6 | 62.3 | 16.8 | | SE | | | 2 | | 6 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 760.2 | 88 | 31.1 | | N | | | 2 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.64 | 752.8 | 56 | 13.3 | | SW | | | 1 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.10 | 764.5 | 76.6 | 24.8 | | SW | | | 4 | | 0 | | | | | Blue sky | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.62 | 752.3 | 57.8 | 14.3 | | WSW | | | 4 | | 9 | | | | | Squally | William Wallace. |
| Great Yarmouth | | | 29.96 | 761.0 | 64 | 17.8 | | WSW | | | 4 | | 4 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.01 | 762.2 | 65.5 | 18.6 | | SW | | | 3 | | 9 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.06 | 763.5 | 60 | 15.6 | | WSW | | | 2 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.04 | 763.0 | 62 | 16.7 | | SW | | | 6 | | 1c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.84 | 757.9 | 57 | 13.9 | | SW | | | 6 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.99 | 761.7 | 64.3 | 17.9 | | SW | 20 | 8.9 | | | 9 | | | | | Threatening | The Staff. |
| Kingstown | | | 29.78 | 756.4 | 59 | 15.0 | | W | | | 5 | | 5 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.92 | 760.0 | 60.8 | 16.0 | | SW | | | 1 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.04 | 763.0 | 76 | 24.4 | | NE | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.42 | 747.3 | 58 | 14.4 | | S | | | 3 | | 2 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.07 | 763.8 | 80.0 | 26.7 | | NE | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.92 | 760.0 | 60.3 | 15.7 | | SSW | | | 4 | | 10k,c | | SSW | 0 | 0 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.88 | 758.9 | 62.0 | 16.7 | | SW | | | 6 | | 6 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.97 | 761.2 | 64 | 17.8 | | SW | | | 2 | | 9 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.02 | 762.5 | 63.2 | 17.3 | | S | | | 4 | | 7 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.81 | 757.2 | 55 | 12.8 | | WSW | | | 5 | | 10 | | | | | Overcast | W. Kennedy. |
| Saint Ann's Head | | | 29.92 | 760.0 | 56 | 13.3 | | SW | | | 5 | | 3 | | | | | Hazy | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.08 | 764.0 | 63.0 | 17.2 | | W | | | 3 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.35 | 745.5 | 55.7 | 13.2 | | SW | 24 | 10.7 | | | 10 | | | | | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.04 | 763.0 | 69.6 | 20.9 | | NE | | | 2 | | 6 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.87 | 758.7 | 62.0 | 17.0 | | W | | | 5 | | 4 | | | Inap. | In ap. | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 29.76 | 755.9 | 59.6 | 13.7 78 | | SW | | | 5 | | 7 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.84 | 757.9 | 55.4 | 13.0 | | SW | | | 4 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.39 | 746.5 | 53 | 11.7 | | SW | | | 5 | | 10 | | | | | Drizzling | John Smith. |
| Stratfield Turgis | | | 29.98 | 761.5 | 62.0 | 17.0 | | W | | | 2 | | 9 | | | | | D. clouds | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.34 | 745.2 | 62 | 16.7 | | SSW | | | 5 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.00 | 762.0 | 63 | 17.2 | | SW | | | 7 | | 5 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.70 | 754.4 | 54.5 | 12.5 | | S | 39 | 17.4 | | | 10 | | | | | Threatening | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | SW | | | 6 | | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.20 | 767.1 | 69.1 | 20.6 57 | | SSW | 11 | 4.9 | | 0 | 0 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.24 | 768.1 | 41.0 | 5.0 80 | | NW | | | 2 | | 6k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.65 | 753.1 | 55.8 | 13.2 | | W | | | 5 | | 10k | | | 0.17 | 4.3 | C'loudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.18 | 766.6 | 73.5 | 23.1 68 | | ESE | 17.1 | 7.6 | | 1 | 2 | | ESE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.42 | 772.7 | 56.0 | 13.3 80 | | NNE | 10 | 4.5 | | | 8 | | | 0 | 0 | Fine, dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 29.40 | 746.7 | 52 | 11.1 | | S | | | 6 | 5 | 5 | SW | | 0.5 | 13. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.63 | 752.6 | 50 | 10.0 | | S | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,401 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Moulland. |
| Ship Camperdown, N. 33° 50′, W. 75° 50′ | | | 30.09 | 764.3 | 76.0 | 24.4 | | SW | | | 4 | | 7 | | | 3 | SW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Beistowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.75 | 755.6 | 55 | 12.8 | | SW | | | 6 | | 8 | | | | | Hailing | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The origina's give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower c ouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26 23 | 666.2 | | | 69 8 | 21 0 | 86 | NE | | | 2 | | 1ck | | | 0.1 | 2.5 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.96 | 761.0 | 74.3 | 23.5 | 59 | ESE | | | 4 | | 0 | | | | | | |
| Faröe | | | 29.89 | 759.1 | 65.5 | 18.6 | 63 | WSW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 29.88 | 759.0 | 37.6 | 3.1 | 64 | SW | | | 2 | | 8 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.51 | 749.5 | 40 8 | 4.9 | 87 | NE | | | 6 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.29 | 744.0 | 45.3 | 7.4 | 98 | NE | | | 4 | | 10 | | | | | | |
| Vestervig | | | 29.94 | 760.5 | 68.7 | 20.4 | 53 | W | | | 2 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.05 | 763.2 | 66.2 | 19 | 66 | W | | | 1 | | 8k | | W | 0.08 | 2. | Very cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.11 | 764.9 | 67.1 | 19.6 | 67 | WSW | | | 3 | | 8 | | SW | 0.118 | 3.0 | Very cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.04 | 763.0 | 74.7 | 23.7 | 64 | S | | | 1 | | 10 | | S | 0 | 0 | Covered | Mr. Giraud. |
| Bar-sur-Seine | | | 30.15 | 765 8 | 53.2 | 15.1 | 80 | N | | | 2 | | 10n | | | 0 | 0 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.13 | 765.2 | 65.8 | 18 8 | 62 | SSW | | | 1 | | 10 | | | 0.189 | 4.80 | Covered | Normal School. |
| Besançon | | | 30.07 | 763.7 | 77 4 | 25.2 | 54 | SW | | | 3 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourgen Bresse | | | 30.17 | 766.3 | 74.3 | 23.5 | 75 | N | | | 1 | | 5kn | | S | 0 | 0 | Cloudy | Normal School. |
| Bourges, Normal School | | | 30.18 | 766.6 | 55.0 | 12.8 | 98 | W | | | 2 | | 8 | | NE | 0 | 0 | Very cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.04 | 762.9 | 64.2 | 17.9 | 55 | WSW | | | 4 | | 1k | | WSW | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.16 | 766.1 | 56.1 | 13.4 | 95 | W | | | 4 | | 10 | | W | 0 | 0 | Covered | Vateau, Director. |
| Caen | | | 30.11 | 764 7 | 65.5 | 18.6 | 59 | WSW | | | 2 | | 8 | | SW | 0.102 | 2.6 | Very cloudy | Normal School. |
| Chartres, Normal School | | | 30.15 | 765.8 | 58.5 | 14.7 | 98 | SW | | | 2 | | 10 | | NE | 0.618 | 15.7 | Covered | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.13 | 765.2 | 60 4 | 15.8 | 79 | NW | | | 3 | | 10ck | | | 0.020 | 0.5 | Covered | T. Leloup, Director. |
| Clermont-Fd., Puy de Dôme | | | 30.11 | 764.9 | 57.4 | 14.1 | 91 | NE | | | 1 | | 10 | | | 0 | 0 | Covered | Alluard, Director. |
| Commercy, Normal School | | | 30.06 | 763.5 | 70 0 | 21.1 | 73 | WNW | | | 2 | | 5 | | NNW | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.12 | 765.0 | 82.8 | 28.2 | 38 | SE | | | 2 | | 8 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.03 | 762.8 | 74.3 | 23.5 | 66 | NW | | | 6 | | 5ck | | SW | 0 | 0 | Cloudy | Normal School. |
| Le Mans, Normal School | | | 30.11 | 764.8 | 61.4 | 18.0 | 56 | SSW | | | 2 | | 8 | | SSE | 0.051 | 1.3 | Very cloudy | Mouillot, Director. |
| Lons-Le-Saulnier, N. School | | | 30.15 | 765.7 | 63.7 | 17.6 | 70 | W | | | 2 | | 8 | | SW | 0.291 | 7.4 | Very cloudy | Poirrier, Director. |
| Lorient, Naval Observatory | | | 30.05 | 763.2 | 68.2 | 20.1 | 87 | W | | | 2 | | 10 | | | 0.051 | 1.3 | Raining | Pin, Director. |
| Mâcon, Normal School | | | 30.15 | 765.7 | 65.1 | 18.4 | 52 | WSW | | | 4 | | 5 | | WSW | 0 | 0 | ½ covered | T. Carré, Director. |
| Metz | | | 30.02 | 762 6 | 71.1 | 21.7 | 73 | W | | | 8 | | 10 | | | 0.24 | 6. | Covered | M. A. Schuster, Dir. |
| Mirecourt | | | 29.75 | 756.7 | 77.0 | 25.0 | 56 | WNW | | | 1 | | 9k | | W | 0 | 0 | | Normal School. |
| Nismes, Normal School | | | 30.01 | 762.3 | 69.4 | 20.8 | 67 | SSW | | | 2 | | 5 | | NNE | 0 | 0 | Cloudy | Normal School. |
| Orleans | | | 30.08 | 764.0 | 83.3 | 28.5 | 52 | N | | | 2 | | cn | | N | 0 | 0 | | Boyer, Director. |
| Paris, Observatory | | | 30.10 | 764.4 | 59 0 | 15 1 | 82 | W | | | 2 | | 10 | | | 0.098 | 2.5 | Covered | Normal School. |
| Privas | | | 30.13 | 765 3 | 60.1 | 15.6 | 70 | W | | | 1 | | 10kn | | W | 0.028 | 0.71 | Raining | National Observatory. |
| Rochefort, Naval Obs'y | | | | | | | | | | | | | | | | | | | Normal School |
| Rouen, Normal School | | | 30.17 | 766.2 | 65.1 | 18.4 | 59 | WSW | | | 3 | | 10 | | SW | 0 | 0 | Covered | Lt. Decante, Director. |
| Tarbes, Normal School | | | 30.10 | 764.1 | 64.9 | 18.3 | 55 | SSW | | | 2 | | 10 | | SW | 0.091 | 2.3 | Covered | F. Lucard, Director. |
| Villefranche | 29.05 | 738.0 | 30.19 | 766.7 | 70.5 | 21.4 | 82 | WSW | | | 3 | | 5 | | | 0 | 0 | Cloudy | T. Hugues, Director. |
| SUB-SERIES. | | | 30.07 | 763.7 | 73.8 | 23.2 | 77 | ENE | | | 1 | | 10 | | SW | 0 | 0 | Covered | Vilot, Director. |
| Fort de France, Martinique. | | | 29.85 | 758.3 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.03 | 762.8 | 71.4 | 21.9 | 61 | NW | | | 2 | | 10 | | | 0.004 | 0.10 | Rainy | The Staff. |
| Mont-Louis | 24.93 | 633.1 | 30.24 | 768.1 | 47.1 | 8.4 | 72 | SE | 14.9 | 6.66 | | | 10 | | | 0.177 | 4.5 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.12 | 765.1 | 59.3 | 15.3 | 86 | W | | | 1 | | 10 | | WSW | 0.043 | 1.1 | Sprinkling | Marie Davy, Director. |
| Perpignan | | | 30.10 | 764.5 | 65.3 | 18 5 | 63 | N | 11.2 | 5.00 | | | 9 | | SW | 0.031 | 0.8 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.29 | 540.7 | | | 32.0 | 0.0 | | N | | | 2 | | 10 | | | | | Rainy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.56 | 573.1 | | | 40 1 | 4.5 | | N | | | 1 | | 10 | | | 0.673 | 17.1 | Rainy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.13 | 765.4 | 58.6 | 14.8 | 89 | SW | | | 1 | | 10 | | | 0.150 | 3.8 | Covered | E. Renou. |
| Toulouse, Observatory | | | 30.21 | 767.2 | 51.4 | 10.8 | 100 | NW | | | 2 | | 10 | | | 0 854 | 21.7 | Raining | The Staff |
| Tours | | | 30.14 | 765.6 | 59.5 | 15.3 | 83 | WSW | | | 1 | | 10 | | W | 0.110 | 2.8 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.14 | 765.5 | 59.2 | 15.2 | 69 | W | | | 1 | | 10 | | | 0.202 | 5.13 | Covered | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.77 | 756.1 | 71.1 | 21.7 | 83 | NE | 14.5 | 6.5 | | | 10k | | | 0.008 | 0.2 | Raining | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,05[illegible].4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometer for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.03 | 762.7 | 83.1 | 28.4 | 46 | S | | | 2 | | 5 | S | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.00 | 762.1 | 88.7 | 31.5 | 36 | S | | | 1 | | 2 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.11 | 764.7 | 82.4 | 28.0 | 36 | S | | | 4 | | 1 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.03 | 762.8 | 83.1 | 28.4 | 40 | SW | | | 3 | | 4 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.05 | 763.2 | 88.2 | 31.2 | 46 | WSW | | | 2 | | 7 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.16 | 766.1 | 64.0 | 17.8 | 73 | W | | | 3 | | 9 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.92 | 759.9 | 71.6 | 22.0 | 53 | WSW | | | 4 | | 5 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.06 | 763.4 | 83.3 | 28.5 | 45 | SW | | | 1 | | 5 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.65 | 727.7 | 30.02 | 762.5 | 76.3 | 24.6 | 65 | SSW | | | 1 | | 4 | WSW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 29.92 | 760.0 | 84.7 | 29.3 | 54 | WSW | | | 5 | | 4k | S | | 0 | 0 | Fair | Captain F. Hegemann. |
| Kiel | | | 29.89 | 759.2 | 80.8 | 27.1 | 74 | NW | | | 3 | | 5 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.09 | 764.2 | 84.4 | 29.1 | 41 | S | | | 2 | | 4 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 29.98 | 761.6 | 90.7 | 32.6 | 34 | SSE | | | 2 | | 2 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.14 | 765.6 | 79.9 | 26.6 | 46 | SSW | | | 2 | | 1 es.ck | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.08 | 764.0 | 83.1 | 28.4 | 43 | SSE | | | 3 | | 0 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.06 | 763.4 | 84.7 | 29.3 | 36 | S | | | 7 | | 0 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.04 | 762.9 | 78.8 | 26.0 | 47 | NW | | | 4 | | 10 | SW | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.99 | 761.7 | 83.3 | 28.5 | 43 | NW | | | 2 | | 4 | W | | 0.110 | 2.8 | Raining | Prof. Schoder |
| Treves, (Trier) | | | 29.91 | 759.6 | 77.2 | 25.1 | 60 | NW | | | 5 | | 8 | | | 0.996 | 25.3 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.54 | 724.8 | 29.94 | 760.5 | 85.1 | 29.5 | 40 | Calm | | | 0 | | 6 | | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.99 | 761.8 | 88.0 | 31.1 | 46 | SE | | | 2 | | 0 | | | 0.303 | 7.7 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.05 | 763.2 | 75.4 | 24.1 | | NE | | | Strong | | | | | | | Half clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.54 | 750.3 | 29.59 | 751.5 | 88.7 | 31.5 | 66 | WNW | 34.0? | 15.1? | | | 0 | | | 0 | 0 | Dust-haze | |
| Deesa | 29.22 | 742.4 | 29.68 | 753.9 | 97.3 | 36.3 | 47 | NW | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.72 | 754.8 | 29.75 | 755.7 | 88.2 | 31.2 | 71 | NW | 16.0 | 7.1 | | | 10 | NNW | WNW | 0 | 0 | Dust-haze | |
| Poona | 27.72 | 704.0 | 29.69 | 754.2 | 83.6 | 28.3 | 70 | | | | | | | | E | 0.05 | 1.3 | Thunder-storm | |
| Lahore | 28.98 | 736.2 | 29.72 | 754.8 | 86.0 | 30.0 | 58 | E | 3.3 | 1.4 | | | 5 | | | 0 | 0 | Cloudy | |
| Belgaum | 27.15 | 689.6 | 29.68 | 753.8 | 75.3 | 24.1 | 88 | W | 18.0 | 8.0 | | | 9 | | NE,N,W | 0.76 | 19.3 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.80 | 731.6 | 29.67 | 753.6 | 95.4 | 35.2 | | SE | 6.0 | 2.6 | | | 2 | | | 0 | 0 | | |
| Agra | 29.06 | 738.0 | 29.60 | 751.8 | 96.7 | 35.9 | 45 | E | 6.0 | 2.6 | | | 3 | | | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.59 | 726.1 | 29.59 | 751.6 | 95.5 | 35.3 | 30 | Calm | 5.5 | 2.4 | | | 9 | | | 0.05 | 1.3 | Raining | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.29 | 744.0 | 29.66 | 753.4 | 86.2 | 30.1 | 63 | E | 3.8 | 1.6 | | | 6 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.32 | 744.8 | 29.63 | 752.6 | 87.0 | 30.6 | 76 | E | 1.8 | 0.8 | | | 10 | | | 0 | 0 | Overcast | |
| Patna | 29.49 | 749.0 | 29.66 | 753.4 | 92.5 | 33.6 | 51 | E | 1.5 | 0.6 | | | 4 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.68 | 703.1 | 29.65 | 753.2 | 86.8 | 30.4 | 55 | ESE | 6.9 | 3.0 | | | 7 | E | N | | | Raining | |
| Cuttack | 29.66 | 753.3 | 29.74 | 755.4 | 84.6 | 28.9 | 69 | NNW | 3.1 | 1.3 | | | 9 | | | 0 | 0 | Thunder | |
| Calcutta, (Alipore) | 29.71 | 754.6 | 29.73 | 755.2 | 83.7 | 28.7 | 75 | SE | 3.0 | 1.3 | | | 3 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.35 | 745.5 | 29.74 | 755.4 | 79.8 | 26.6 | 89 | WSW | 1.9 | 0.8 | | | 3 | W | | 0 | 0 | D. clouds | |
| Chittagong | 29.71 | 754.7 | 29.80 | 757.0 | 79.9 | 26.6 | 96 | | 14.6 | 6.5 | | | 10 | | | 0.38 | 9.6 | Raining | |
| Sibsagar | 29.39 | 746.6 | 29.73 | 755.0 | 83.2 | 28.3 | 78 | SSW | 1.9 | 0.8 | | | 10 | SW | SW | 0.02 | 0.5 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.27 | 718.0 | 29.59 | 751.5 | 94.9 | 34.9 | 92 | N | | | | | 5 | | | 0 | 0 | D. clouds | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.46 | 570.4 | 30.18? | 766.62 | 48.9 | 9.4 | 92 | NE | | | 1 | | 10 | NE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.41 | 569.3 | 30.07 | 763.6 | 48.0 | 8.9 | | SE | | | 1 | | 0 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.04 | 763.1 | 81.0 | 27.2 | 47 | SW | 0.7 | 0.3 | | | 2 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.10 | 764.4 | 80.2 | 26.8 | 56 | SE | 1.8 | 0.8 | | | 5 | N | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.05 | 763.3 | 84.2 | 29.0 | 43 | SE | 3.8 | 1.7 | | | 2 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | 28 78 | 731.1 | 30.05 | 763.2 | 82.4 | 28.0 | 56 | S | | | 1 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.02 | 762.5 | 79.3 | 26.3 | 56 | S | | | 2 | | 6 | | | 0 | 0 | | Prof. Giuseppe Calza |
| Milan | | | 30.08 | 764.1 | 86.7 | 30.4 | 70 | WSW | | | 2 | | 3 | WSW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.06 | 763.5 | 80.1 | 26.7 | 46 | N | | | 1 | | 1 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.06 | 763.4 | 79.9 | 26.6 | 50 | SW | 1.8 | 0.8 | | | 8 | NE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.21 | 716.5 | 30.04 | 763.0 | 78.1 | 25.6 | 45 | NNW | | | 4 | | 7 | NW | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.132 | 765.22 | 74.3 | 23.5 | 67 | ESE | | | 2 | | 8 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.09 | 764.2 | 76.8 | 24.9 | 53 | SW | 2.5 | 1.1 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.08 | 763.9 | 80.1 | 26.7 | 52 | E | 2.5 | 1.1 | | | 1 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 30.05 | 763.2 | 82.4 | 28.0 | 52 | NNE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.08 | 763.9 | 84.2 | 29.0 | 36 | NW | | | 2 | | 2 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.08 | 764.0 | 77.0 | 25.0 | 54 | W | 5.6 | 2.5 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.88 | 733.6 | 30.04 | 762.9 | 81.3 | 27.4 | 42 | SW | 0.7 | 0.3 | | | 4 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.58 | 725.9 | 30.08 | 764.0 | 73.8 | 23.2 | 60 | NE | | | 4 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.11 | 764.8 | 73.4 | 23.0 | 70 | NE | 16.1 | 7.2 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.08 | 764.1 | 77.0 | 25.0 | 56 | ESE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.09 | 764.2 | 82.8 | 28.2 | 36 | WSW | | | 4 | | 4 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.09 | 764.2 | 82.4 | 28.0 | 39 | SW | 11.9 | 5.3 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.07 | 763.6 | 84.7 | 29.3 | 34 | W | | | 2 | | 2 | | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.09 | 764.2 | 76.3 | 24.6 | 37 | NNE | 9.4 | 4.2 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.03 | 762.8 | 81.1 | 27.3 | 65 | NE | 17.4 | 7.8 | | | 3 | WNW | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.02 | 762.5 | 78.8 | 26.0 | 52 | SE | | | 6 | | 2 | NW | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.06 | 763.5 | 81.5 | 27.5 | 49 | E | | | 2 | | 1 | | | 0 | 0 | | Pref. F. Cafiero. |
| Palermo | | | 30.00 | 762.0 | 76.8 | 24.9 | 48 | NE | 6.3 | 2.8 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.11 | 713.9 | 29.97 | 761.3 | 77.0 | 25.5 | 43 | WSW | | | 4 | | 7 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.98 | 761.5 | 74.1 | 23.4 | 72 | NNE | | | 1 | | 6 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.11 | 764.7 | 82.2 | 27.9 | 32 | WSW | 2.5 | 1.1 | | | 3 | E | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.76 | 755.9 | 70 | 21.1 | 90 | S | 2 | 0.9 | | | 10n | | | | | Cloudy | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.8 | 30.08 | 763.9 | 62.2 | 16.8 | 77 | W | 0.8 | 0.36 | | 10 1 | 10n | | | | | Light rain | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.09 | 764.3 | 64.8 | 18.2 | | WNW | | | 4 | | | | | 0.035 | 0.9 | | |
| Groningen | | | 29.97 | 761.1 | 67.1 | 19.5 | | W | | | 4 | | | | | 0.047 | 1.2 | | |
| Helder | | | 30.02 | 762.4 | 61.3 | 16.3 | | SW | | | 5 | | | | | 0.075 | 1.9 | | |
| Utrecht | | | 30.02 | 762.5 | 66.9 | 19.4 | 61 | WSW | | | 4 | | 5 | | | 0.008 | 0.2 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.61 | 752.8 | 77.7 | 25.4 | 55 | SSW | 28.9 | 12.9 | | | 4 | | | 0.409 | 10.4 | | |
| Brönö | | | 29.88 | 758.9 | 53.6 | 12.0 | 74 | NE | 9 | 4 | | | 3 | | | 0 | 0 | | |
| Christiania | | | 29.88 | 759.0 | 74.1 | 23.4 | 78 | SW | 4 | 2 | | | 9 | | | 0.012 | 0.3 | | |
| Tromsö | | | 29.71 | 754.5 | 45.7 | 7.6 | 86 | SW | 18 | 8 | | | 10 | | | 0.173 | 4.4 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.21 | 767.2 | 64.4 | 18.0 | 77 | W | 10.5 | 4.7 | | | 6 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.16 | 766.0 | 67.6 | 19.8 | 32 | NW | 10.1 | 4.50 | | | 1 | | | 0.110 | 2.8 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.24 | 768.0 | 70.0 | 21.1 | 41 | S | 4.3 | 1.9 | | | 4 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.24 | 768.0 | 64.4 | 18.0 | 49 | NNE | 9.8 | 4.4 | | | 5 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.27 | 768.8 | 66.9 | 19.4 | 67 | WSW | 6.3 | 2.8 | | | 3 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.13 | 765.2 | 81.7 | 27.6 | 37 | SE | 4 | 2 | | | 1 | | | | | | Astronomical Obs. |
| Wilna | | | 30.19 | 766.7 | 82.0 | 27.8 | 37 | S | 2 | 1 | | | 5 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.14 | 765.5 | 82.0 | 27.8 | 38 | SW | 7 | 3 | | | 0 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.09 | 764.3 | 71.1 | 21.7 | 51 | WNW | 13 | 6 | | | 5 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.89 | 759.1 | 78.8 | 26.0 | 47 | WSW | 22 | 10 | | | 2 | | | | | | Ch. Forsten. |
| Kieff | | | 30.15 | 765.8 | 76.1 | 24.5 | 42 | NNE | 7 | 3 | | | 4 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.21 | 767.4 | 79.2 | 26.2 | 44 | E | 9 | 4 | | | 3 | | | | | | Kurdakof. |
| Kertch | | | 30.19 | 766.7 | 74.7 | 23.7 | 59 | NNW | 9 | 4 | | | 1 | | | | | | Lagorio. |
| Moscow | | | 30.14 | 765.6 | 67.5 | 19.7 | 53 | NNW | 9 | 4 | | | 1 | | | | | | Meteorological Obs. |
| Lugan | | | 29.95 | 760.8 | 75.2 | 24.0 | 41 | WNW | 18 | 8 | | | 3 | | | | | | Meteorological Obs. |
| Archangel | | | 29.91 | 759.8 | 65.3 | 18.5 | 47 | SSW | 18 | 8 | | | 9 | | | | | | Ogorodnikof. |
| Tiflis | 28.65 | 727.7 | 30.00 | 762.1 | 79.5 | 26.4 | 35 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.86 | 758.5 | 73.6 | 23.1 | 53 | NE | 4 | 2 | | | 7 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.80 | 756.9 | 68.9 | 20.5 | 50 | NE | 4 | 2 | | | 8 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 28.91 | 734.3 | 29.83 | 757.6 | 64.4 | 18.0 | 31 | NE | 2 | 1 | | | 6 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.91 | 759.8 | 84.6 | 29.2 | 17 | Calm | 0 | 0 | | | 9 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.45 | 722.7 | 30.08 | 764.1 | 78.8 | 26.0 | 53 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.93 | 760.1 | 60.6 | 15.9 | 84 | Calm | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.79 | 756.7 | 72.5 | 22.5 | 36 | NW | 2 | 1 | | | 6 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 54.1 | 12.3 | | NW | 4 | 2 | | | 7 | | | | | | Mossin. |
| Peking, (China) | | | 29.76 | 756.0 | 67.8 | 19.9 | 43 | Calm | 0 | 0 | | | 1 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.34 | 745.3 | 50.7 | 10.4 | 93 | NW | 16 | 7 | | | 10 | | | | | Raining | |
| Nikolaievsk, on the Amoor | | | | | 49.1 | 9.5 | | Calm | 0 | 0 | | | 7 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet: Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 30.05 | 763.2 | 71.1 | 21.7 | 42 | NW | 7.4 | 3.33 | | 0 | 5 | | | 0.106 | 2.7 | Cloudy | The Staff. |
| San Fernando, Naval Obs'y | | | 30.15 | 765.8 | 69.4 | 20.8 | 57 | WNW | 13.9 | 6.2 | | 0 | 0 | | | 0 | 0 | | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.06 | 763.5 | 82.8 | 28.2 | 77 | ESE | 0 | 0 | | 4c | 0 | | | 0 | 0 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.94 | 760.4 | 85.3 | 29.6 | 78 | E | 8.5 | 3.81 | | 5k | 1n | E | E | 0.039 | 1.00 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.87 | 758.8 | 53.6 | 12.0 | 61 | S | | | 4 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.94 | 760.5 | 64.0 | 17.8 | 55 | SW | | | 2 | | 0 | | | 0 | 0 | | |
| Hernosand | | | 29.92 | 760.0 | 75.9 | 24.4 | 49 | ESE | | | 4 | | 1 | | | 0 | 0 | | |
| Stockholm | | | 30.00 | 762.0 | 78.8 | 26.0 | 38 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Wisby | | | 30.05 | 763.3 | 79.2 | 26.2 | 46 | SW | | | 4 | | 0 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.97 | 761.1 | 83.1 | 28.4 | 32 | S | 16.1 | 7.2 | | | 0 | | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer, corrected for instru-m'tal error and temperature: Inches. | Millimeters. | Barometer, reduced to sea-level: Inches. | Millimeters. | Temperature of the air: Fahrenheit. | Centigrade. | Relative humidity: Per cent. | Wind, direction: From— | Wind, velocity: Miles per hour. | Meters per second. | Wind, force: 0–10. | Clouds, amount: Up'er 0–10. | Low'r 0–10. | Clouds, direction: Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours: Inches. | Millimeter. | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.65 | 727.7 | 30.01 | 762.3 | 76.3 | 24.6 | 60 | ENE | | | 1 | | 9 | | | 0.012 | 0.3 | Covered | The Observatory. |
| Zurich | 28.45 | 722.5 | 30.00 | 762.0 | 79.5 | 26.4 | 56 | W | | | 1 | | 5 | | | 0.047 | 1.2 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +1.7 mm; Thermometer, +5.2 cent.; Relative Humidity, +4 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Corr. Inches. | Corr. Millimeters. | Red. Inches. | Red. Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind from— | Miles per hour. | Meters per second. | Force 0–10. | Up'er 0–10. | Low'r 0–10. | Upper from— | Lower from— | Rain Inches. | Rain Millimeter. | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.10 | 764.4 | 68.2 | 20.1 | 68 | NE | 19 | 8.5 | | | 7 | | S | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 30.10 | 764.6 | 89.6 | 32.0 | | NW | | | 3 | | 2 | | | | | | |
| Salonica | | | 30.17 | 766.2 | 81.1 | 27.3 | | NW | | | 2 | | 2 | | | | | | B. Stéfanidés. |
| Valona | | | 30.17 | 766.2 | 76.3 | 24.6 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.3 | 70.7 | 26.5 | 66 | NNW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Pro.. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Corr. Inches. | Corr. Millimeters. | Red. Inches. | Red. Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind from— | Miles per hour. | Meters per second. | Force 0–10. | Up'er 0–10. | Low'r 0–10. | Upper from— | Lower from— | Rain Inches. | Rain Millimeter. | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.64 | 752.8 | 59.9 | 15.5 | 70 | NW | 8 | 3.6 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.90 | 759.4 | 63 | 17.2 | | NE | 4 | 1.8 | | | 8s | | NE | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B | | | 29.63 | 752.6 | 60 | 15.6 | 72 | NW | 14 | 6.3 | | 2k | 8ks | NW | NW | 0.02 | 0.5 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.62 | 752.3 | 61 | 16.1 | 64 | NW | 13 | 5.8 | | 0 | 5ks | | NW | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.85 | 758.2 | 58.9 | 14.9 | 66 | W | | | 2 | cs | 2 | | | 0.020 | 0.51 | Fair | James Smith, M. A. |
| Dalhousie, N. B | | | 29.67 | 753.6 | 55.0 | 12.8 | 80 | W | | | 2 | | | | | 0.78 | 19.8 | Clearing | H. A. Johnson. |
| Esquimault, B. C | | | 30.01 | 762.2 | 52.8 | 11.6 | 79 | W | | | | | 9ck | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.71 | 754.6 | 49 | 9.4 | 89 | SW | 4 | 1.8 | | 5k | 6s | W | W | 0.05 | 1.3 | Cloudy | J. McWilliams. |
| Fredericton, N. B | | | 29.75 | 755.6 | 63.3 | 17.4 | 62 | NW | 10 | 4.5 | | k | 0 | | | 0 | 0 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.82 | 757.4 | 53 | 11.7 | 90 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | James Stewart. |
| Goderich, Ontario | | | 29.86 | 758.4 | 55.7 | 13.2 | 79 | Calm | | | 0 | 10k | 0 | | | 0 | 0 | Cloudy | H. J. Strang, M. A. |
| Granton, Ontario | 28.76 | 730.5 | 29.85 | 758.2 | 53 | 11.7 | 73 | E | | | 1 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| *Halifax, N. S | | | 29.66 | 753.4 | 67 | 19.4 | 61 | W | 14 | 6.3 | | 2k | 0 | W | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.91 | 759.7 | 55 2 | 12.9 | 71 | E | | | 2 | 10c | 0 | E | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.53 | 750.0 | 43 | 6.1 | 100 | S | | | 4 | | 10 | | | 0.42 | 10.7 | Rain & fog | E. Weedon. |
| *Kingston, Ontario | | | 29.93 | 760.2 | 60 | 15.6 | 74 | E | 10 | 4.5 | | Haze | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.87 | 758.7 | 58 | 14.4 | 71 | W | 3 | 1.3 | | 0 | 2ks | | | Inap. | Inap. | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.89 | 759.2 | 53 | 11.7 | 83 | SE | 6 | 2.7 | | 2cs | 2ks | SE | SE | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 29.89 | 759.2 | 57.7 | 14.3 | 69 | Calm | | | 0 | 9k | 0 | | | 0 | 0 | Dull | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.88 | 758.9 | 55 | 12.8 | 87 | E | 6 | 2.7 | | | 10n | | SE | Inap. | Inap. | Light rain | H. Morgan. |
| Port Hastings, N. S | | | 29.61 | 752.1 | 59.5 | 15.3 | | NW | | | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.87 | 758.7 | 55 | 12.8 | 72 | E | 7 | 3.1 | | | 10a | | | 0.05 | 1.3 | Light rain | M. Payne. |
| *Quebec, Quebec | | | 29.80 | 756.9 | 64 | 17.8 | 78 | Calm | 0 | 0 | | 0 | 0 | | | 0.11 | 2.8 | Clear | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.92 | 760.0 | 53 | 11.7 | 77 | W | 3 | 1.3 | | 2c | 0 | NW | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | 29.74 | 755.4 | 62 | 16.7 | 66 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | G. Murdock, C. E. |
| *Saugeen, Ontario | | | | | 53 | 11.7 | 80 | Calm | 0 | 0 | | 10ck | 0 | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.87 | 758.7 | 58 | 14.4 | 72 | E | 3 | 1.3 | | | Sm'e | | | 0 | 0 | Smoky | R. J. Cole. |
| Stratford, Ontario | 28.59 | 726.2 | 29.85 | 758.2 | 52.9 | 11.6 | 67 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.58 | 751.3 | 62 | 16.7 | 73 | W | 9 | 4.0 | | 2ck | 5ks | | NW | Inap. | Inap. | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.91 | 759.7 | 54 | 12.2 | 72 | E | 3 | 1.3 | | | 10ks | | | 0 | 0 | Cloudy | Magnetic Observatory. |
| Windsor, N. S | | | 29.63 | 752.6 | 63.5 | 17.5 | 65 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.88 | 758.9 | 52.7 | 11.5 | 79 | SE | 10 | 4.5 | | 10k | 0 | | | Inap. | Inap. | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.70 | 754.4 | 40.0 | 4.4 | 100 | S | | | | | 10n | | | 0.18 | 4.6 | Raining | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to [illegible]; for Bathurst not any distinction between upper and lower clouds. The elevation of G[illegible]on is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10 | Clouds. Amount. Low'r. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.87 | 758.7 | 62 | 16.7 | 71 | W | 1 | 0.4 | | Haze | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich. | | | 29.86 | 758.4 | 55 | 12.8 | 68 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.90 | 759.4 | 66 | 18.9 | 78 | NE | 8 | 3.6 | | 2k | 8ks | W | W | 0 | 0 | Cloudy | |
| Augusta, Ga. | | | 29.97 | 761.2 | 74 | 23.3 | 68 | S | 3 | 1.3 | | 8c | Haze | | | 0 | 0 | Fair | |
| Baltimore, Md. | | | 29.93 | 760.2 | 67 | 19.4 | 90 | SW | 5 | 2.2 | | | 10n | | | 0.41 | 10.4 | Light rain | |
| Barnegat, N. J. | | | 29.90 | 759.4 | 66 | 18.9 | 68 | NE | 6 | 2.7 | | 8ck | Haze | W | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.05 | 712.5 | 29.63 | 752.6 | 59 | 15.0 | 75 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Boston, Mass. | | | 29.85 | 758.2 | 65 | 18.3 | 48 | W | 10 | 4.5 | | 0 | Haze | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 29.80 | 756.9 | 48 | 8.9 | 85 | Calm | 0 | 0 | | 8k | 0 | W | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.83 | 757.7 | 55 | 12.8 | 74 | SE | 5 | 2.2 | | | 10n | | | Inap. | Inap | Light rain | |
| Burlington, Vt. | | | 29.90 | 759.4 | 59 | 15.0 | 65 | NW | 4 | 1.8 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Cairo, Ill. | | | 29.72 | 754.9 | 67 | 19.4 | 90 | W | 6 | 2.7 | | | 10n | | SW | 0.58 | 14.7 | Heavy rain | |
| Campo, Cal. | 27.32 | 693.9 | 29.89 | 759.2 | 44 | 6.7 | 95 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 62 | 16.7 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.94 | 760.5 | 72 | 22.2 | 80 | W | 14 | 6.3 | | | 10s | | W | 0 | 0 | Cloudy | |
| Cape Henry, Va. | | | 29.94 | 760.5 | 74 | 23.3 | 72 | W | 8 | 3.6 | | | 10s | | W | 0.49 | 12.4 | Cloudy | |
| Cape Lookout, N. C. | | | 30.03 | 762.7 | 72 | 22.2 | 85 | SW | 16 | 7.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Cape May, N. J. | | | 29.91 | 759.7 | 69 | 20.6 | 79 | S | 8 | 3.6 | | | 10ks | | W | 0 | 0 | Threatening | |
| Charleston, S. C. | | | 30.02 | 762.5 | 75 | 23.1 | 81 | S | 12 | 5.4 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Cheyenne, Wyoming | 23.94 | 608.1 | 29.83 | 758.9 | 50 | 10.0 | 64 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.77 | 756.1 | 55 | 12.8 | 80 | NE | 12 | 5.4 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Cincinnati, Ohio | | | 29.70 | 754.4 | 71 | 21.7 | 80 | W | 4 | 1.8 | | | 10ks | | W | 0.66 | 16.8 | Cloudy | |
| Cleveland, Ohio | | | 29.77 | 756.1 | 59 | 15.0 | 84 | SE | 9 | 4.0 | | | 10n | | SE | 0.76 | 19.3 | Light rain | |
| Corsicana, Tex. | | | 29.90 | 759.4 | 70 | 21.1 | 90 | SE | 1 | 0.4 | | 0 | 8s | | S | Inap. | Inap. | Cloudy | |
| Davenport, Iowa | | | 29.80 | 756.9 | 61 | 16.1 | 77 | NE | 7 | 3.1 | | 8cs | 0 | | | 0.40 | 10.2 | Fair | |
| Denison, Tex. | | | 29.89 | 755.2 | 66 | 18.9 | 89 | SE | 4 | 1.8 | | | 10s | | S | 2.52 | 64.0 | Cloudy | |
| Denver, Col. | 24.71 | 627.6 | 29.93 | 760.2 | 47 | 8.3 | 55 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.77 | 756.1 | 58 | 14.4 | 87 | E | 8 | 3.6 | | | 10n | | E | 0.16 | 4.1 | Light rain | |
| Dodge City, Kan. | 27.29 | 693.2 | 29.53 | 750.0 | 54 | 12.2 | 73 | NW | 6 | 2.7 | | 0 | 0 | | | 0.40 | 10.2 | Clear | |
| Dubuque, Iowa | | | 29.79 | 756.7 | 61 | 16.1 | 82 | S | 1 | 0.4 | | 0 | Haze | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.85 | 758.2 | 54 | 12.2 | 79 | Calm | 0 | 0 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| Eagle Pass, Texas | | | 29.81 | 757.2 | 74 | 23.3 | 81 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.76 | 755.9 | 65 | 18.9 | 59 | W | 9 | 4.0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Erie, Pa. | | | 29.79 | 756.7 | 57 | 13.9 | 93 | E | 5 | 2.2 | | | 10ks | | SE | 0.17 | 4.3 | Cloudy | |
| Escanaba, Mich. | | | 29.86 | 758.4 | 53 | 11.7 | 73 | NE | 5 | 2.2 | | 2c | 0 | NE | | 0 | 0 | Clear | |
| Florence, Arizona | 28.14 | 714.7 | 29.74 | 755.4 | 86 | 30.0 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.83 | 757.7 | 64 | 17.8 | 83 | S | 2 | 0.9 | | 0 | 5s | | W | 1.14 | 29.0 | Fair | |
| Fort Griffin, Tex. | 28.60 | 726.4 | 29.81 | 757.2 | 72 | 22.2 | 80 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.72 | 754.9 | 44 | 6.7 | 76 | SW | | | 5 | 5ck | Fog | E | | 0.14 | 3.6 | Fair | |
| Fort Sill, Indian Ter. | 28.69 | 728.7 | 29.76 | 755.9 | 65 | 18.3 | 73 | NE | 6 | 2.7 | | 1c | 0 | | | 0.34 | 8.6 | Clear | |
| Fort Sully, Dakota | 28.15 | 715.0 | 29.77 | 756.1 | 53 | 11.7 | 100 | S | 1 | 0.4 | | | 10s | | S | 0.26 | 6.6 | Cloudy | |
| Galveston, Tex. | | | 29.96 | 760.7 | 79 | 26.1 | 86 | S | 12 | 5.4 | | 0 | 2ks | | S | 0.20 | 5.1 | Fair | |
| Grand Haven, Mich. | | | 29.76 | 755.9 | 61 | 16.1 | 71 | NE | 4 | 1.8 | | 4cs | Sm'e | W | NE | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.69 | 754.1 | 67 | 19.4 | 84 | SW | 1 | 0.4 | | | 10s | | S | 0.74 | 18.8 | Threatening | |
| Indianola, Tex. | | | 30.05 | 763.3 | 80 | 26.7 | 82 | SE | 10 | 4.5 | | 2k | 0 | S | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.04 | 763.0 | 75 | 23.9 | 72 | S | 12 | 5.4 | | 5cs | 0 | SW | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 29.70 | 754.4 | 60 | 15.6 | 88 | NE | 3 | 1.3 | | | 10s | | NE | 0.24 | 6.1 | Cloudy | |
| Key West, Fla. | | | 30.04 | 763.0 | 80.5 | 26.9 | 84 | S | 3 | 1.3 | | 1k | 2ks | SE | SE | 0 | 0 | Smoky | |
| Kittyhawk, N. C. | | | 29.97 | 761.2 | 73 | 22.8 | 67 | SW | 18 | 8.0 | | | 10s | | W | Inap | Inap. | Cloudy | |
| Knoxville, Tenn. | | | 29.85 | 758.2 | 75 | 23.9 | 56 | S | 6 | 2.7 | | 6c | 0 | W | | Inap. | Inap. | Cloudy | |
| LaCrosse, Wis. | | | 29.82 | 757.4 | 55 | 12.8 | 80 | N | 5 | 2.2 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Leavenworth, Kan. | | | 29.78 | 756.4 | 59 | 15.0 | 87 | E | 1 | 0.4 | | | 10s | | | 0.39 | 9.9 | Cloudy | |
| Louisville, Ky. | | | 29.73 | 755.1 | 71 | 21.7 | 79 | SW | 2 | 0.9 | | | 10s | | SW | 0.41 | 10.4 | Cloudy | |
| Lynchburg, Va. | | | 29.87 | 758.7 | 73 | 22.8 | 76 | Calm | 0 | 0 | | | 10s | | | 0.22 | 5.6 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 70 | 21.1 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.88 | 758.9 | 53 | 11.7 | 79 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Texas | 28.28 | 718.3 | 29.94 | 760.5 | 76 | 24.4 | 76 | S | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 29.78 | 756.4 | 71 | 21.7 | 79 | Calm | 0 | 0 | | 2c | 2s | SW | SW | 0.65 | 16.5 | Threatening | |
| Milwaukee, Wis. | | | 29.81 | 757.2 | 53 | 11.7 | 66 | N | 10 | 4.5 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Mobile, Ala. | | | 30.03 | 762.7 | 78 | 25.6 | 81 | SW | 6 | 2.7 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 29.99 | 761.7 | 74 | 23.3 | 68 | S | 8 | 3.6 | | 2c | 2k | | W | 0 | 0 | Fair | |
| Morgantown, W. Va. | 28.78 | 731.0 | 29.78 | 756.4 | 71 | 21.7 | 71 | S | 7 | 3.1 | | 10c | 0 | SW | | 0.09 | 2.3 | Cloudy | |
| Mt. Washington, N. H. | 23.70 | 602.0 | 30.06 | 763.5 | 34 | 1.1 | 90 | NW | 9 | 4.0 | | 0 | 10s | | NW | 0.02 | 0.5 | Fair | |
| Nashville, Tenn. | | | 29.78 | 756.4 | 74 | 23.3 | 68 | S | 6 | 2.7 | | 8cs | 2ks | SW | SW | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 29.90 | 759.4 | 70 | 21.1 | 45 | N | 5 | 2.2 | | Haze | Sm'e | | | Inap. | Inap. | Fair | |
| New London, Conn. | | | 29.88 | 758.9 | 71 | 21.7 | 44 | N | 5 | 2.2 | | 5cs | Haze | | | 0 | 0 | Fair | |
| New Orleans, La. | | | 30.02 | 762.5 | 77 | 25.0 | 84 | SW | 2 | 0.9 | | 5k | 0 | W | | Inap. | Inap. | Fair | |
| Newport, R. I. | | | 28.88 | 758.9 | 68 | 20.0 | 56 | NW | 7 | 3.1 | | 7c | 0 | SW | | 0 | 0 | Fair | |
| New York, N. Y. | | | 29.90 | 759.4 | 69 | 20.6 | 51 | NW | 5 | 2.2 | | 5c | 5s | | | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 29.94 | 760.5 | 76 | 24.4 | 60 | SW | 4 | 1.8 | | | 10s | | | 0.29 | 7.4 | Cloudy | |
| North Platte, Neb. | 26.99 | 685.5 | 29.51 | 749.5 | 53 | 11.7 | 86 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.71 | 729.2 | 29.75 | 755.6 | 62 | 16.7 | 88 | E | 1 | 0.4 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Oswego, N. Y. | | | 29.91 | 759.7 | 55 | 12.8 | 78 | W | 1 | 0.4 | | | 10s | | W | 0 | 0 | Cloudy | |
| Pembina, Dakota | | | 29.81 | 757.2 | 53 | 11.7 | 80 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Philadelphia, Pa. | | | 29.91 | 759.7 | 68 | 20.0 | 60 | E | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Phœnix, Arizona | | | | | 73 | 22.8 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.82 | 452.6 | 30.02 | 762.5 | 23 | −5.0 | 93 | W | 46 | 20.6 | | 0 | 0 | | | 0.17 | 4.3 | Clear | |
| Pittsburgh, Pa. | | | 29.77 | 756.1 | 65 | 18.3 | 83 | W | 6 | 2.7 | | | 10n | | W | 0.17 | 4.3 | Light rain | |
| Port Huron, Mich. | | | 29.81 | 757.2 | 54 | 12.2 | 86 | NE | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Portland, Me. | | | 29.83 | 757.7 | 65 | 18.3 | 58 | NE | 5 | 2.2 | | 2k | Haze | | | 0 | 0 | Fair | |
| Portland, Oregon | | | 30.20 | 767.1 | 52 | 11.1 | 78 | S | 4 | 1.8 | | | 10s | | | 0.40 | 10.2 | Cloudy | |
| Prescott, Arizona | 24.78 | 629.4 | 30.14 | 765.5 | 50 | 10.0 | 49 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.06 | 763.5 | 78 | 25.6 | 77 | E | 8 | 3.6 | | 0 | 8cs | | | 0 | 0 | Threatening | |
| Rochester, N. Y. | | | 29.86 | 758.4 | 58 | 14.4 | 64 | SW | 2 | 0.9 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Salt Lake City, Utah | 25.48 | 647.2 | 29.81 | 757.2 | 69 | 15.6 | 44 | NE | 4 | 1.8 | | 5c | 2s | NW | SW | Inap. | Inap. | Fair | |
| Sandy Hook, N. J. | | | 29.90 | 759.4 | 69 | 20.6 | 61 | N | 3 | 1.3 | | 8ck | Haze | W | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.77 | 756.1 | 77 | 25.0 | 82 | SE | 2 | 0.9 | | 5ck | 0 | | | 0 | 0 | Fair | |
| San Diego, Cal. | | | 29.91 | 759.7 | 60 | 15.6 | 88 | SE | 4 | 1.8 | | | 10s | | SE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.94 | 760.5 | 53 | 11.7 | 86 | W | 4 | 1.8 | | 5c | 0 | | | 0 | 0 | Fair | |
| Santa Fé, N. M. | 23.28 | 591.3 | 29.82 | 757.4 | 56 | 13.3 | 18 | E | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Savannah, Ga. | | | 30.03 | 762.7 | 74 | 23.3 | 76 | SW | 7 | 3.1 | | 10cs | 0 | W | | 0 | 0 | Cloudy | |
| Shreveport, La. | | | 30.00 | 762.0 | 73 | 22.8 | 85 | SW | 3 | 1.3 | | 1c | 0 | | | 0.37 | 9.4 | Clear | |
| Smithville, N. C. | | | 30.12 | 765.0 | 73 | 22.8 | 81 | SW | 10 | 4.5 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 29.89 | 759.2 | 70.5 | 21.4 | 48 | W | 4 | 1.8 | | 10c | 0 | W | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.72 | 754.9 | 61 | 16.1 | 88 | N | 12 | 5.4 | | | 10s | | | 0.70 | 17.8 | Cloudy | |
| St. Marks, Fla. | | | 30.03 | 762.7 | 73 | 22.8 | 85 | Calm | 0 | 0 | | Haze | 8s | | S | 0 | 0 | Cloudy | |
| St. Paul, Minn. | | | 29.78 | 756.4 | 60 | 15.6 | 70 | N | 4 | 1.8 | | 8c | 0 | N | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 67 | 19.4 | | W | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Stockton, Tex | 26.89 | 683.0 | 29.89 | 759.2 | 66 | 18.9 | 90 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 29.85 | 758.2 | 62 | 16.7 | 66 | W | 12 | 5.4 | | 1c | 0 | | | 0 | 0 | Smoky | |
| Toledo, Ohio | | | 29.72 | 754.9 | 60 | 15.6 | 94 | NE | 29 | 13.0 | | | 10n | | NE | 0.83 | 21.1 | Light rain | |
| Tucson, Arizona | 27.46 | 697.5 | 30.00 | 762.0 | 72 | 22.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Tybee Island, Ga | | | 30.01 | 762.2 | 73 | 22.8 | 81 | S | 10 | 4.5 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 29.95 | 760.7 | 74 | 23.3 | 81 | SW | 4 | 1.8 | | 0 | 2s | | SW | 0.21 | 5.3 | Clear | |
| Virginia City, M. T | 24.04 | 610.6 | 29.52 | 749.8 | 48.5 | 9.2 | 96 | NW | 12 | 5.4 | | | 10n | | W | 0.27 | 6.9 | Light rain | |
| Washington, D. C | | | 29.91 | 759.7 | 65 | 18.3 | 97 | NE | 5 | 2.2 | | | 10n,s | | W | 0.88 | 22.4 | Light rain | |
| Wickenburg, Arizona | | | | | 75 | 23.9 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.00 | 762.0 | 71 | 21.7 | 84 | S | 8 | 3.6 | | 10cs | 0 | SW | | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 29.99 | 759.4 | 67 | 19.4 | 64 | NW | 5 | 2.2 | | 10c,k | 0 | NW | | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.59 | 725.4 | 29.83 | 757.2 | 57 | 13.9 | 94 | E | 4 | 1.8 | | | 10n | | | 0 28 | 7.1 | Light rain | |
| Yuma, Arizona | | | | | | | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.16 | 766.1 | 80 | 26.7 | 82 | N | 3 | 1.3 | | 5c | 2s | | N | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | E | | | 2 | | | | | 0.27 | 6.9 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.01 | 762.2 | 81 | 27.2 | 87 | E | | | 3 | 6k | 6ks | E | | 0.130 | 3.30 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.23 | 640.8 | | | 66.2 | 19.0 | 80 | Calm | | | 0 | 9cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.89 | 759.2 | 32.5 | 0.3 | 95 | N | 10 | 4.5 | | 3k | 6s | NE | NE | Inap. | Inap. | Threatening | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.17 | 766.3 | 73 | 22.8 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.9 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.05 | 763.3 | 76 | 24.4 | 66 | 18.9 | 94 | NW | | | 1 | | 10 | | | 0.32 | 8.1 | | | Rainy | |
| Navy Yard, Mare Island, Cal. | 30.01 | 762.2 | 68 | 20.0 | 59.8 | 15.4 | | SSW | | | 2 | | 1 | | | 0 | 0 | | | Fair | |
| Navy Yard, Pensacola, Fla. | 30.18 | 766.6 | | | 77 | 25.0 | 82 | SW | 22 | 9.8 | | | 7 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.94 | 760.5 | 79 | 26.1 | 65 | 18.3 | 95 | NNW | 5 | 2.2 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.72 | 754.9 | 72 | 22.2 | 70 | 21.1 | 92 | ESE | | | 1 | | 10n | | | 0.38 | 9.7 | | | Heavy rain | |
| Alert, N. 15° 03′ 24″ E. 144° 43′ 45″ | 30.04† | 763.0† | 82 | 27.8 | 83 | 28.3 | 91 | NE | | | 3 | | 5 | | NE | | | Long | NE | D. clouds | |
| Alliance, Beirut, Syria | 30.06 | 763.5 | 79 | 26.1 | 78 | 25.6 | 73 | Var. | | | 0–1 | | 2 | | | | | Smooth | | Clear | |
| Ashuelot, Swatow, China | 30.01 | 762.2 | 81 | 27.2 | 81 | 27.2 | 83 | SW | | | 0–1 | | 10 | | | | | Smooth | | Thunder, lightn'g | |
| Canonicus, New Orleans, La | 30.01 | 762.2 | 56 | 13.3 | 77 | 25.0 | 82 | SW | | | 2 | | 4 | | E | | | | | Fair | |
| Colorado, New York, N. Y | 29.98 | 761.5 | 64 | 17.8 | 66 | 18.9 | 61 | N | 5 | 2.2 | | | 9 | | | 0 | 0 | | | Hazy | |
| Despatch, Vatika Bay, Greece | 30.12 | 765.0 | 72 | 22.2 | 75 | 23.9 | 90 | NE | | | 5–6 | | 10 | | NE | | | Smooth | | Cloudy | |
| Franklin, Norfolk, Va. | 29.99 | 761.7 | 71 | 21.7 | 73 | 22.8 | 95 | SSW | 8 | 3.6 | | | 8 | | SSW | 0.8 | 20. | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.17 | 766.3 | 70 | 21.1 | 72 | 22.2 | 85 | N | | | 1 | | 6c | | | 0 | 0 | | | D. clouds | |
| ‡ Gettysburg, Genoa, Italy | 29.96 | 761.0 | | | 83 | 28.3 | 96 | Calm | | | 0 | | 4 | | | 0 | 0 | | | D. clouds | |
| Hartford, Hampton Roads, Va | 30.19 | 766.8 | 72 | 22.2 | 73 | 22.8 | 85 | SW | 3.6 | 1.6 | | | 0 | | | 0 | 0 | | | Pleasant | |
| Huron, Santa Marta, N. G | 30.01 | 762.2 | 86 | 30.0 | 89 | 31.7 | 63 | ESE | | | 0–1 | | 6 | | WNW | 0 | 0 | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.82 | 757.4 | 77 | 25.0 | 84 | 28.9 | 95 | SSW | | | 1 | | 10 | | | ¶1.25 | 31.7¶ | | | Overcast | |
| Lackawanna, N 22° 54′ W. 112° 10′ | 30.07 | 763.8 | | | 68 | 20.0 | 79 | NNW | | | 3–5 | | 6 | | SSE | | | Moderate. | NW | D. clouds | |
| Marion, Smyrna, Turkey | 29.97 | 761.2 | 77 | 25.0 | 80 | 26.7 | 58 | WSW | | | 3 | | 1 | | WSW | Heavy | Heavy | Chop'd | WSW | D. clouds | |
| Michigan, Erie, Pa | 29.37 | 746.0 | 65 | 18.3 | 60 | 15.6 | 95 | E | | | 1 | | 10 | | E | | | | | Raining | |
| Monocacy, Tientsin, China | 29.70 | 754.4 | 70 | 21.1 | 70 | 21.1 | 57 | NNW | | | 1 | | 1 | | NW | 0 | 0 | | | D. clouds | |
| Monongahela, N. 40° 19′ W. 72° 26′ | 29.97 | 761.2 | 62 | 16.7 | 62 | 16.7 | 83 | E | | | 1 | | 7ck | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.27 | 768.8 | | | 75 | 23.9 | 86 | SW | 18 | 8.0 | | | 10 | | | 0 | 0 | | | D. clouds | |
| Omaha, S. 8° 20′ W. 79° 10′ | 30.06 | 763.5 | 72 | 22.2 | 71 | 21.7 | 90 | ESE | 4 | 1.8 | | | 9 | | SE | 0 | 0 | Moderate. | SE | Cloudy | |
| Ossipee, N. 36° 48′ W. 75° 42′ | 30.01 | 762.2 | 70 | 21.1 | 70 | 21.1 | 90 | W | | | 3 | | 8 | | | | | Moderate. | SW | Hazy | |
| Palos, Shanghai, China | 29.83 | 757.7 | 78 | 25.6 | 73 | 22.8 | 85 | NNE | | | 4–5 | | 5 | | N&W | Blank | Blank | | | Hazy | |
| Pensacola, Pichilinque Bay, Mexico. | 29.98 | 761.5 | | | 81 | 27.2 | 83 | SSE | | | 1 | | 6 | | SW | 0 | 0 | Long | S&W | Pleasant | |
| Plymouth, Off Vera Cruz, Mexico | 29.93 | 761.7 | 84 | 28.9 | 82 | 27.8 | 87 | NNW | | | 2 | | 8 | | S&E | 0 | 0 | Smooth | | Hazy | |
| Ranger, Valetta, Malta | 30.30 | 769.6 | | | 74 | 23.3 | 76 | NNE | | | 1–2 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.19 | 766.8 | 72.0 | 22.2 | 68.0 | 20.0 | 90 | N | | | 1 | | 3 | | | 0 | | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.81 | 757.2 | | | 72 | 22.2 | 90 | SE | | | 1 | | 2 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.02 | 762.5 | 70 | 21.1 | 66 | 18.9 | 94 | W | | | 1 | | 10 | | | 0.26 | 6.6 | | | Raining | |
| St. Louis, League Island, Pa | 29.87 | 758.7 | 69 | 20.6 | 71 | 21.7 | 95 | NE | 8 | 3.6 | | | 10 | | NE | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 29.94 | 760.5 | 82 | 27.8 | 81 | 27.2 | 96 | Calm | | | 0 | | 10n | | | | | | | Rainy | |
| Tennessee, Yokohama, Japan | 29.60 | 751.8 | 74 | 23.3 | 75 | 23.9 | 90 | SE | | | 0–1 | | 10 | | | | | Smooth | | Heavy rain | |
| Trenton, Smyrna, Turkey | 29.82† | 757.4† | 79 | 26.1 | 80 | 26.7 | 91 | WSW | 22 | 9.8 | | | 1 | | S&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.16 | 766.1 | 70 | 21.1 | 67 | 19.4 | 69 | NE | | | 3 | | 7 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.93 | 760.2 | 64 | 17.8 | 65 | 18.3 | 58 | WNW | 5 | 2.2 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.12† | 765.0† | 72 | 22.2 | 71 | 21.7 | | Calm | | | 0 | | 10 | | W | | | | | Raining | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level. ¶ Approximated.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, N. 32° 42′ W. 77° 32′ | NEbyE | 3.5 | 30.00 | 762.0 | 76 | 24.4 | 68 | SSW | 9 | 4.0 | | k | 0 | | | Short | | Clear | Capt. James Jorgensen |

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 6, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.7 | 74.3 | 23.5 | 72 | NW | | | 2 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.15 | 765.9 | 70.9 | 21.6 | 86 | N | | | 1 | | 10 | | | 0.354 | 9.0 | Hidden | Peter. |
| La Calle | | | 30.15 | 765.9 | 79.3 | 26.3 | 69 | N | | | 2 | | 7 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.12 | 765.0 | 91.4 | 33.0 | | SE | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.18 | 766.6 | 78.8 | 26.0 | | S | | | 2 | | 1 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.13 | 765.4 | 90.0 | 32.2 | | ESE | | | 4 | | 2 | | | 0.130 | 3.3 | Clear | Millot. |
| Tebessa | | | 30.20 | 767.0 | 74.1 | 23.4 | | N | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.14 | 765.6 | 83.5 | 28.6 | | SE | | | 4 | | 2 | | | Inap. | Inap. | Clear | Lemaillot. |
| Laghouat | | | 30.20 | 767.0 | 86.0 | 30.0 | 22 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.19 | 766.8 | 93.0 | 33.9 | | SW | | | 2 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.02 | 762.4 | 82.8 | 28.2 | 50 | Calm | | | 0 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.08 | 764.0 | 81.3 | 27.4 | 56 | NE | | | 1 | | 6 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.05 | 763.3 | 82.0 | 27.8 | 49 | SE | | | 4 | | 2cs | | | 0 | 0 | | Julius Mikolik. |
| Gratz | | | 30.05 | 762.5 | 75.4 | 24.1 | 62 | ENE | | | 3 | | 5 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.82 | 731.9 | 30.02 | 762.5 | 75.4 | 24.1 | 62 | ENE | | | 3 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.74 | 730.1 | 30.10 | 764.5 | 78.4 | 25.8 | 42 | ESE | | | 2 | | 1 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | 28.61 | 726.6 | 29.88 | 758.9 | 77.7 | 25.4 | 58 | ENE | | | 2 | | 2 | | | 0.465 | 11.8 | | Dr. T. Stanecki. |
| Pola | | | 30.08 | 764.1 | 79.0 | 26.1 | 53 | SE | | | 2 | | 3 | | | 0 | 0 | | I.R. Hydrographic Office |
| Szegedin | | | 30.06 | 763.5 | 77.7 | 25.4 | 58 | WSW | | | 1 | | 9cks | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.08 | 764.0 | 79.7 | 26.5 | 42 | S | | | 3 | | 3 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 30.08 | 764.1 | 80.6 | 27.0 | 65 | W | | | 1 | | 3 | | | 0 | 0 | Clear | I. R. Central Met. Obs'y. |
| | | | 29.98 | 761.5 | 80.2 | 26.8 | 43 | SSE | | | 4 | | 3 | | | | | | |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 348.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.64 | 727.5 | 30.14 | 765.5 | 57.6 | 14.4 | 88 | WSW | | | 2 | | 10 | | | 0.606 | 15.4 | | Royal Observatory |
| Brussels | | | 30.09 | 764.3 | 64.4 | 18.0 | 63 | SW | | | 1 | | 10k | | S | 0.045 | 1.15 | | |
| Furnes | | | 30.06 | 763.4 | 60.1 | 15.6 | 81 | W | | | 2 | | 10 | | | 0.004 | 0.1 | | |
| Maeseyck | | | 30.13 | 765.2 | 58.3 | 14.6 | 81 | NW | | | 2 | | 10 | | | 0.134 | 3.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.75 | 755.6 | 52.5 | 11.4 | | SSE | 20 | 8.9 | | | 9 | | | 0.015 | 0.38 | Drizzling | William Boswell. |
| Ardrossan | | | 29.66 | 753.4 | 53 | 11.7 | | | | | | | 8 | | | | | Raining | William McNeil. |
| Armagh, Observatory | | | 29.69 | 754.1 | 51.6 | 10.9 | | WNW | 5 | 2.2 | | | 10 | | | | | Raining | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.78 | 756.4 | 55.5 | 13.3 | | SSE | 21 | 9.4 | | | 10 | | | | | Raining | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.72 | 754.9 | 55.6 | 13.1 | | WNW | | | 3 | | 7 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.83 | 757.7 | 58.7 | 14.8 | | SE | | | 1 | | 10 | | | 0.01 | 0.3 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.97 | 761.2 | 82.0 | 27.8 | | NE | | | 2 | | 5 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.97 | 761.2 | 62.3 | 16.8 | | SSW | | | 3 | | 7 | | | | | Showery | H. Todd. |
| Cardington | | | 29.97 | 761.2 | 66.0 | 18.9 | | | | | 3 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.04 | 763.0 | 60.2 | 15.7 | | W | | | 3 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.42 | 721.9 | 29.89 | 759.2 | 50.8 | 10.4 | | SW | | | 6 | | 10 | | | | | Raining | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.65 | 753.1 | 52 | 11.1 | | SSW | | | 5 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 30.06 | 763.5 | 60 | 15.6 | | SW | | | 3 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.80 | 756.9 | 56.7 | 13.7 | | SE | 16.0 | 7.4 | | | 10 | | | | | Raining | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.84 | 757.9 | 55.5 | 13.1 | | SSW | | | 5 | | 10 | | | | | Rain and fog | The Staff. |
| Fort Napier, (Natal) | 27.83 | 706.9 | 30.06 | 763.5 | 61.4 | 16.3 | | E | | | 2 | | 2 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.94 | 760.5 | 86 | 30.0 | | NW | | | 2 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.65 | 753.1 | 57 | 13.9 | | SW | | | 1 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis |
| Gibraltar, (Mediterranean) | | | 30.07 | 763.8 | 69.0 | 20.6 | | E | | | 4 | | 6 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.65 | 753.1 | 54.4 | 12.4 | | SSW | | | 3 | | 10 | | | | | Raining | William Wallace. |
| Great Yarmouth | | | 30.00 | 762.0 | 59 | 15.0 | | SSE | | | 4 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.02 | 762.5 | 66.5 | 19.2 | | SW | | | 4 | | 7 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.00 | 762.0 | 57.5 | 14.2 | | SSE | | | 4 | | 10 | | | | | Gloomy | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.89 | 759.2 | 57 | 13.9 | | SW | | | 6 | | 10n | | | 0.8 | 20. | Raining | M. P. Moyle. |
| Holyhead | | | 29.67 | 753.6 | 54 | 12.2 | | SSW | | | 3 | | 10 | | | | | Raining | John Tilston. |
| Kew, Observatory | | | 30.00 | 762.0 | 61.3 | 16.3 | | SSW | 25 | 11.2 | | | 9kd | | | | | D. clouds | The Staff. |
| Kingstown | | | 29.70 | 754.4 | 52 | 11.1 | | WNW | | | 4 | | 10 | | | | | Raining | George Mitchell. |
| Leicester, Museum | | | 29.91 | 759.7 | 56.5 | 13.6 | | S | | | 6 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.11 | 764.8 | 76.8 | 24.9 | | NE | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.62 | 752.3 | 58 | 14.4 | | S | | | 3 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.03 | 762.7 | 83.0 | 28.3 | | NE | | | 1 | | 8 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.88 | 758.9 | 60.2 | 15.7 | | SSE | | | 5 | | 10k,d | | SSE | 0.020 | 0.51 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.86 | 758.4 | 56.0 | 13.3 | | S | | | 6 | | 10 | | | | | Drizzling | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.94 | 760.5 | 59 | 15.0 | | S | | | 3 | | 10 | | | | | Gloomy | F. Lucas. |
| Plymouth | | | 29.89 | 759.2 | 54.3 | 12.4 | | S | | | 4 | | 10 | | | | | Raining | John Merrifield. |
| Roche's Point | | | 29.78 | 756.4 | 54 | 12.2 | | NW | | | 5 | | 8 | | | Blank | Blank | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.73 | 755.1 | 55 | 12.8 | | SSW | | | 6 | | 10 | | | | | Raining | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.05 | 763.3 | 59.0 | 15.0 | | SSW | | | 6 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.69 | 754.1 | 56.4 | 13.6 | | S | 15 | 6.7 | | | 10 | | | | | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.02 | 762.5 | 73.0 | 22.8 | | NE | | | 3 | | 1 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 29.86 | 758.4 | 60.6 | 15.9 | | SW | | | 5 | | 10 | | | 0.243 | 6.18 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.64 | 752.8 | 57.8 | 14.3 | 85 | SW | | | 6 | | 8 | | | 0.220 | 5.59 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.79 | 756.7 | 54.0 | 12.2 | | S | | | 4 | | 10 | | | | | Drizzling | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.60 | 751.8 | 54 | 12.2 | | SSE | | | 4 | | 10 | | | | | Overcast | John Smith. |
| Stratfield Turgis | | | 30.01 | 762.2 | 59.4 | 15.2 | | SW | | | 2 | | 10 | | | | | Squally | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.65 | 753.1 | 57 | 13.9 | | SSE | | | 3 | | 8 | | | | | Raining | John Trotter. |
| Truro, Royal Institution | | | 29.90 | 759.4 | 57 | 13.9 | | SW | | | 4 | | 10 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.81 | 757.2 | 54.6 | 12.6 | | WSW | 26 | 11.6 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 52 | 11.1 | | S | | | 6 | 10 | | | | 0.20 | 5.1 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.19 | 766.8 | 62.4 | 16.9 | 86 | SSE | 13 | 5.8 | | 2 | 6 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.21 | 767.3 | 54.0 | 12.2 | 93 | NW | | | 2 | | 9kn | | | 0 | 0 | Cloudy | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.70 | 754.4 | 59.9 | 15.5 | | SW | | | 3 | | 10k | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.14 | 765.5 | 73.4 | 23.0 | 74 | ESE | 15.4 | 6.9 | | 1 | 4 | | ESE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.40 | 772.1 | 55.2 | 12.9 | 85 | NNE | 10 | 4.5 | | | 0 | | | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.69 | 751.8 | 52 | 11.1 | | S | | | 4 | 3 | 0 | S | | 0.3 | 8. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.67 | 753.6 | 53 | 11.7 | | S | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Monland. |
| Ship Camperdown, N. 36° 10′, W. 72° 15′ | | | | Capt. A. T. Miller. |
| Barque Celeste | 4 | S | D. clouds | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | Squally | Capt. H. Manning. |
| Barque Sorata | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 68.9 | 20.5 | 86 | NE | | | 2 | | 2cs | | | 0.2 | 5. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.03 | 762.8 | 59.9 | 15.5 | 75 | N | | | 4 | | 10 | | | | | | |
| Fanöe | | | 30.02 | 762.6 | 58.6 | 14.8 | 84 | SW | | | 2 | | 10 | | | | | Raining | |
| Godthaab, (Greenland) | | | 29.89 | 759.1 | 40.5 | 4.7 | 59 | S | | | 2 | | 10 | | | | | | |
| Styrkisholm, (Iceland) | | | 29.58 | 751.3 | 38.8 | 3.8 | 93 | NE | | | 8 | | 8 | | | | | Raining | |
| Thorshavn, (Faröe) | | | 29.59 | 751.5 | 54.5 | 12.5 | 76 | S | | | 2 | | 3 | | | | | | |
| Vestervig | | | 30.00 | 762.1 | 57.9 | 14.4 | 90 | Calm | | | 0 | | 10 | | | | | Raining | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.22 | 767.5 | 64.4 | 18 | 73 | SW | | | 2 | | 8kn | | SW | 0 | 0 | Very cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.05 | 763.3 | 72.3 | 22.4 | 54 | S | | | 8 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.13 | 765.3 | 74.7 | 23.7 | 49 | N | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.18 | 766.6 | 58.1 | 14.5 | 84 | W | | | 1 | | 10 | | W | 0.780 | 19.8 | Raining | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.13 | 765.4 | 68.4 | 20.2 | 51 | SW | | | 3 | | 8 | | SW | 0.12 | 3. | Very cloudy | Normal School. |
| Besançon | | | 30.23 | 767.7 | 62.6 | 17 | 80 | SSW | | | 3 | | 5 | | SW | 1.048 | 26.5 | Cloudy | Normal School. |
| Bourgen Bresse | | | 30.12 | 765.1 | 63.0 | 17.7 | 71 | N | | | 2 | | 5ck | | W | 0.67 | 17. | Cloudy | Normal School. |
| Bourges, Normal School | | | 30.23 | 767.8 | 64.4 | 18 | 62 | SSW | | | 4 | | 5 | | E | 0.47 | 12. | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.94 | 760.5 | 55.2 | 12.9 | 93 | SW | | | 6 | | 10 | | SW | 0.020 | 0.50 | Raining | The Staff. |
| Carcassonne, Normal School | | | 30.18 | 766.6 | 70.9 | 21.6 | 87 | SW | | | 2 | | 2 | | SW | 0.43 | 11. | Slightly cl'dy | Vateau, Director. |
| Caen | | | 30.10 | 764.6 | 65.7 | 18.7 | 67 | SSW | | | 6 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Chartres, Normal School | | | 30.10 | 764.6 | 58.1 | 14.5 | 95 | WSW | | | 2 | | 10 | | NE | 0.228 | 5.8 | Covered | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.16 | 766.0 | 59.2 | 15.1 | 78 | W | | | 1 | | 10kn | | | 0.197 | 5.0 | Covered | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.17 | 766.3 | 67.1 | 19.5 | 54 | E | | | 2 | | 5 | | W | 1.201 | 30.5 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.14 | 765.6 | 58.1 | 14.5 | 89 | W | | | 2 | | 5 | | W | 0.79 | 20. | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.17 | 766.4 | 75.2 | 24.0 | 48 | W | | | 2 | | 5 | | W | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.22 | 767.5 | 65.1 | 18.4 | 68 | NE | | | 2 | | 5kn | | SW | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 30.22 | 767.5 | 65.1 | 18.4 | 59 | SSE | | | 2 | | 8 | | SW | 0 | 0 | Very cloudy | Mouillet, Director. |
| Le Mans, Normal School | | | 30.20 | 767.1 | 63.0 | 17.2 | 63 | SW | | | 2 | | 8 | | WSW | 0 | 0 | Very cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.21 | 767.2 | 65.3 | 18.5 | 78 | NW | | | 4 | | 5 | | E | 0.843 | 21.4 | Cloudy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.11 | 764.9 | 58.3 | 14.6 | 72 | SW | | | 7 | | 10 | | | 0.091 | 2.3 | Covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.15 | 765.7 | 63.9 | 17.8 | 78 | SW | | | 2 | | 5 | | E | 0.937 | 23.8 | Cloudy | M. A. Schuster, Dir. |
| Metz | | | 30.20 | 767.1 | 61.9 | 16.6 | 70 | WSW | | | 1 | | 10 | | | 0.547 | 13.9 | Covered | Normal School. |
| Mirecourt | | | 30.13 | 765.3 | 60.8 | 16 | 82 | WNW | | | 2 | | 5 | | SE | 0.055 | 1.4 | Cloudy | Normal School |
| Nismes, Normal School | | | 30.16 | 766.0 | 78.8 | 26 | 46 | N | | | 4 | 2c | | S | | 0 | 0 | Partly cl'dy. | Boyer, Director. |
| Orleans | | | 30.14 | 765.6 | 61.9 | 16.6 | 64 | SSW | | | 2 | | 8 | | W | 0.059 | 1.5 | Very cloudy | Normal School. |
| Paris, Observatory | | | 30.15 | 765.9 | 63.0 | 17.2 | 51 | WSW | | | 2 | | 10 | | W | 0.080 | 2.04 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.23 | 767.9 | 68.2 | 20.1 | 53 | SW | | | 4 | | 10 | | W | 0 | 0 | Covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.12 | 765.1 | 63.1 | 17.3 | 50 | S | | | 2 | | 10 | | S | 0 | 0 | Covered | F. Lucard, Director. |
| Tarbes, Normal School | 29 07 | 738 4 | 30.13 | 765.2 | 69.8 | 21 | 57 | W | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.23 | 767.9 | 64.8 | 18.2 | 73 | NNE | | | 1 | | 10 | | SW | 0.583 | 14.8 | Covered | Vilot, Director. |
| SUN-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.85 | 758.3 | 81.1 | 27.3 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.09 | 764.2 | 76 1 | 24.5 | 52 | WSW | | | 2 | | 3 | | | 0 | 0 | Partly cl'dy | The Staff. |
| Mont-Louis | 25.05 | 636.2 | 30.36 | 771.2 | 57.9 | 14.4 | 57 | SE | 7.4 | 3.33 | | | 2 | | SW | 0.185 | 4.7 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.15 | 765.7 | 61.3 | 16.3 | 60 | WSW | | | 2-3 | | 10 | | WSW | 0.063 | 1.6 | | Marie Davy, Director. |
| Perpignan | | | 30.15 | 765.9 | 73.0 | 22.8 | 64 | NE | 3.7 | 1.67 | | | 2 | | W | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.43 | 544.2 | | | 45.5 | 7.5 | | N | | | 1 | | 1 | | | | | Clear | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.72 | 577.1 | | | 50.9 | 10.5 | | N | | | 1 | | 1 | | | 0 | 0 | Clear | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.15 | 765.9 | 61.9 | 16.6 | 58 | WSW | | | 2 | | 10 | | | 0.012 | 0.3 | | E. Renou. |
| Toulouse, Observatory | | | 30.27 | 768.9 | 64.0 | 17.8 | 63 | NNW | | | 2 | | 2 | | | 0.016 | 0.4 | | The Staff |
| Tours | | | 30.19 | 766.8 | 66.9 | 19.4 | 54 | SW | | | 3 | | 8 | | WSW | 0.118 | 3.0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.17 | 766.2 | 61.5 | 16.4 | 58 | W | | | 2 | | 9 | | | 0.005 | 0.12 | Almost cov'd | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.89 | 759.1 | 67.1 | 19.5 | 75 | SE | 13.4 | 6 0 | | | 1k | | | 0.012 | 0.3 | Clear. | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 329 m., or 1,058.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2.877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.99 | 761.7 | 73.9 | 23.3 | 67 | NW | | | 6 | | 8 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.97 | 761.1 | 83.3 | 28.5 | 35 | S | | | 3 | | 1 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.06 | 763.5 | 83.3 | 28.5 | 41 | SSE | | | 3 | | 1 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.08 | 763.9 | 64.8 | 18.2 | 90 | SW | | | 3 | | 10 | | | 2.480 | 63.0 | Thunder-storm | Albert Senz. |
| Cassel | | | 30.11 | 764.8 | 59.4 | 15.2 | 100 | NNW | | | 2 | | 10 | SW | | 0.886 | 22.5 | Thunder, lightn'g | Dr. H. Möhl. |
| Crefeld | | | 30.08 | 764.1 | 58.1 | 14.5 | 89 | N | | | 2 | | 10 | | | 0.35 | 9. | Raining | Director Lose. |
| Emden | | | 30.06 | 763.4 | 61.9 | 16.6 | 71 | WNW | | | 2 | | 10 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.11 | 764.7 | 66.9 | 19.4 | 80 | WSW | | | 1 | | 10 | | | 0.500 | 12.7 | Rain and fog | Physical Society. |
| Friedrichshafen | 28.71 | 729.2 | 30.11 | 764.9 | 64.8 | 18.2 | 83 | WNW | | | 5 | | 10 | WNW | | 0.035 | 0.9 | | M. Wilhelm. |
| Hamburg | | | 30.07 | 763.7 | 61.0 | 16.1 | 74 | N | | | 2 | | 10ks | | | 0.165 | 4.2 | Cloudy | Captain F. Hegemann. |
| Kiel | | | 30.05 | 763.3 | 61.7 | 16.5 | 68 | NE | | | 2 | | 10 | | | 0.016 | 0.4 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.08 | 763.9 | 87.4 | 30.8 | 40 | SE | | | 2 | | 4 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.00 | 762.1 | 74.8 | 23.8 | 63 | SW | | | 1 | | 5 | | | 0.047 | 1.2 | Dust-haze | Prof. Bruhns. |
| Memel, Naval School | | | 30.13 | 765.2 | 82.9 | 28.3 | 40 | SSW | | | 2 | | 1k,cs | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.07 | 763.7 | 85.5 | 29.7 | 41 | S | | | 4 | | 2 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.03 | 762.8 | 85.6 | 29.8 | 35 | SE | | | 7 | | 1 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.11 | 764.9 | 66.7 | 19.3 | 83 | SW | | | 3 | | 10 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.05 | 763.2 | 66.9 | 19.4 | 77 | NW | | | 1 | | 10 | W | | 0.075 | 1.9 | Light rain | Prof. Schoder |
| Treves, (Trier) | | | 29.97 | 761.1 | 64.4 | 18.0 | 80 | NW | | | 3 | | 10 | | | 0.331 | 8.4 | Misty | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.53 | 724.6 | 29.97 | 761.3 | 71.8 | 22.1 | 73 | W | | | 3 | | 8 | SW | | 0 | 0 | Dust-haze | T. V. Dicknether |
| Wustrow, Naval School | | | 30.11 | 764.8 | 61.5 | 16.4 | 79 | NNW | | | 1 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.05 | 763.2 | 77.0 | 25.0 | | NE | | | Strong | | c | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.56 | 750.8 | 29.61 | 752.1 | 89.1 | 31.7 | 71 | WSW | 35.0? | 15.6? | | | 0 | | | 0 | 0 | Dust-haze. | |
| Deesa | 29.14 | 740.1 | 29.59 | 751.7 | 100.6 | 37.8 | 37 | N | | | | | 1 | SW | | 0 | 0 | D. clouds | |
| Bombay | 27.66 | 753.2 | 29.69 | 754.2 | 88.7 | 31.5 | 69 | W | 14.0 | 6.2 | | | 10 | SW | | 0 | 0 | Dust-haze | |
| Poona | 27.69 | 703.4 | 29.65 | 753.1 | 88.5 | 31.4 | 58 | | | | | | | | SE | 0 | 0 | D. clouds | |
| Lahore | 28.84 | 732.5 | 29.55 | 750.5 | 101.2 | 38.4 | 23 | N | 1.8 | 0.8 | | | 4 | | | 0 | 0 | | |
| Belgaum | 27.07 | 687.7 | 29.56 | 750.9 | 81.8 | 27.7 | 72 | W | 15.0 | 6.7 | | | 7 | E | W | 0 | 0 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.72 | 729.4 | 29.59 | 751.5 | 93.2 | 34.0 | | SE | 3.3 | 1.4 | | | 3 | | | 0 | 0 | | |
| Agra | 29.04 | 737.5 | 29.58 | 751.4 | 93.2 | 34.0 | 60 | NE | 8.4 | 3.7 | | | | | | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.55 | 725.2 | 29.56 | 750.7 | 94.5 | 34.7 | 36 | S | 5.0 | 2.2 | | | 8 | | | 0 | 0 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.24 | 742.7 | 29.60 | 751.9 | 89.2 | 31.8 | 65 | NE | 4.1 | 1.8 | | | 6 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.28 | 743.6 | 29.58 | 751.2 | 91.7 | 33.2 | 61 | SE | 3.1 | 1.3 | | | 10 | NE | | 0 | 0 | Overcast | |
| Patna | 29.45 | 748.1 | 29.63 | 752.5 | 92.7 | 33.7 | 48 | E | 2.1 | 0.9 | | | 4 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.67 | 702.7 | 29.66 | 753.3 | 81.0 | 27.2 | 74 | SE | 9.6 | 4.2 | | | 10 | | | | | Thunder-storm | |
| Cuttack | 29.61 | 752.1 | 29.69 | 754.1 | 82.5 | 28.1 | 68 | SSW | 4.6 | 2.0 | | | 7 | | | 1.39 | 35.3 | D. clouds | |
| Calcutta, (Alipore) | 29.68 | 754.0 | 29.71 | 754.5 | 21.7 | 27.6 | 85 | S | 4.0 | 1.7 | | | 10 | SW | SW | 0 | 0 | Overcast | |
| Goalpara | 29.30 | 744.1 | 29.69 | 754.0 | 78.8 | 26.0 | 91 | Calm | 2.2 | 0.9 | | | 3 | W | | 0.01 | 0.3 | D. clouds | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | 29.41 | 746.9 | 29.74 | 755.3 | 83.7 | 28.7 | 81 | SW | 3.1 | 1.3 | | | 10 | NW | NW | 1.61 | 40.9 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.40 | 721.2 | 29.72 | 754.9 | 95.0 | 35.0 | 53 | S | 2.4 | 1.8 | | | 7 | | | 0 | 0 | D. clouds | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.41 | 569.1 | 30.132 | 765.32 | 46.8 | 8.2 | 99 | W | | | 1 | | 6 | WNW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.36 | 567.9 | 30.01 | 762.2 | 49.8 | 9.9 | | W | | | 4 | | 8 | N | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.01 | 762.3 | 81.7 | 27.6 | 51 | S | 0.7 | 0.3 | | | 7 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.02 | 762.6 | 80.2 | 26.8 | 52 | SSE | 3.8 | 1.7 | | | 8 | S | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.02 | 762.6 | 84.0 | 28.9 | 43 | E | 3.1 | 1.4 | | | 6 | | | 0 | 0 | | Conte Alm. Da Schio |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | 28.80 | 713.5 | 30.07 | 763.6 | 82.8 | 28.2 | 41 | SE | | | 2 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.04 | 763.1 | 72.1 | 22.3 | 75 | Calm | | | 0 | | 8 | | | 0.406 | 10.3 | | Prof. Giuseppe Calza. |
| Milan | | | 30.01 | 762.3 | 90.5 | 32.5 | 66 | S | | | 2 | | 2 | SSW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.03 | 762.7 | 82.6 | 28.1 | 46 | SW | | | 4 | | 2 | S | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.01 | 762.2 | 80.6 | 27.0 | 43 | ESE | 7.4 | 3.3 | | | 3 | SE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.17 | 715.4 | 30.00 | 761.9 | 77.0 | 25.0 | 45 | NE | | | 2 | | 1 | NW | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.142 | 765.52 | 74.3 | 23.5 | 73 | SSW | | | 2 | | 0 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.10 | 764.6 | 73.9 | 23.3 | 68 | SW | 6.9 | 3.1 | | | 1 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.04 | 762.9 | 81.3 | 27.4 | 50 | N | 4.9 | 2.2 | | | 3 | S | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.03 | 762.7 | 82.2 | 27.9 | 47 | ESE | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.10 | 764.5 | 85.8 | 29.9 | 45 | NW | | | 2 | | 10 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.10 | 764.1 | 75.9 | 24.4 | 67 | W | 4.9 | 2.2 | | | 3 | W | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.91 | 734.2 | 30.06 | 763.5 | 84.0 | 28.9 | 37 | WSW | 1.5 | 0.6 | | | 10 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.57 | 725.7 | 30.07 | 763.8 | 79.7 | 26.5 | 51 | SE | | | 2 | | 6 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.06 | 763.5 | 76.5 | 24.7 | 75 | NE | 24.0 | 10.3 | | | 9 | W | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.04 | 762.9 | 80.2 | 26.8 | 52 | SE | | | 4 | | 2 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.12 | 765.1 | 78.1 | 25.6 | 48 | WSW | | | 2 | | 7 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.09 | 764.3 | 83.5 | 28.6 | 40 | W | 11.9 | 5.3 | | | 3 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.12 | 765.0 | 82.6 | 28.1 | 44 | SW | | | 2 | | 0 | | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.10 | 764.4 | 75.9 | 24.4 | 47 | ENE | 11.2 | 5.0 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.08 | 764.0 | 86.0 | 30.0 | 59 | NNW | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.09 | 764.2 | 76.8 | 24.6 | 67 | S | | | 2 | | 7 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.16 | 766.0 | 77.0 | 25.0 | 64 | SE | | | 2 | | 3 | | | 0 | 0 | | Prof. F. Caffero. |
| Palermo | | | 30.08 | 763.9 | 76.3 | 24.6 | 55 | ENE | 4.3 | 1.9 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.17 | 715.4 | 30.03 | 762.8 | 77.7 | 25.3 | 22 | SE | | | 2 | | 5 | W | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.02 | 762.5 | 78.8 | 26.6 | 62 | E | | | 2 | | 4 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.13 | 765.4 | 81.3 | 27.4 | 50 | WSW | 1.8 | 0.6 | | | 3 | WSW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.61 | 752.1 | 70.3 | 21.3 | 97 | Calm | 0 | 0 | | 4c | | | | Inap. | Inap. | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works,

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.1 | 30.04 | 763.0 | 61.7 | 16.5 | 77 | NW | 0.0 | 0.01 | | 1c | 3c | E | E | 0.083 | 2.1 | Foggy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.10 | 764.6 | 68.9 | 20.5 | | SSE | | | 3 | | | | | 0.020 | 0.5 | | |
| Gronlingen | | | 30.04 | 763.0 | 62.4 | 16.9 | | W | | | 2 | | | | | 0.008 | 0.2 | | |
| Helder | | | 30.07 | 763.6 | 61.9 | 16.6 | | WSW | | | 1 | | | | | 0.043 | 1.1 | | |
| Utrecht | | | 30.04 | 763.0 | 67.5 | 19.7 | 47 | W | | | 1 | | 5 | | | 0.004 | 0.1 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.91 | 759.6 | 63.3 | 17.4 | 67 | SSW | 15.9 | 7.1 | | | 1 | | | 0 | 0 | | |
| Brönö | | | 30.00 | 761.9 | 55.8 | 13.2 | 66 | SW | 7 | 3 | | | 9 | | | 0 | 0 | | |
| Christiania | | | 29.96 | 760.9 | 69.1 | 20.6 | 74 | SSW | 5.6 | 2.5 | | | 1 | | | 0.063 | 1.6 | | |
| Tromsö | | | 29.80 | 757.0 | 50.0 | 10.0 | 74 | SW | 11 | 5 | | | 10 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.27 | 768.8 | 65.8 | 18.8 | 84 | W | 7.4 | 3.3 | | | 6 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.10 | 764.4 | 77.9 | 25.5 | 26 | E | 8.1 | 3.67 | | | 1 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.23 | 767.7 | 69.1 | 20.6 | 51 | SW | 6.3 | 2.8 | | | 6 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.17 | 766.2 | 69.6 | 20.9 | 53 | NNE | 16.1 | 7.2 | | | 1 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.30 | 769.7 | 71.6 | 22.0 | 63 | WSW | 3.8 | 1.7 | | | 6 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 9 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.10 | 764.6 | 82.6 | 28.1 | 44 | SE | 16 | 7 | | | 6 | | | | | Solar corona | Astronomical Obs. |
| Wilna | | | 30.18 | 766.5 | 84.9 | 29.4 | 32 | SSW | 4 | 2 | | | 2 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.15 | 765.7 | 85.8 | 29.9 | 33 | SSW | 7 | 3 | | | 3 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.12 | 765.1 | 80.6 | 27.0 | 45 | WNW | 7 | 3 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.98 | 761.6 | 81.7 | 27.6 | 40 | WSW | 18 | 8 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 30.18 | 766.6 | 78.6 | 25.9 | 39 | E | 4 | 2 | | | 5 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.23 | 767.8 | 79.9 | 26.6 | 45 | NE | 13 | 6 | | | 2 | | | | | | Kurdakof. |
| Kertch | | | 30.20 | 767.0 | 73.9 | 23.0 | 61 | NNE | 9 | 4 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.15 | 765.7 | 79.5 | 26.4 | 49 | WSW | 7 | 3 | | | 2 | | | | | | Meteorological Obs. |
| Lugan | | | 30.07 | 763.8 | 73.4 | 23.0 | 43 | N | 9 | 4 | | | 3 | | | | | | Meteorological Obs. |
| Archangel | | | 29.95 | 760.8 | 66.7 | 19.3 | 75 | WNW | 13 | 6 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.54 | 725.0 | 29.90 | 759.4 | 76.3 | 24.6 | 33 | N | 18 | 9 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.83 | 757.7 | 69.6 | 20.9 | 48 | NW | 13 | 6 | | | 7 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.87 | 758.8 | 73.9 | 23.3 | 33 | N | 4 | 2 | | | 7 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.77 | 756.1 | 69.6 | 20.9 | 85 | NE | 13 | 6 | | | 0 | | | | | | Tschernischel. |
| Ekaterinburg | 28.93 | 734.7 | 29.85 | 758.2 | 61.2 | 16.2 | 80 | Calm | 0 | 0 | | | 0 | | | | | | Meteorogical Obs. |
| Nukuss | | | | | | | | | | | | | | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | |
| Tashkend | 28.39 | 721.1 | 30.02 | 762.4 | 78.4 | 25.8 | 82 | Calm | 0 | 0 | | | 8 | | | | | | Bobrof. |
| Barnaul | | | 29.98 | 761.4 | 71.2 | 21.8 | 42 | S | 2 | 1 | | | 5 | | | | | | Michelson. |
| Yeniseisk | | | 29.76 | 755.9 | 72.1 | 22.3 | 41 | NW | 2 | 1 | | | 1 | | | | | Dust-haze | Meteorological Obs. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Marks. |
| Oorga | | | | | 57.7 | 14.6 | | NW | 9 | 4 | | | 7 | | | | | | Usolzef. |
| Peking, (China) | | | 29.73 | 755.2 | 75.0 | 23.9 | 35 | Calm | 0 | 0 | | | 7 | | | | | | Mossin. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Physical Observatory. |
| Vladivostock | | | 29.44 | 747.7 | 54.7 | 12.6 | 66 | W | 2 | 1 | | | 1 | | | | | | Meteorological Obs. |
| Nikolaievsk, on the Amoor | | | | | 42.8 | 6.0 | | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 30.11 | 764.8 | 76.3 | 24.6 | 38 | SE | 19.4 | 8.67 | | 1 | 0 | | | 0 | 0 | Almost clear | The Staff. |
| San Fernando, Naval Obs'y. | | | 30.06 | 763.5 | 80.1 | 26.7 | 53 | ESE | 24.2 | 10.8 | | 0 | 0 | | | 0 | 0 | | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.02 | 762.4 | 82.8 | 28.2 | 77 | ENE | 0 | 0 | | 4c | 0 | | | 0 | 0 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.91 | 759.7 | 86.7 | 30.4 | 73 | E | 9.1 | 4.08 | | 9k | 1n | | E | 0 | 0 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.90 | 759.5 | 48.9 | 9.4 | 82 | S | | | 2 | | 5 | | | 0 | 0 | | |
| Umea | | | 29.95 | 760.6 | 55.8 | 13.2 | 68 | SW | | | 2 | | 5 | | | 0 | 0 | | |
| Hernosand | | | 29.89 | 758.4 | 72.0 | 22.2 | 56 | SSW | | | 6 | | 2 | | | 0 | 0 | | |
| Stockholm | | | 29.98 | 761.4 | 82.4 | 28.0 | 41 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Wisby | | | 30.08 | 763.9 | 60.4 | 15.8 | 73 | NNW | | | 4 | | 0 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.95 | 760.7 | 84.2 | 29.0 | 44 | SW | 10.3 | 4.6 | | | 0 | | | 0.035 | 0.90 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.78 | 731.1 | 30.18 | 766.6 | 64.4 | 18.0 | 64 | WSW | | | 3 | | 6 | | | 1.024 | 26.0 | Cloudy | The Observatory. |
| Zurich | 28.53 | 724.6 | 30.15 | 765.8 | 59.4 | 15.2 | 97 | W | | | 2 | | 10 | | NW | 0.055 | 1.4 | Raining | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +5.0 mm; Thermometer, —1.6 cent.; Relative Humidity, +8 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.08 | 763.9 | 70.3 | 21.3 | 61 | NNE | 17 | 7.5 | | | 1 | | NE | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 29.99 | 761.7 | 84.2 | 29.0 | | NW | | | 0 | | 0 | | | | | | |
| Salonica | | | 30.21 | 767.3 | 80.2 | 26.8 | | SE | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.19 | 766.8 | 78.3 | 25.7 | | W | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.95 | 760.6 | 81.0 | 27.2 | 68 | NNW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Pro.. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.86 | 758.4 | 67.4 | 19.7 | 63 | Calm | 0 | 0 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.81 | 757.2 | 62 | 16.7 | | NE | 5 | 2.2 | | | 8s | | NE | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 29.88 | 758.9 | 62 | 16.7 | 84 | NE | 2 | 0.9 | | 2k | 8ks | W | W | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.92 | 760.0 | 59 | 15.0 | 85 | Calm | 0 | 0 | | | 10ks | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.70 | 754.4 | 60.9 | 16.1 | 80 | E | | | 4 | cs | 9 | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | | | 55.0 | 12.8 | 83 | NW | | | 1 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| Esquimault, B. C. | | | 29.97 | 761.2 | 50.3 | 10.2 | 86 | W | | | | | 10 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.87 | 758.7 | 53 | 11.7 | 80 | W | 6 | 2.7 | | 5k | 5s | W | W | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.91 | 759.7 | 61.0 | 16.1 | 73 | N | 1 | 0.4 | | | 10ks | | | Inap. | Inap | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.64 | 752.8 | 58 | 14.4 | 78 | S | 8 | 3.6 | | 2c | 2ks | S | S | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.84 | 757.9 | 60.1 | 15.6 | 74 | NE | | | 1 | 5ck | 2s | | | 0 | 0 | Cloudy | H. J. Strang, M. A |
| Granton, Ontario | 28.72 | 729.5 | 29.79 | 756.7 | 58 | 14.4 | 70 | NE | | | 1 | 1cs | 0 | W | | Inap. | Inap. | Clear | James Grant. |
| *Halifax, N. S. | | | 29.89 | 759.2 | 62 | 16.7 | 79 | SE | 3 | 1.3 | | 0 | 5k | | | Inap. | Inap. | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.80 | 756.9 | 42.2 | 5.7 | 65 | NE | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.74 | 755.4 | 47 | 8.3 | 70 | W | | | 5 | | 10 | | | 0 | 0 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 29.83 | 757.7 | 58 | 14.4 | 83 | NE | 16 | 7.2 | | | 10ks | | NE | 0 | 0 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.85 | 758.2 | 61 | 16.1 | 71 | NE | 6 | 2.7 | | 2cs | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.87 | 758.7 | 60 | 15.6 | 68 | E | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Peterboro, Ontario | | | 29.82 | 757.4 | 58.7 | 14.8 | 70 | Calm | | | 0 | 10k | 0 | | | 0 | 0 | Overcast | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.76 | 755.9 | 55 | 12.8 | 74 | NE | 18 | 8.0 | | 10k | 0 | NW | | Inap | Inap. | Cloudy | H. Morgan. |
| Port Hastings, N. S. | | | 29.99 | 761.0 | 55.5 | 13.1 | | Calm | | | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.77 | 756.1 | 58 | 14.4 | 70 | N | 7 | 3.1 | | | 10ks | | N | 0.02 | 0.5 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.89 | 759.2 | 64 | 17.8 | 94 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.99 | 759.4 | 53 | 11.7 | 74 | NW | 4 | 1.8 | | 2c | 0 | NW | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 29.92 | 760.0 | 55 | 12.8 | 80 | S | 7 | 3.1 | | 10ks | 0 | | | 0.09 | 2.3 | Cloudy | G. Murdock, C. E. |
| *Saugeen, Ontario | | | | | 61 | 16.1 | 57 | Calm | 0 | 0 | | 5cs | 0 | | | 0 | 0 | Fair | K. Stewart. |
| Stayner, Ontario | | | 29.83 | 757.7 | 59 | 10.0 | 85 | Calm | 0 | 0 | | 5c | 0 | W | | 0 | 0 | Fair | R. J. Cole. |
| Stratford, Ontario | 28.54 | 724.9 | 29.78 | 756.4 | 56.9 | 13.8 | 68 | NE | 6 | 2.7 | | cs | 8s | | | Inap. | Inap. | Fine | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.93 | 760.2 | 61 | 16.1 | 60 | NW | 2 | 0.9 | | 10ck | 0 | NW | | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.80 | 756.9 | 60 | 15.6 | 68 | NE | 11 | 4.9 | | 8cs | 2s | W | W | 0 | 0 | Cloudy | Magnetic Observatory. |
| Windsor, N. S. | | | 29.83 | 757.7 | 62.0 | 16.7 | 77 | Calm | 0 | 0 | | 4c | 1k | NW | | 0.03 | 0.8 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.79 | 756.7 | 58.4 | 14.7 | 72 | NW | 12 | 5.4 | | 9ck | 0 | | | 0 | 0 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.82 | 757.4 | 55.0 | 12.8 | 68 | W | | | | Sm'e | Sm'e | | | Inap. | Inap. | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Quebec is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.79 | 756.7 | 56 | 13.3 | 100 | Calm | 0 | 0 | | | 10n | | | 0.75 | 19.1 | Light rain | |
| Alpena, Mich. | | | 29.88 | 758.9 | 55 | 12.8 | 68 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.70 | 754.4 | 63 | 17.2 | 94 | S | 6 | 2.7 | | | 10s | | SW | 0.08 | 2.0 | Cloudy | |
| Augusta, Ga. | | | 29.85 | 758.2 | 74 | 23.3 | 76 | SW | 8 | 3.6 | | 0 | 0 | | | 0.21 | 5.3 | Clear | |
| Baltimore, Md. | | | 29.64 | 752.8 | 69 | 20.6 | 90 | SE | 8 | 3.6 | | | 10n | | E | 0.89 | 22.6 | Light rain | |
| Barnegat, N. J. | | | 29.69 | 754.1 | 63 | 17.2 | 94 | S | 7 | 3.1 | | | 10s, fg | | S | 0.17 | 4.3 | Cloudy | |
| Bismarck, Dakota | 27.80 | 706.1 | 29.36 | 745.7 | 56 | 13.3 | 100 | SE | 8 | 3.6 | | | 10n | | | 0.25 | 6.3 | Light rain | |
| Boston, Mass. | | | 29.82 | 757.4 | 58 | 14.4 | 93 | E | 10 | 4.5 | | | 10s | | SE | 0.30 | 7.6 | Threatening | |
| Breckenridge, Minn. | | | 29.59 | 751.6 | 61 | 16.1 | 88 | SE | 20 | 8.9 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.70 | 754.4 | 56 | 13.3 | 87 | NE | 12 | 5.4 | | | 10s | | E | 0.05 | 1.3 | Cloudy | |
| Burlington, Vt. | | | 29.83 | 757.7 | 58 | 14.4 | 81 | NE | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 29.88 | 758.9 | 65 | 18.3 | 94 | Calm | 0 | 0 | | 8c | Fog | | | 0.87 | 22.1 | Fair | |
| Campo, Cal. | 27.26 | 692.4 | 29.83 | 757.7 | 52 | 11.1 | 86 | NE | 1 | 0.4 | | 8k | 0 | | | 0 | 0 | Fair | |
| Camp Verde, Arizona | | | | | 61 | 16.1 | | SE | | | | 5c | 0 | S | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.74 | 755.1 | 74 | 23.3 | 81 | S | 24 | 10.7 | | 0 | 8ks | | SW | 0 | 0 | Threatening | |
| Cape Henry, Va. | | | 29.66 | 753.4 | 77 | 25.0 | 69 | SW | 20 | 8.9 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 29.78 | 756.4 | 76 | 24.4 | 86 | SW | 28 | 12.5 | | 4k | 0 | SW | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.68 | 753.9 | 67 | 19.4 | 84 | S | 24 | 10.7 | | 2ck | Haze | S | | 0.08 | 2.0 | Hazy | |
| Charleston, S. C. | | | 29.85 | 758.2 | 76 | 24.4 | 76 | SW | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.86 | 604.5 | 29.74 | 755.4 | 49 | 9.4 | 64 | NW | 12 | 5.4 | | 8ck | 2s | SW | | 0.10 | 2.5 | Cloudy | |
| Chicago, Ill. | | | 29.81 | 757.2 | 58 | 14.4 | 58 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.72 | 754.9 | 60 | 15.6 | 76 | NW | 8 | 3.6 | | 0 | 5s | | NW | 0.38 | 9.7 | Fair | |
| Cleveland, Ohio | | | 29.69 | 754.1 | 54.5 | 12.5 | 86 | N | 25 | 11.2 | | | 10n | | NE | 0.31 | 7.9 | Light rain | |
| Corsicana, Tex. | | | 29.75 | 755.6 | 75 | 23.9 | 85 | S | 10 | 4.5 | | 0 | 8s | | | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.83 | 757.7 | 64 | 17.8 | 83 | Calm | 0 | 0 | | Haze | 0 | | | 0 | 0 | Clear | |
| Denison, Tex. | | | 29.72 | 754.9 | 74 | 23.3 | 85 | SE | 8 | 3.6 | | 10k | 0 | S | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.52 | 622.8 | 29.74 | 755.4 | 52 | 11.1 | 72 | E | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 29.78 | 756.4 | 58 | 14.4 | 64 | NE | 10 | 4.5 | | Haze | Haze | | | 0.03 | 0.8 | Hazy | |
| Dodge City, Kan. | 26.95 | 684.5 | 29.07 | 738.4 | 68 | 20.0 | 84 | SE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.81 | 757.2 | 61 | 16.1 | 71 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 29.84 | 757.9 | 53 | 11.7 | 79 | NE | 2 | 0.9 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Eagle Pass, Texas | | | 29.66 | 753.4 | 80 | 26.7 | 80 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Eastport, Me. | | | 29.88 | 758.9 | 62 | 16.7 | 78 | S | 6 | 2.7 | | 8c | 2k | | | 0.01 | 0.3 | Fair | |
| Erie, Pa. | | | 29.66 | 753.4 | 54 | 12.2 | 100 | NE | 26 | 11.6 | | | 10n | | NE | 0.18 | 4.6 | Light rain | |
| Escanaba, Mich. | | | 29.90 | 759.4 | 55 | 12.8 | 68 | N | 8 | 3.6 | | Haze | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | 28.13 | 714.5 | 29.73 | 755.1 | 80 | 26.7 | | SW | | | | 8c | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.70 | 754.4 | 70 | 21.1 | 84 | SE | 8 | 3.6 | | 2cs | 2ck | | SW | 0.11 | 2.8 | Fair | |
| Fort Griffin, Tex. | 28.40 | 721.3 | 29.58 | 751.3 | 76 | 24.4 | 76 | Calm | 0 | 0 | | 5c | 0 | S | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.75 | 755.6 | 41 | 5.0 | 91 | SW | | | 5 | | 10s | | W | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.44 | 722.4 | 29.47 | 748.5 | 72 | 22.2 | 59 | S | 12 | 5.4 | | 2k | 0 | S | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 27.84 | 707.1 | 29.40 | 746.7 | 60 | 15.6 | 82 | NW | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 29.89 | 759.2 | 80 | 26.7 | 86 | S | 10 | 4.5 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.83 | 757.7 | 61 | 16.1 | 60 | E | 6 | 2.7 | | Haze | Sm'e | | | 0 | 0 | Smoky | |
| Indianapolis, Ind. | | | 29.81 | 757.2 | 60 | 15.6 | 82 | NW | 7 | 3.1 | | Haze | Haze | | | 0.38 | 9.7 | Hazy | |
| Indianola, Tex. | | | 29.83 | 757.7 | 80 | 26.7 | 86 | S | 14 | 6.3 | | 2k | 8ks | | S | 0 | 0 | Cloudy | |
| Jacksonville, Fla. | | | 29.94 | 760.5 | 79 | 26.1 | 78 | SW | 12 | 5.4 | | 5k | 0 | SW | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 29.74 | 755.4 | 68 | 20.0 | 69 | N | 4 | 1.8 | | 5c | 0 | N | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.00 | 762.0 | 81.5 | 27.5 | 82 | S | 5 | 2.2 | | 5c,hz' | 2k | | | 0.04 | 1.0 | Cloudy | |
| Kittyhawk, N. C. | | | 29.74 | 755.4 | 77 | 25.0 | 79 | SW | 26 | 11.6 | | 0 | 8ks | | SW | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 29.81 | 757.2 | 65 | 18.3 | 73 | S | 14 | 6.3 | | 1k | 0 | W | | 0.30 | 7.6 | Clear | |
| LaCrosse, Wis. | | | 29.81 | 757.2 | 59 | 15.0 | 81 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.73 | 755.1 | 64 | 17.8 | 94 | SE | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Louisville, Ky. | | | 29.81 | 757.2 | 63 | 17.2 | 71 | NW | 8 | 3.6 | | 0 | Haze | | | 0.41 | 10.4 | Clear | |
| Lynchburg, Va. | | | 29.62 | 752.3 | 73 | 22.8 | 59 | W | 4 | 1.8 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Maricopa Wells, Arizona | | | | | 77 | 25.0 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.90 | 759.4 | 49 | 9.4 | 77 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mason, Texas | 28.16 | 715.3 | 29.80 | 756.9 | 80 | 26.7 | 66 | SE | 8 | 3.6 | | 2c | 2s | | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 29.89 | 759.2 | 72 | 22.2 | 67 | E | 8 | 3.6 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 29.87 | 758.7 | 55 | 12.8 | 56 | N | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Mobile, Ala. | | | 29.96 | 761.0 | 80 | 26.7 | 78 | SW | 4 | 1.8 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 29.92 | 760.0 | 79 | 26.1 | 75 | SW | 3 | 1.3 | | 8cs | Haze | W | | 0.01 | 0.3 | Fair | |
| Morgantown, W. Va. | 28.51 | 724.1 | 29.50 | 749.3 | 64 | 17.8 | 89 | E | 7 | 3.1 | | | 10n | | S | 1.33 | 33.8 | Light rain | |
| Mt. Washington, N. H. | 23.73 | 602.7 | 30.09 | 764.3 | 43 | 6.1 | 100 | NW | 12 | 5.4 | | | 10n | | NW | 0.23 | 5.8 | Light rain | |
| Nashville, Tenn. | | | 29.87 | 758.7 | 69 | 20.6 | 75 | W | 3 | 1.3 | | 0 | 0 | | | 0.25 | 6.3 | Clear | |
| New Haven, Conn. | | | 29.75 | 755.6 | 61 | 16.1 | 94 | NE | 7 | 3.1 | | | 10s | | | 0.11 | 2.8 | Cloudy | |
| New London, Conn. | | | 29.78 | 756.4 | 62 | 16.7 | 94 | S | 8 | 3.6 | | | 10n | | | 0.04 | 1.0 | Light rain | |
| New Orleans, La. | | | 29.94 | 760.5 | 78 | 25.6 | 82 | SW | 3 | 1.3 | | 1c | 4k | | SW | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.80 | 756.9 | 64 | 17.8 | 88 | S | 12 | 5.4 | | | 10ks | | SW | 0 | 0 | Threatening | |
| New York, N. Y. | | | 29.71 | 754.6 | 65 | 18.3 | 83 | NE | 8 | 3.6 | | | Fog | | | 0.44 | 11.2 | Foggy | |
| Norfolk, Va. | | | 29.69 | 754.1 | 78 | 25.6 | 69 | SW | 12 | 5.4 | | 5k | 0 | W | | 0 | 0 | Fair | |
| North Platte, Neb. | 26.75 | 679.4 | 29.19 | 741.4 | 59 | 15.0 | 84 | NW | 16 | 7.2 | | | 10s | | | 0.11 | 2.8 | Cloudy | |
| Omaha, Neb. | 28.60 | 726.4 | 29.62 | 752.3 | 65 | 18.3 | 78 | SE | 11 | 4.9 | | | 10s | | | 0.04 | 1.0 | Cloudy | |
| Oswego, N. Y. | | | 29.73 | 755.1 | 57 | 13.9 | 90 | NE | 5 | 2.2 | | | 10n | | E | 0.09 | 2.3 | Light rain | |
| Pembina, Dakota | | | 29.64 | 752.8 | 56 | 13.3 | 87 | SE | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Philadelphia, Pa. | | | 29.67 | 753.6 | 66 | 18.9 | 94 | SE | 11 | 4.9 | | | 10s | | | 0.91 | 23.1 | Threatening | |
| Phœnix, Arizona | | | | | 73 | 22.8 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.60 | 447.0 | 29.81 | 757.2 | 22 | 5.6 | 10 | SW | 52 | 23.2 | | | Fog | | | 0.19 | 4.8 | Foggy | |
| Pittsburgh, Pa. | | | 29.52 | 749.8 | 63 | 17.2 | 94 | E | 6 | 2.7 | | | 10n | | | 0.48 | 12.2 | Light rain | |
| Port Huron, Mich. | | | 29.79 | 756.7 | 52 | 11.1 | 72 | N | 13 | 5.8 | | 8cs | Haze | | | Inap. | Inap. | Hazy | |
| Portland, Me. | | | 29.86 | 758.4 | 61 | 16.1 | 77 | NE | 2 | 0.9 | | 5k | 5s | | | 0.05 | 1.3 | Clearing | |
| Portland, Oregon | | | 30.06 | 763.5 | 51 | 10.6 | 86 | Calm | 0 | 0 | | | 10s | | | 0.08 | 2.0 | Cloudy | |
| Prescott, Arizona | 24.66 | 626.4 | 30.02 | 762.5 | 55 | 12.8 | 62 | Calm | | | | 5c | 0 | | | 0 | 0 | Fair | |
| Punta Rassa, Fla. | | | 30.03 | 762.7 | 83 | 28.3 | 64 | N | 3 | 1.3 | | 0 | 5ks | | | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 29.72 | 754.9 | 53 | 11.7 | 93 | NE | 9 | 4.0 | | | 10n | | NE | 0.04 | 1.0 | Light rain | |
| Salt Lake City, Utah | 25.56 | 649.2 | 29.89 | 759.2 | 50 | 10.0 | 64 | E | 3 | 1.3 | | 5c | 0 | NW | | 0.06 | 1.5 | Fair | |
| Sandy Hook, N. J. | | | 29.73 | 755.1 | 63 | 17.2 | 100 | SE | 7 | 3.1 | | | Fog | | | 0.39 | 9.9 | Foggy | |
| San Antonio, Tex. | | | 29.64 | 752.8 | 78 | 25.6 | 82 | SE | 4 | 1.8 | | 5c | 5ks | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.85 | 758.2 | 60 | 15.6 | 88 | S | 8 | 3.6 | | | 10n | | S | Inap. | Inap. | Light rain | |
| San Francisco, Cal. | | | 29.87 | 758.7 | 53 | 11.7 | 73 | SW | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fé, N. M. | 23.14 | 587.8 | 29.68 | 753.9 | 56 | 13.3 | 38 | E | 4 | 1.8 | | 2ck | 8s | W | W | 0 | 0 | Fair | |
| Savannah, Ga. | | | 29.88 | 758.9 | 81 | 27.2 | 70 | W | 12 | 5.4 | | 2k | Haze | W | | 0.23 | 5.8 | Fair | |
| Shreveport, La. | | | 29.93 | 760.2 | 74 | 23.3 | 90 | S | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 29.79 | 756.7 | 75 | 23.9 | 76 | W | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.80 | 756.9 | 60.5 | 15.8 | 88 | N | 5 | 2.2 | | | 10n | | | 0.26 | 6.6 | Light rain | |
| St. Louis, Mo. | | | 29.84 | 757.9 | 67 | 19.4 | 84 | NW | 2 | 0.9 | | 0 | Sm'e | | | 0.10 | 2.5 | Clear | |
| St. Marks, Fla. | | | 29.95 | 760.7 | 78 | 25.6 | 86 | W | 8 | 3.6 | | 0 | 8s | | W | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.71 | 754.6 | 65 | 18.3 | 59 | SE | 4 | 1.8 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 73 | 22.8 | | S | | | | 2c | 0 | | | 0 | 0 | Fair. | |
| Stockton, Tex | 26.74 | 679.2 | 29.74 | 755.4 | 72 | 22.2 | 58 | SW | 4 | 1.8 | | 0 | 8s | | SW | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 29.85 | 758.2 | 60 | 15.6 | 88 | E | 12 | 5.4 | | 10cs,k | 0 | S | | 0.02 | 0.5 | Cloudy | |
| Toledo, Ohio | | | 29.77 | 756.1 | 58 | 14.4 | 64 | N | 10 | 4.5 | | 8cs | 0 | | | 0.07 | 1.8 | Fair | |
| Tucson, Arizona | 27.37 | 695.2 | 29.91 | 759.7 | 68 | 20.0 | | SE | | | | 1c | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.86 | 758.4 | 75 | 23.9 | 85 | W | 12 | 5.4 | | 5k | 0 | W | | 0.20 | 5.1 | Fair | |
| Vicksburg, Miss | | | 29.92 | 760.0 | 79 | 26.1 | 86 | SW | 7 | 3.1 | | 0 | 8s | | SW | 0 | 0 | Fair | |
| Virginia City, M. T | 24.13 | 612.9 | 29.61 | 752.1 | 35 | 1.7 | 52 | SW | 8 | 3.6 | | 5k | 0 | W | | 0.57 | 14.5 | Fair | |
| Washington, D. C | | | 29.62 | 752.3 | 68.5 | 20.3 | 92 | E | 4 | 1.8 | | | 10s | | SW | 0.77 | 19.6 | Cloudy | |
| Wickenburg, Arizona | | | | | 76 | 24.4 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.77 | 756.1 | 77 | 25.0 | 69 | SW | 16 | 7.2 | | 0 | 1ks | | SW | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 29.85 | 758.2 | 64 | 17.8 | 89 | S | 16 | 7.2 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.37 | 720.6 | 29.59 | 751.6 | 63 | 17.2 | 89 | SE | 11 | 4.9 | | | 10s | | S | 0.06 | 1.5 | Cloudy | |
| Yuma, Arizona | | | | | | | | Calm | | | | 1c | 0 | | | 0 | 0 | Clear | |
| **Sun-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.16 | 766.1 | 80 | 26.7 | 82 | Calm | 0 | 0 | | 8c | 8n | | SE | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | E | | | 3 | | | | | 0.02 | 0.5 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.01 | 762.2 | 82 | 27.8 | 83 | E | | | 2 | 0 | 5k | | | 0.050 | 1.27 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.21 | 640.3 | | | 65.8 | 18.8 | 78 | Calm | | | 0 | 2k,cs | 1ks | | | 0.06 | 1.5 | Fair | Thomas Herran. |
| York Factory, B. A | | | 29.92 | 762.5 | 32.5 | 0.3 | 95 | NE | 8 | 3.6 | | 3k | 4s | N | N | 0.01 | 0.3 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.15 | 765.8 | 73 | 22.8 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bisbee Park is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft. or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,382.2 ft. or 1,329.6 m.; Santa Fe, 6,862.9 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.78 | 756.4 | 74 | 23.3 | 70 | 21.1 | 95 | SE | | | 2 | | 9 | | W | 0.89 | 22.6 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.94 | 760.5 | 64 | 17.8 | 58 | 14.4 | | SW | | | 3 | | 6 | | NW | 0 | 0 | | | Cloudy | |
| Navy Yard, Pensacola, Fla. | 30.08 | 764.0 | | | 79 | 26.1 | 86 | WSW | 20 | 8.9 | | | 7 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.93 | 760.2 | 71 | 21.7 | 63 | 17.2 | 78 | NNE | 3 | 1.3 | | | | | | 0 | 0 | | | | |
| Naval Hospital, Yokohama, Japan | 29.52 | 749.8 | 72 | 22.2 | 69 | 20.6 | 87 | S | | | 1 | | Haze | | | 0.98 | 24.9 | | | Clear | |
| Alert, N. 13° 25′ E. 143° 37′ | 29.99† | 761 7† | 84 | 28.9 | 83 | 28.3 | 100 | NNE | | | 5 | | 4 | | NE | | | Long | NE | D. clouds | |
| Alliance, Beirut, Syria | 30.08 | 764.0 | 82 | 27.8 | 80 | 26.7 | 70 | NE | | | 0–1 | | 2 | | | | | Smooth | | Clear | |
| Ashuelot, Swatow, China | 30.00 | 762.0 | 79 | 26.1 | 79 | 26.1 | 86 | SW | | | 2 | | 10 | | | | | Smooth | | Raining | |
| Canonicus, New Orleans, La | 29.94 | 760.5 | 56 | 13.3 | 79 | 26.1 | 82 | SW | | | 2 | | 4 | | NE | | | | | Fair | |
| Colorado, New York, N. Y | 29.75 | 756.7 | 62 | 16.7 | 65 | 18.3 | 94 | ENE | 1 | 0.4 | | | 10 | | | 0.45 | 11.4 | | | Foggy | |
| Despatch, N. 38° 43′ E. 26° 28′ | 30.18 | 766.6 | 69 | 20.6 | 68 | 20.0 | 90 | NE | | | 4–5 | | 3 | | NE | | | Moderate. | NE | Clear | |
| Franklin, Norfolk, Va. | 29.77 | 756.1 | 73 | 22.8 | 76 | 24.4 | 95 | S | 7 | 3.1 | | | 5k | | S | 0 | 0 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.03 | 762.7 | 71 | 21.7 | 71 | 21.7 | 95 | NNW | | | 2 | | | | | 0 | 0 | | | Foggy | |
| ‡Gettysburg, Genoa, Italy | 29.97 | 761.2 | | | 77 | 25.0 | 100 | SE | | | 1 | | 2 | | | 0 | 0 | | | D clouds | |
| Hartford, Hampton Roads, Va | 29.96 | 761.0 | 76 | 24.4 | 75 | 23.9 | 77 | SW | 7.2 | 3.2 | | | 2 | | | 0 | 0 | | | Pleasant | |
| Huron, Savanilla, N. G | 30.02 | 762.5 | 83 | 28.3 | 84 | 28.9 | 87 | ESE | | | 1 | | 7 | | SE | 0 | 0 | | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.98 | 761.5 | 69 | 20.6 | 67 | 19.4 | 84 | N | | | 1 | | 0 | | | ¶0.02 | 0.5¶ | | | Hazy | |
| Lackawana, N 21° 59′ W. 114° 48′ | 29.96 | 761.0 | | | 67 | 19 4 | 74 | NNW | | | 4–5 | | 8 | | N&W | | | Moderate. | NNW | D. clouds | |
| Marion, Smyrna, Turkey | 29.99 | 761.7 | 78 | 25.6 | 77 | 25.0 | 69 | WSW | | | 4 | | 5 | | WSW | 0 | 0 | Chop'd | WSW | D. clouds | |
| Michigan, Erie, Pa | 29.19 | 741.4 | 61 | 16.1 | 56 | 13.3 | 94 | NNE | | | 4 | | 10 | | NNE | | | | | Raining | |
| Monocacy, Tientsin, China | 29.65 | 753.1 | 70 | 21.1 | 72 | 22.2 | 76 | ESE | | | 2 | | 10 | | | | | | | D. clouds | |
| Monongahela, Block Island Sound | 29.82 | 757.4 | 61 | 16.1 | 61 | 16 1 | 94 | SSW | | | 5 | | 10kn | | N&E | Light | Light | | | Misty. | |
| New Hampshire, Port Royal, S. C | 30.10 | 764.5 | | | 75 | 23.9 | 72 | W | 16 | 7.2 | | | 2 | | W | 0.1 | 3. | | | D. clouds | |
| Omaha, Chimbote, Peru | 30.06 | 763.5 | 70 | 21.1 | 70 | 21.1 | 90 | SE | 4 | 1.8 | | | 10 | | SE | 0 | 0 | Long | S&E | Pleasant | |
| Ossipee, Norfolk, Va | 30.24 | 768.1 | 74 | 23.3 | 75 | 23 9 | 86 | S | | | 3 | | 5 | | S | | | | | D. clouds | |
| Palos, Shanghai, China | 29.95 | 760.7 | 74 | 23.3 | 72 | 22.2 | 90 | SSE | | | 3–5 | | 2 | | S&W | Blank | Blank | | | Dew | |
| Pensacola, N. 22° 27′ W. 111° 40′ | 29.96 | 761.0 | | | 70 | 21.1 | 90 | NNW | | | 3 | | 5 | | S | 0 | 0 | Moderate | NW | Pleasant | |
| Plymouth, Off Vera Cruz, Mexico | 29.90 | 759.4 | 85 | 29.4 | 82 | 27.8 | 96 | SSE | | | 1 | | 6 | | N&W | 0.1 | 3. | Smooth | | Hazy | |
| Ranger, Valetta, Malta | 30.32 | 770.1 | | | 74 | 23.3 | 81 | NNE | | | 1–2 | | 1 | | | | | Smooth | | Misty | |
| Richmond, Rio de Janeiro, Brazil | 30.06 | 763.5 | 70.0 | 21.1 | 66.0 | 18.9 | 94 | N | | | 2 | | Fog | | | 0 | 0 | | | Dense fog | |
| Rio Bravo, Matamoras, Mexico | 29.62 | 752.3 | | | 75 | 23.9 | 90 | SE | | | 3 | | 5 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.72 | 754.9 | 72 | 22.2 | 70 | 21.1 | 95 | S | | | 1 | | 10 | | | 0.91 | 23.1 | | | Cloudy | |
| St. Louis, League Island, Pa | 29.66 | 753.4 | 68 | 20.0 | 68 | 20.0 | 90 | ESE | 12 | 5.4 | | | 10 | | ESE | 0.75 | 19.1 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 29.96 | 761.0 | 83 | 28.3 | 81 | 27.2 | 91 | S | | | 1 | | 8k | | S | | | | | Overcast | |
| Tennessee, Yokohama, Japan | 29.55 | 750.6 | 75 | 23.9 | 74 | 23 3 | 86 | SSW | | | 1 | | 4 | | N&E | Blank | Blank | Smooth | | Hazy | |
| Trenton, Smyrna, Turkey | 29.88† | 758.9† | 79 | 26.1 | 79 | 26.1 | 86 | WSW | 23 | 10.3 | | | 3 | | S&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.17 | 766.3 | 70 | 21.1 | 69 | 20.6 | 65 | NE | | | 4 | | 2 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.89 | 759.2 | 62 | 16.7 | 60 | 15.6 | 94 | ENE | 9 | 4.0 | | | 10 | | E | 0.28 | 7.1 | | | D. clouds | |
| Wyoming, Washington, D.C | 29.86† | 758.4† | 74 | 23.3 | 73 | 22.8 | | NE | | | 1 | | 10 | | | | | | | Drizzling | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. Inches. | BAROMETER REDUCED TO SEA-LEVEL. Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | TEMPERATURE OF THE AIR. Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | WIND. Velocity. Miles per hour. | WIND. Velocity. Meters per second. | WIND. Force. 0—10. | CLOUDS. Amount. Up'er 0—10. | CLOUDS. Amount. Low'r 0—10. | CLOUDS. Direction. Upper. From— | CLOUDS. Direction. Lower. From— | SEA-SWELL. Character. | SEA-SWELL. Direction from— | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 42° 36′, W. 140° 52′ | | | 30.08 | 764.0 | 58 | 14.4 | 100 | SW | | | 4 | | 7s | | | Moderate | SW | Overcast | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. Inches. | BAROMETER REDUCED TO SEA-LEVEL. Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | TEMPERATURE OF THE AIR. Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | WIND. Velocity. Miles per hour. | WIND. Velocity. Meters per second. | WIND. Force. 0—10. | CLOUDS. Amount. Up'er 0—10. | CLOUDS. Amount. Low'r 0—10. | CLOUDS. Direction. Upper. From— | CLOUDS. Direction. Lower. From— | SEA-SWELL. Character. | SEA-SWELL. Direction from— | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. Inches. | BAROMETER REDUCED TO SEA-LEVEL. Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | TEMPERATURE OF THE AIR. Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | WIND. Velocity. Miles per hour. | WIND. Velocity. Meters per second. | WIND. Force. 0—10. | CLOUDS. Amount. Up'er 0—10. | CLOUDS. Amount. Low'r 0—10. | CLOUDS. Direction. Upper. From— | CLOUDS. Direction. Lower. From— | SEA-SWELL. Character. | SEA-SWELL. Direction from— | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. Inches. | BAROMETER REDUCED TO SEA-LEVEL. Millimeters. | TEMPERATURE OF THE AIR. Fahrenheit. | TEMPERATURE OF THE AIR. Centigrade. | RELATIVE HUMIDITY. Per cent. | WIND. Direction. From— | WIND. Velocity. Miles per hour. | WIND. Velocity. Meters per second. | WIND. Force. 0—10. | CLOUDS. Amount. Up'er 0—10. | CLOUDS. Amount. Low'r 0—10. | CLOUDS. Direction. Upper. From— | CLOUDS. Direction. Lower. From— | SEA-SWELL. Character. | SEA-SWELL. Direction from— | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 40° 10′, W. 58° 33′ | E by N ¾ N | 10.5 | 30.05 | 763.3 | 68.0 | 20.0 | | WSW | | | 3 | | k | | NW | Tranq'l | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig, N. 38° 12′, W. 73° 24′ | S 77 W | 12 | 29.81 | 757.2 | 70 | 21.1 | | S | | | 4 | | 5k | | SW | Moderate. | | Hazy | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 34° 35′ W. 75° 00′ | NE | 6.0 | 29.79 | 756.7 | 78 | 25.6 | 73 | SSW | 16 | 7.2 | ..... | 8k | 0 | SW | ..... | Rough | ..... | Cloudy, | Capt. James Jorgensen. |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 7, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.10 | 764.6 | 75.6 | 24.2 | 70 | NE | | | 1 | | 6 | | | 0.012 | 0.3 | Fair | Charnot. |
| Algiers | | | 30.15 | 765.7 | 71.6 | 22.0 | 92 | NE | | | 1 | | 10 | | | 0.020 | 0.5 | Hidden | Peter. |
| La Calle | | | 30.14 | 765.5 | 71.1 | 21.7 | 86 | NE | | | 3 | | 8 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.09 | 764.2 | 86.0 | 30 0 | | NE | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.21 | 767 3 | 78.8 | 26 0 | | S | | | 1 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.15 | 765 7 | 88.7 | 31.5 | | S | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.17 | 766.2 | 74.7 | 23 7 | | E | | | 2 | | 8 | | | Inap. | Inap. | Cloudy | Bourgeois. |
| Geriville | | | 30.18 | 766.6 | 81.8 | 27.1 | 52 | SE | | | 4 | | 3 | | | 0.039 | 1.0 | Fair | Lemaillot. |
| Laghouat | | | 30.24 | 768.0 | 88.9 | 31.5 | 23 | Calm | | | 0 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.20 | 767.0 | 92.5 | 33.6 | | SW | | | 1 | | 3 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the cooperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.11 | 764.8 | 84.9 | 29.4 | 43 | NE | | | 2 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.17 | 766.3 | 77.7 | 25.4 | 58 | WSW | | | 3 | | 7 | | N | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.12 | 765.0 | 78 4 | 23.8 | 60 | S | | | 2 | | 9cks | | | | | | Julius Mikolik. |
| Gratz | 28.98 | 736.1 | 30.19 | 766.9 | 72.0 | 22.2 | 73 | NE | | | 1 | | 9 | | | | | Thunder-storm | Andreas Rospini. |
| Hermannstadt | 28.75 | 730 3 | 30.11 | 764.7 | 78.3 | 25.7 | 33 | E | | | 3 | | 2 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.91 | 734 4 | 30.23 | 767.7 | 68 7 | 20.4 | 69 | SW | | | 1 | | 10 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 30.07 | 763.7 | 80.4 | 26.9 | 64 | S | | | 2 | | 3 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.11 | 764.8 | 79.9 | 26.6 | 66 | WNW | | | 2 | | 1ks | | | 0 | 0 | | I.R.Hydrographic Of'ce |
| Szegedin | | | 30.15 | 765.8 | 79 0 | 26.0 | 27 | S | | | 3 | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.15 | 765.7 | 82.2 | 27.9 | 58 | N | | | 1 | | 2 | | | 0 | 0 | Almost clear | P. Busin. |
| Vienna | | | 30.20 | 767.0 | 78.1 | 25.6 | 54 | N | | | 1 | | 3 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.81 | 731.8 | 30.31 | 769 9 | 60.3 | 15.7 | 74 | WSW | | | 1 | | 7 | | | 0 | 0 | | |
| Brussels | | | 30.27 | 768.8 | 63.7 | 17.6 | 55 | SW | | | 1 | | 4k | | SW | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.24 | 768.0 | 65.5 | 18.6 | 51 | SW | | | 4 | | 6 | | | 0 | 0 | | |
| Maseyck | | | 30.27 | 768.8 | 64.6 | 18.1 | 57 | WSW | | | 4 | | 3 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| Stations. | Barometer. Corrected for instrumental error and temperature. Inches | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.72 | 754.9 | 55.0 | 12.8 | | SW | 29 | 13.0 | | | 4 | | | 0.200 | 5.08 | Blue sky | William Boswell. |
| Ardrossan | | | 29.85 | 758.2 | 52 | 11.1 | | SW | | | 4 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.95 | 760.7 | 54.0 | 12.2 | | SW | 18 | 8.0 | | | 7 | | | | | Squally | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.06 | 763.5 | 57.6 | 14.2 | | WSW | 25 | 11.2 | | | 7 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.04 | 763.0 | 55.4 | 13.0 | | WSW | | | 2 | | 8 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.04 | 763.0 | 59.2 | 15.1 | | W | | | 2 | | 8 | | | 0.08 | 2.0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.96 | 761.0 | 80.0 | 26.7 | | NE | | | 3 | | 8 | | | | | Overcast | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.16 | 766.1 | 64.8 | 18.2 | | SW | | | 3 | | 5 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.16 | 766.1 | 67.0 | 19.4 | | | | | 3 | | 2 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.24 | 768.1 | 65.2 | 18.4 | | W | | | 3 | | 8 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 29.77 | 730.7 | 30.25 | 768.3 | 54.6 | 12.6 | | W | | | 6 | | 7 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.90 | 759.4 | 58 | 14.4 | | WSW | | | 6 | | 3 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.24 | 768.1 | 60 | 15.6 | | SW | | | 3 | | 3 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.01 | 762.2 | 57.5 | 14.2 | | SW | 10.4 | 4.6 | | | 5 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.24 | 768.1 | 58.8 | 14.9 | | SW | | | 3 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27 76 | 705.1 | 30.00 | 762.0 | 70.3 | 21.3 | | S | | | 3 | | 8 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.91 | 759.7 | 85 | 29.4 | | E | | | 0 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.98 | 761.5 | 58 | 14.4 | | SW | | | 4 | | 2 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.05 | 763.3 | 70.5 | 21.4 | | E | | | 5 | | 8 | | | | | Overcast | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.82 | 757.4 | 50.7 | 10.4 | | SW | | | 5 | | 8 | | | | | Raining | William Wallace. |
| Great Yarmouth | | | 30.16 | 766.1 | 62 | 16.7 | | W | | | 4 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.20 | 767.1 | 65.0 | 18.3 | | WSW | | | 2 | | 5 | | | Blank | Blank | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.27 | 768.8 | 59 | 15.0 | | SSW | | | 1 | | 5 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.25 | 768.3 | 60 | 15.6 | | S | | | 4 | | 4ck | | | 0.10 | 2.5 | Fine | M. P. Moyle. |
| Holyhead | | | 30.06 | 763.5 | 55 | 12.8 | | SW | | | 6 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.20 | 767.1 | 62.1 | 16.7 | | WSW | 14 | 6 3 | | | 5 | | | | | D. clouds | The Staff. |
| Kingstown | | | 30.03 | 762.7 | 58 | 14.4 | | W | | | 5 | | 5 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.12 | 765.0 | 60.0 | 15.6 | | SW | | | 3 | | 5 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.15 | 765.8 | 79.8 | 26.6 | | NW | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.60 | 751.8 | 56 | 13.3 | | SW | | | 5 | | 5 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.04 | 763.0 | 85.6 | 29.8 | | SE | | | 1 | | 6 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.10 | 764.5 | 64.2 | 17.9 | | SW | | | 5 | | 7k | | SW | 0.056 | 1.42 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.10 | 764.5 | 61.5 | 16.4 | | SW | | | 5 | | 6 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.17 | 766.3 | 64 | 17.8 | | W | | | 2 | | 0 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 30.24 | 768.1 | 60.6 | 15.9 | | SSW | | | 4 | | 5 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.10 | 764.5 | 56 | 13.3 | | WSW | | | 5 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.15 | 765.8 | 57 | 13.0 | | SW | | | 4 | | 2 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.29 | 769.4 | 60.2 | 15.7 | | W | | | 3 | | 2 | | | | | ¼ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.59 | 751.6 | 54.1 | 12 3 | | SW | 12 | 5.4 | | | 3 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | | | | | | NE | | | 2 | | | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.06 | 763.5 | 62.7 | 17.1 | | WSW | | | 5 | | 5 | | | Inap. | Inap. | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 29.96 | 761.0 | 59.2 | 15.1 67 | | SW | | | 5 | | 2 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.04 | 763.0 | 55.9 | 13.3 | | SW | | | 4 | | 5 | | | | | Squally | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.46 | 748.3 | 53 | 11.7 | | SW | | | 7 | | 10 | | | | | Showery | John Smith. |
| Stratfield Turgiss | | | 30.19 | 766.8 | 62.8 | 17.1 | | SW | | | 1 | | 8 | | | | | D. clouds | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.54 | 750.3 | 57 | 13.9 | | SW | | | 4 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.23 | 767.8 | 63 | 17.2 | | SW | | | 6 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.09 | 764.3 | 56.3 | 13.5 | | SW | 22 | 10.3 | | | 4 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | W | | | 6 | | | | | 0.35 | 8.9 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.27 | 768.8 | 63.3 | 17.4 77 | | SSE | 20 | 8.9 | | 0 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.01 | 762.2 | 56.5 | 13.4 88 | | NW | | | 1 | | 8k | | | 0 | 0 | Cloudy | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.85 | 758.2 | 50.0 | 10.0 | | SW | | | 6 | | 6k | | | 0.10 | 2.5 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.16 | 766.1 | 73.0 | 22.8 68 | | ESE | 17.7 | 7.9 | | 4 | 2 | | ESE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.13 | 765.3 | 62.0 | 16.8 72 | | NNE | 19 | 8.5 | | | 10 | | | 0.02 | 0.5 | Showery | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.65 | 753 1 | 51 | 10.6 | | SW | | | 7 | | 10 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.51 | 749.5 | 47 | 8.3 | | SW | | | 6 | 4 | 7 | W | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 38° 40', W. 68° 15' | | | 30.00 | 762.0 | 75.5 | 24.2 | | S | | | 5 | | 3 | | | 4 | SSW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 30.10 | 764.5 | 56 | 13.3 | | WSW | | | 4 | | 3 | | | | | | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.18 | 665.0 | | | 68.0 | 20.0 | 95 | SE | | | 1 | | 7cs | | | 1.6 | 41. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.05 | 763.2 | 62.1 | 16.7 | 64 | WSW | | | 4 | | 6 | | | | | | |
| Fanöe | | | 30.05 | 763.3 | 56.3 | 13.5 | 80 | W | | | 6 | | 3 | | | | | | |
| Godthaab, (Greenland) | | | 29.94 | 760.5 | 39.7 | 4.3 | 82 | Calm | | | 0 | | 10 | | | | | Raining | |
| Stykkisholm, (Iceland) | | | 29.78 | 756.3 | 39.0 | 3.9 | 90 | NE | | | 7 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.40 | 746.8 | 47.3 | 8.5 | 83 | W | | | 4 | | 10 | | | | | | |
| Vestervig | | | 29.99 | 761.8 | 54.7 | 12.6 | 80 | SW | | | 6 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.35 | 770.9 | 64.4 | 18 | 51 | SSW | | | 1 | 2c | | WSW | | 0 | 0 | Slightly cl'dy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.25 | 768.4 | 67.6 | 19.8 | 54 | SW | | | 3 | | 2 | | W | 0 | 0 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.17 | 766.2 | 73.9 | 23.3 | 66 | N | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.27 | 768.9 | 70.3 | 21.3 | 50 | W | | | 2 | | 8kn | | | 0.004 | 0.1 | Very cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.28 | 769.2 | 65.8 | 18.8 | 47 | S | | | 1 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 30.25 | 768.4 | 71.6 | 22 | 58 | E | | | 3 | | 2 | | SW | 0.031 | 0.8 | Slightly cl'dy | Normal School. |
| Bourgen Bresse | | | 30.34 | 770.7 | 72.7 | 22.6 | 66 | SW | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.28 | 769.0 | 68.4 | 20.2 | 69 | SW | | | 2 | | 5 | | NE | 0 | 0 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.21 | 767.2 | 65.7 | 18.7 | 60 | SSW | | | 2 | | 1ck | | | 0.089 | 2.27 | | The Staff. |
| Carcassonne, Normal School | | | 30.21 | 767.2 | 77.5 | 25.3 | 64 | SW | | | 2 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 30.28 | 769.2 | 65.1 | 18.4 | 49 | W | | | 1 | | 5 | | W | 0.006 | 0.15 | Partly cl'dy. | Normal School. |
| Chartres, Normal School | | | 30.30 | 769.7 | 61.6 | 18.1 | 96 | SW | | | 1 | | 3 | | E | 0 | 0 | | Dumoullé, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.28 | 769.0 | 66.7 | 19.3 | 70 | W | | | 1 | | 8kn | | W | 0.008 | 0.2 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D.Obs. | | | 30.21 | 767.2 | 71.1 | 21.7 | 51 | NE | | | 1 | | 0 | | | 0 | 0 | Clear | Alluard, Director. |
| Clermont, Normal School | | | 30.26 | 768.5 | 66.6 | 19.2 | 54 | WSW | | | 2 | | 5 | | WSW | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commercy, Normal School | | | 30.23 | 767.9 | 79.5 | 26.4 | 46 | NW | | | 2 | | 2 | | NW | 0 | 0 | | M. Kina. |
| Commune de Gréasque* | | | 30.22 | 767.6 | 72.3 | 22.4 | 64 | NW | | | 2 | | 2ks | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Grenoble | | | 30.28 | 769.2 | 69.8 | 21.0 | 72 | N | | | 1 | | 5 | | S | 0 | 0 | Cloudy | Mouillet, Director. |
| La Roche-sur-Yon, N. School | | | 30.21 | 767.4 | 69.1 | 20.6 | 58 | N | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Pin, Director. |
| Le Mans, Normal School | | | 30.30 | 769.7 | 65.1 | 18.4 | 57 | SW | | | 1 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.21 | 767.4 | 69.1 | 20.6 | 58 | N | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.29 | 769.4 | 61.5 | 16.4 | 53 | SSW | | | 2 | | 2 | | N | 0 | 0 | ¼ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.16 | 766.1 | 68.2 | 20.1 | 78 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.37 | 771.3 | 66.9 | 19.4 | 50 | W | | | 1 | | 9k | | | 0.366 | 9.3 | | Normal School. |
| Mirecourt | | | 30.27 | 768.9 | 65.1 | 18.4 | 65 | W | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Normal School. |
| Nismes, Normal School | | | 30.13 | 765.2 | 82.4 | 28 | 38 | N | | | 4 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 30.22 | 767.5 | 66.2 | 19 | 63 | SW | | | 2 | | 8 | | W | 0 | 0 | Very cloudy | Normal School. |
| Paris, Observatory | | | 30.29 | 769.3 | 64.2 | 17.9 | 56 | W | | | 1 | | 8ck | | W | 0 | 0 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.16 | 766.1 | 73.8 | 23.2 | 60 | N | | | 2 | | 2 | | N | 0 | 0 | ¼ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.28 | 769.1 | 65.7 | 18.7 | 38 | W | | | 2 | | 1 | | W | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 29.08 | 738.5 | 30.11 | 764.7 | 78.8 | 26 | 64 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.25 | 768.4 | 74.3 | 23.5 | 71 | NNE | | | 1 | | 2 | | NW | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchésl. |
| Marseilles, Observatory | | | 30.17 | 766.2 | 73.9 | 23.3 | 60 | W | | | 1–2 | | | | | 0 | 0 | | The Staff. |
| Mont-Louis | 25.12 | 638.0 | 30.43 | 773.0 | 63.3 | 17.4 | 50 | SE | 16.8 | 7.50 | | | 2 | | SW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.28 | 769.2 | 66.0 | 18.9 | 58 | W | | | 2 | | 6 | | SW | 0 | 0 | | Marie Davy, Director. |
| Perpignan | | | 30.18 | 766.6 | 76.6 | 24.8 | 31 | SE | 7.4 | 3.33 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.49 | 545.9 | | | 52.3 | 11.3 | | S | | | 1 | | 2 | | | | | Clear | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.78 | 578.6 | | | 57.9 | 14.4 | | S | | | 1 | | 2 | | | 0 | 0 | Clear | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.20 | 769.3 | 64.4 | 18.0 | 59 | NW | | | 1 | | 5 | | | 0 | 0 | Fair | E. Renou. |
| Toulouse, Observatory | | | 30.26 | 768.5 | 72.9 | 22.7 | 46 | N | | | 2 | | 2 | | | 0 | 0 | | The Staff |
| Tours | | | 30.26 | 768.7 | 68.0 | 20.0 | 64 | SSW | | | 2 | | 9 | | WSW | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.29 | 769.3 | 65.1 | 18.4 | 64 | W | | | 1 | | 7 | | | 0.003 | 0.08 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.66 | 753.4 | 73.4 | 23.0 | 91 | SE | 13.2 | 5.9 | | | 10k | | | 0 | 0 | Stormy | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.23 | 767.9 | 68.9 | 20.5 | 50 | W | | | 4 | | 7 | W | | 0.008 | 0.2 | | Prof. T. Hoh. |
| Berlin | | | 30.23 | 767.7 | 73.4 | 23.0 | 48 | S | | | 4 | | 9 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.26 | 768.6 | 73.9 | 23.3 | 54 | SW | | | 2 | | 6 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.27 | 768.8 | 69.8 | 21.0 | 57 | SE | | | 1 | | 5 | | | 0.706 | 18.0 | | Albert Senz. |
| Cassel | | | 30.32 | 770.0 | 69.1 | 20.6 | 52 | WSW | | | 2 | | 5 | SW | | 0.701 | 17.8 | Thunder, lightn'g | Dr. H. Möhl. |
| Crefeld | | | 30.25 | 768.4 | 65.5 | 18.6 | 45 | NW | | | 4 | | 5 | | | 0.16 | 4. | | Director Lose. |
| Emden | | | 30.15 | 765.9 | 65.8 | 18.8 | 52 | WSW | | | 4 | | 1 | | | 0.679 | 2.0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.34 | 770.5 | 72.3 | 22.4 | 48 | SW | | | 1 | | 8 | | | 0.409 | 10.4 | | Physical Society. |
| Friedrichshafen | 28.87 | 733.4 | 30.28 | 769.0 | 69.1 | 20.6 | 61 | W | | | 3 | | 1 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.19 | 766.9 | 63.3 | 17.4 | 61 | W | | | 5 | | 5ks | | | 0.091 | 2.3 | Fine | Captain F. Hegemann. |
| Kiel | | | 30.17 | 766.2 | 61.9 | 16.6 | 77 | W | | | 6 | | 2 | | | 0.091 | 2.3 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.16 | 766.0 | 62.8 | 17.1 | 74 | W | | | 5 | | 9 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.29 | 769.4 | 70.0 | 21.1 | 55 | SW | | | 3 | | 9 | WSW | | 0.240 | 6.1 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.13 | 765.4 | 63.1 | 17.2 | 72 | WSW | | | 6 | | 10cs.ks | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.18 | 766.5 | 67.5 | 19.7 | 68 | WSW | | | 2 | | 10 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.23 | 767.8 | 74.1 | 23.4 | 50 | W | | | 7 | | 10 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.29 | 769.4 | 70.8 | 21.3 | 54 | Calm | | | 0 | | 10 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.04 | 768.2 | 68.9 | 20.5 | 52 | E | | | 1 | | 5 | W | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 30.15 | 765.8 | 68.0 | 20.0 | 61 | SW | | | 5 | | 8 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.78 | 731.1 | 30.25 | 768.3 | 70.0 | 21.1 | 48 | NW | | | 1 | | 6 | W | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.21 | 767.3 | 61.5 | 16.4 | 81 | WSW | | | 1 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2.5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2.0, instead of 1.51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.04 | 763.0 | 77.9 | 25.5 | | N | | | Strong | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.61 | 752.2 | 29.66 | 753.4 | 89.0 | 31.7 | 71 | SW | 20.0? | 8.9? | | | 0 | | | 0 | 0 | Blue sky | |
| Deesa | 29.16 | 740.6 | 29.61 | 752.1 | 101.4 | 38.0 | 36 | | 32.0 | 14.5 | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.67 | 753.6 | 29.70 | 754.6 | 87.0 | 30.5 | 72 | NW | 11.0 | 4.9 | | | 10 | NW | WNW | 0 | 0 | Dust-haze | |
| Poona | 27.70 | 703.6 | 29.69 | 754.0 | 79.9 | 26.0 | 87 | | | | | | | | | 1.04 | 26.4 | Thunder-storm. | |
| Lahore | 28.91 | 734.2 | 29.62 | 752.3 | 97.8 | 36.0 | 25 | W | 4.6 | 2.0 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.69 | 658.0 | 29.58 | 751.3 | 80.8 | 27.1 | 76 | W | 9 | 4.0 | | | 8 | | W | 0.75 | 19.1 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.75 | 730.3 | 29.65 | 753.0 | 81.2 | 26.8 | | SE | 3.5 | 1.5 | | | 7 | | | 0.10 | 2.5 | | |
| Agra | 29.03 | 737.3 | 29.57 | 751.1 | 95.7 | 35.4 | 43 | NE | 3.6 | 1.6 | | | 2 | | | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.57 | 725.7 | 29.57 | 751.0 | 99.4 | 37.4 | 30 | SW | 9.9 | 4.4 | | | 4 | | | 0 | 0 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.26 | 743.1 | 29.63 | 752.5 | 80.3 | 26.8 | 87 | NNE | 6.9 | 3.0 | | | 9 | | | 0 | 0 | Overcast | |
| Allahabad | 29.33 | 745.0 | 29.64 | 752.8 | 81.7 | 27.6 | 87 | N | 2.7 | 1.2 | | | 10 | | | 0 | 0 | Overcast | |
| Patna | 29.41 | 747.1 | 29.59 | 751.6 | 91.3 | 34.0 | 48 | E | 2.9 | 1.2 | | | 8 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.66 | 702.4 | 29.64 | 752.8 | 82.0 | 28.1 | 72 | NW | 9.1 | 4.2 | | | 10 | | | 0.01 | 0.3 | Thunder-storm. | |
| Cuttack | 29.66 | 753.2 | 29.74 | 755.3 | 84.0 | 28.4 | 75 | WSW | 5.9 | 2.6 | | | 9 | | | 0 | 0 | Threatening | |
| Calcutta, (Alipore) | 29.70 | 754.4 | 29.72 | 755.0 | 84.9 | 29.4 | 77 | S | 12.0 | 5.3 | | | 10 | | | 0 | 0 | Thunder | |
| Goalpara | 29.31 | 744.6 | 29.70 | 754.4 | 79.5 | 26.3 | 88 | NW | 1.0 | 0.4 | | | 10 | | S | 1.20 | 30.5 | Raining | |
| Chittagong | 29.69 | 754.1 | 29.78 | 756.4 | 84.1 | 28.9 | 81 | S | 4.7 | 2.1 | | | 10 | | | 0 | 0 | Gloomy | |
| Sibsagar | 29.39 | 746.5 | 29.72 | 755.0 | 81.1 | 27.3 | 83 | WSW | 3.8 | 1.6 | | | 10 | WSW | WSW | 0.34 | 8.6 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.34 | 719.8 | 29.66 | 753.4 | 94.0 | 34.4 | 51 | S | 4.5 | 2.0 | | | 10 | | | 0.22 | 5.6 | Overcast | |

Note.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | | | | | | | | | | | | | | | | | | | |
| Stelvio | 22.52 | 572.0 | 30.24? | 768.2? | 49.1 | 9.5 | 89 | NW | | | 2 | | 8 | WSW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Udine | 22.46 | 570.4 | 30.11 | 764.7 | 49.6 | 9.8 | | SSE | | | 1 | | 4 | NE | | 0 | 0 | | Signora Ernesta Manfredi. |
| Padua | | | 30.09 | 764.2 | 84.6 | 29.2 | 42 | Calm | 0 | 0 | | | 3 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Vicenza | | | 30.11 | 764.8 | 82.0 | 27.8 | 51 | NW | 1.3 | 0.6 | | | 2 | | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Verona | | | 30.11 | 764.7 | 86.0 | 30.0 | 43 | SE | 2.5 | 1.1 | | | 1 | E | | 0 | 0 | | Conte Alm. Da Schio. |
| Bergamo | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Domodossola | 28.85 | 732.8 | 30.11 | 764.9 | 82.4 | 28.0 | 44 | S | | | 1 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Milan | | | 30.10 | 764.5 | 78.8 | 26.0 | 51 | S | | | 6 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Pavia | | | 29.12 | 765.1 | 90.5 | 32.5 | 42 | SSE | | | 2 | | 1 | S | | 0 | 0 | | Ab. Gio. Capelli. |
| Moncalieri | | | 30.13 | 765.3 | 80.8 | 27.1 | 45 | NE | | | 2 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Mondovi | | | 30.12 | 765.1 | 81.5 | 27.5 | 47 | ENE | 1.8 | 0.8 | | | 3 | S | | 0 | 0 | | Prof. P. F. Denza. |
| Porto Maurizio | 28.28 | 718.4 | 30.11 | 764.9 | 78.4 | 25.8 | 44 | NNE | | | 4 | | 1 | NNW | | 0 | 0 | | Prof. D. C. Bruno. |
| Genoa | | | 30.22? | 767.6? | 73.4 | 23.0 | 71 | SW | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Piacenza | | | 30.16 | 766.1 | 75.2 | 24.0 | 60 | SW | 3.8 | 1.7 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Parma | | | 30.14 | 765.6 | 80.8 | 27.1 | 46 | NE | 3.1 | 1.4 | | | 4 | | | 0 | 0 | | Dott. G. Manzi. |
| Florence | | | 30.11 | 764.9 | 83.3 | 28.5 | 42 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Leghorn | | | 30.15 | 765.7 | 83.3 | 28.5 | 42 | W | | | 2 | | 2 | | | 0 | 0 | | Cav. F. Meucci. |
| Siena | | | 30.15 | 765.0 | 75.6 | 24.2 | 66 | W | 4.9 | 2.2 | | | 2 | | | 0 | 0 | | Prof. P. Monte. |
| Urbino | 28.95 | 735.3 | 30.10 | 764.6 | 84.9 | 29.4 | 33 | WSW | 0 | 0 | | | 1 | W | | 0 | 0 | | Prof. L. Toscani. |
| Pesaro | 28.64 | 727.5 | 30.14 | 765.6 | 76.5 | 24.7 | 63 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Serpieri. |
| Ancona | | | 30.16 | 766.0 | 75.4 | 24.1 | 71 | NW | 19.2 | 8.6 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Grosseto | | | 30.14 | 765.5 | 78.1 | 25.6 | 72 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. F. DeBosis. |
| Rome | | | 30.15 | 765.9 | 82.8 | 28.2 | 42 | SSW | | | 2 | | 3 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Naples, O. U. | | | 30.14 | 765.5 | 84.9 | 29.4 | 43 | WSW | 5.6 | 2.5 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Lecce | | | 30.16 | 766.0 | 84.2 | 29.0 | 47 | SE | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Palmieri. |
| Cosenza | | | 30.11 | 764.8 | 79.7 | 26.5 | 37 | NNW | 12.5 | 5.6 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cagliari | | | 30.10 | 764.4 | 87.1 | 30.6 | 51 | SW | 1.8 | 0.8 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Riposto, (Sicily) | | | 30.11 | 764.9 | 76.1 | 24.5 | 68 | SE | | | 2 | | 2 | SE | | 0 | 0 | | Prof. A. Pacinotti. |
| Palermo | | | 30.08 | 763.9 | 73.8 | 23.2 | 65 | E | | | 4 | | 3 | | | 0 | 0 | | Prof. F. Caflero. |
| Caltanissetta | | | 30.10 | 764.6 | 79.0 | 26.1 | 43 | NE | 6.3 | 2.8 | | | 3 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Syracuse | 28.18 | 715.8 | 30.05 | 763.2 | 79.2 | 26.2 | 22 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Sub-Series. | | | 30.05 | 763.3 | 78.1 | 25.6 | 64 | NE | | | 2 | | 5 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Naples, S. R. | | | 30.17 | 766.3 | 81.1 | 27.3 | 58 | NE | 3.1 | 1.4 | | | 2 | SW | | 0 | 0 | | Prof. F. Brioschi. |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.96 | 761.0 | 67 | 19.4 | 74 | E | 1 | 0.4 | | 2c | | | | 0 | 0 | Fair | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.04 | 585.3 | 30.00 | 761.9 | 58.6 | 14.8 | 83 | Calm | 0 | 0 | | 10n | 10n | | | 0.024 | 0.6 | Light rain | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.28 | 769.0 | 59.7 | 15.4 | | WNW | | | 4 | | | | | 0.028 | 0.7 | | |
| Groningen | | | 30.15 | 765.9 | 63.7 | 17.6 | | W | | | 5 | | | | | 0.150 | 3.8 | | |
| Helder | | | 30.19 | 766.7 | 58.3 | 14.6 | | SW | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 30.21 | 767.4 | 66.2 | 19.0 | 61 | WSW | | | 4 | | 2 | | | 0.028 | 0.7 | Light cloudy. | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.68 | 753.8 | 50.0 | 10.0 | 100 | SSW | 29.5 | 13.2 | | | 8 | | | 0.142 | 3.6 | | |
| Brönö | | | 29.60 | 751.8 | 61.5 | 16.4 | 60 | NW | 7 | 3 | | | 9 | | | 0 | 0 | | |
| Christiania | | | 29.72 | 754.8 | 55.0 | 12.8 | 94 | S | 9 | 4 | | | 10 | | | 1.047 | 26.6 | | |
| Tromsö | | | 29.89 | 759.1 | 53.2 | 11.8 | 67 | NE | 7 | 3 | | | 0 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.23 | 767.8 | 65.5 | 18.6 | 90 | W | 6.9 | 3.1 | | | 8 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.99 | 761.7 | 86.9 | 30.5 | 25 | NNE | 7.4 | 3.33 | | | 2 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.13 | 765.4 | 69.6 | 20.9 | 63 | SW | 8.7 | 3.9 | | | 1 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.06 | 763.4 | 75.9 | 24.4 | 55 | N | 16.1 | 7.2 | | | 1 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.26 | 768.7 | 72.0 | 22.2 | 72 | WSW | 3.8 | 1.7 | | | 4 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.15 | 765.7 | 78.3 | 25.7 | 60 | WSW | 11 | 5 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 30.07 | 763.6 | 85.6 | 29.8 | 29 | S | 13 | 6 | | | 1 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.98 | 761.5 | 87.6 | 30.9 | 34 | S | 7 | 3 | | | 3 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.93 | 760.3 | 84.9 | 29.4 | 41 | WNW | 9 | 4 | | | 4 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.81 | 757.1 | 82.6 | 28.1 | 44 | WSW | 18 | 8 | | | 5 | | | | | | Ch. Forsten. |
| Kieff | | | 30.11 | 764.9 | 81.9 | 27.7 | 38 | SSE | 7 | 3 | | | 3 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.19 | 766.7 | 79.9 | 26.6 | 42 | NNE | 18 | 8 | | | 0 | | | | | | Kurdakof. |
| Kertch | | | 30.12 | 765.0 | 77.9 | 25.5 | 55 | NNE | 7 | 3 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.02 | 762.4 | 82.9 | 28.3 | 43 | NNW | 11 | 5 | | | 0 | | | | | | Meteorological Obs. |
| Lugan | | | 29.99 | 759.4 | 80.4 | 26.9 | 54 | N | 9 | 4 | | | 8 | | | | | | Meteorological Obs. |
| Archangel | | | 29.89 | 759.1 | 59.9 | 15.5 | 72 | WNW | 29 | 13 | | | 8 | | | | | | Ogorodnikof. |
| Tiflis | 28.59 | 726.1 | 29.95 | 760.7 | 74.8 | 23.8 | 36 | SE | 9 | 4 | | | 7 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.82 | 757.3 | 76.5 | 24.7 | 30 | NNW | 9 | 4 | | | 4 | | | | | | Sebastianof. |
| Kasan | | | 29.72 | 754.8 | 77.4 | 25.2 | 39 | NW | 7 | 3 | | | 4 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.74 | 755.4 | 73.2 | 22.9 | 86 | E | 9 | 4 | | | 8 | | | | | | Tschernischef. |
| Ekaterinburg | 28.67 | 728.3 | 29.57 | 751.0 | 73.4 | 23.0 | 32 | NE | 2 | 1 | | | 6 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.76 | 756.0 | 75.2 | 24.0 | 31 | W | 9 | 4 | | | 8 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.26 | 717.7 | 29.85 | 758.3 | 83.3 | 28.5 | 47 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.79 | 756.6 | 73.2 | 22.9 | 42 | SE | 2 | 1 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.61 | 752.0 | 65.7 | 18.7 | 64 | W | 2 | 1 | | | 9 | | | | | Raining | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 53.4 | 11.9 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.75 | 755.7 | 67.8 | 19.9 | 75 | S | 13 | 6 | | | 8 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.59 | 751.6 | 57.9 | 14.4 | 69 | Calm | 0 | 0 | | | 0 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 40.1 | 4.5 | | Calm | 0 | 0 | | | 10 | | | | | Raining | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 30.01 | 762.2 | 84.0 | 28.9 | 34 | SE | 9.7 | 4.34 | | 2 | 0 | NE | | 0 | 0 | Light clouds | The Staff. |
| San Fernando, Naval Obs'y | | | 30.01 | 762.2 | 80.8 | 27.1 | 46 | ESE | 28.2 | 12.6 | | 0 | 0 | | | 0 | 0 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.01 | 762.2 | 84.0 | 28.9 | 77 | E | 0 | 0 | | 4c | 0 | | | 0 | 0 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.93 | 760.3 | 79.9 | 26.6 | 89 | E | 1.1 | 0.50 | | 7k | 1n | | E | 0.22 | 5.7 | Cloudy | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:10 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.89 | 759.2 | 63.0 | 17.2 | 66 | S | | | 2 | | 7 | | | 0.197 | 5.0 | | |
| Umea | | | 29.85 | 758.1 | 62.4 | 16.9 | 62 | E | | | 2 | | 7 | | | 0 | 0 | | |
| Hernosand | | | 29.76 | 755.9 | 49.5 | 9.7 | 87 | ENE | | | 4 | | 10 | | | 0 | 0 | | |
| Stockholm | | | 29.72 | 754.8 | 73.4 | 23.0 | 56 | SSW | | | 4 | | 5 | | | 0 | 0 | | |
| Wisby | | | 29.88 | 758.9 | 64.4 | 18.0 | 67 | WSW | | | 7 | | 6 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.66 | 753.4 | 76.3 | 24.6 | 49 | S | 24.6 | 11.0 | | | 8 | S | SSW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.84 | 732.6 | 30.23 | 767.8 | 67.5 | 19.7 | 56 | NNE | | | 1 | | 6c | | | 0 | 0 | Solar halo | The Observatory. |
| Zurich | 28.65 | 727.7 | 30.23 | 767.9 | 71.2 | 21.8 | 52 | N | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +6.5 mm; Thermometer, 0.0 cent.; Relative Humidity, 0 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.07 | 763.7 | 68.4 | 20.2 | 68 | NE | 16 | 7.0 | | | 8 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.92 | 760.0 | 93.2 | 34.0 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 30.15 | 765.7 | 81.1 | 27.3 | | S | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.17 | 766.3 | 77.4 | 25.2 | | W | | | 1 | | 0 | | | 0 | 0 | Clear. | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.87 | 758.6 | 85.6 | 29.8 | 46 | NW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.07 | 763.8 | 62.9 | 17.2 | 68 | E | 5 | 2.2 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.90 | 759.4 | 60 | 15.6 | | NE | 4 | 1.8 | | | 8s | | NE | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 30.06 | 763.5 | 65 | 18.3 | 78 | NW | 2 | 0.9 | | .8c | 0 | W | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.10 | 764.5 | 63 | 17.2 | 79 | Calm | 0 | 0 | | | 8s | | | Inap | Inap. | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.88 | 758.9 | 64.7 | 18.2 | 73 | E | | | 4 | cs | 6 | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.11 | 764.8 | 59.0 | 15.0 | 100 | E | | | 1 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| Esquimault, B. C. | | | 30.08 | 764.0 | 45.3 | 7.4 | 100 | N | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.10 | 764.5 | 54 | 12.2 | 74 | NE | 18 | 8.0 | | 2ck | 2s | NE | NE | 0 | 0 | Fair | J. McWilliams. |
| Fredericton, N. B. | | | 30.10 | 764.5 | 66.8 | 19.3 | 70 | S | 1 | 0.4 | | c | 2ks | | | Inap. | Inap. | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.49 | 749.0 | 54 | 12.2 | 93 | W | 2 | 0.9 | | Haze | 5n | W | SW | 1.20 | 30.5 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.92 | 760.0 | 66.7 | 19.3 | 72 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Hazy | H. J. Strang, M. A |
| Granton, Ontario | 23.83 | 732.3 | 29.90 | 759.4 | 62 | 16.7 | 72 | E | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 30.07 | 763.8 | 60 | 15.4 | 76 | SE | 5 | 2.2 | | | 10ks | | | Inap. | Inap. | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.92 | 760.0 | 64.7 | 18.2 | 61 | NE | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.04 | 763.0 | 57 | 13.9 | 46 | W | | | 4 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.93 | 760.2 | 60 | 15.6 | 84 | NE | 11 | 4.9 | | 10cs | 0 | | | 0 | 0 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.95 | 760.7 | 64 | 17.8 | 74 | NE | 10 | 4.5 | | 2cs | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.91 | 759.7 | 64 | 17.8 | 65 | E | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley. |
| Peterboro, Ontario | | | 29.90 | 759.4 | 65.7 | 18.7 | 68 | Calm | | | 0 | 3k | 0 | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.90 | 759.4 | 60 | 15.6 | 71 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear. | H. Morgan. |
| Port Hastings, N. S. | | | 30.10 | 764.5 | 60.5 | 15.8 | | Calm | | | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.90 | 759.4 | 59 | 15.0 | 75 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.05 | 763.3 | 63 | 17.2 | 94 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.96 | 761.0 | 60 | 15.6 | 65 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | W. H. McIntyre. |
| St. John, N. B. | | | 30.09 | 764.3 | 59 | 15.0 | 91 | NE | 2 | 0.9 | | 7ck | 0 | | | 0.02 | 0.5 | Fair | G. Murdock, C. E |
| *Saugeen, Ontario | | | 29.91 | 759.7 | 63 | 17.2 | 67 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 29.89 | 759.2 | 61 | 16.1 | 71 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | R. J. Cole. |
| Stratford, Ontario | 28.64 | 727.4 | 29.89 | 759.2 | 59.9 | 15.5 | 65 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.11 | 764.8 | 70 | 21.1 | 64 | SW | 4 | 1.8 | | 8c | 0 | | | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.90 | 759.4 | 64 | 17.8 | 61 | NE | 8 | 3.6 | | 0 | Haze | | NW | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 30.00 | 762.0 | 63.8 | 17.7 | 81 | E | 8 | 3.6 | | 3c | 2n | NW | | 0.02 | 0.5 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.88 | 758.9 | 61.6 | 16.4 | 71 | W | 2 | 0.9 | | 0 | 2s | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.19 | 766.8 | 70.0 | 21.1 | 32 | W | | | | 0 | 2s | | | 0.06 | 1.5 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.82 | 757.4 | 61 | 16.1 | 94 | Calm | 0 | 0 | | | 10ks | | S | 0.77 | 19.6 | Cloudy | |
| Alpena, Mich. | | | 29.89 | 759.2 | 60 | 15.6 | 59 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.72 | 754.9 | 66 | 18.9 | 89 | W | 3 | 1.3 | | 2ck | 8s | W | W | Inap. | Inap. | Cloudy | |
| Augusta, Ga. | | | 29.95 | 760.7 | 71 | 21.7 | 66 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.76 | 755.9 | 69 | 20.6 | 79 | NW | 8 | 3.6 | | 5k | 5s | NW | NW | 0.08 | 2.0 | Cloudy | |
| Barnegat, N. J. | | | 29.74 | 755.4 | 61 | 16.1 | 94 | SE | 4 | 1.8 | | | Fog | | | 0.19 | 4.8 | Foggy | |
| Bismarck, Dakota | 27.86 | 707.6 | 29.43 | 747.5 | 56 | 13.3 | 62 | Calm | 0 | 0 | | Haze | 1s | | | 0.20 | 5.1 | Clear | |
| Boston, Mass. | | | 29.92 | 760.0 | 56 | 13.3 | 97 | NE | 8 | 3.6 | | | 10n,fg | | | 1.89 | 48.0 | Light rain | |
| Breckenridge, Minn. | | | 29.50 | 749.3 | 54 | 12.2 | 93 | NW | 7 | 3.1 | | 10k | 0 | | | 0.65 | 16.5 | Cloudy | |
| Buffalo, N. Y. | | | 29.84 | 757.9 | 59 | 15.0 | 70 | NE | 4 | 1.8 | | 2ck | Haze | | | 0.01 | 0.3 | Fair | |
| Burlington, Vt. | | | 29.91 | 759.7 | 60 | 15.6 | 94 | N | 1 | 0.4 | | | 10n | | | 0.11 | 2.8 | Light rain | |
| Cairo, Ill. | | | 29.79 | 756.7 | 70 | 21.1 | 84 | SW | 15 | 6.7 | | | 10n | | | 0.21 | 5.3 | Light rain | |
| Campo, Cal. | 27.18 | 690.4 | 29.75 | 755.6 | 45 | 7.2 | 85 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 68 | 20.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.78 | 756.4 | 71 | 21.7 | 67 | SW | 10 | 4.5 | | 0 | 2s | | SW | 0.06 | 1.5 | Fair | |
| Cape Henry, Va. | | | 29.75 | 755.6 | 69 | 20.6 | 75 | SW | 10 | 4.5 | | 5c | 0 | SE | | 0.55 | 14.0 | Fair | |
| Cape Lookout, N. C. | | | 29.88 | 758.9 | 72 | 22.2 | 63 | Calm | 0 | 0 | | 4c | 0 | NW | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.72 | 754.9 | 67 | 19.4 | 90 | Calm | 0 | 0 | | | 10s | | | 0.59 | 15.0 | Cloudy | |
| Charleston, S. C. | | | 29.97 | 761.2 | 75 | 23.9 | 56 | NW | 3 | 1.3 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 23.81 | 604.8 | 29.75 | 755.6 | 45 | 7.2 | 85 | NW | 4 | 1.8 | | | 10n | | | 0.38 | 9.7 | Light rain | |
| Chicago, Ill. | | | 28.68 | 753.9 | 62 | 16.7 | 83 | S | 13 | 5.8 | | | 10n | | | 0.09 | 2.3 | Light rain | |
| Cincinnati, Ohio | | | 29.84 | 757.9 | 63 | 17.2 | 78 | SE | 4 | 1.8 | | 5cs | Fog | W | SE | 0 | 0 | Fair | |
| Cleveland, Ohio | | | 29.90 | 759.4 | 59.5 | 15.3 | 79 | W | 3 | 1.3 | | 1c | 0 | | | 0.02 | 0.5 | Clear | |
| Corsicana, Tex. | | | 29.69 | 754.1 | 78 | 25.6 | 82 | S | 8 | 3.6 | | 2ck | 8s | | | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.55 | 750.6 | 66 | 18.9 | 84 | S | 24 | 10.7 | | 5ck | 0 | SW | | 0.93 | 23.6 | Fair | |
| Denison, Tex. | | | 29.69 | 754.1 | 75 | 23.9 | 81 | SE | 8 | 3.6 | | | 10s | | S | 0 | 0 | Threatening | |
| Denver, Col. | 24.53 | 623.0 | 29.75 | 755.6 | 49 | 9.4 | 85 | N | 4 | 1.8 | | | 8s | | | 0.50 | 12.7 | Cloudy | |
| Detroit, Mich. | | | 29.86 | 758.4 | 62 | 16.7 | 66 | Calm | 0 | 0 | | Haz | Sm'e | | | 0 | 0 | Smoky | |
| Dodge City, Kan. | 27.17 | 690.1 | 29.39 | 746.5 | 54 | 12.2 | 86 | N | 8 | 3.6 | | | 10s | | N | 0.24 | 6.1 | Cloudy | |
| Dubuque, Iowa | | | 29.45 | 748.0 | 65 | 18.3 | 83 | S | 16 | 7.2 | | | 10s | | | 0.67 | 17.0 | Cloudy | |
| Duluth, Minn. | | | 29.48 | 748.8 | 57 | 13.9 | 80 | NE | 8 | 3.6 | | | 10s | | | 0.04 | 1.0 | Cloudy | |
| Eagle Pass, Texas | | | 29.65 | 753.1 | 79 | 26.1 | 69 | S | 2 | 0.9 | | 5k | 5ks | S | S | 0 | 0 | Threatening | |
| Eastport, Me. | | | 30.03 | 762.7 | 52 | 11.1 | 86 | NE | 7 | 3.1 | | | 10s | | | 0.69 | 17.5 | Cloudy | |
| Erie, Pa. | | | 29.86 | 758.4 | 57 | 13.9 | 81 | NE | 3 | 1.3 | | 0 | Haze | | | 0.04 | 1.0 | Clear | |
| Escanaba, Mich. | 28.01 | 711.4 | 29.74 | 755.4 | 60 | 15.6 | 71 | SE | 12 | 5.4 | | 8cs | Fog | SE | | 0 | 0 | Foggy | |
| Florence, Arizona | | | 29.61 | 752.1 | 78 | 25.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.65 | 753.1 | 67 | 19.4 | 90 | SE | 15 | 6.7 | | | 10ks | | SW | 0.44 | 11.2 | Threatening | |
| Fort Griffin, Tex. | 28.35 | 720.1 | 29.52 | 749.8 | 79 | 26.1 | 73 | S | 11 | 4.9 | | 8c | 0 | W | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.76 | 755.9 | 38 | 3.3 | 100 | SW | | | 5 | | 10s | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.41 | 721.6 | 29.44 | 747.8 | 74 | 23.3 | 76 | SE | 12 | 5.4 | | 5k | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 27.97 | 710.4 | 29.59 | 751.6 | 49 | 9.4 | 77 | NW | 6 | 2.7 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Galveston, Tex. | | | 29.82 | 757.4 | 81 | 27.2 | 82 | S | 14 | 6.3 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.73 | 755.1 | 65 | 18.3 | 68 | SE | 11 | 4.9 | | 1c | 4s | W | W | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.77 | 756.1 | 65 | 18.3 | 68 | SE | 13 | 5.8 | | Haze | 8s | | | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 29.78 | 756.4 | 81 | 27.2 | 82 | S | 19 | 8.5 | | | 10ks | | S | 0.62 | 0.5 | Cloudy | |
| Jacksonville, Fla. | | | 29.97 | 761.2 | 81 | 27.2 | 74 | SW | 9 | 4.0 | | 5k | 0 | W | | Inap. | Inap. | Fair | |
| Keokuk, Iowa | | | 29.52 | 749.8 | 75 | 23.9 | 64 | SW | 10 | 4.5 | | 0 | 0 | | | 1.01 | 25.7 | Clear | |
| Key West, Fla. | | | 30.00 | 762.0 | 81.5 | 27.5 | 78 | SE | 7 | 3.1 | | 2c,hz | 2ks | | SE | 0 | 0 | Cloudy | |
| Kittyhawk, N. C. | | | 29.81 | 757.2 | 67 | 19.4 | 81 | W | 16 | 7.2 | | 1c | 0 | W | | 0.65 | 16.5 | Clear | |
| Knoxville, Tenn. | | | 29.93 | 760.2 | 66 | 18.9 | 78 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| La Crosse, Wis. | | | 29.35 | 745.5 | 64 | 17.8 | 100 | SE | 12 | 5.4 | | | 10n | | SE | 0.32 | 8.1 | Heavy rain | |
| Leavenworth, Kan. | | | 29.55 | 750.6 | 64 | 17.8 | 78 | NW | 6 | 2.7 | | 0 | 0 | | | 0.36 | 9.1 | Clear | |
| Louisville, Ky. | | | 29.84 | 757.9 | 65 | 18.3 | 83 | E | 3 | 1.3 | | | 10n | | SW | Inap. | Inap. | Light rain | |
| Lynchburg, Va. | | | 29.79 | 756.7 | 72 | 22.2 | 45 | NW | 12 | 5.4 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Maricopa Wells, Arizona | | | | | 83 | 28.3 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.72 | 754.9 | 60 | 15.6 | 59 | SE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mason, Texas | 28.10 | 713.7 | 29.73 | 755.1 | 80 | 26.7 | 70 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 29.90 | 759.4 | 67 | 19.4 | 90 | NW | 8 | 3.6 | | | 10n | | SW | 0.10 | 2.5 | Heavy rain | |
| Milwaukee, Wis. | | | 29.65 | 753.1 | 55 | 12.8 | 80 | SE | 16 | 7.2 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Mobile, Ala. | | | 29.95 | 760.7 | 83 | 28.3 | 75 | S | 5 | 2.2 | | 5c | 2s | W | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 29.95 | 760.7 | 77 | 25.0 | 79 | SW | 8 | 3.6 | | 8c | 2ks | NW | SW | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 28.84 | 732.5 | 29.86 | 758.4 | 60 | 15.6 | 88 | Calm | 0 | 0 | | | 10s | | | 1.38 | 35.1 | Cloudy | |
| Mt. Washington, N. H. | 23.86 | 606.0 | 30.22 | 767.6 | 47 | 8.3 | 100 | SE | 30 | 13.4 | | | Fog | | | 0.48 | 12.2 | Foggy | |
| Nashville, Tenn. | | | 29.85 | 758.2 | 70 | 21.1 | 66 | E | 3 | 1.3 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 29.79 | 756.7 | 64 | 17.8 | 96 | NE | 15 | 6.7 | | | 10s | | NE | 0.61 | 15.5 | Threatening | |
| New London, Conn. | | | 29.82 | 757.4 | 65 | 18.3 | 100 | E | 9 | 4.0 | | | 10n | | E | 2.84 | 72.1 | Light rain | |
| New Orleans, La. | | | 29.91 | 759.7 | 79 | 26.1 | 84 | S | 6 | 2.7 | | 5cs | 2ks | NW | S | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.85 | 758.2 | 65 | 18.3 | 100 | E | 6 | 2.7 | | | Fog | | | 0.85 | 21.6 | Dense fog | |
| New York, N. Y. | | | 29.77 | 756.1 | 62 | 16.7 | 94 | NE | 17 | 7.6 | | | Fog | | | 0.18 | 4.6 | Foggy | |
| Norfolk, Va. | | | 29.80 | 756.9 | 69 | 20.6 | 70 | SW | 3 | 1.3 | | 8k | 0 | | | 0.18 | 4.6 | Fair | |
| North Platte, Neb. | 26.89 | 683.0 | 29.40 | 746.7 | 51 | 10.6 | 89 | Calm | 0 | 0 | | | 10s | | | 1.12 | 28.4 | Cloudy | |
| Omaha, Neb. | 28.54 | 724.9 | 29.56 | 750.8 | 62 | 16.7 | 77 | SW | 4 | 1.8 | | 2cs | 0 | W | | 0.90 | 22.9 | Clear | |
| Oswego, N. Y. | | | 29.85 | 758.2 | 60 | 15.6 | 80 | NE | 5 | 2.2 | | 5k | 2s | E | | 0.66 | 16.8 | Cloudy | |
| Pembina, Dakota | | | 29.50 | 749.3 | 52.5 | 11.4 | 90 | Calm | 0 | 0 | | 5c | 2s | | | 1.77 | 45.0 | Fair | |
| Philadelphia, Pa. | | | 29.75 | 755.6 | 64 | 17.8 | 94 | E | 6 | 2.7 | | | 10n | | E | 1.30 | 33.0 | Light rain | |
| Phoenix, Arizona | | | | | 70 | 21.1 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.56 | 446.0 | 29.78 | 756.4 | 18 | — 7.8 | 100 | SW | 25 | 12.5 | | 10s | 0 | SW | | 0.22 | 5.6 | Cloudy | |
| Pittsburgh, Pa. | | | 29.82 | 757.4 | 61 | 16.1 | 82 | NW | 4 | 1.8 | | 5k | 5s | N | N | 0.23 | 5.8 | Cloudy | |
| Port Huron, Mich. | | | 29.87 | 758.7 | 58 | 14.4 | 69 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 29.97 | 761.2 | 58 | 14.4 | 93 | NE | 9 | 4.0 | | | 10n,fg | | | 1.27 | 32.3 | Light rain | |
| Portland, Oregon | | | 30.14 | 765.5 | 50 | 10.0 | 86 | N | 1 | 0.4 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Prescott, Arizona | 24.57 | 624.1 | 29.93 | 760.2 | 58 | 14.4 | 43 | SE | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.01 | 762.2 | 81 | 27.2 | 74 | E | 4 | 1.8 | | 0 | 5ks | | | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 29.84 | 757.9 | 56 | 13.3 | 87 | N | 5 | 2.2 | | | 10s | | E | 0.23 | 5.8 | Cloudy | |
| Salt Lake City, Utah | 25.40 | 645.2 | 29.73 | 755.1 | 47 | 8.3 | 85 | SW | 4 | 1.8 | | | 10s | | | 0.40 | 10.2 | Cloudy | |
| Sandy Hook, N. J. | | | 29.76 | 755.9 | 62 | 16.7 | 100 | E | 10 | 4.5 | | | Fog | | | 0.28 | 7.1 | Light rain | |
| San Antonio, Tex. | | | 29.58 | 751.3 | 81 | 27.2 | 78 | S | 5 | 2.2 | | | 10ks | | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.75 | 755.6 | 60 | 15.6 | 81 | E | 4 | 1.8 | | | 10s | | E | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.82 | 757.4 | 55 | 12.8 | 80 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.05 | 585.5 | 29.59 | 751.6 | 47.5 | 8.6 | 54 | NE | 12 | 5.4 | | 2cs | 0 | SW | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 29.97 | 761.2 | 80 | 26.7 | 51 | W | 4 | 1.8 | | 2c | Sm'e | W | | 0 | 0 | Fair | |
| Shreveport, La. | | | 29.87 | 758.7 | 78 | 25.6 | 86 | S | 4 | 1.8 | | | 10s | | S | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 29.94 | 760.5 | 72 | 22.2 | 53 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.87 | 758.7 | 62 | 16.7 | 85 | NE | 7 | 3.1 | | | 10ks | | NE | 0.76 | 19.3 | Cloudy | |
| St. Louis, Mo. | | | 29.68 | 753.9 | 69 | 20.6 | 75 | S | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| St. Marks, Fla. | | | 29.98 | 761.5 | 77 | 25.0 | 90 | W | 4 | 1.8 | | 2cs | 5s | | W | Inap. | Inap. | Fair | |
| St. Paul, Minn. | | | 29.39 | 746.5 | 64 | 17.8 | 83 | SE | 5 | 2.2 | | | 10n | | | 0.07 | 1.8 | Light rain | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—Continued.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 71 | 21.7 | | N | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Stockton, Tex | 26.67 | 677.4 | 29.67 | 753.6 | 75 | 23.9 | 44 | SW | 16 | 7.2 | | 2cs | 8s | SW | SW | Inap. | Inap. | Cloudy | |
| Thatcher's Island, Mass | | | 29.94 | 760.5 | 54 | 12.2 | 100 | NE | 12 | 5.4 | | | | | | 0.76 | 19.3 | Rain & fog | |
| Toledo, Ohio | | | 29.86 | 758.4 | 65 | 18.3 | 73 | Calm | 0 | 0 | | 2cs | Sm'c | W | | 0 | 0 | Smoky | |
| Tucson, Arizona | 27.27 | 692.6 | 29.81 | 757.2 | 70 | 21.1 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.93 | 760.2 | 75 | 23.9 | 69 | NW | 4 | 1.8 | | 2c | Haze | | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 29.89 | 759.2 | 75 | 23.9 | 90 | S | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Virginia City, M. T | 24.11 | 612.4 | 29.59 | 751.6 | 39 | 3.9 | 63 | SE | 8 | 3.6 | | 8c | 10s | N | N | 0 | 0 | Cloudy | |
| Washington, D. C | | | 29.77 | 756.1 | 64 | 17.8 | 91 | NW | 11 | 4.9 | | | 10ks | | N | 0.93 | 23.6 | Threatening | |
| Wickenburg, Arizona | | | | | 79 | 26.1 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.91 | 759.7 | 72 | 22.2 | 54 | SW | 6 | 2.7 | | 2c | 0 | W | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 29.93 | 759.4 | 61 | 16.1 | 94 | E | 7 | 3.1 | | | Fog | | E | 0.23 | 5.6 | Foggy | |
| Yankton, Dakota | 28.35 | 720.1 | 29.58 | 751.3 | 57 | 13.9 | 69 | NW | 12 | 5.4 | | 2c | 0 | W | | 1.95 | 49.5 | Fair | |
| Yuma, Arizona | | | | | | | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.12 | 765.0 | 79 | 26.1 | 78 | N | 3 | 1.3 | | 8c | 2s | | | 0 | 0 | | James Gall. |
| Nayassa, W. I | | | | | 81 | 27.2 | | E | | | 3 | | | | | 0.68 | 2.0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.02 | 762.5 | 82 | 27.8 | 79 | E | | | 2 | 5k | 6ks | E | | 0.306 | 7.77 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.19 | 639.8 | | | 69.0 | 20.6 | 76 | SW | | | 1 | 1cs | 2ks | | | 0.03 | 0.8 | Fair | Thomas Herran. |
| York Factory, B. A | | | 29.76 | 755.9 | 31.7 | — 0.2 | 100 | NE | 26 | 11.6 | | | 10m | | | 0.41 | 10.4 | Rain & snow | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.14 | 765.5 | 76 | 24.4 | | NE | | | 2 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft. or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.85 | 758.2 | 75 | 23.9 | 68 | 20.0 | 90 | NNW | | | 1 | | 7 | | NNW | 0.02 | 0.5 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.90 | 759.4 | 68 | 20.0 | 60 | 15.6 | | SW | | | 2 | | 0 | | | 0 | 0 | | | Fine | |
| Navy Yard, Pensacola, Fla. | 30.10 | 764.5 | | | 78 | 25.6 | 91 | SW | 11 | 4.5 | | | 8 | | NE | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.00 | 762.0 | 68 | 20.0 | 56 | 13.3 | 94 | NNE | 9 | 4.0 | | | 10 | | | 0.1 | 3. | | | Raining | |
| Naval Hospital, Yokohama, Japan | 29.84 | 757.9 | 69 | 20.6 | 67 | 19.4 | 79 | E | | | 1 | | 8s, sm'e | | W | 0 | 0 | | | Cloudy | |
| Alert, N. 12° 13′ 22″ E. 142° 42′ 00″ | 29.94† | 760.5† | 84 | 28.9 | 84 | 28.9 | 96 | NE | | | 4 | | 2 | | E | | | Long | NE | D. clouds | |
| Alliance, Beirut, Syria | 30.01 | 762.2 | 81 | 27.2 | 81 | 27.2 | 70 | NNW | | | 0–1 | | 4 | | | | | Calm | None | Clear | |
| Ashuelot, Swatow, China | 29.96 | 761.0 | 80 | 26.7 | 80 | 26.7 | 91 | SSE | | | 2 | | 10 | | | | | Smooth | | Drizzling | |
| Canonicus, New Orleans, La | 29.96 | 761.0 | 56 | 13.3 | 79 | 26.1 | 86 | S | | | 2 | | 8 | | | | | | | Fair | |
| Colorado, New York, N. Y | 29.82 | 757.4 | 59 | 15.0 | 63 | 17.2 | 94 | NNE | 3 | 1.3 | | | 10 | | | 0.1 | 3. | | | Foggy | |
| Despatch, Smyrna, Turkey | 30.08 | 764.0 | 76 | 24.4 | 78 | 25.6 | 82 | N | | | 2 | | 6 | | N | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 29.88 | 758.9 | 64 | 17.8 | 66 | 18.9 | 100 | NW | 2 | 0.9 | | | 5 | | NW | 0.2 | 5. | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 29.99 | 761.7 | 69 | 20.6 | 70 | 21.1 | 95 | NNW | | | 3 | | 3ck | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Off Camogli, Italy | 30.00 | 762.0 | | | 76 | 24.4 | 95 | S | | | 0–1 | | 1 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.05 | 763.3 | 76 | 24.4 | 69 | 20.6 | 80 | W | 1.2 | 0.5 | | | 5 | | | 0 | 0 | | | Pleasant | |
| Huron, Savanilla, N. G | 30.03 | 762.7 | 81 | 27.2 | 79 | 26.1 | 100 | Calm | | | 0 | | 10 | | | 0.312 | 7.92 | | | Overcast | |
| Kearsarge, Nagasaki, Japan | 30.02 | 762.5 | 72 | 22.2 | 70 | 21.1 | 85 | NE | | | 1 | | 0 | | | 0 | 0 | | | Clear | |
| Lackawana, N 21° 46′ W. 117° 54′ | 29.91 | 759.7 | | | 67 | 19.4 | 64 | NW | | | 2–3 | | 9 | | N&W | | | Long | NNW | D. clouds | |
| Marion, Smyrna, Turkey | 29.93 | 760.2 | 76 | 24.4 | 78 | 25.6 | 82 | WSW | | | 2 | | 8 | | WSW | Light | Light | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.38 | 746.2 | 60 | 15.6 | 60 | 15.6 | 71 | NNE | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Tientsin, China | 29.68 | 753.9 | 75 | 23.9 | 69 | 20.6 | 85 | NW | | | 1 | | 9 | | | 0 | 0 | | | D. clouds | |
| Monongahela, Block Island Sound | 29.84 | 757.9 | 59 | 15.0 | 59 | 15.0 | 94 | E | | | 3 | | 10n | | | | | | | Rain and fog | |
| New Hampshire, Port Royal, S. C | 30.22 | 767.6 | | | 78 | 25.6 | 86 | NE | 7 | 3.1 | | | 2 | | W | 0 | 0 | | | D. clouds | |
| Omaha, Chimbote, Peru | 30.00 | 762.0 | 71 | 21.7 | 70 | 21.1 | 90 | Calm | 0 | 0 | | | 9 | | SE | 0 | 0 | Smooth | | Pleasant | |
| Ossipee, Norfolk, Va | 29.82 | 757.4 | 66 | 18.9 | 65 | 18.3 | 94 | W | | | 1 | | 8 | | W | | | | | D. clouds | |
| Palos, Shanghai, China | 29.77 | 756.1 | 77 | 25.0 | 77 | 25.0 | 91 | SE | | | 2 | | 10 | | S | 0 | 0 | | | Overcast | |
| Pensacola, N. 21° 28′ W. 113° 41′ | 29.89 | 759.2 | | | 68 | 20.0 | 74 | NNW | | | 5 | | 9 | | S&E | 0 | 0 | Moderate. | NW | Pleasant | |
| Plymouth, Off Vera Cruz, Mexico | 29.84 | 757.9 | 84 | 28.9 | 81 | 27.2 | 83 | SSE | | | 3 | | 4 | | S&E | 0 | 0 | Light | S&E | Hazy | |
| Ranger, Off Valetta, Malta | 30.28 | 769.1 | | | 77 | 25.0 | 82 | Calm | | | 0 | | 4 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.00 | 762.0 | 71.0 | 21.7 | 70.0 | 21.1 | 90 | NW | | | 2 | | 4 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.66 | 753.4 | | | 76 | 24.4 | 91 | SE | | | 4 | | 10 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.83 | 757.7 | 71 | 21.7 | 68 | 20.0 | 90 | NNW | | | 2 | | 8 | | | 0.2 | 5. | | | Cloudy | |
| Saratoga, Hampton Roads, Va | 30.11 | 764.8 | | | 69 | 20.6 | | W | | | 2 | | 7 | | W | Blank | Blank | Light | S&E | Fair | |
| St. Louis, League Island, Pa | 29.73 | 755.1 | 67 | 19.4 | 67 | 19.4 | 95 | ENE | 3 | 1.3 | | | 10 | | E | 1.58 | 40.1 | | | Overcast | |
| Swatara, Aspinwall, Panama | 29.96 | 761.0 | 82 | 27.8 | 81 | 27.2 | 87 | Calm | | | 0 | | 5k | | N | Heavy | Heavy | | | Fair | |
| Tennessee, Yokohama, Japan | 29.86 | 758.4 | 75 | 23.9 | 73 | 22.8 | 76 | ESE | | | 1 | | 7 | | N&W | | | Smooth | | Hazy | |
| Trenton, Smyrna, Turkey | 29.88† | 758.9† | 77 | 25.0 | 80 | 26.7 | 91 | WNW | 4 | 1.8 | | | 6 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.13 | 765.3 | 69 | 20.6 | 69 | 20.6 | 65 | NE | | | 4 | | 4 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.93 | 760.2 | 58 | 14.4 | 57 | 13.9 | 100 | NE | 9 | 4.0 | | | 10 | | | 1.89 | 48.0 | | | Drizzling | |
| Wyoming, Washington, D.C | 30.02† | 762.5† | 68 | 20.0 | 67 | 19.4 | | WNW | | | 1 | | 10 | | | | | | | Drizzling | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 41° 34′, W. 133° 52′ | | | 30.18 | 766.6 | 59 | 15.0 | 94 | S | | | 3 | | 10ks | | | Small | S | D. clouds | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

**WHITE STAR LINE MARINE SERIES.**

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

**OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.**

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

**NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.**

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 41° 17′, W. 53° 14′ | E by N | 11 | 30.29 | 769.4 | 64.6 | 18.1 | | W | | | 1 | | 8 | | | Smooth | | Overcast | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | Up'er 0—10. | Lo'wr 0—10. | Upper. From— | Lower. From— | Character. | Direction From— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale of 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, N. 36° 44′ W. 73° 35′ | N | 3 | 29.73 | 755.1 | 68 | 20.0 | 84 | W | 0 | 2.7 | | 2ck | 0 | W | | Swell | S | Clear. | Capt. James Jorgeasen. |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 8, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.8 | 73.0 | 22.8 | 76 | NNW | | | 1 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.15 | 765.9 | 69.8 | 21.0 | 92 | NE | | | 1 | | 10 | | | 0 | 0 | Hidden | Peter. |
| La Calle | | | 30.10 | 764.6 | 79.0 | 26.1 | 76 | N | | | 1 | | 8 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.11 | 764.7 | 82.4 | 28.0 | | E | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.20 | 767.1 | 78.8 | 26.0 | | S | | | 1 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.16 | 766.1 | 86.7 | 30.4 | | S | | | 1 | | 2 | | | Inap. | Inap. | Clear | Millot. |
| Tebessa | | | 30.16 | 766.0 | 82.2 | 27.9 | | NNE | | | 2 | | 2 | | | Inap. | Inap. | Clear | Bourgeois. |
| Geriville | | | 30.19 | 766.9 | 83.8 | 28.8 | 24 | SE | | | 1 | | 4 | | | 0.197 | 5.0 | Fair | Lemaillot. |
| Laghouat | | | 30.23 | 767.9 | 91.4 | 33.0 | 25 | E | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.18 | 766.6 | 93.9 | 34.4 | | SE | | | 1 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 690? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.12 | 765.1 | 85.6 | 29.8 | 44 | NE | | | 4 | | 5 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.23 | 767.7 | 75.9 | 24.4 | 53 | NE | | | 2 | | 0 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.14 | 765.5 | 78.8 | 26.0 | 50 | N | | | 3 | | 1cs | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.93 | 734.9 | 30.13 | 765.2 | 79.0 | 26.1 | 56 | SSW | | | 2 | | 2 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.74 | 730.0 | 30.09 | 764.3 | 81.1 | 27.3 | 44 | NNE | | | 1 | | 3 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.78 | 731.1 | 30.07 | 763.6 | 77.0 | 25.0 | 61 | ENE | | | 3 | | 0 | | | 0 | 0 | | Prof. C. Wagner. |
| Lemberg | | | 30.12 | 765.0 | 75.2 | 24.0 | 67 | N | | | 2 | | 6 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.13 | 765.4 | 80.0 | 27.0 | 57 | WNW | | | 2 | | 0 | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.12 | 765.1 | 82.4 | 28.0 | 30 | Calm | | | 0 | | 0 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.15 | 765.8 | 83.7 | 28.7 | 38 | W | | | 1 | | 1 | | | 0 | 0 | Almost clear | P. Busin. |
| Vienna | | | 30.12 | 765.1 | 82.0 | 27.8 | 52 | ESE | | | 2 | | 1 | | | 0 | 0 | | I. R. Central Met. Ob'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.69 | 728.7 | 30.15 | 765.8 | 70.7 | 21.5 | 58 | SSE | | | 1 | | 6 | | | 0 | 0 | | Royal Observatory. |
| Brussels | | | 30.12 | 765.1 | 71.6 | 22.0 | 56 | SSE | | | 1 | 7c | 5k | SW | SW | 0 | 0 | | |
| Furnes | | | 30.11 | 764.9 | 72.7 | 22.6 | 46 | E | | | 2 | | 7 | | | 0 | 0 | | |
| Maeseyck | | | 30.16 | 766.1 | 76.3 | 24.6 | 41 | SSW | | | 2 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.90 | 759.4 | 58.3 | 14.6 | | SW | 21 | 9.4 | | | 4 | | | 0.030 | 0.76 | Blue sky | William Boswell. |
| Ardrossan | | | 29.90 | 759.4 | 53 | 11.7 | | S | | | 3 | | 9 | | | | | Raining | William McNoil. |
| Armagh, Observatory | | | 29.62 | 752.3 | 53.4 | 11.9 | | S | 19 | 8.5 | | | 10 | | | | | Raining | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.01 | 762.2 | 53.8 | 12.1 | | SSE | 15 | 6.7 | | | 10 | | | | | Raining | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.81 | 757.2 | 54.8 | 12.7 | | SSW | | | 3 | | 10 | | | | | Showery | J. Dreyer. |
| Bradford, Yorkshire | | | 29.93 | 761.7 | 57.0 | 13.9 | | SW | | | 0 | | 10 | | | | | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.97 | 761.2 | 80.0 | 26.7 | | NE | | | 3 | | 8 | | | | | Overcast | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.05 | 763.3 | 71.0 | 21.7 | | SW | | | 1 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.08 | 764.0 | 71.0 | 21.7 | | | | | 1 | | 7 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.13 | 765.3 | 72.2 | 22.3 | | Calm | | | 0 | | 8 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.58 | 725.9 | 30.04 | 763.0 | 59.0 | 15.0 | | E | | | 2 | | 3 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.86 | 758.4 | 52 | 11.1 | | SW | | | 6 | | 10 | | | | | Raining | J. Mac Gowan. |
| Dover | | | 30.11 | 764.8 | 60 | 15.6 | | E | | | 1 | | 2 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.01 | 762.2 | 58.0 | 14.4 | | SSW | 10.4 | 4.6 | | | 10 | | | | | Showery | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.03 | 762.7 | 58.0 | 14.4 | | SSE | | | 2 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.87 | 707.9 | 30.11 | 764.8 | 69.3 | 20.7 | | S | | | 3 | | 1 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.94 | 760.5 | 88 | 31.1 | | NE | | | 0 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.68 | 753.9 | 56 | 13.3 | | S | | | 1 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis |
| Gibraltar, (Mediterranean) | | | 30.08 | 764.0 | 71.4 | 21.9 | | NE | | | 4 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.89 | 759.2 | 55.0 | 12.8 | | SW | | | 2 | | 10 | | | | | Threatening | William Wallace. |
| Great Yarmouth | | | 30.12 | 765.0 | 58 | 14.4 | | SSE | | | 3 | | 3 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.08 | 764.0 | 70.0 | 21.1 | | S | | | 2 | | 4 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.03 | 762.7 | 67.5 | 19.7 | | SSW | | | 1 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.06 | 763.5 | 63 | 17.2 | | SE | | | 4 | | 3ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.93 | 760.2 | 57 | 13.9 | | SSW | | | 3 | | 10 | | | | | Hazy | John Tilston. |
| Kew, Observatory | | | 30.07 | 763.8 | 70.8 | 21.6 | | S | 15 | 6.7 | | | 5 | | | | | Hazy | The Staff. |
| Kingstown | | | 29.88 | 758.9 | 55 | 12.8 | | S | | | 5 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.04 | 763.0 | 62.6 | 17.0 | | SW | | | 2 | | 6 | | | | | D. clouds | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.10 | 764.5 | 81.8 | 27.7 | | NE | | | 1 | | 1k | | | | | Fine | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.83 | 757.7 | 58 | 14.4 | | SW | | | 2 | | 5 | | | | | ½ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.10 | 764.5 | 88.0 | 31.1 | | NE | | | 1 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.04 | 763.0 | 63.7 | 20.9 | | S | | | 4 | | 8ck,k | | SW,SE | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.02 | 762.5 | 63.1 | 17.3 | | S | | | 3 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.04 | 763.0 | 68 | 20.0 | | SSE | | | 1 | | 10 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.04 | 763.0 | 61.6 | 16.4 | | S | | | 2 | | 8 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.86 | 758.4 | 54 | 12.2 | | SSW | | | 5 | | 10 | | | | | Raining | W. Kennedy. |
| Saint Ann's Head | | | 29.98 | 761.5 | 57 | 13.9 | | SSE | | | 3 | | 10 | | | | | Overcast | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.05 | 763.3 | 74.0 | 23.3 | | E | | | 1 | | 2 | | | | | ¼ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.81 | 757.2 | 53.1 | 11.7 | | SW | 22 | 9.8 | | | 5 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.99 | 761.7 | 78.0 | 25.6 | | NE | | | 2 | | 4 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.01 | 762.2 | 67.0 | 19.4 | | SW | | | 2 | | 6 | | | Inap. | Inap. | D. clouds | W. F. Cooper. |
| Siloth, Rectory | | | 29.96 | 761.0 | 62.3 | 16.8 | 58 | SW | | | 3 | | 5 | | | 0.170 | 4.32 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.00 | 762.0 | 56.3 | 13.5 | | S | | | 3 | | 9 | | | | | Threatening | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.75 | 755.6 | 55 | 12.8 | | SW | | | 6 | | 10 | | | | | Overcast | John Smith. |
| Stratfield Turgis | | | 30.08 | 764.0 | 68.0 | 20.0 | | SE | | | 1 | | 4 | | | | | D. c'ouds | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 29.78 | 756.4 | 61 | 16.1 | | WSW | | | 4 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.01 | 763.0 | 64 | 17.8 | | SW | | | 5 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.76 | 755.9 | 55.8 | 13.2 | | ⅗ | 40 | 17.9 | | | 10 | | | | | Drizzling | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | S | | | 6 | 10 | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.32 | 770.1 | 68.1 | 20.1 | 66 | SSE | 1 | 0.4 | | 0 | 0 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.91 | 759.7 | 58.0 | 14.4 | 88 | | | | 2 | | 9kn | | | 0.03 | 0.8 | Cloudy | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 29.93 | 760.2 | 59.0 | 15.0 | | SW | | | 3 | | 10k | | | 0.11 | 2.8 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.14 | 765.5 | 74.7 | 23.7 | 65 | E | 14.5 | 6.5 | | 1 | 4 | | E | 0.02 | 0.5 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.17 | 766.3 | 53.0 | 11.7 | 80 | WNW | 9 | 4.0 | | | 4 | | | 0.16 | 4.1 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.60 | 751.8 | 51 | 10.6 | | SW | | | 4 | | 10 | | | 0.3 | 8. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.67 | 753.6 | 50 | 10.0 | | W | | | 4 | 5 | 7 | W | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,409 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0—9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 39° 59′, W. 65° 20′ | | | 30.18 | 766.6 | 68.0 | 20.0 | | SE | | | 3 | | 10 | | | 3 | SSW | Showery | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Bear Haven, Ireland | | | 29.80 | 756.9 | 56 | 13.3 | | SSW | | | 4 | | 10 | | | | | Raining | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0-12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0-9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26 21 | 665.7 | | | 69 4 | 20 8 | 98 | NE | | | 1 | | 10n | | E | 0.3 | 8. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.19 | 766.9 | 65.3 | 18.5 | 41 | W | | | 2 | | 3 | | | | | | |
| Faröe | | | 30.12 | 765.1 | 59.9 | 15.5 | 79 | SW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 30.06 | 763.5 | 36.3 | 2.4 | 94 | S | | | 4 | | 10 | | | | | Raining | |
| Stykkisholm, (Iceland) | | | 29.79 | 756.7 | 37.2 | 2.9 | 90 | NE | | | 7 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.48 | 748 9 | 46 9 | 8.3 | 87 | W | | | 6 | | 10 | | | | | Raining | |
| Vestervig | | | 30.09 | 764 2 | 57.9 | 14.4 | 70 | SW | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.14 | 765.5 | 66.2 | 19 | 65 | NE | | | 2 | | 5k | | NE | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.18 | 766.5 | 80.6 | 27.0 | 56 | E | | | 3 | | 5 | | S | 0 | 0 | Cloudy | Bouvarne, Director. |
| Avignon, Normal School | | | 30.18 | 766 6 | 83.5 | 28.6 | 43 | SW | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.08 | 764.0 | 77.4 | 25.2 | 51 | SSE | | | 2 | 5c | | | | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.11 | 764 8 | 75.7 | 24.3 | 59 | SE | | | 2 | | 8 | | SSE | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.13 | 765.3 | 78.8 | 26 | 61 | E | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourgen Bresse | | | 30.21 | 767.4 | 82.4 | 28 | 60 | S | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.14 | 765.5 | 76.6 | 24.8 | 69 | SE | | | 2 | | 5 | | NE | 0 | 0 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.97 | 761.1 | 77.9 | 25.5 | 54 | WSW | | | 1 | | 8ck | | | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.08 | 764.0 | 80.2 | 26.8 | 77 | E | | | 2 | | 1 | | E | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.06 | 763.4 | 76.1 | 24.5 | 51 | S | | | 4 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 30.10 | 764.4 | 76.5 | 24.7 | 83 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.11 | 764 7 | 78.4 | 25.8 | 45 | Calm | | | 0 | | 2ck | | | 0 | 0 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.99 | 761.7 | 87.4 | 30.8 | 37 | SE | | | 1 | | 1 | | | 0 | 0 | Almost clear. | Alluard, Director. |
| Commercy, Normal School | | | 30.13 | 765 3 | 67.8 | 19.9 | 76 | SE | | | 2 | | 5 | | SE | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.22 | 767.5 | 84.2 | 29.0 | 38 | E | | | 2 | | 2 | | E | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.14 | 765.5 | 79.3 | 26.3 | 59 | NW | | | 4 | | 2ks | | NW | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 30.01 | 762.2 | 82.4 | 28.0 | 50 | SSE | | | 1 | | 2 | | SSE | 0 | 0 | Slightly cl'dy | Mouillet, Director. |
| Le Mans, Normal School | | | 30.06 | 763.5 | 80.1 | 26.7 | 46 | S | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. Scho'l | | | 30.09 | 764.2 | 76.8 | 24.9 | 67 | NW | | | 1 | | 0 | | | 0.087 | 2.2 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 30.05 | 763.3 | 75.6 | 24.2 | 55 | SSE | | | 1 | | 2 | | S | 0 | 0 | ¼ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.19 | 766.8 | 79.0 | 26.1 | 82 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.21 | 767.2 | 71.6 | 22.0 | 56 | ESE | | | 1 | | 1k | | | 0 | 0 | | Normal School. |
| Mirecourt | | | 30.10 | 764.5 | 71.1 | 21.7 | 65 | W | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School |
| Nismes, Normal School | | | 30.17 | 766.3 | 87.8 | 31 | 54 | N | | | 2 | | | | | 0 | 0 | | Poyer, Director. |
| Orleans | | | 30.06 | 763.5 | 78.1 | 25.6 | 46 | E | | | 4 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.09 | 764.2 | 75.6 | 24.2 | 51 | SE | | | 2 | c | k | NW | SE | 0 | 0 | Slightly cl'dy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.01 | 762.2 | 82.8 | 28.2 | 51 | SE | | | 2 | | 2 | | S | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.08 | 764 1 | 79.9 | 26.6 | 53 | SSE | | | 2 | | 2 | | SE | 0 | 0 | Slightly cl'dy | F. Lucard, Director. |
| Tarbes, Normal School | 29.08 | 738.7 | 30.11 | 764.9 | 80.6 | 27 | 53 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.04 | 763.1 | 81.5 | 27.5 | 72 | ESE | | | 1 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.7 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchésl. |
| Marseilles, Observatory | | | 30.13 | 765.2 | 76.5 | 24.7 | 59 | E | | | 1 | | 0 | | | 0 | 0 | Clear | The Staff. |
| Mont-Louis | 25.07 | 636.8 | 30.39 | 771.8 | 70.2 | 21.2 | 44 | SSE | 7.4 | 3.33 | | | 2 | | SW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.09 | 764.3 | 79.0 | 26.1 | 49 | SE | | | 2-3 | 5c | | SW | | 0 | 0 | | Marie Davy, Director. |
| Perpignan | | | 30.16 | 766.0 | 67.6 | 19.8 | 86 | SE | 11.2 | 5.00 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.47 | 545.4 | | | 50.0 | 10.0 | | SW | | | 1 | | 6 | | | | | Fair | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.75 | 577.9 | | | 55.9 | 13.3 | | SW | | | 3 | | 6 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.10 | 764.4 | 78.3 | 25.7 | 48 | SSE | | | 2 | | 2 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.10 | 764.4 | 79.9 | 26.6 | 46 | SSE | | | 4 | | 1 | | | 0.012 | 0.3 | | The Staff |
| Tours | | | 30.03 | 762.8 | 68.7 | 20.4 | 52 | ESE | | | 2 | | 1 | | NNE | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.10 | 764.4 | 77.4 | 25.2 | 48 | SE | | | 3 | | 6 | | | 0 | 0 | Fair | Dr. A Rérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.78 | 756.4 | 68.7 | 20.4 | 91 | NNE | 7.6 | 3.4 | | | 10n | | | 0.169 | 4.3 | Rainy | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; at St. Maur, 10 p. m.; the weather in general terms as published. The elevation of Clermont-Ferrand is 398 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.1 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.11 | 764.9 | 77.9 | 25.5 | 46 | SW | | | 3 | | 3 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.20 | 767.1 | 77.0 | 25.0 | 44 | S | | | 2 | | 5 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.26 | 768.5 | 78.6 | 25.9 | 46 | E | | | 3 | | 3 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.10 | 764.6 | 77.7 | 25.4 | 54 | NE | | | 2 | | 2 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.27 | 768.9 | 74.8 | 23.8 | 44 | SW | | | 1 | | 6 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.15 | 765.7 | 76.6 | 24.8 | 45 | S | | | 3 | | 6 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.13 | 765.4 | 69.3 | 20.7 | 50 | S | | | 1 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.20 | 767.1 | 77.9 | 25.5 | 33 | E | | | 1 | | 5 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.75 | 730.3 | 30.14 | 765.6 | 72.0 | 22.2 | 65 | W | | | 4 | | 0 | | | 0.075 | 1.9 | | M. Wilhelm. |
| Hamburg | | | 30.19 | 766.8 | 70.5 | 21.4 | 59 | WSW | | | 4 | | 4k | | | 0 | 0 | Sultry | Captain F. Hegemann. |
| Kiel | | | 30.17 | 766.3 | 68.2 | 20.1 | 73 | WSW | | | 5 | | 3 | | | 0.035 | 0.9 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.29 | 769.4 | 65.3 | 18.5 | 26 | W | | | 2 | | 4 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.21 | 767.4 | 78.1 | 25.6 | 44 | SW | | | 1 | | 6 | SW | | 0 | 0 | Lt. Dust-haze | Prof. Bruhns. |
| Memel, Naval School | | | 30.33 | 770.3 | 58.6 | 14.8 | 70 | W | | | 3 | | 0 | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.30 | 769.6 | 65.1 | 18.4 | 48 | E | | | 3 | | 5 | WSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.26 | 768.6 | 76.8 | 24.9 | 45 | S | | | 5 | | 9 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.05 | 763.3 | 77.0 | 25.0 | 53 | ESE | | | 1 | | 2 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.09 | 764.2 | 79.7 | 26.5 | 48 | S | | | 1 | | 5 | S | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 30.00 | 762.0 | 77.0 | 25.0 | 54 | NW | | | 4 | | 5 | | | 0 | 0 | Foggy | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.67 | 728.1 | 30.16 | 766.0 | 76.6 | 24.8 | 52 | NE | | | 1 | | 3 | NE | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.31 | 769.8 | 64.6 | 18.1 | 36 | N | | | 2 | | 3 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.05 | 763.3 | 77.2 | 25.1 | | NE | | | Very Strong | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.56 | 750.9 | 29.61 | 752.2 | 88.4 | 31.3 | 71 | WSW | 35.0? | 15.6? | | | 0 | | WSW | 0 | 0 | Blue sky | |
| Deesa | 29.15 | 740.3 | 29.60 | 751.8 | 102.0 | 38.9 | 31 | ESE | | | | | 6 | WNW | | 0 | 0 | Dust-storm | |
| Bombay | 29.70 | 754.3 | 29.73 | 755.2 | 88.6 | 31.4 | 73 | WNW | 9.0 | 4.0 | | | 10 | | SW | 0 | 0 | Dust-haze | |
| Poona | 27.74 | 704.7 | 29.73 | 755.2 | 80.1 | 26.7 | 79 | | | | | | | | SE | 0.05 | 1.3 | Thunder | |
| Lahore | 28.81 | 731.8 | 29.52 | 749.7 | 102.8 | 39.3 | 21 | NW | 1.6 | 0.7 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.11 | 688.5 | 29.60 | 751.8 | 81.1 | 27.3 | 67 | WSW | 19 | 8.4 | | | 7 | E | W | 0 | 0 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.60 | 726.5 | 29.46 | 748.3 | 98.3 | 36.8 | | NW | 2.6 | 1.1 | | | | | | 0 | 0 | Strong wind | |
| Agra | 28.95 | 735.4 | 29.49 | 749.1 | 101.2 | 38.4 | 25 | W | 6.0 | 2.6 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.60 | 726.5 | 29.65 | 753.0 | 74.6 | 23.7 | 84 | E | 10.1 | 4.5 | | | 9 | | | 0.79 | 20.1 | Thunder-storm | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.17 | 740.8 | 29.52 | 749.8 | 98.8 | 31.1 | 35 | NW | 3.0 | 1.3 | | | 2 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.23 | 742.4 | 29.53 | 750.0 | 93.3 | 34.1 | 49 | N | 2.7 | 1.2 | | | 10 | N | | 0 | 0 | Overcast | |
| Patna | 29.38 | 746.3 | 29.56 | 750.9 | 85.6 | 29.8 | 76 | E | 1.7 | 0.7 | | | 4 | | | 0.38 | 9.5 | D. clouds | |
| Hazaribagh | 27.61 | 701.4 | 29.59 | 751.6 | 82.6 | 28.1 | 68 | W | 9.5 | 4.5 | | | 10 | | NW | 0.03 | 0.8 | Raining | |
| Cuttack | 29.60 | 751.8 | 29.68 | 753.9 | 80.0 | 26.7 | 78 | W | 1.4 | 0.6 | | | 8 | | | 0 | 0 | Thunder | |
| Calcutta, (Alipore) | 29.61 | 752.1 | 29.63 | 752.6 | 78.9 | 26.1 | 91 | S | 10.0 | 4.4 | | | 10 | | | 0.16 | 4.1 | Thunder, lightn'g | |
| Goalpara | 29.20 | 741.8 | 29.59 | 751.6 | 78.8 | 26.0 | 93 | SSW | 2.5 | 1.1 | | | 9 | W | | 0.08 | 2.0 | D. clouds | |
| Chittagong | 29.67 | 753.6 | 29.76 | 756.0 | 79.9 | 26.7 | 91 | S | 2.1 | 0.9 | | | | | | | | Raining | |
| Sibsagar | 29.30 | 744.3 | 29.64 | 752.7 | 80.1 | 26.7 | 83 | NNW | 4.1 | 1.8 | | | 10 | NW | NW | 0.10 | 2.5 | Gloomy | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.25 | 717.5 | 29.58 | 751.2 | 91.0 | 32.8 | 57 | W | 1.5 | 0.6 | | | 6 | | | 0 | 0 | D. clouds | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.53 | 572.3 | 30.26? | 768.5? | 50.7 | 10.4 | 86 | NNE | | | 1 | | 10 | WSW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.47 | 570.8 | 30.12 | 765.1 | 48.7 | 9.3 | | SW | | | 1 | | 6 | N. | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.12 | 765.1 | 82.4 | 28.0 | 48 | S | 1.3 | 0.6 | | | 1 | | | 1.886 | 47.9 | | Ab. Dom. Morgini. |
| Padua | | | 30.13 | 765.2 | 82.4 | 28.0 | 70 | SE | 6.9 | 3.1 | | | 0 | | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.12 | 765.0 | 87.1 | 30.6 | 35 | E | 2.5 | 1.1 | | | 1 | | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | 28.86 | 733.1 | 30.13 | 765.2 | 85.3 | 29.6 | 45 | S | | | 1 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.13 | 765.3 | 79.3 | 26.3 | 44 | S | | | 4 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.13 | 765.4 | 90.3 | 32.4 | 64 | E | | | 2 | | 2 | ENE | | 0 | 0 | | Ab. Gip. Capelli. |
| Pavia | | | 30.13 | 765.3 | 83.5 | 28.6 | 46 | NE | | | 4 | | 2 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.15 | 765.9 | 69.1 | 20.6 | 91 | NNW | 1.8 | 0.8 | | | 9 | E | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovì | 28.29 | 718.6 | 30.12 | 765.1 | 81.0 | 27.2 | 44 | NW | | | 4 | | 5 | NNW | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.19 | 766.7? | 80.2 | 26.8 | 50 | SSW | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.14 | 765.6 | 77.9 | 25.5 | 66 | SW | 4.9 | 2.2 | | | 2 | N | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.14 | 765.5 | 82.8 | 28.2 | 43 | E | 0 | 0 | | | 3 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.12 | 765.0 | 86.4 | 30.2 | 46 | ESE | | | 4 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.12 | 765.0 | 89.6 | 32.6 | 35 | W | | | 2 | | 1 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.14 | 765.5 | 79.0 | 26.1 | 66 | W | 0 | 0 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.91 | 735.1 | 30.10 | 764.4 | 82.4 | 28.4 | 39 | SSE | 0 | 0 | | | 4 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.67 | 728.2 | 30.17 | 766.3 | 76.5 | 24.7 | 59 | NE | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.17 | 766.2 | 76.5 | 24.7 | 70 | N | 13.0 | 5.8 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.10 | 764.6 | 78.4 | 25.8 | 65 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.15 | 765.7 | 82.0 | 27.8 | 42 | WSW | | | 4 | | 4 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.15 | 765.8 | 85.3 | 29.6 | 47 | SSW | 6.3 | 2.8 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.15 | 765.9 | 82.6 | 28.1 | 61 | SW | | | 2 | | 3 | NE | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.08 | 764.1 | 79.9 | 26.6 | 32 | NNW | 12.5 | 5.6 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.05 | 763.3 | 89.6 | 32.0 | 49 | NNE | 8.1 | 3.6 | | | 4 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.10 | 764.6 | 80.2 | 26.8 | 47 | SW | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Bisosto, (Sicily) | | | 30.17 | 766.2 | 78.8 | 26.0 | 50 | N | | | 2 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.16 | 764.5 | 77.4 | 25.2 | 52 | E | 3.8 | 1.7 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.18 | 715.7 | 30.04 | 763.1 | 79.7 | 26.5 | 24 | N | | | 1 | | 7 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.07 | 763.7 | 77.7 | 25.4 | 52 | NE | | | 4 | | 3 | NNE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.16 | 766.1 | 81.9 | 27.7 | 63 | SW | 0.7 | 0.3 | | | 1 | NE | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; occasionally the weather by the Vienna symbols. The elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovì, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.93 | 760.2 | 68 | 20.0 | 84 | SE | 3 | 1.3 | | 1c | | | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.1 | 30.04 | 763.0 | 58.1 | 14.5 | 76 | Calm | 0 | 0 | | 1c | 1s | S | | Inap. | Inap. | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.16 | 766.1 | 72.3 | 22.4 | | SSW | | | 2 | | | | | 0 | 0 | | |
| Groningen | | | 30.11 | 764.8 | 68.0 | 20.0 | | W | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.16 | 766.0 | 60.8 | 16.0 | | SW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.13 | 765.3 | 70.7 | 21.5 | 44 | S | | | 2 | | 2 | | | 0 | 0 | Light cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.86 | 758.4 | 50.7 | 10.4 | 93 | S | 22.4 | 10.0 | | | 10 | | | 0.118 | 3.0 | | |
| Brönö | | | 29.61 | 752.0 | 48.2 | 9.0 | 87 | SW | 27 | 12 | | | 9 | | | 0 | 0 | | |
| Christiania | | | 29.88 | 759.0 | 61.5 | 16.4 | 75 | SSW | 27 | 12 | | | 5 | | | 0 | 0 | | |
| Tromsö | | | 29.36 | 745.8 | 50.7 | 10.4 | 85 | Calm | 0 | 0 | | | 10 | | | 0.657 | 16.7 | Raining | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.19 | 766.8 | 65.1 | 18.4 | 73 | W | 10.5 | 4.7 | | | 4 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.98 | 761.4 | 91.0 | 32.8 | 27 | NNW | 5.0 | 2.25 | | | 1 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.13 | 765.2 | 72.0 | 22.2 | 71 | SW | 3.8 | 1.7 | | | 6 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.09 | 764.2 | 73.4 | 23.0 | 51 | NNE | 13.7 | 6.1 | | | 0 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.21 | 767.3 | 71.2 | 21.8 | 61 | WSW | 5.6 | 2.5 | | | 6 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Direction from— | | Observer. |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.25 | 768.4 | 75.4 | 24.1 | 48 | ENE | 2 | 1 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 30.24 | 768.0 | 69.4 | 20.8 | 34 | W | 2 | 1 | | | 2 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.13 | 765.3 | 63.5 | 17.5 | 46 | WSW | 13 | 6 | | | 2 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.00 | 762.0 | 58.1 | 14.5 | 68 | WNW | 20 | 9 | | | 5 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.74 | 755.3 | 61.0 | 16.1 | 50 | W | 40 | 18 | | | 5 | | | | | | Ch. Forsten. |
| Kieff | | | 30.01 | 762.2 | 83.3 | 28.5 | 37 | NE | 7 | 3 | | | 6 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.11 | 764.8 | 83.8 | 28.8 | 46 | N | 7 | 3 | | | 3 | | | | | | Kurdakof |
| Kertch | | | 30.10 | 764.4 | 85.5 | 29.7 | 57 | N | 4 | 2 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.87 | 758.8 | 82.9 | 28.3 | 58 | SE | 13 | 6 | | | 6 | | | | | Raining | Meteorological Obs. |
| Lugan | | | 29.86 | 758.4 | 83.3 | 28.5 | 51 | WNW | 4 | 2 | | | 1 | | | | | | Meteorological Obs. |
| Archangel | | | 29.56 | 750.9 | 63.5 | 17.5 | 54 | E | 18 | 8 | | | 9 | | | | | | Ogorodnikof. |
| Tiflis | 28.59 | 726.1 | 29.95 | 760.6 | 77.9 | 25.5 | 35 | SSE | 4 | 2 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.77 | 756.1 | 79.3 | 26.3 | 46 | NW | 7 | 3 | | | 4 | | | | | | Sebastianof. |
| Kasan | | | 29.59 | 751.5 | 76.3 | 24.6 | 34 | N | 9 | 4 | | | | | | | | | Physical Cabinet. |
| Orenburg | | | 29.71 | 754.7 | 59.9 | 15.5 | 82 | SE | 13 | 6 | | | 10 | | | | | | Tschernischef. |
| Ekaterinburg | 28.47 | 723.1 | 29.38 | 746.3 | 57.7 | 14.3 | 78 | NNE | 2 | 1 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.75 | 755.7 | 71.6 | 22.0 | 63 | WNW | 9 | 4 | | | 7 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.36 | 720.3 | 30.02 | 762.4 | 70.2 | 21.2 | 76 | Calm | 0 | 0 | | | 9 | | | | | | Michelson. |
| Barnaul | | | 29.63 | 752.6 | 80.1 | 26.7 | 36 | S | 2 | 1 | | | 9 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.51 | 749.5 | 67.8 | 19.9 | 64 | NW | 9 | 4 | | | 4 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 55.9 | 13.3 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.71 | 754.7 | 75.6 | 24.2 | 49 | Calm | 0 | 0 | | | 1 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.57 | 751.1 | 53.8 | 12.1 | 93 | Calm | 0 | 0 | | | 6 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 44.1 | 6.7 | | SE | 7 | 3 | | | 9 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m.; or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.98 | 761.4 | 86.5 | 20.3 | 37 | S | 5.2 | 2.33 | | 2 | 1 | NW | | 0 | 0 | Light clouds | The Staff. |
| San Fernando, Naval Obs'y | | | 30.04 | 763.1 | 82.0 | 27.8 | 42 | ESE | 26.6 | 11.9 | | 0 | 4 | | E | 0 | 0 | | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.04 | 763.0 | 84.2 | 29.0 | 73 | E | 1.6 | 0.7 | | 0 | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.98 | 761.4 | 79.2 | 26.2 | 91 | E | 4.5 | 2.00 | | 8n | 2n | | E | 1.506 | 38.25 | Overcast | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.48 | 748.9 | 40.1 | 4.5 | 89 | S | | | 4 | | 10 | | | 0.236 | 6.0 | | |
| Umea | | | 29.65 | 753.1 | 55.4 | 13.0 | 66 | NW | | | 6 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.65 | 753.0 | 63.7 | 17.6 | 34 | W | | | 6 | | 5 | | | 0.067 | 1.7 | Raining | |
| Stockholm | | | 29.97 | 761.1 | 63.0 | 17.2 | 37 | WSW | | | 6 | | 5 | | | 0 | 0 | | |
| Wisby | | | | | | | | | | | | | | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.92 | 760.0 | 61.9 | 16.6 | 40 | WSW | 21.7 | 9.7 | | | 7 | | WSW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.74 | 730.0 | 30.11 | 764.9 | 72.0 | 22.2 | 57 | NNE | | | 2 | | 2c | | | 0 | 0 | Solar halo | The Observatory. |
| Zurich | 28.54 | 724.9 | 30.10 | 764.4 | 79.5 | 26.4 | 54 | N | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +3.8 mm; Thermometer, +2.4 cent.; Relative Humidity, +1 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds: the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.04 | 763.0 | 73.0 | 22.8 | 63 | N | 20 | 9.0 | | | 5 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.99 | 761.8 | 84.2 | 29.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.21 | 767.3 | 79.2 | 26.2 | | SE | | | 2 | | 5 | | | | | | B. Stéfanidès. |
| Valona | | | 30.18 | 766.5 | 79.2 | 26.2 | | W | | | 1 | | 0 | | | 0 | 0 | Clear. | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.1 | 84.7 | 29.3 | 55 | WSW | | | 3 | | 4k,ks | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 30.24 | 768.1 | 56.9 | 13.8 | 78 | NE | 3 | 1.3 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.96 | 761.0 | 68 | 20.0 | | Calm | 0 | 0 | | | 10s | | NE | 0.41 | 10.4 | Cloudy | W. R. Bigg. |
| *Chatham, N. B | | | 30.21 | 767.3 | 56 | 13.3 | 90 | NE | 9 | 4.0 | | | 10ks | | NE | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.26 | 768.6 | 65 | 18.3 | 58 | SE | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear. | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.92 | 760.0 | 68.0 | 20.0 | 85 | E | | | 1 | 0 | 5s | | | 0.013 | 0.33 | Fair | James Smith, M. A. |
| Dalhousie, N. B | | | 30.17 | 766.3 | 56.0 | 13.3 | 75 | E | | | 1 | | | | | 0 | 0 | Overcast | H. A. Johnson. |
| Esquimault, B. C | | | 30.18 | 766.6 | 48.3 | 9.1 | 96 | N | | | | 2ck | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.15 | 765.8 | 49 | 9.4 | 89 | E | 17 | 7.6 | | 5k | 5s | S | S | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B | | | 30.17 | 766.3 | 59.0 | 15.0 | 91 | NE | 9 | 4.0 | | | 10s | | | 0.01 | 0.3 | Showery | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.98 | 761.5 | 36 | 2.2 | 75 | NW | 16 | 7.2 | | 5k | 5ks | NW | NW | 0 | 0 | Clearing | James Stewart. |
| Goderich, Ontario | | | 29.87 | 758.7 | 69.6 | 20.9 | 75 | S | | | 2 | 6k | 0 | SW | | 0 | 0 | Fair | H. J. Strang, M. A |
| Granton, Ontario | 28.81 | 731.8 | 29.86 | 758.4 | 67 | 19.4 | 79 | SE | | | 1 | 0 | 0 | | | 0 | 0 | Clear. | James Grant. |
| *Halifax, N. S | | | 30.20 | 767.1 | 54 | 12.2 | 99 | E | 11 | 4.9 | | | Fog | | | 0.010 | 0.2 | Foggy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.96 | 761.0 | 56.2 | 13.4 | 90 | NE | | | 1 | | 10 | | | 0 | 0 | Clearing | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 30.46 | 773.7 | 40 | 4.4 | 48 | N | | | 3 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.00 | 762.0 | 61 | 16.1 | 93 | S | 18 | 8.0 | | | Fog | | S | Inap. | Inap | Foggy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.94 | 760.5 | 67 | 19.4 | 82 | NE | 3 | 1.3 | | 2cs | Haze | | | 0.07 | 1.8 | Clear. | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.89 | 759.2 | 62 | 16.7 | 88 | SE | 9 | 4.0 | | 2ck | 2ks | W | W | 0 | 0 | Fair | Rev. R. Mosley |
| Peterboro, Ontario | | | 29.94 | 760.5 | 65.8 | 18.8 | 89 | S | | | 1 | 5c,k | 0 | | | 0 | 0 | Foggy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.92 | 760.0 | 61 | 16.1 | 83 | Calm | 0 | 0 | | 10k | 0 | W | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S | | | 30.31 | 769.9 | 58.5 | 14.7 | | S | | | | | | | | 0.50 | 12.7 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.91 | 759.7 | 63 | 17.2 | 84 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear. | M. Payne. |
| *Quebec, Quebec | | | 30.05 | 763.3 | 59 | 15.0 | 100 | NE | 24 | 10.7 | | | 10n | | NE | 0 | 0 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.90 | 759.4 | 66 | 18.9 | 81 | E | 8 | 3.6 | | 5k | 0 | S | | Inap. | Inap. | Fair. | W. H. McIntyre. |
| St. John, N. B | | | 30.15 | 765.8 | 64 | 17.8 | 86 | NE | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.83 | 757.7 | 66 | 18.9 | 82 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | K. Stewart. |
| Stayner, Ontario | | | 29.86 | 758.4 | 64 | 17.8 | 86 | SE | 8 | 3.6 | | 5ck | 2s | W | S | 0 | 0 | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.63 | 727.2 | 29.87 | 758.7 | 62.2 | 16.8 | 84 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 30.38 | 771.6 | 55 | 12.8 | 74 | NE | 8 | 3.6 | | 2ck | 2s | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 29.95 | 760.7 | 58 | 14.4 | 97 | E | 3 | 1.3 | | 2c | Fog | W | | 0 | 0 | Foggy | Magnetic Observatory. |
| Windsor, N. S | | | 30.12 | 765.0 | 64.0 | 17.8 | 86 | SE | 12 | 5.4 | | | 10n | | | 0.01 | 0.3 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.90 | 759.4 | 64.7 | 18.2 | 86 | W | 2 | 0.9 | | 0 | 5s | | | 0 | 0 | Fair | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.44 | 773.2 | 51.0 | 10.6 | 46 | NE | | | | Sm'e | Sm'e | | | 0 | 0 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10 | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.94 | 760.5 | 63 | 17.2 | 83 | Calm | 0 | 0 | | | 10ks | | W | 0.45 | 11.4 | Cloudy | |
| Alpena, Mich. | | | 29.82 | 757.4 | 58 | 14.4 | 87 | SE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.99 | 761.7 | 69 | 20.6 | 90 | Calm | 0 | 0 | | 2ck | 0 | W | | 0.08 | 2.0 | Clear | |
| Augusta, Ga. | | | 30.04 | 763.0 | 76 | 24.4 | 81 | SE | 2 | 0.9 | | 5ck | 0 | | | 0.15 | 3.8 | Fair | |
| Baltimore, Md. | | | 30.00 | 762.0 | 69 | 20.6 | 79 | NW | 4 | 1.8 | | 2cs | Sm'e | | | 0 | 0 | Smoky | |
| Barnegat, N. J. | | | 29.99 | 761.7 | 65 | 18.3 | 94 | NW | 7 | 3.1 | | | 10s | | NW | Inap. | Inap. | Cloudy | |
| Bismarck, Dakota | 28.35 | 720.1 | 30.05 | 763.3 | 35 | 1.7 | 100 | N | 16 | 7.2 | | | 10n | | N | Inap. | Inap. | Light snow | |
| Boston, Mass. | | | 29.98 | 761.5 | 57.5 | 14.2 | 100 | NW | 4 | 1.8 | | | Fog | | NW | 0.52 | 13.2 | Foggy | |
| Breckenridge, Minn. | | | 29.91 | 759.7 | 45 | 7.2 | 85 | NW | 20 | 8.9 | | | 10ks | | NW | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.91 | 759.7 | 66 | 18.9 | 73 | SW | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.94 | 760.5 | 69 | 20.6 | 79 | W | 4 | 1.8 | | 2c | 5s | | | Inap. | Inap. | Fair | |
| Cairo, Ill. | | | 29.76 | 755.9 | 69 | 20.6 | 95 | S | 10 | 4.5 | | | 10n | | S | 0.75 | 19.1 | Light rain | |
| Campo, Cal. | 27.26 | 692.4 | 29.83 | 757.7 | 60 | 15.6 | 81 | NE | 24 | 10.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 63 | 17.2 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.00 | 762.0 | 75 | 23.9 | 81 | S | 14 | 6.3 | | 5k | 0 | | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 29.99 | 761.7 | 76 | 24.4 | 64 | S | 8 | 3.6 | | 5c | Haze | | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.07 | 763.8 | 77 | 25.0 | 82 | S | 20 | 8.9 | | 4k | 0 | S | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.01 | 762.2 | 68 | 20.0 | 84 | SW | 10 | 4.5 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Charleston, S. C. | | | 30.07 | 763.8 | 82 | 27.8 | 78 | SW | 7 | 3.1 | | 2c | 0 | | | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 24.14 | 613.1 | 30.08 | 764.0 | 37 | 2.8 | 90 | N | 24 | 10.7 | | | 10s | | N | 0.42 | 10.7 | Cloudy | |
| Chicago, Ill. | | | 29.73 | 755.1 | 71 | 21.7 | 75 | S | 1 | 0.4 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Cincinnati, Ohio | | | 29.83 | 757.7 | 67 | 19.4 | 90 | SE | 3 | 1.3 | | | 10ks | | W | 0.16 | 4.1 | Cloudy | |
| Cleveland, Ohio | | | 29.89 | 759.2 | 65.5 | 18.6 | 76 | SE | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 29.66 | 753.4 | 77 | 25.0 | 86 | S | 10 | 4.5 | | 2cs | 8s | | | 0.20 | 5.1 | Cloudy | |
| Davenport, Iowa | | | 29.72 | 754.9 | 67 | 19.4 | 79 | NE | 7 | 3.1 | | | 10s | | | 0 | 0 | Cloudy | |
| Denison, Tex. | | | 29.62 | 752.3 | 76 | 24.4 | 91 | S | 6 | 2.7 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Denver, Col. | 24.89 | 632.2 | 30.11 | 764.8 | 42 | 5.6 | 83 | N | 20 | 8.9 | | | 10n | | N | 1.02 | 25.9 | Light rain | |
| Detroit, Mich. | | | 29.82 | 757.4 | 66 | 18.9 | 78 | SW | 4 | 1.8 | | 5cs | Sm'e | | | 0 | 0 | Smoky | |
| Dodge City, Kan. | 27.14 | 689.3 | 29.36 | 745.7 | 55 | 12.8 | 93 | NE | 22 | 9.8 | | | 10n | | NE | 0.39 | 9.9 | Heavy rain | |
| Dubuque, Iowa | | | 29.74 | 755.4 | 63 | 17.2 | 83 | NW | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Duluth, Minn. | | | 29.71 | 754.6 | 61 | 16.1 | 71 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eagle Pass, Texas | | | 29.60 | 751.8 | 80 | 26.7 | 79 | S | 4 | 1.8 | | 10cs | 10ks | S | S | 0 | 0 | Threatening | |
| Eastport, Me. | | | 30.10 | 764.5 | 54 | 12.2 | 93 | E | 18 | 8.0 | | | 10n | | | 0.11 | 2.8 | Heavy rain | |
| Erie, Pa. | | | 29.87 | 758.7 | 69 | 20.6 | 75 | S | 6 | 2.7 | | 5c | Haze | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.76 | 755.9 | 60 | 15.6 | 82 | N | 4 | 1.8 | | 5c | 2s | N | N | 0.40 | 10.2 | Fair | |
| Florence, Arizona | 28.25 | 717.5 | 29.85 | 758.2 | 76 | 24.4 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.66 | 753.4 | 63 | 17.2 | 94 | N | 14 | 6.3 | | | 10n | | W | 0.85 | 21.6 | Heavy rain | |
| Fort Griffin, Tex. | 28.35 | 720.1 | 29.53 | 750.0 | 77 | 25.0 | 69 | S | 6 | 2.7 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.56 | 750.8 | 45 | 7.2 | 84 | N | | | 6 | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sill, Indian Ter. | 28.44 | 722.4 | 29.49 | 749.0 | 68 | 20.0 | 79 | E | 16 | 7.2 | | 8k | 0 | SE | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.38 | 720.8 | 30.06 | 763.5 | 45 | 7.2 | 68 | NW | 16 | 7.2 | | 8k | 0 | NW | | 0 | 0 | Fair | |
| Galveston, Tex. | | | 29.78 | 756.4 | 81 | 27.2 | 82 | S | 17 | 7.6 | | 5k | Sm'e | S | S | 0.01 | 0.3 | Fair | |
| Grand Haven, Mich. | | | 29.77 | 756.1 | 65 | 18.3 | 94 | Calm | 0 | 0 | | | Fog | | SW | Inap. | Inap. | Foggy | |
| Indianapolis, Ind. | | | 29.79 | 756.7 | 69 | 20.6 | 90 | SE | 6 | 2.7 | | | 10n | | SE | 0.05 | 1.3 | Light rain | |
| Indianola, Tex. | | | 29.71 | 754.6 | 81 | 27.2 | 82 | S | 17 | 7.6 | | 5k | 5ks | S | S | 0.52 | 13.2 | Cloudy | |
| Jacksonville, Fla. | | | 30.06 | 763.5 | 84 | 28.9 | 81 | S | 8 | 3.6 | | 2c | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.74 | 755.4 | 67 | 19.4 | 90 | N | 8 | 3.6 | | | 10s | | N | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 30.03 | 762.7 | 82.5 | 28.1 | 76 | SE | 10 | 4.5 | | 1cs,k | 1ks,hz. | SE | | 0 | 0 | Clear | |
| Kittyhawk, N. C. | | | 30.04 | 763.0 | 74 | 23.3 | 90 | S | 16 | 7.2 | | 5c | 2s | NW | N | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 29.97 | 761.2 | 68 | 20.0 | 84 | NW | 4 | 1.8 | | | 10ks | | S | 0.17 | 4.3 | Cloudy | |
| LaCrosse, Wis. | | | 29.74 | 755.4 | 61 | 16.1 | 77 | Calm | 0 | 0 | | 5k | 2s | | | 0.15 | 3.8 | Cloudy | |
| Leavenworth, Kan. | | | 29.64 | 752.8 | 61 | 16.1 | 94 | N | 8 | 3.6 | | | 10s | | N | 3.38 | 85.9 | Cloudy | |
| Louisville, Ky. | | | 29.84 | 757.9 | 71 | 21.7 | 84 | S | 6 | 2.7 | | | 10n | | SW | 0.20 | 5.1 | Light rain | |
| Lynchburg, Va. | | | 29.99 | 761.7 | 71 | 21.7 | 71 | SW | 1 | 0.4 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 74 | 23.3 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.75 | 755.6 | 60 | 15.6 | 76 | W | 4 | 1.8 | | | 10s | | W | 0.14 | 3.6 | Cloudy | |
| Mason, Texas | 28.09 | 713.5 | 29.73 | 755.1 | 78 | 25.6 | 77 | SW | 12 | 5.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 29.78 | 756.4 | 70 | 21.1 | 100 | SE | 10 | 4.5 | | | 10n | | | 3.71 | 94.2 | Heavy rain | |
| Milwaukee, Wis. | | | 29.78 | 756.4 | 65 | 18.3 | 78 | NE | 5 | 2.2 | | 0 | 5ks | | SW | 0 | 0 | Fair | |
| Mobile, Ala. | | | 29.96 | 761.0 | 83 | 28.3 | 75 | S | 16 | 7.2 | | 8k | 2ks | W | S | Inap. | Inap. | Cloudy | |
| Montgomery, Ala. | | | 29.97 | 761.2 | 76.5 | 24.7 | 86 | SE | 3 | 1.3 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Morgantown, W. Va. | 28.92 | 734.6 | 29.93 | 760.2 | 68 | 20.0 | 79 | Calm | 0 | 0 | | 8c | Haze | W | | Inap. | Inap. | Fair | |
| Mt. Washington, N. H. | 23.89 | 606.8 | 30.25 | 768.3 | 49 | 9.4 | 100 | SE | 20 | 8.9 | | | Fog | | | 1.42 | 36.1 | Foggy | |
| Nashville, Tenn. | | | 29.89 | 759.2 | 71 | 21.7 | 90 | SE | 6 | 2.7 | | | 10n | | SE | 0.60 | 15.2 | Light rain | |
| New Haven, Conn. | | | 29.98 | 761.5 | 63 | 17.2 | 88 | NE | 2 | 0.9 | | | 10s,fg | | | 2.20 | 55.9 | Cloudy | |
| New London, Conn. | | | 29.97 | 761.2 | 62 | 16.7 | 94 | Calm | 0 | 0 | | | Fog | | E | 1.51 | 38.4 | Dense fog | |
| New Orleans, La. | | | 29.90 | 759.4 | 80 | 26.7 | 82 | S | 10 | 4.5 | | 5ck | 4ks | W | S | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 29.96 | 761.0 | 63 | 17.2 | 94 | NE | 4 | 1.8 | | | Fog | | | 0.94 | 23.9 | Foggy | |
| New York, N. Y. | | | 29.99 | 761.7 | 64 | 17.8 | 94 | W | 1 | 0.4 | | | 10s,fg | | | 0.08 | 2.0 | Cloudy | |
| Norfolk, Va. | | | 30.02 | 762.5 | 78 | 25.6 | 65 | S | 5 | 2.2 | | 4ck,ks | Haze | W,S | | 0 | 0 | Cloudy | |
| North Platte, Neb. | 27.07 | 687.6 | 29.61 | 752.1 | 50 | 10.0 | 71 | N | 26 | 11.6 | | | 10s | | N | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.69 | 728.7 | 29.73 | 755.1 | 62 | 16.7 | 83 | N | 4 | 1.8 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Oswego, N. Y. | | | 29.95 | 760.7 | 66 | 18.9 | 86 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 30.00 | 762.0 | 36 | 2.2 | 90 | NW | 13 | 5.8 | | | 10ks | | NW | Inap. | Inap. | Cloudy | |
| Philadelphia, Pa. | | | 30.00 | 762.0 | 68 | 20.0 | 84 | NW | 3 | 1.3 | | 0 | Fog | | | 0.25 | 6.3 | Clear | |
| Phœnix, Arizona | | | | | 70 | 21.1 | | SW | | | | 2k | 0 | | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.61 | 447.3 | 29.82 | 757.4 | 10 | —12.2 | 100 | NE | 34 | 15.2 | | | Fog | | | 1.02 | 25.9 | Heavy snow | |
| Pittsburgh, Pa. | | | 29.92 | 760.0 | 64 | 17.8 | 89 | S | 1 | 0.4 | | 0 | Fog | | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.83 | 757.7 | 64 | 17.8 | 78 | S | 6 | 2.7 | | 5c | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.00 | 762.0 | 56 | 13.3 | 100 | NE | 7 | 3.1 | | | Fog | | | 1.28 | 32.5 | Dense fog | |
| Portland, Oregon | | | 30.27 | 768.8 | 49 | 9.4 | 93 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.77 | 629.2 | 30.13 | 765.3 | 49 | 9.4 | 32 | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.07 | 763.8 | 81 | 27.2 | 78 | E | 12 | 5.4 | | 0 | 8ks | | E | 0 | 0 | Cloudy | |
| Rochester, N. Y. | | | 29.92 | 760.0 | 66 | 18.9 | 73 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | | | | | | | | | | | | | | | | 0.30 | 7.6 | | |
| Sandy Hook, N. J. | | | 29.99 | 761.7 | 66 | 18.9 | 90 | Calm | 0 | 0 | | | Fog | | | 0.01 | 0.3 | Foggy | |
| San Antonio, Tex. | | | 29.56 | 750.8 | 79 | 26.1 | 86 | SE | 5 | 2.2 | | | 10ks | | S | 0.23 | 5.8 | Clearing | |
| San Diego, Cal. | | | 29.81 | 757.9 | 57 | 13.9 | 93 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 29.85 | 758.2 | 71 | 21.7 | 44 | NW | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, N. M. | 23.13 | 587.5 | 29.67 | 753.6 | 41 | 5.0 | 65 | N | 14 | 6.3 | | 0 | 1s | | | 0.12 | 3.0 | Clear | |
| Savannah, Ga. | | | 30.08 | 764.0 | 86 | 30.0 | 61 | Calm | 0 | 0 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Shreveport, La. | | | 29.83 | 757.7 | 76 | 24.4 | 95 | S | 4 | 1.8 | | | 10s | | S | 0.42 | 10.7 | Cloudy | |
| Smithville, N. C. | | | 30.08 | 764.0 | 76 | 24.4 | 76 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.98 | 761.5 | 63 | 17.2 | 85 | NE | 4 | 1.8 | | | 10ks | | NE | 0.94 | 23.9 | Cloudy | |
| St. Louis, Mo. | | | 29.71 | 754.6 | 70 | 21.1 | 90 | S | 12 | 5.4 | | | 10s | | | 0.07 | 1.8 | Cloudy | |
| St. Marks, Fla. | | | 30.04 | 763.0 | 78 | 25.6 | 82 | S | 4 | 1.8 | | 2k | 0 | S | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.84 | 757.9 | 60 | 15.6 | 70 | NW | 4 | 1.8 | | 2c | 2s | W | W | 0.02 | 0.5 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 64 | 17.8 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.78 | 680.2 | 29.78 | 756.4 | 64 | 17.8 | 48 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 29.98 | 761.5 | 57 | 13.9 | 93 | Calm | 0 | 0 | | | | | | 0.56 | 14.2 | Dense fog | |
| Toledo, Ohio | | | 29.84 | 757.9 | 67 | 19.4 | 79 | SE | 7 | 3.1 | | 5cs | Haze | | | 0 | 0 | Fair | |
| Tucson, Arizona | 27.40 | 696.0 | 29.94 | 760.5 | 71 | 21.7 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.06 | 763.5 | 81 | 27.2 | 78 | SW | 4 | 1.8 | | 5c | 0 | | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 29.85 | 758.2 | 75 | 23.9 | 90 | S | 4 | 1.8 | | | 10s | | SW | 0.44 | 11.2 | Cloudy | |
| Virginia City, M. T | 24.48 | 621.8 | 29.96 | 761.0 | 34 | 1.1 | 79 | E | 4 | 1.8 | | 1k | Fog | NE | | 0.07 | 1.8 | Clear | |
| Washington, D. C | | | 30.01 | 762.2 | 71 | 21.7 | 75 | W | 1 | 0.4 | | 5c | Sm'e | W | | 0.01 | 0.3 | Fair | |
| Wickenburg, Arizona | | | | | 71 | 21.7 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.05 | 763.3 | 78 | 25.6 | 77 | S | 10 | 4.5 | | 5c | Haze | W | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 30.00 | 762.0 | 63 | 17.2 | 89 | NW | 3 | 1.3 | | | 10s | | S | 0.23 | 5.8 | Cloudy | |
| Yankton, Dakota | 28.66 | 728.0 | 29.93 | 760.2 | 52 | 11.1 | 73 | NW | 20 | 8.9 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | | | | | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.15 | 765.8 | 80 | 26.7 | 78 | Calm | 0 | 0 | | 8c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | NE | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.00 | 762.0 | 82 | 27.8 | 83 | E | | | 2 | 4c | 6k | E | | 0.320 | 8.13 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.21 | 640.3 | | | 66.0 | 18.9 | 84 | Calm | | | 0 | 6cs,k | 3ks | | | 0.77 | 19.6 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.94 | 760.5 | 29.5 | — 1.4 | 95 | NE | 26 | 11.6 | | | 10n | | | 0.55 | 14.0 | Rain & snow | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.12 | 765.0 | 74 | 23.3 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft. or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.66 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

## UNITED STATES NAVAL SERIES.

**By authority of the SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.10 | 764.5 | 74 | 23.3 | 69 | 20.6 | 80 | S | | | 1 | | 1 | | W | 0 | 0 | | | Hazy | |
| Navy Yard, Mare Island, Cal. | 29.96 | 761.0 | 76 | 24.4 | 74 | 23.3 | | NNW | | | 2 | | 0 | | | 0 | 0 | | | Fine | |
| Navy Yard, Pensacola, Fla. | 30.13 | 765.3 | | | 80 | 26.7 | 82 | SSE | 18 | 8.0 | | | 9 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.02 | 762.5 | 65 | 18.3 | 60 | 15.6 | 88 | NNE | | | | | 10 | | | 0.45 | 11.4 | | | Raining | |
| Naval Hospital, Yokohama, Japan | 29.88 | 758.9 | 70.7 | 21.4 | 68 | 20.0 | 82 | SSW | | | 5 | | 2ck | | SW | 0 | 0 | | | Fair | |
| Alert, N. 11° 03′ 47″, E. 141° 33′ 12′ | 29.94† | 760.5† | 83 | 28.3 | 83 | 28.3 | 96 | ESE | | | 2 | | 1 | | E | | | Long | E | D. clouds | |
| Alliance, Beirut, Syria | 30.07 | 763.8 | 81 | 27.2 | 80 | 26.7 | 62 | SW | | | 3 | | 4 | | S&W | | | Light | S&W | Clear | |
| Ashuelot, Amoy, China | 29.94 | 760.5 | 81 | 27.2 | 81 | 27.2 | 87 | SSW | | | 3–4 | | 5 | | S&W | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 29.94 | 760.5 | 56 | 13.3 | 79 | 26.1 | 86 | SSE | | | 2 | | 8 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.05 | 763.3 | 61 | 16.1 | 64 | 17.8 | 94 | Calm | 0 | 0 | | | 10 | | | 0.06 | 1.5 | | | Foggy | |
| Despatch, Smyrna, Turkey | 30.12 | 765.0 | 78 | 25.6 | 81 | 27.2 | 55 | NE | | | 4 | | 1 | | | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 30.06 | 763.5 | 70 | 21.1 | 74 | 23.3 | 95 | S | 6 | 2.7 | | | 6 | | S | 0 | 0 | | | D clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.17 | 766.3 | 74 | 23.3 | 75 | 23.9 | 90 | NNW | | | 2 | | 7kn | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Portoffino, Italy | 30.00 | 762.0 | | | 80 | 26.7 | 82 | S | | | 1 | | 7 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.22 | 767.6 | 72 | 22.2 | 76 | 24.4 | 77 | SW | 1.5 | 0.5 | | | 1 | | | 0.06 | 1.57 | | | Pleasant | |
| Huron, Savanilla, N. G | 30.04 | 763.0 | 83.5 | 28.6 | 81 | 27.2 | 96 | ESE | | | 1 | | 10 | | S | 0.125 | 3.18 | Ground | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.82 | 757.4 | 76 | 24.4 | 74 | 23.3 | 95 | SW | | | 4–6 | | 10 | | NE | ¶0.2 | 5. ¶ | Moderate. | SSW | Drizzling | |
| Lackawanna, N 22° 10′, W. 119° 45′ | 29.96 | 761.0 | | | 67 | 19.4 | 69 | NW | | | 1–2 | | 10 | | N&W | | | Long | N&W | D. clouds | |
| Marion, Smyrna, Turkey | 29.96 | 761.0 | 76 | 24.4 | 80 | 26.7 | 48 | ENE | | | 3 | | 4 | | ENE | Light | Light | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.44 | 747.8 | 70 | 21.1 | 70 | 21.1 | 79 | SW | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.66 | 753.4 | 74 | 23.3 | 71 | 21.7 | 83 | S | | | 2 | | 1 | | S | 0 | 0 | | | D. clouds | |
| Monongahela, Block Island Sound | 29.98 | 761.5 | 58 | 14.4 | 58 | 14.4 | 94 | Calm | | | 0 | | 10n | | | Heavy | Heavy | | | Foggy | |
| New Hampshire, Port Royal, S. C | 30.31 | 769.9 | | | 78 | 25.6 | 86 | W | 3 | 1.3 | | | 2 | | S | 0 | 0 | | | D. clouds | |
| Omaha, Chimbote, Peru | 30.04 | 763.0 | 71 | 21.7 | 71 | 21.7 | 90 | Calm | 0 | 0 | | | 10 | | SE | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, Norfolk, Va | 30.05 | 763.3 | 72 | 22.2 | 73 | 22.8 | 90 | S | | | 1 | | 10 | | WSW | | | | | D. clouds | |
| Palos, Shanghai, China | 29.87 | 758.7 | 74 | 23.3 | 74 | 23.3 | 90 | N | | | 3 | | 10 | | N&E | Blank | Blank | | | Cloudy | |
| Pensacola, N. 19° 59′, W. 114° 56′ | 29.97 | 761.2 | | | 70 | 21.1 | 75 | WNW | | | 3–5 | | 10 | | S&E | 0 | 0 | Moderate. | N&W | Pleasant | |
| Plymouth, Off Vera Cruz, Mexico | 29.86 | 758.4 | 84 | 28.9 | 82 | 27.8 | 70 | SSE | | | 2 | | 4 | | | 0 | 0 | Light | S&E | Hazy | |
| Ranger, N. 35° 08′, E. 17° 47′ | 30.19 | 766.8 | | | 75 | 23.9 | 90 | ENE | | | 0–1 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.23 | 767.8 | 73.0 | 22.8 | 71.8 | 22.1 | 88 | WNW | | | 2 | | 1 | | WNW | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.68 | 753.9 | | | 75 | 23.9 | 90 | SE | | | 4 | | 9 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.09 | 764.3 | 74 | 23.3 | 72 | 22.2 | 71 | WSW | | | 1 | | 3 | | | 0 | 0 | | | Hazy | |
| Saratoga, N. 34° 42′, W. 74° 51′ | 30.30 | 769.6 | | | 74 | 23.3 | | S | | | 1–2 | | 3 | | S | 0 | 0 | Light | N&E | Fair | |
| St. Louis, League Island, Pa | 29.93 | 760.2 | 68 | 20.0 | 68 | 20.0 | 84 | ENE | 1 | 0.4 | | | 3 | | NE | 0.31 | 7.9 | | | Fair | |
| Swatara, Aspinwall, Panama | 29.98 | 761.5 | 77 | 25.0 | 77 | 25.0 | 95 | SSE | | | 1 | | 6ks | | S | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.86 | 758.4 | 73 | 22.8 | 73 | 22.8 | 90 | S | | | 3 | | 1 | | | | | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 29.84† | 757.9† | 76 | 24.4 | 79 | 26.1 | 100 | ENE | 15 | 6.7 | | | 2 | | | 1.3 | 33. | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.11 | 764.8 | 72 | 22.2 | 71 | 21.7 | 71 | NE | | | 3 | | 6 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.01 | 762.2 | 60 | 15.6 | 59 | 15.0 | 94 | NNW | 5 | 2.2 | | | 10 | | | 0.44 | 11.2 | | | Foggy | |
| Wyoming, Washington, D.C | 30.21† | 767.3† | 80 | 26.7 | 71 | 21.7 | | Calm | | | 0 | | 4 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 35° 52′, W. 128° 04′ | | | 30.22 | 767.6 | 57 | 13.9 | 100 | NNW | | | 5 | | ks | | | Moderate. | NNW | Foggy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 42° 36′, W. 48° 10′ | E by N ¾ N | 10 | 30.34 | 770.6 | 50.9 | 10.5 | | NNE | | | 4 | | 8 | | NE | Tranq'l | | Raining | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 38° 08′ W. 73° 25′ | N by E | 2 | 29.99 | 761.7 | 66 | 18.9 | 84 | SW | 7 | 3.1 | | 2ck | 0 | SW | | Smooth | | Clear. | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz., cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 9, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.9 | 71.6 | 22.0 | 78 | Calm | | | 0 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.15 | 765.7 | 70.5 | 21.4 | 92 | NNE | | | 1 | | 9 | | | 0 | 0 | Hidden | Peter. |
| La Calle | | | 30.11 | 764.7 | 79.5 | 26.4 | 75 | NNE | | | 2 | | 2 | | | 0 | 0 | Clear | Fleury. |
| Tunis | | | 30.15 | 765.8 | 87.8 | 31.0 | | E | | | 4 | | 1 | | | | | Clear | Jacques. |
| Sfax | | | 30.18 | 766.6 | 80.6 | 27.0 | | S | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.17 | 766.2 | 88.5 | 31.4 | | SSE | | | 1 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.17 | 766.3 | 82.0 | 27.8 | | N | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | 30.21 | 767.2 | 80.6 | 27.0 | 37 | S | | | 3 | | 5 | | | Inap. | Inap. | Fair | Lemaillot. |
| Laghouat | | | 30.23 | 767.8 | 91.4 | 33.0 | 25 | E | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.19 | 766.7 | 95.2 | 35.1 | | SE | | | 1 | | 8 | | | 0 | 0 | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.05 | 763.2 | 87.8 | 31.0 | 40 | NE | | | 2 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.06 | 763.4 | 83.1 | 28.4 | 49 | NE | | | 1 | | 1 | | | 0.157 | 4.0 | | Dr. Wierzbiski. |
| Eperies | | | 30.01 | 762.2 | 85.6 | 29.8 | 43 | S | | | 2 | | 5k,8 | | | 0.161 | 4.10 | | Julius Mikolik. |
| Gratz | 28.99 | 734.1 | 30.10 | 764.4 | 78.6 | 25.9 | 55 | S | | | 1 | | 8 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.69 | 728.6 | 30.03 | 762.8 | 81.7 | 27.6 | 47 | ESE | | | 3 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.79 | 731.2 | 30.07 | 763.7 | 77.4 | 25.2 | 61 | E | | | 1 | | 7 | | | 0.165 | 4.2 | | Prof. C. Wagner |
| Lemberg | | | 30.04 | 763.0 | 76.3 | 24.6 | 69 | S | | | 1 | | 3 | | | Blank | lank | | Dr. T. Stanecki. |
| Pola | | | 30.08 | 764.1 | 82.4 | 28.0 | 64 | WNW | | | 1 | | 3ks | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.05 | 763.3 | 83.8 | 28.8 | 53 | S | | | 3 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.10 | 764.5 | 84.0 | 28.9 | 62 | NW | | | 1 | | 1 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 30.08 | 763.9 | 80.2 | 26.8 | 54 | WNW | | | 2 | | 10 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.71 | 729.2 | 30.15 | 765.7 | 78.4 | 25.8 | 49 | SW | | | 1 | 1ck | 4 | | SW | 0 | 0 | | Royal Observatory. |
| Brussels | | | 30.10 | 764.4 | 81.7 | 27.6 | 52 | SW | | | 1 | | 5k | | | 0 | 0 | | |
| Furnes | | | 30.14 | 765.6 | 72.5 | 22.5 | 46 | WNW | | | 2 | | 3 | | | 0 | 0 | | |
| Maeseyck | | | 30.14 | 765.5 | 82.6 | 28.1 | 52 | SSW | | | 2 | | 0 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

# BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Clouds. Direction. Upper. From— | Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.79 | 756.7 | 64.8 | 18.2 | | SW | 25 | 11.2 | | | 6 | | | 0.070 | 1.78 | D. clouds | William Boswell. |
| Ardrossan | | | 29.88 | 758.9 | 56 | 13.3 | | S | | | 4 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.92 | 760.0 | 62.7 | 17.1 | | SSW | 15 | 6.7 | | | 7 | | | | | Squally | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.04 | 763.0 | 63.9 | 17.7 | | SW | 20 | 11.6 | | | 3 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.96 | 761.0 | 60.3 | 15.7 | | SSW | | | 1 | | 9 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.02 | 762.5 | 65.0 | 18.3 | | E | | | 3 | | 4 | | | 0.03 | 0.8 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 77.0 | 25.0 | | NE | | | 3 | | 7 | | | | | Overcast | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.11 | 764.8 | 70.0 | 21.1 | | WSW | | | 2 | | 7ck | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.13 | 765.3 | 73.4 | 23.6 | | | | | 1 | | 3 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.11 | 764.8 | 66.2 | 19.0 | | W | | | 2 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.63 | 727.2 | 30.11 | 764.8 | 56.0 | 13.3 | | SE | | | 2 | | 2 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.92 | 760.0 | 63 | 17.2 | | SW | | | 5 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.14 | 765.5 | 66 | 18.9 | | WSW | | | 2 | | 1 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.04 | 763.0 | 65.1 | 18.4 | | SSW | 8.8 | 3.9 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.15 | 765.8 | 59.7 | 15.4 | | SSW | | | 1 | | 10 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 28.02 | 711.7 | 30.25 | 768.3 | 65.3 | 18.5 | | E | | | 2 | | 9 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.91 | 759.7 | 84 | 28.9 | | E | | | 1 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.72 | 754.9 | 57 | 13.9 | | SW | | | 3 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.08 | 764.0 | 72.0 | 22.2 | | E | | | 2 | | 8 | | | | | Overcast | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.88 | 758.9 | 60.3 | 15.7 | | SW | | | 4 | | 10 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 30.12 | 765.0 | 73 | 22.8 | | W | | | 2 | | 1 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.13 | 765.3 | 74.5 | 23.6 | | SW | | | 1 | | 6 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.18 | 766.6 | 60 | 15.6 | | SW | | | 1 | | 8 | | | | | Drizzling | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.17 | 766.3 | 63 | 17.2 | | SW | | | 4 | | 8k | | | 0 | 0 | Fair | M. P. Moyle. |
| Holyhead | | | 30.05 | 763.3 | 59 | 15.0 | | SSW | | | 4 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.12 | 765.0 | 69.9 | 21.1 | | SW | 8 | 3.6 | | | 4 | | | | | Hazy | The Staff. |
| Kingstown | | | 29.98 | 761.5 | 64 | 17.8 | | SSE | | | 4 | | 7 | | | | | D. clouds | George Mitchell, F.G.S. |
| Leicester, Museum | | | 30.10 | 764.5 | 63.8 | 17.7 | | SW | | | 1 | | 8 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.12 | 765.0 | 79.2 | 26.2 | | NW | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.65 | 753.1 | 60 | 15.6 | | SW | | | 5 | | 2 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.09 | 764.3 | 84.0 | 28.9 | | NE | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.10 | 764.5 | 69.1 | 20.6 | | SSW | | | 4 | | 5k | | SW | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.09 | 764.3 | 64.0 | 17.8 | | SSW | | | 4 | | 8 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.12 | 765.0 | 67 | 19.4 | | WSW | | | 1 | | 8 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.15 | 765.8 | 60.2 | 15.7 | | SW | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.01 | 762.2 | 57 | 13.9 | | SW | | | 4 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.10 | 764.5 | 59 | 15.0 | | S | | | 3 | | 3 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.20 | 767.1 | 61.2 | 16.2 | | SW | | | 2 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.65 | 754.1 | 53.3 | 11.8 | | SW | 15 | 6.7 | | | 8 | | | | | Showery | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.92 | 760.0 | 80.0 | 26.7 | | NE | | | 2 | | 6 | | | | | Hazy | Sergt. W. H. Lyne. |
| Sheffield | | | 30.05 | 763.3 | 69.3 | 20.7 | | SW | | | 3 | | 3 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 29.97 | 761.2 | 65.1 | 18.4 | 69 | SW | | | 4 | | 0 | | | 0 | 0 | Blue sky | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.04 | 763.0 | 60.9 | 16.1 | | SW | | | 3 | | 9 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.62 | 752.3 | 55 | 12.8 | | SW | | | 6 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 30.13 | 765.3 | 68.8 | 20.4 | | SW | | | 1 | | 5 | | | | | D. clouds | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.67 | 753.6 | 64 | 17.8 | | WSW | | | 6 | | 5 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.16 | 766.1 | 63 | 17.2 | | S | | | 4 | | 5 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.96 | 761.0 | 56.8 | 13.8 | | S | 30 | 13.4 | | | 10 | | | | | D. clouds | The Staff. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | S | | | 6 | 0 | | | | 0.10 | 2.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.30 | 769.6 | 70.5 | 21.4 | 59 | SSE | 1 | 0.4 | | 0 | 0 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.02 | 762.5 | 56.0 | 13.3 | 91 | S | | | 2 | | 10n | | | 0.60 | 15.2 | Raining | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.87 | 758.7 | 64.1 | 17.8 | | W | | | 6 | 9ck | | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.16 | 766.1 | 74.5 | 23.6 | 69 | E | 15.2 | 6.8 | | 0 | 2 | | E | 0.01 | 0.3 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.17 | 766.3 | 50.6 | 10.3 | 95 | SE | 2 | 0.9 | | | 10 | | | 0.03 | 0.8 | Showery | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 29.64 | 752.8 | 52 | 11.1 | | SSW | | | 7 | 5 | 5 | SW | | 0.6 | 15. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.69 | 754.1 | 53 | 11.7 | | W | | | 4 | | 10 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | Barometer. Corrected. Inches. | Millimeters. | Barometer. Reduced. Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | Wind Direction From— | Miles per hour. | Meters per second. | Force. | Clouds Up'er. | Low'r. | Upper From— | Lower From— | Sea or swell. Height scale 0–9 | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 41° 0′, W. 62° 0′ | | | 30.19 | 766.8 | 72.0 | 22.2 | | S | | | 4 | | 5 | | | 4 | S | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 51° 51′, W. 11° 8′ | | | 29.90 | 759.4 | 57 | 13.9 | | SSE | | | 6 | | 0 | | | | | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0–12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0–9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.23 | 666.2 | | | 69.4 | 20.8 | 98 | S | | | 1 | | 8cs | | W | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.06 | 763.5 | 71.1 | 21.7 | 58 | S | | | 2 | | 8 | | | | | | |
| Fanöe | | | 30.03 | 762.8 | 61.2 | 16.2 | 78 | W | | | 4 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | 29.95 | 760.6 | 36.9 | 2.7 | 79 | NE | | | 4 | | 1 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.72 | 755.0 | 36.9 | 2.7 | 89 | NE | | | 7 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.47 | 748.6 | 46.2 | 7.9 | 93 | Calm | | | 0 | | 10 | | | | | Rain & fog | |
| Vestervig | | | 29.99 | 761.8 | 59.7 | 15.4 | 83 | SW | | | 6 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.08 | 764.0 | 68.0 | 20 | 59 | NE | | | 1 | 2c | | NE | | 0.08 | 2. | Slightly cl'dy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.20 | 767.1 | 79.9 | 26.6 | 57 | WNW | | | 3 | | 0 | | | 0 | 0 | Clear | Bonvarne, Director. |
| Avignon, Normal School | | | 30.16 | 766.1 | 86.7 | 30.4 | 38 | E | | | 1 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.13 | 765.3 | 82.6 | 28.1 | 51 | WSW | | | 2 | | 5k | | WSW | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.14 | 765.5 | 79.9 | 26.6 | 60 | NW | | | 2 | | 5 | | SSE | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 30.15 | 765.9 | 82.2 | 27.9 | 52 | SSE | | | 3 | | 0 | | | 0.020 | 0.5 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.28 | 769.0 | 86.0 | 30 | 60 | SW | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.16 | 766.1 | 76.1 | 24.5 | 87 | SW | | | 2 | | 2 | | NE | 0.453 | 11.5 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.12 | 765.0 | 64.6 | 18.1 | 80 | SW | | | 2 | | 10 | | SW | 0.010 | 0.25 | Misty | The Staff. |
| Carcassonne, Normal School | | | 30.12 | 765.0 | 86.7 | 30.4 | 70 | NE | | | 1 | | 1 | | NE | 0 | 0 | Clear | Vateau, Director. |
| Chen | | | 30.20 | 767.0 | 64.0 | 17.8 | 71 | N | | | 4 | | 5 | | NW | 0.008 | 0.2 | Partly cov'd | Normal School. |
| Chartres, Normal School | | | 30.08 | 763.9 | 81.9 | 27.7 | 81 | ESE | | | 2 | | 4 | | N | 0.024 | 0.6 | | Dumoullé, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.12 | 765.1 | 83.3 | 28.5 | 43 | S | | | 2 | | 2ck | | S | 0 | 0 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.08 | 764.1 | 85.5 | 29.7 | 39 | NE | | | 1 | | 1 | | | 0 | 0 | Almost clear | Alluard, Director. |
| Commercy, Normal School | | | 30.15 | 765.7 | 77.0 | 25 | 61 | SW | | | 2 | | 5 | | SW | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.23 | 767.8 | 83.7 | 28.7 | 32 | SW | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.13 | 765.3 | 81.3 | 27.4 | 58 | ENE | | | 1 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 30.17 | 766.3 | 77.7 | 25.4 | 57 | SE | | | 1 | | 5 | | S | 0 | 0 | Slightly cl'dy | Mouillet, Director. |
| Le Mans, Normal School | | | 30.17 | 766.3 | 80.2 | 26.8 | 53 | WSW | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.18 | 766.5 | 76.3 | 24.6 | 71 | NW | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.21 | 767.3 | 69.4 | 20.8 | 54 | S | | | 1 | | 2 | | S | 0 | 0 | ¼ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.13 | 765.4 | 78.4 | 25.8 | 80 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.25 | 768.3 | 79.0 | 26.1 | 53 | WNW | | | 1 | | 3k | | W | 0 | 0 | | Normal School. |
| Mirecourt | | | 30.14 | 765.6 | 73.2 | 22.9 | 58 | W | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Nîmes, Normal School | | | 30.21 | 767.4 | 89.6 | 32 | 60 | S | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 30.06 | 763.4 | 79.9 | 26.6 | 53 | SW | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.12 | 765.0 | 83.1 | 28.4 | 54 | WSW | | | 2 | | 6k | | SW | 0 | 0 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.18 | 766.5 | 78.8 | 26.0 | 59 | SW | | | 3 | | 5 | | SW | 0 | 0 | ½ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.15 | 765.8 | 76.1 | 24.5 | 53 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 29.13 | 739.8 | 30.15 | 765.8 | 82.4 | 28 | 43 | E | | | 1 | | 0 | | | 0.256 | 6.5 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.13 | 765.2 | 85.8 | 29.9 | 82 | ENE | | | 1 | | 2 | | NW | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.8 | 80.8 | 27.1 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.15 | 765.8 | 78.4 | 25.8 | 62 | WSW | | | 1 | | 0 | | | 0 | 0 | Clear. | The Staff. |
| Mont-Louis | 25.13 | 638.4 | 30.45 | 773.4 | 68.2 | 20.1 | 62 | SE | 14.9 | 6.66 | | | 6 | | W | 0.205 | 5.2 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.12 | 765.0 | 85.3 | 29.6 | 47 | W | | | 1 | | 7 | | SW | Inap. | Inap. | | Marie Davy, Director. |
| Perpignan | | | 30.21 | 767.3 | 76.3 | 24.6 | 56 | SE | 11.2 | 5.00 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.55 | 547.4 | | | 53.8 | 12.1 | | SW | | | 2 | | 4 | | | | | Fair | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.80 | 579.1 | | | 60.1 | 15.6 | | SW | | | 2 | | 4 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.29 | 769.3 | 64.4 | 18.0 | 59 | NW | | | 1 | | 5 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.21 | 767.3 | 76.3 | 24.6 | 66 | NE | | | 1 | | 1 | | | 0.075 | 1.9 | | The Staff |
| Tours | | | 30.15 | 765.9 | 80.2 | 26.8 | 53 | SSW | | | 1 | | 1 | | W | 0.004 | 0.1 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.14 | 765.6 | 82.8 | 28.2 | 54 | NW | | | 2 | | 7 | | | 0 | 0 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.97 | 761.3 | 66.7 | 19.3 | 80 | SE | 7.4 | 3.3 | | | 10n | | | 0 | 0 | Covered | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m., of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135, millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.13 | 765.2 | 80.6 | 27.0 | 42 | WNW | | | 2 | | 4 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.10 | 764.6 | 82.9 | 28.3 | 40 | N | | | 1 | | 4 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.11 | 764.9 | 81.5 | 27.5 | 56 | WNW | | | 3 | | 9 | | | 0 | 0 | | Royal University Ob's'y. |
| Carlsruhe | | | 30.12 | 765.1 | 80.6 | 27.0 | 57 | S | | | 1 | | 5 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.22 | 767.5 | 78.8 | 26.0 | 40 | N | | | 3 | | 3 | WNW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.11 | 764.8 | 82.4 | 28.0 | 44 | SE | | | 1 | | 1 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.05 | 763.2 | 75.0 | 23.9 | 56 | N | | | 3 | | 1 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.20 | 767.1 | 83.1 | 28.4 | 50 | W | | | 1 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.78 | 731.0 | 30.17 | 766.2 | 72.9 | 22.7 | 69 | WSW | | | 4 | | 1 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.13 | 765.3 | 77.0 | 25.0 | 49 | W | | | 5 | | 3k | W | | 0 | 0 | Fine | Captain F. Hegemann. |
| Kiel | | | 30.07 | 763.8 | 73.9 | 23.3 | 67 | W | | | 3 | | 2 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.05 | 763.3 | 80.2 | 26.8 | 48 | SW | | | 2 | | 5 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.13 | 765.3 | 83.5 | 28.6 | 37 | WSW | | | 1 | | 5 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.12 | 765.1 | 72.7 | 22.6 | 39 | W | | | 1 | | 4ck,c | W | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.07 | 763.7 | 75.2 | 24.0 | 61 | NNW | | | 1 | | 8 | SSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.07 | 763.7 | 85.1 | 29.5 | 39 | W | | | 2 | | 3 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.15 | 765.7 | 81.7 | 27.6 | 53 | Calm | | | 0 | | 2 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.15 | 765.8 | 73.0 | 22.8 | 60 | W | | | 1 | | 6 | W | | | | Thunder-storm | Prof. Schoder |
| Treves, (Trier) | | | 30.01 | 762.2 | 81.5 | 27.5 | 55 | NW | | | 4 | | 3 | | | 0.094 | 2.4 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.66 | 727.9 | 30.08 | 763.9 | 82.8 | 28.2 | 46 | WNW | | | 1 | | 5 | NW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.18 | 766.5 | 72.5 | 22.5 | 50 | N | | | 1 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.97 | 761.1 | 84.4 | 29.1 | | NE | | | Very Strong | | c | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.56 | 750.7 | 29.61 | 752.0 | 87.7 | 30.9 | 72 | WSW | 39.0? | 17.4? | | | 0 | | | 0 | 0 | Blue sky | |
| Deesa | 29.14 | 740.1 | 29.59 | 751.5 | 105.3 | 40.7 | 32 | Calm | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.69 | 754.2 | 29.73 | 755.2 | 89.0 | 31.7 | 73 | W | 11.0 | 4.9 | | | 10 | WNW | WSW | 0.05 | 1.3 | Dust-haze | |
| Poona | 27.75 | 704.9 | 29.75 | 755.6 | 78.1 | 25.6 | 83 | | | | | | | | E | 0.23 | 5.8 | Thunder-storm | |
| Lahore | 28.74 | 729.9 | 29.44 | 747.6 | 105.3 | 40.7 | 22 | Calm | 1.2 | 0.5 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.15 | 689.5 | 29.68 | 753.8 | 74.1 | 23.4 | 88 | W | 9.0 | 4.0 | | | 10 | | W | 0.08 | 2.0 | Raining | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.55 | 725.0 | 29.40 | 746.6 | 101.9 | 38.8 | | NW | 3.3 | 1.4 | | | | | | 0 | 0 | Strong wind | |
| Agra | 28.88 | 733.7 | 29.42 | 747.2 | 101.7 | 38.7 | 32 | W | 7.2 | 3.2 | | | 1 | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.57 | 725.6 | 29.59 | 751.6 | 85.1 | 29.5 | 56 | SE | 5.7 | 2.5 | | | 7 | | | 0.04 | 1.0 | Drizzling | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.06 | 738.2 | 29.42 | 747.2 | 100.0 | 37.8 | 30 | NW | 4.4 | 1.9 | | | | | | 0 | 0 | Dust-haze | |
| Allahabad | 29.09 | 738.8 | 29.38 | 746.4 | 97.2 | 36.2 | 44 | NNE | 2.8 | 1.0 | | | 10 | N | | 0 | 0 | Overcast | |
| Patna | 29.30 | 744.1 | 29.47 | 748.6 | 94.1 | 34.5 | 52 | Calm | 2.5 | 1.1 | | | 4 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.56 | 700.0 | 29.50 | 749.4 | 90.8 | 32.7 | 40 | WNW | 11.2 | 5.0 | | | 8 | | | 0 | 0 | | |
| Cuttack | 29.54 | 750.2 | 29.62 | 752.2 | 89.1 | 31.7 | 68 | SW | 9.6 | 4.2 | | | 7 | | | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.57 | 751.1 | 29.59 | 751.7 | 82.2 | 27.9 | 81 | S | 6.0 | 2.6 | | | 9 | | | 0.18 | 4.6 | Overcast | |
| Goalpara | 29.16 | 740.7 | 29.55 | 750.4 | 81.3 | 27.4 | 87 | SW | 3.1 | 1.3 | | | 5 | SW | | 0.63 | 16.0 | D. clouds | |
| Chittagong | 29.59 | 751.6 | 29.68 | 753.9 | 78.9 | 26.1 | 90 | S | 16.8 | 7.5 | | | 10 | | | 0 | 0 | Gloomy | |
| Sibsagar | 29.27 | 743.5 | 29.61 | 752.0 | 79.0 | 26.4 | 91 | NE | 3.4 | 1.5 | | | 10 | | W | 0.06 | 1.5 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.19 | 715.9 | 29.49 | 749.1 | 99.0 | 37.2 | 36 | SW | 9.5 | 4.2 | | | 3 | | | 0 | 0 | D. clouds | |

Note.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.53 | 572.3 | 30.26? | 768.5? | 50.5 | 10.3 | 84 | NE | | | 1 | | 10 | NNE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.49 | 571.2 | 30.14 | 765.5 | 50.9 | 10.5 | | ESE | | | 1 | | 8 | WSW | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.05 | 763.3 | 84.4 | 29.1 | 41 | S | 1.3 | 0.6 | | | 3 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.05 | 763.3 | 83.8 | 28.8 | 48 | N | 4.3 | 1.9 | | | 2 | W | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.07 | 763.7 | 88.9 | 31.6 | 36 | SW | 6.3 | 2.8 | | | 3 | N | | 0 | 0 | | Conte Alm. Da Schio |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | 28.81 | 731 8 | 30.08 | 763.9 | 86.0 | 30.0 | 47 | W | | | 1 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.08 | 763.9 | 80.6 | 27.0 | 51 | SW | | | 4 | | 6 | | | 0 | 0 | | Prof. Giuseppe Calza |
| Milan | | | 30.11 | 764.8 | 92.8 | 33.8 | 66 | W | | | 2 | | 1 | NW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.10 | 764.4 | 83.8 | 28.8 | 41 | N | | | 4 | | 2 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.10 | 764.6 | 83.1 | 28.4 | 49 | NNW | 1.3 | 0.6 | | | 2 | W | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.26 | 717.9 | 30.10 | 764.4 | 79.5 | 26.4 | 50 | N | | | 2 | | 1 | N | | 0.563 | 14.3 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.17? | 766.4? | 82.2 | 27.9 | 53 | SSW | | | 2 | | 2 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.14 | 765.5 | 77.5 | 25.3 | 70 | SW | 4.3 | 1.9 | | | 2 | N | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.11 | 764.9 | 84.2 | 29.0 | 44 | N | 3.1 | 1.4 | | | 6 | WSW | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 30.09 | 764.3 | 86.0 | 30.0 | 47 | NNW | | | 2 | | 3 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.11 | 764.7 | 87.8 | 31.0 | 42 | NW | | | 2 | | 2 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.13 | 765.2 | 79.7 | 26.5 | 62 | W | 3.8 | 1.7 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.93 | 734.8 | 30.08 | 764.1 | 83.5 | 28.6 | 44 | NNW | 3.8 | 1.7 | | | 4 | N | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.65 | 727.6 | 30.15 | 765.7 | 78.4 | 25.8 | 45 | N | | | 2 | | 0 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.13 | 765.2 | 79.0 | 26.1 | 58 | N | 19.2 | 8.6 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.08 | 764.1 | 82.8 | 28.2 | 42 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.12 | 765.1 | 85.3 | 29.6 | 47 | WSW | | | 2 | | 6 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.11 | 764.8 | 84.9 | 29.4 | 55 | SW | 6.3 | 2.8 | | | 6 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.16 | 766.0 | 85.3 | 29.6 | 41 | W | | | 2 | | 3 | | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.11 | 764.8 | 79.7 | 26.5 | 44 | NW | 12.5 | 5.6 | | | 4 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.08 | 763.9 | 86.9 | 30.5 | 58 | NE | 8.1 | 3.6 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.10 | 764.4 | 81.3 | 27.4 | 44 | S | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.14 | 765.6 | 80.2 | 26.8 | 53 | Calm | | | 0 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.08 | 764.0 | 77.9 | 25.5 | 48 | ENE | 3.1 | 1.4 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.17 | 715.5 | 30.04 | 762.9 | 76.8 | 24.9 | 40 | SW | | | 2 | | 3 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.07 | 763.6 | 79.3 | 26.3 | 53 | NNE | | | 2 | | 3 | E | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.16 | 766.0 | 82.9 | 28.3 | 62 | SW | 2.5 | 1.1 | | | 7 | | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.67 | 753.6 | 70 | 21.1 | 57 | N | 5 | 2.2 | | | 28 | | | 0.025 | 0.64 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.07 | 586.0 | 30.04 | 762.9 | 63.1 | 17.3 | 80 | Calm | 0 | 0 | | 4k | 7k | NW | | 0.130 | 3.3 | Cloudy | Mariano Bárcena. |
| | | | | | | | | | | | | | | | | | | | Vicente Reyes. |
| | | | | | | | | | | | | | | | | | | | Miguel Perez. |
| | | | | | | | | | | | | | | | | | | | (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.14 | 765.6 | 74.7 | 23.7 | | N | | | 3 | | | | | 0 | 0 | | |
| Groningen | | | 30.07 | 763.7 | 73.6 | 23.1 | | W | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.13 | 765.3 | 63.3 | 17.4 | | WSW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.08 | 764.1 | 82.4 | 28.0 | 52 | WSW | | | 4 | | 5 | | | 0 | 0 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.80 | 757.0 | 50.0 | 10.0 | 98 | SSE | 25.9 | 11.6 | | | 10 | | | 0.335 | 8.5 | Raining | |
| Brönö | | | 29.80 | 756.9 | 55.4 | 13.0 | 77 | NW | 9 | 4 | | | 2 | | | 0.354 | 9.0 | | |
| Christiania | | | 29.95 | 760.6 | 55.6 | 13.1 | 93 | SSW | 7 | 3 | | | 10 | | | 0.035 | 0.9 | | |
| Tromsö | | | 29.71 | 754.6 | 42.6 | 5.9 | 93 | NW | 7 | 3 | | | 10 | | | 0.311 | 7.9 | Raining | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.07 | 763.7 | 65.3 | 18.5 | 67 | W | 6.9 | 3.1 | | | 5 | | | 0.181 | 4.6 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.98 | 761.4 | 95.0 | 35.0 | 27 | SE | 6.2 | 2.75 | | | 1 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.05 | 763.2 | 71.6 | 22.0 | 73 | SW | 6.9 | 3.1 | | | 2 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.04 | 763.1 | 79.9 | 26.6 | 51 | S | 3.8 | 1.7 | | | 0 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.09 | 764.3 | 72.3 | 22.4 | 64 | WSW | 5.6 | 2.5 | | | 5 | NNW | | 0.020 | 0.5 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.10 | 764.4 | 70.7 | 26.5 | 45 | ESE | 11 | 5 | | | 4 | | | | | | Astronomical Obs. |
| Wilna | | | 30.11 | 764.9 | 74.8 | 23.8 | 41 | W | 4 | 2 | | | 6 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.00 | 762.1 | 65.3 | 18.5 | 40 | WSW | 16 | 7 | | | 9 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.86 | 758.5 | 58.3 | 14.6 | 63 | WNW | 22 | 10 | | | 9 | | | | | | Central Physical Obs |
| Kuopio | | | 29.74 | 755.5 | 53.6 | 12.0 | 65 | WNW | 27 | 12 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 30.04 | 762.9 | 74.5 | 23.6 | 44 | NNE | 7 | 3 | | | 5 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.04 | 763.0 | 66.6 | 19.2 | 99 | NW | 49 | 22 | | | 10 | | | | | Thunder-storm. | Kurdakof |
| Kertch | | | 29.97 | 761.2 | 87.3 | 30.7 | 57 | NNW | 7 | 3 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.96 | 761.0 | 66.0 | 18.9 | 64 | N | 13 | 6 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.84 | 757.9 | 80.6 | 27.0 | 62 | NNW | 2 | 1 | | | 5 | | | | | | Meteorological Obs. |
| Archangel | | | 29.40 | 746.8 | 53.8 | 12.1 | 63 | WNW | 27 | 12 | | | 9 | | | | | | Ogorodnikof. |
| Tiflis | 28.56 | 725.3 | 29.89 | 759.2 | 84.6 | 29.2 | 26 | S | 4 | 2 | | | 1 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.77 | 756.1 | 85.1 | 29.5 | 38 | N | 11 | 5 | | | 5 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.56 | 750.7 | 74.5 | 23.6 | 38 | SW | 16 | 7 | | | 2 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.87 | 758.6 | 64.9 | 18.3 | 81 | W | 13 | 6 | | | 3 | | | | | | Tschernischef. |
| Ekaterinburg | 28.56 | 725.5 | 29.47 | 748.4 | 68.5 | 20.3 | 30 | W | 7 | 3 | | | 3 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.76 | 755.8 | 69.6 | 20.9 | 73 | SW | 4 | 2 | | | 5 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.41 | 721.6 | 30.08 | 763.9 | 67.3 | 19.6 | 69 | E | 7 | 3 | | | 6 | | | | | | Michelson. |
| Barnaul | | | 29.63 | 752.5 | 70.7 | 21.5 | 60 | SE | 4 | 2 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.34 | 745.1 | 73.2 | 22.9 | 61 | SW | 11 | 5 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 59.9 | 15.5 | | NW | 7 | 3 | | | 4 | | | | | | Mossin. |
| Peking, (China) | | | 29 83 | 757.6 | 77.4 | 25.2 | 47 | SE | 18 | 8 | | | 5 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.69 | 754.0 | 57.2 | 14.0 | 59 | N | 4 | 2 | | | 3 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.98 | 761.4 | 91.8 | 33.2 | 31 | SW | 5.2 | 2.33 | | 0 | 1 | | | 0 | 0 | | The Staff. |
| San Fernando, Naval Obs'y. | | | 30.03 | 762.8 | 83.1 | 28.4 | 48 | SE | 17.9 | 8.0 | | 0 | 1 | | SW | 0 | 0 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.04 | 763.0 | 83.1 | 28.4 | 75 | E | 1.1 | 0.5 | | 0 | 0 | | | 0.016 | 0.4 | Clear | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.95 | 760.6 | 83.1 | 28.4 | 84 | E | 8.5 | 3.80 | | 7cs | 2k | | E | 1.181 | 30.00 | D. clouds | Leonardo de Tejeda, Chief of Engineers |

NOTE.—The originals give the weather in general terms, as published: wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.71 | 754.7 | 54.7 | 12.6 | 63 | NW | | | 4 | | 2 | | | 0 | 0 | | |
| Umea | | | 29.82 | 757.3 | 65.8 | 18.8 | 36 | NW | | | 4 | | 6 | | | 0.122 | 3.1 | | |
| Hernosand | | | 29.85 | 758.2 | 62.1 | 16.7 | 44 | SSW | | | 4 | | 3 | | | 0 | 0 | | |
| Stockholm | | | 29.97 | 761.2 | 64.2 | 17.9 | 34 | SW | | | 6 | | 4 | | | 0 | 0 | | |
| Wisby | | | 30.07 | 763.8 | 63.3 | 17.4 | 49 | W | | | 4 | | 5 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.95 | 760.6 | 63.0 | 17.2 | 40 | W | 16.6 | 7.4 | | | 6 | W | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.78 | 730.9 | 30.14 | 765.6 | 75.4 | 24.1 | 55 | NNE | | | 3 | | 6 | | | 0 | 0 | Bright | The Observatory. |
| Zurich | 28.57 | 725.7 | 30.11 | 764.9 | 83.7 | 28.7 | 45 | W | | | 1 | | 2 | | | 0 | 0 | Stormy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +4.7 mm; Thermometer, +4.2 cent.; Relative Humidity, —1 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.98 | 761.5 | 77.5 | 25.3 | 62 | NNE | 10 | 4.5 | | | 3 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | | | | | | | | | | | | | | | | | |
| Salonica | | | 30.09 | 764.3 | 72.0 | 22.2 | | SW | | | 4 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.19 | 766.8 | 79.7 | 26.5 | | W | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.90 | 759.4 | 82.0 | 27.8 | 55 | WSW | | | 3 | | 2k | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.05 | 763.3 | 58.9 | 14.9 | 90 | Calm | 0 | 0 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.81 | 757.2 | 73 | 22.8 | | NE | 1 | 0.4 | | | 8s | | NE | 0 | 0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B. | | | 30.06 | 763.5 | 65 | 18.3 | 86 | SW | 4 | 1.8 | | 2k | 8ks | S | S | 0.01 | 0.3 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.14 | 765.5 | 63 | 17.2 | 83 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.75 | 755.6 | 70.6 | 21.4 | 84 | E | | | 2 | 0 | 9s | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.92 | 760.0 | 53.0 | 11.7 | 100 | SE | | | 1 | | | | | 0.26 | 6.6 | Overcast | H. A. Johnson. |
| Esquimault, B. C. | | | 30.34 | 770.6 | 52.3 | 11.3 | 86 | SW | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.96 | 761.0 | 52 | 11.1 | 86 | Calm | 0 | 0 | | 5k | 5n | S | S | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 30.11 | 764.8 | 62.5 | 16.9 | 86 | SW | 4 | 1.8 | | | 10s | | | 0.17 | 4.3 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.12 | 765.0 | 38 | 3.3 | 86 | NE | 5 | 2.2 | | 5k | 5cs | N | N | 0 | 0 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.65 | 753.1 | 68.7 | 20.4 | 94 | SW | | | 2 | | 10n | | | | | Raining | H. J. Strang, M. A |
| Granton, Ontario | 28.61 | 726.7 | 29.67 | 753.6 | 66 | 18.9 | 100 | S | | | 2 | | 10n | | | 0.09 | 2.3 | Cloudy | James Grant. |
| *Halifax, N. S. | | | 30.12 | 765.0 | 54 | 12.2 | 97 | E | 8 | 3.6 | | | Fog | | | 0.890 | 22.60 | Foggy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.73 | 755.1 | 70.7 | 21.5 | 85 | S | | | 4 | 10ck | 0 | SW | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.42 | 772.7 | 48 | 8.9 | 43 | SW | | | 4 | 0 | 1s | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.81 | 757.2 | 69 | 20.6 | 85 | S | 17 | 7.6 | | 2cs | 8ks | S | S | 0 | 0 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.84 | 757.9 | 72 | 22.2 | 78 | S | 12 | 5.4 | | 2cs | 2ks | S | S | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.63 | 752.6 | 69 | 20.6 | 85 | SE | 17 | 7.6 | | 5k | 5ks | S | S | 0 | 0 | Cloudy | Rev. R. Mosley |
| Peterboro, Ontario | | | 29.74 | 755.4 | 67.7 | 19.8 | 89 | S | | | 1 | | 10 | | | 0 | 0 | Misty | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.74 | 755.4 | 63 | 17.2 | 94 | SW | 12 | 5.4 | | | 10n | | SW | 0.01 | 0.3 | Light rain | H. Morgan. |
| Port Hastings, N. S. | | | 30.13 | 765.3 | 49.5 | 9.7 | | S | | | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.74 | 755.4 | 62 | 16.7 | 96 | SW | 7 | 3.1 | | | 10n | | SW | 0.08 | 2.0 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.94 | 760.5 | 60 | 15.6 | 94 | N | 6 | 2.7 | | | 10n | | N | 0.03 | 0.8 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.69 | 754.1 | 66 | 18.9 | 71 | E | 8 | 3.6 | | | 5s | | SE | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | 30.12 | 765.0 | 59 | 15.0 | 94 | Calm | 0 | 0 | | | 10s | | | 0.01 | 0.3 | Cloudy | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.61 | 752.1 | 68 | 20.0 | 74 | SW | 8 | 3.6 | | | 10ks | | SW | Inap. | Inap. | Light rain | K. Stewart. |
| Stayner, Ontario | | | 29.63 | 752.6 | 68 | 20.0 | 89 | SE | 5 | 2.2 | | | 10n | | S | 0 | 0 | Threatening | R. J. Cole. |
| Stratford, Ontario | 28 43 | 722.1 | 29.65 | 753.1 | 65.8 | 18.8 | 97 | SW | 13 | 5.8 | | | 10s | | | | | Light rain | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.25 | 768.3 | 53 | 11.7 | 99 | S | 5 | 2.2 | | | 10n | | | 0.10 | 2.5 | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 29.73 | 755.1 | 63 | 17.2 | 98 | S | 7 | 3.1 | | | 10ks | | SW | 0.01 | 0.3 | Threatening | Magnetic Observatory. |
| Windsor, N. S. | | | 30.04 | 763.0 | 62.3 | 16.8 | 86 | SE | 5 | 2.2 | | | 10n | | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.68 | 753.9 | 67.4 | 19.7 | 94 | W | 18 | 8.0 | | | 10s | | | 0.30 | 7.6 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.51 | 774.9 | 62.0 | 16.7 | 33 | SW | | | | 5k | 5s | | | | | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.89 | 759.2 | 74 | 23.3 | 71 | S | 3 | 1.3 | | | Haze | | | Inap. | Inap. | Dense haze | |
| Alpena, Mich. | | | 29.56 | 750.8 | 62 | 16.7 | 83 | W | 14 | 6.3 | | | 10s | | W | 1.27 | 32.3 | Cloudy | |
| Atlantic City, N. J. | | | 29.98 | 761.5 | 66 | 18.9 | 94 | SW | 1 | 0.4 | | | 10s | | W | Inap. | Inap. | Cloudy | |
| Augusta, Ga. | | | 30.04 | 763.0 | 78 | 25.6 | 82 | S | 5 | 2.2 | | 5ck | 2s | | S | 0.10 | 2.5 | Fair | |
| Baltimore, Md. | | | 29.96 | 761.0 | 73 | 22.8 | 81 | SW | 4 | 1.8 | | 5k | 5s | | | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 29.97 | 761.2 | 65 | 18.3 | 92 | S | 3 | 1.3 | | 10cs | Haze | W | | 0 | 0 | Cloudy | |
| Bismarck, Dakota | 28.37 | 720.6 | 30.04 | 763.0 | 44 | 6.7 | 59 | NW | 2 | 0.9 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Boston, Mass. | | | 30.04 | 763.0 | 57 | 13.9 | 100 | E | 4 | 1.8 | | | Fog | | E | 0.03 | 0.8 | Foggy | |
| Breckenridge, Minn | | | 30.07 | 763.8 | 36 | 2.2 | 80 | NW | 19 | 8.5 | | 2k | 0 | NW | | 0.01 | 0.3 | Fair | |
| Buffalo, N. Y. | | | 29.72 | 754.9 | 68 | 20.0 | 90 | SW | 5 | 2.2 | | | 10n | | | 0.02 | 0.5 | Light rain | |
| Burlington, Vt. | | | 29.89 | 759.2 | 73 | 22.8 | 71 | S | 11 | 4.9 | | 0 | 5s | | S | 0 | 0 | Fair | |
| Cairo, Ill. | | | 28.68 | 753.9 | 70 | 21.1 | 95 | W | 2 | 0.9 | | | 10s | | W | 0.53 | 13.5 | Cloudy | |
| Campo, Cal. | 27.47 | 697.7 | 30.04 | 763.0 | 62 | 16.7 | 33 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 68 | 20.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.04 | 763.0 | 76 | 24.4 | 90 | SW | 14 | 6.3 | | 5k | 0 | W | | 0.01 | 0.3 | Fair | |
| Cape Henry, Va. | | | 30.04 | 763.0 | 76 | 24.4 | 86 | SW | 12 | 5.4 | | | 10s | | W | 0.88 | 22.4 | Cloudy | |
| Cape Lookout, N. C. | | | 30.13 | 765.3 | 78 | 25.6 | 90 | SW | 10 | 4.5 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.99 | 761.7 | 70 | 21.1 | 84 | SW | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Charleston, S. C. | | | 30.10 | 764.5 | 81 | 27.2 | 82 | S | 9 | 4.0 | | 5cs | 5s | | S | 0 | 0 | Cloudy | |
| Cheyenne, Wyoming | 24.22 | 615.2 | 30.16 | 766.1 | 35 | 1.7 | 90 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.68 | 753.9 | 58 | 14.4 | 88 | NW | 5 | 2.2 | | | 10n | | | 0.92 | 23.4 | Light rain | |
| Cincinnati, Ohio | | | 29.68 | 753.9 | 70 | 21.1 | 95 | S | 3 | 1.3 | | | 10n | | SW | 0.39 | 9.9 | Light rain | |
| Cleveland, Ohio | | | 29.71 | 754.6 | 71.5 | 21.9 | 78 | S | 16 | 7.2 | | | 10s | | S | 0.11 | 2.8 | Cloudy | |
| Corsicana, Tex | | | 30.02 | 762.5 | 61 | 16.1 | 82 | NW | 14 | 6.3 | | | 10s | | NW | 2.44 | 62.0 | Cloudy | |
| Davenport, Iowa | | | 29.87 | 758.7 | 47 | 8.3 | 62 | NW | 20 | 8.9 | | | 10s | | | Inap. | Inap. | Cloud | |
| Denison, Texas | | | 30.05 | 763.3 | 59 | 15.0 | 76 | NW | 10 | 4.5 | | | 10s | | NW | 0.94 | 23.9 | Cloudy | |
| Denver, Col. | 25.02 | 635.5 | 30.24 | 768.1 | 42 | 5.6 | 75 | S | 5 | 2.2 | | 0 | 0 | | | 0.31 | 7.9 | Clear | |
| Detroit, Mich. | | | 29.62 | 752.3 | 69 | 20.6 | 90 | SW | 8 | 3.6 | | | 10s | | SW | 0.03 | 0.8 | Cloudy | |
| Dodge City, Kan. | 27.61 | 701.3 | 29.95 | 760.7 | 44 | 6.7 | 75 | N | 12 | 5.4 | | 0 | 2s | | N | 1.08 | 27.4 | Clear | |
| Dubuque, Iowa | | | 29.86 | 758.4 | 47 | 8.3 | 62 | N | 11 | 4.9 | | 5cs | 0 | NW | | 0.15 | 3.8 | Fair | |
| Duluth, Minn. | | | 29.82 | 757.4 | 41 | 5.0 | 73 | NW | 17 | 7.6 | | 10k | 0 | NW | | 0 | 0 | Cloudy | |
| Eagle Pass, Texas | | | 30.29 | 769.4 | 65 | 18.3 | 52 | NE | 20 | 8.9 | | | 10s | | N | 0 | 0 | Threatening | |
| Eastport, Me. | | | 30.10 | 764.5 | 51 | 10.6 | 100 | NE | 4 | 1.8 | | | Fog | | | 0.37 | 9.4 | Foggy | |
| Erie, Pa. | | | 29.70 | 754.4 | 71 | 21.7 | 85 | S | 18 | 8.0 | | | 10ks | | SW | 0.02 | 0.5 | Cloudy | |
| Escanaba, Mich. | | | 29.66 | 752.4 | 51 | 10.6 | 79 | NW | 14 | 6.3 | | | 10s | | NW | 0.63 | 16.0 | Cloudy | |
| Florence, Arizona | 28.39 | 721.1 | 29.99 | 761.7 | 79 | 26.1 | | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.98 | 761.5 | 56 | 13.3 | 80 | N | 16 | 7.2 | | | 10s | | N | 0.13 | 3.3 | Cloudy | |
| Fort Griffin, Tex. | 28.89 | 733.8 | 30.17 | 766.3 | 56 | 13.3 | 50 | N | 16 | 7.2 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.66 | 753.4 | 46 | 7.8 | 84 | SE | | | 5 | 2ck | 8ks | SE | NE | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.92 | 734.6 | 30.04 | 763.0 | 53 | 11.7 | 53 | N | 14 | 6.3 | | 1k | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.44 | 722.4 | 30.13 | 765.3 | 42 | 5.6 | 74 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 29.92 | 760.0 | 73 | 22.8 | 100 | N | 30 | 13.4 | | | 10n | | | 1.53 | 38.9 | Heavy rain | |
| Grand Haven, Mich. | | | 29.70 | 754.4 | 54 | 12.2 | 93 | W | 10 | 4.5 | | | Fog | | | 1.52 | 38.6 | Foggy | |
| Indianapolis, Ind. | | | 29.69 | 754.1 | 66 | 18.9 | 92 | NW | 4 | 1.8 | | | 10n | | NW | 0.37 | 9.4 | Light rain | |
| Indianola, Tex. | | | 29.96 | 761.0 | 67 | 19.4 | 100 | N | 36 | 16.1 | | | 10n | | N | 0.65 | 16.5 | Heavy rain | |
| Jacksonville, Fla. | | | 30.07 | 763.8 | 82 | 27.8 | 79 | SE | 12 | 5.4 | | 5k | 0 | SE | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 29.84 | 757.9 | 45 | 7.2 | 84 | N | 16 | 7.2 | | | 10s | | N | 0.35 | 8.9 | Cloudy | |
| Key West, Fla. | | | 30.03 | 762.7 | 81.5 | 27.5 | 82 | SE | 8 | 3.6 | | 2k | 2ks | SE | SE | 0.01 | 0.3 | Fair | |
| Kittyhawk, N. C. | | | 30.08 | 764.0 | 78 | 25.6 | 86 | SW | 17 | 7.6 | | 8k | 0 | SW | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 29.90 | 759.4 | 70 | 21.1 | 90 | N | 5 | 2.2 | | 10cs | 0 | SW | | 0.25 | 6.3 | Cloudy | |
| LaCrosse, Wis. | | | 29.86 | 758.4 | 45 | 7.2 | 68 | NW | 9 | 4.0 | | 0 | 0 | | | 0.35 | 8.9 | Clear | |
| Leavenworth, Kan. | | | 30.07 | 763.8 | 47 | 8.3 | 69 | N | 12 | 5.4 | | 2ck | 5s | SW | | 0.45 | 11.4 | Cloudy | |
| Louisville, Ky. | | | 29.72 | 754.9 | 71 | 21.7 | 95 | SW | 7 | 3.1 | | | 10n | | SW | 1.24 | 31.5 | Heavy rain | |
| Lynchburg, Va. | | | 29.99 | 761.7 | 73 | 22.8 | 81 | SW | 2 | 0.9 | | | 10s | | NW | 0.04 | 1.0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 86 | 30.0 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.64 | 752.8 | 50 | 10.0 | 78 | W | 8 | 3.6 | | | 10s | | | 0.70 | 17.8 | Cloudy | |
| Mason, Texas | 28.47 | 723.1 | 30.22 | 767.6 | 59 | 15.0 | 64 | NW | 24 | 10.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 29.77 | 756.1 | 69 | 20.6 | 100 | S | 8 | 3.6 | | | 10n | | SW | 9.67 | 245.6 | Light rain | |
| Milwaukee, Wis. | | | 29.74 | 755.4 | 53 | 11.7 | 93 | W | 13 | 5.8 | | | 10s | | W | 0.79 | 20.1 | Cloudy | |
| Mobile, Ala. | | | 29.99 | 761.7 | 82 | 27.8 | 75 | S | 10 | 4.5 | | 5c | 5s | W | S | 0 | 0 | Cloudy | |
| Montgomery, Ala. | | | 29.99 | 761.7 | 78 | 25.6 | 84 | S | 5 | 2.2 | | 10cs | 5ks | W | S | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 28.83 | 732.3 | 29.83 | 757.7 | 71 | 21.7 | 75 | S | 9 | 4.0 | | | 10s | | SW | 0.45 | 11.4 | Cloudy | |
| Mt. Washington, N. H. | 23.91 | 607.3 | 30.27 | 768.8 | 49 | 9.4 | 93 | W | 15 | 6.7 | | 5c | 8s | W | W | 0.08 | 2.0 | Fair | |
| Nashville, Tenn. | | | 29.78 | 756.4 | 73 | 22.8 | 90 | SE | 10 | 4.5 | | | 10n | | SE | 1.14 | 29.0 | Heavy rain | |
| New Haven, Conn. | | | 30.01 | 762.2 | 63 | 17.2 | 94 | SE | 8 | 3.6 | | | Fog | | | 0 | 0 | Foggy | |
| New London, Conn. | | | 30.04 | 763.0 | 61 | 16.1 | 100 | SE | 8 | 3.6 | | | Fog | | E | 0 | 0 | Dense fog | |
| New Orleans, La. | | | 29.96 | 761.0 | 79 | 26.1 | 86 | S | 3 | 1.3 | | | 10s | | S | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 30.04 | 763.0 | 60 | 15.6 | 94 | E | 10 | 4.5 | | | Fog | | W | 0 | 0 | Foggy | |
| New York, N. Y. | | | 29.99 | 761.7 | 65 | 18.3 | 94 | E | 5 | 2.2 | | | 10s, fg | | | 0 | 0 | Threatening | |
| Norfolk, Va. | | | 30.05 | 763.3 | 76 | 24.4 | 86 | SW | 11 | 4.9 | | 10cs | 0 | | | 0.68 | 17.3 | Cloudy | |
| North Platte, Neb. | 27.29 | 693.2 | 29.93 | 760.2 | 42 | 5.6 | 70 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.96 | 735.6 | 30.05 | 763.3 | 48 | 8.9 | 71 | W | 5 | 2.2 | | 0 | 0 | | | 0.15 | 3.8 | Clear | |
| Oswego, N. Y. | | | 29.81 | 757.2 | 74 | 23.3 | 72 | SE | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Pembina, Dakota | | | 30.10 | 764.5 | 36 | 2.2 | 90 | NW | 12 | 5.4 | | 10k | 0 | NW | | 0.05 | 1.3 | Cloudy | |
| Philadelphia, Pa. | | | 29.97 | 761.2 | 72 | 22.2 | 85 | W | 2 | 0.9 | | 2ck | 8ks, sm | W | W | 0 | 0 | Cloudy | |
| Phœnix, Arizona | | | | | 72 | 22.2 | | NW | | | | 0 | 2c | | | 0 | 0 | Fair | |
| Pike's Peak, Col. | 17.86 | 453.6 | 30.08 | 764.0 | 10 | —12.2 | 100 | NW | 29 | 13.0 | | 0 | | | | 0.72 | 18.3 | Clear | |
| Pittsburgh, Pa. | | | 29.78 | 756.4 | 73 | 22.8 | 76 | SW | 9 | 4.0 | | 2c | 5k | W | W | 0.12 | 3.0 | Fair | |
| Port Huron, Mich. | | | 29.61 | 752.1 | 69 | 20.6 | 90 | SW | 10 | 4.5 | | | 10s | | S | 0.05 | 1.3 | Threatening | |
| Portland, Me. | | | 30.03 | 762.7 | 57 | 13.9 | 93 | E | 2 | 0.9 | | | Fog | | | 0.08 | 2.0 | Foggy | |
| Portland, Oregon | | | 30.34 | 770.6 | 57 | 13.9 | 93 | NW | 1 | 0.4 | | 0 | 2s | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.97 | 634.2 | 30.33 | 770.4 | 50 | 10.0 | 50 | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.05 | 763.3 | 81 | 27.2 | 78 | E | 12 | 5.4 | | 0 | 8ks | | | 0 | 0 | Cloudy | |
| Rochester, N. Y. | | | 29.74 | 755.4 | 73 | 22.8 | 71 | SW | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Salt Lake City, Utah | 25.90 | 657.8 | 30.23 | 767.8 | 50 | 10.0 | 64 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.98 | 761.5 | 64 | 17.8 | 94 | SE | 6 | 2.7 | | | Fog | | | 0.01 | 0.3 | Foggy | |
| San Antonio, Tex. | | | 29.91 | 759.7 | 64 | 17.8 | 68 | N | 10 | 4.5 | | | 10n | | | 0.72 | 18.3 | Light rain | |
| San Diego, Cal. | | | 29.98 | 761.5 | 61 | 16.1 | 100 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| San Francisco, Cal. | | | 29.98 | 761.5 | 63 | 17.2 | 67 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, New Mexico | 23.48 | 596.4 | 30.02 | 762.5 | 40 | 4.4 | 73 | SW | 1 | 0.4 | | Haze | 0 | | | 0.01 | 0.3 | Clear | |
| Savannah, Ga. | | | 30.08 | 764.0 | 82 | 27.8 | 74 | SW | 12 | 5.4 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Shreveport, La. | | | 29.97 | 761.2 | 73 | 22.8 | 95 | SW | 6 | 2.7 | | | 10s | | S | 0.13 | 3.3 | Cloudy | |
| Smithville, N. C. | | | 30.11 | 764.8 | 76 | 24.4 | 90 | S | 9 | 4.0 | | | 10s | | S | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 30.01 | 762.2 | 69 | 20.6 | 77 | S | 4 | 1.8 | | | 10s | | S | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 29.96 | 761.0 | 57 | 13.9 | 94 | N | 20 | 8.9 | | | 10n | | | 0.51 | 13.0 | Light rain | |
| St. Marks, Fla. | | | 30.04 | 763.0 | 80 | 26.7 | 82 | S | 12 | 5.4 | | 0 | 8s | | S | 0 | 0 | Cloudy | |
| St. Paul, Minn. | | | 29.89 | 759.2 | 40 | 4.4 | 63 | NW | 16 | 7.2 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 73 | 22.8 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Stockton, Tex | 27.24 | 691.9 | 30.24 | 768.1 | 52 | 11.1 | 72 | NW | 8 | 3.6 | | 2cs | 2s | NW | NW | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 30.05 | 763.3 | 57 | 13.9 | 93 | E | 4 | 1.8 | | | | | | 0 | 0 | Dense fog | |
| Toledo, Ohio | | | 29.64 | 752.8 | 70 | 21.1 | 90 | S | 14 | 6.3 | | | 10s | | SW | 0.08 | 2.0 | Threatening | |
| Tucson, Arizona | 27.56 | 700.0 | 30.10 | 764.5 | 66 | 18.9 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.07 | 763.8 | 81 | 27.2 | 87 | S | 10 | 4.5 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 29.90 | 759.4 | 75 | 23.9 | 90 | S | 12 | 5.4 | | | 10n | | SW | 0.08 | 2.0 | Light rain | |
| Virginia City, Montana | 24.45 | 621.0 | 29.93 | 760.2 | 41 | 5.0 | 65 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 29.97 | 761.2 | 72 | 22.2 | 83 | S | 14 | 6.3 | | 2ck | 8s | W | SW | Inap. | Inap. | Cloudy | |
| Wickenburg, Arizona | | | | | 80 | 26.7 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.09 | 764.3 | 78 | 25.6 | 82 | SW | 11 | 4.9 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 30.08 | 764.0 | 59 | 15.0 | 97 | S | 6 | 2.7 | | | Fog | | S | 0.05 | 1.3 | Foggy | |
| Yankton, Dakota | 28.82 | 732.0 | 30.13 | 765.3 | 45 | 7.2 | 48 | NW | 17 | 7.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.94 | 760.5 | 78 | 25.6 | 42 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.17 | 766.3 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 10c | 8n | | SE | 0 | 0 | | James Gall. |
| Navassa, W. I | | | | | 81 | 27.2 | | ENE | | | 2 | | | | | 1.29 | 32.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.00 | 762.0 | 81 | 27.2 | 83 | E | | | 2 | 3c | 5k | E | | 0.290 | 7.37 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.23 | 640.8 | | | 69.5 | 20.8 | 78 | NE | | | 2 | 2cs | 3ks | | | 0.14 | 3.6 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.12 | 765.0 | 33 | 0.6 | 95 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.11 | 764.8 | 74 | 23.3 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke. |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,185 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.9 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.86 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.07 | 763.8 | 76 | 24 4 | 73 | 22.8 | 81 | SSW | | | 2 | | 9 | | SSW | 0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.06 | 763.5 | 77 | 25.0 | 65 | 18.3 | | NW | | | 1 | | 0 | | | 0 | 0 | | | Heavy dew | |
| Navy Yard, Pensacola, Fla. | 30.13 | 765.3 | | | 80 | 26.7 | 87 | S | 21 | 9.4 | | | 9 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.90 | 759.4 | 62 | 16.7 | 62 | 16.7 | 88 | | | | | | 10 | | | 0.45 | 11.4 | | | Raining | |
| Naval Hospital, Yokohama, Japan | 29.58 | 751.3 | 71 | 21.7 | 68 | 20.0 | 67 | WNW | | | 2 | | Haze | | | 0.16 | 4.1 | | | Clear | |
| Alert, N. 10° 12′ 01″, E. 141° 20′ 22″ | 29.96† | 761.0† | 85 | 29.4 | 85 | 29.4 | 96 | NE | | | 1 | | 6 | | NE | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.03 | 762.7 | 77 | 25.0 | 76 | 24.4 | 82 | W | | | 2 | | 2 | | | | | Light | S&W | Clear | |
| Ashuelot, Amoy, China | 29.92 | 760.0 | 82 | 27.8 | 81 | 27.2 | 83 | S | | | 2 | | 10 | | S | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 29.97 | 761.2 | 55 | 12.8 | 79 | 26.1 | 86 | SSE | | | 2 | | 10 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.02 | 762.5 | 64 | 17.8 | 64 | 17.8 | 94 | ENE | 1 | 0.4 | | | 10 | | | 0.02 | 0.5 | | | Foggy | |
| Despatch, Smyrna, Turkey | 30.08 | 764.0 | 73 | 22.8 | 75 | 23.9 | 72 | NE | | | 2 | | 6 | | NE | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 30.09 | 764.3 | 73 | 22.8 | 74 | 23.3 | 90 | S | 4 | 1.8 | | | 9 | | S | 0.6 | 15. | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.21 | 767.3 | 72 | 22.2 | 74 | 23.3 | 95 | N | | | 2 | | 2kn | | N | 0 | 0 | | | Hazy | |
| ‡ Gettysburg, Portofino, Italy | 29.98 | 761.5 | | | 78 | 25.6 | 100 | S | | | 1 | | 3 | | | 0 | 0 | Calm | None | Hazy | |
| Hartford, Hampton Roads, Va | 30.28 | 769.1 | 76 | 24.4 | 73 | 22.8 | 85 | SW | 4.8 | 2.1 | | | 6 | | | 0 | 0 | | | Pleasant | |
| Huron, N. 10° 50′, W. 75° 06′ 30″ | 30.07 | 763.8 | 81 | 27.2 | 80 | 26.7 | 84 | SSW | | | 4 | | 10 | | SW | 1.438 | 36.52 | Low | NNW | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.93 | 760.2 | 72 | 22.2 | 70 | 21 1 | 90 | N | | | 2 | | 3 | | S | ¶0.5 | 13.¶ | | | Pleasant | |
| Lackawana, N. 20° 08′, W. 121° 20′ | 30.02 | 762.5 | | | 67 | 19.4 | 69 | Calm | | | 0 | | 10 | | N | | | Long | N&W | D. clouds | |
| Marion, N. 38° 50′ E. 26° 10′ | 29.94 | 760.5 | 78 | 25.6 | 78 | 25.6 | 61 | N | | | 3 | | 3 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.29 | 744.0 | 74 | 23.3 | 73 | 22.8 | 76 | S | | | 3 | | 2 | | SW | | | | | Fair | |
| Monocacy, Tientsin, China | 29.77 | 756.1 | 77 | 25.0 | 75 | 23.9 | 90 | SE | | | 2 | | 8 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.08 | 764.0 | 62 | 16.7 | 62 | 16.7 | | E | | | 1 | | 10k | | | | | | | Foggy | |
| New Hampshire, Port Royal, S. C | 30.33 | 770 4 | | | 78 | 25.6 | 86 | S | 25 | 11.2 | | | 9 | | | 0 | 0 | | | D. clouds | |
| Omaha, Chimbote, Peru | 30.06 | 763.5 | 72 | 22.2 | 72 | 22.2 | 85 | S&W | 1 | 0.5 | | | 1 | | | 0 | 0 | Smooth | | Clear | |
| Ossipee, Norfolk, Va | 30.09 | 764.3 | 75 | 23.9 | 74 | 23.3 | 95 | SW | | | 2 | | 5 | | SW | | | | | D. clouds | |
| Palos, Shanghai, China | 30.02 | 762.5 | 76 | 24.4 | 70 | 21.1 | 90 | SE | | | 2 | | 10 | | S | Blank | Blank | | | Cloudy | |
| Pensacola, N. 19° 25′, W. 115° 20′ | 30.05 | 763.3 | | | 71 | 21.7 | 75 | WNW | | | 1–2 | | 10 | | | 0 | 0 | Moderate. | N&W | | |
| Plymouth, N. 19° 44′ W. 96° 8′ | 29.95 | 760.7 | 88 | 31.1 | 85 | 29.4 | 92 | SSE | | | 1 | | 5 | | N | 0 | 0 | Light | E | Hazy | |
| Ranger, N. 34° 14′, E. 21° 08′ | 30.12 | 765 0 | | | 72 | 22.2 | 85 | WSW | | | 4 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.22 | 767.6 | 72.2 | 22.3 | 72.5 | 22.5 | 93 | Calm | | | 0 | | | | | 0 | 0 | | | Lightly overcast | |
| Rio Bravo, Matamoras, Mexico | 29.73 | 755.1 | | | 75 | 23.9 | 95 | SSE | | | 1 | | 9 | | SW | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.06 | 763 5 | 74 | 23.3 | 73 | 22.8 | 81 | SW | | | 2 | | 10 | | | 0 | 0 | | | Cloudy | |
| Saratoga, N. 39° 02′, W. 73° 17′ | 30.32 | 770.1 | | | 70 | 21.1 | | SSW | | | 2 | | 7 | | SW | 0 | 0 | Light | E | Fair | |
| St. Louis, League Island, Pa | 29.92 | 760 0 | 73 | 22.8 | 72 | 22.2 | 90 | SW | 3 | 1 3 | | | 8 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 80 | 26.7 | 79 | 26.1 | 82 | SSW | | | 1 | | 4k | | SSE | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.63 | 752.6 | 74 | 23.3 | 74 | 23.3 | 81 | WNW | | | 2 | | 2 | | N | Light | Light | Smooth | | D. clouds | |
| Trenton, Gulf of Smyrna, Turkey | 29.86† | 758.4† | 71 | 21.7 | 84 | 28.9 | 87 | N | 17 | 7.6 | | | 2 | | | 1. | 25. | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.04 | 763.0 | 72 | 22.2 | 75 | 23.9 | 68 | NE | | | 2 | | 2 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.06 | 763.5 | 60 | 15.6 | 58 | 14.4 | 100 | SE | 7 | 3.1 | | | 10 | | | 0.07 | 1.8 | | | Foggy | |
| Wyoming, Washington, D.C | 30.12† | 765.0† | 73 | 22.8 | 72 | 22.2 | | SSW | | | 3 | | 9 | | SW | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

# UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | CHARACTER. | DIRECTION FROM— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ——————, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, San Francisco, Cal. | | | 29.99 | 761.7 | 58 | 14.4 | 88 | W | | | 4 | | 18 | | | | | Hazy | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colorado | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known whether the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 44° 19', W. 43° 0' | ENE | 10.5 | 30.30 | 769.6 | 54.5 | 12.5 | | N | | | 5 | | 8 | | NE | Rough | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the Air. | | Relative Humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, N. 38° 40′ W. 73° 15′ | NE | 4 | 29.98 | 761.5 | 68 | 20.0 | 84 | S | 10 | 4.5 | | 8k | 0 | | | Short | | Cloudy | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale of 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 10, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time,
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.07 | 736.6 | 70.7 | 21.5 | 82 | Calm | | | 0 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.11 | 764.7 | 73.0 | 22.8 | 82 | E | | | 1 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.08 | 764.1 | 75.2 | 24.0 | 78 | NE | | | 2 | | 1 | | | 0 | 0 | Clear | Fleury. |
| Tunis | | | 30.14 | 765.6 | 89.6 | 32.0 | | E | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.17 | 766.3 | 80.6 | 27.0 | | S | | | 2 | | 1 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.11 | 764.9 | 85.5 | 29.7 | | E | | | 2 | | 9 | | | 0 | 0 | Hidden | Millot. |
| Tebessa | | | 30.16 | 766.0 | 83.3 | 28.5 | | W | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.31 | 769.9 | 75.9 | 24.4 | 82 | N | | | 3 | | 6 | | | 0.039 | 1.0 | Fair | Lemaillot. |
| Laghouat | | | 30.21 | 767.2 | 92.3 | 33.5 | 23 | E | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.17 | 766.2 | 95.9 | 35.5 | | SE | | | 1 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.10 | 764.5 | 81.9 | 27.7 | 69 | NE | | | 2 | | 7 | | | 0.268 | 6.8 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.18 | 766.5 | 79.5 | 26.4 | 55 | W | | | 1 | | 4 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.11 | 764.7 | 78.4 | 25.8 | 54 | N | | | 3 | | 4c,s | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.92 | 734.6 | 30.11 | 764.9 | 78.1 | 25.6 | 58 | SW | | | 3 | | 4 | | | | | Thunder-storm | Andreas Rospini. |
| Hermannstadt | 28.66 | 727.9 | 29.99 | 761.8 | 82.4 | 28.0 | 46 | ESE | | | 3 | | 3 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.83 | 732.2 | 30.11 | 764.8 | 77.0 | 25.0 | 50 | E | | | 1 | | 1 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.12 | 765.1 | 72.3 | 22.4 | 69 | SE | | | 1 | | 3 | | | 0 | 0 | | Dr. T. Stanecki. |
| Poln | | | 30.09 | 764.3 | 83.7 | 28.7 | 56 | NW | | | 2 | | 2ks | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.04 | 763.1 | 79.7 | 26.5 | 57 | S | | | 2 | | 8 | | | 0.108 | 2.75 | Lightning | Karl Stancel. |
| Trieste | | | 30.14 | 765.5 | 80.0 | 30.0 | 52 | E | | | 1 | | 2 | | | 0 | 0 | Almost clear | P. Busin. |
| Vienna | | | 30.13 | 765.2 | 84.0 | 28.9 | 44 | N | | | 1 | | 1 | | | 0 | 0 | | I. R. Central Met. Ob'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.71 | 729.1 | 30.13 | 765.3 | 82.6 | 28.1 | 43 | SW | | | 2 | | 5 | | | 0 | 0 | | |
| Brussels | | | 30.11 | 764.8 | 77.2 | 25.1 | 63 | N | | | 1 | | 2k | | WSW | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.13 | 765.4 | 69.1 | 20.6 | 68 | NW | | | 2 | | 0 | | | 0 | 0 | | |
| Maeseyck | | | 30.13 | 765.4 | 82.2 | 27.9 | 62 | NW | | | 2 | | 2 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

**Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.**

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Clouds. Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.79 | 756.7 | 57.9 | 14.4 | | S | 18 | 8.0 | | | 6 | | | 0 | 0 | D. clouds | William Boswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 29.88 | 758.9 | 62.0 | 16.7 | | SSW | 18 | 8.0 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.09 | 761.7 | 62.9 | 17.2 | | SSW | 29 | 13.0 | | | 7 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.94 | 760.5 | 62.1 | 16.7 | | W | | | 1 | | 8 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0 | 0 | | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.99 | 761.7 | 82.5 | 28.1 | | NE | | | 3 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.07 | 763.8 | 75.0 | 23.9 | | SW | | | 1 | | 1 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.10 | 764.5 | 76.4 | 24.7 | | | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.15 | 765.8 | 78.2 | 25.7 | | W | | | 2 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.70 | 729.0 | 30.21 | 767.3 | 55.0 | 12.8 | | SW | | | 4 | | 9 | | | | | Hazy | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.84 | 757.9 | 66 | 18.9 | | SSW | | | 6 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.13 | 765.3 | 60 | 15.6 | | SW | | | 2 | | 0 | | | | | Clear | J. Costello. |
| Eccles, (near Manchester) | | | 30.00 | 762.0 | 64.0 | 17.8 | | SW | 5.6 | 2.5 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.14 | 765.5 | 62.0 | 16.7 | | SSW | | | 3 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 28.01 | 711.4 | 30.25 | 768.3 | 62.9 | 17.2 | | NE | | | 1 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.93 | 760.2 | 83 | 28.3 | | W | | | 0 | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.88 | 758.9 | 58 | 14.4 | | SW | | | 6 | | 1 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.04 | 763.0 | 75.0 | 23.9 | | NE | | | 3 | | 2 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.80 | 756.9 | 60.5 | 15.8 | | SW | | | 5 | | 6 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 30.10 | 764.5 | 72 | 22.2 | | S | | | 3 | | 1 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.11 | 764.8 | 77.2 | 25.1 | | SW | | | 1 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 30.16 | 766.1 | 62 | 16.7 | | NW | | | 1 | | 7 | | | | | D. clouds | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.18 | 766.6 | 62 | 16.7 | | S | | | 4 | | 6 | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.97 | 761.2 | 60 | 15.6 | | SSW | | | 5 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.10 | 764.5 | 71.0 | 21.7 | | SW | 8 | 3.6 | | | 0 | | | | | Hazy | The Staff. |
| Kingstown | | | 29.92 | 760.0 | 65 | 18.3 | | WSW | | | 4 | | 4 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.06 | 763.5 | 68.8 | 20.4 | | SW | | | 1 | | 5 | | | | | D. clouds | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.11 | 764.8 | 81.0 | 27.2 | | NE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.74 | 755.4 | 61 | 16.1 | | SSW | | | 4 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.04 | 763.0 | 86.2 | 30.1 | | NE | | | 1 | | 6 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.07 | 763.8 | 71.4 | 21.9 | | SSW | | | 4 | | 7k | | SW | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.05 | 763.3 | 66.1 | 18.9 | | SW | | | 4 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.08 | 764.0 | 71 | 21.7 | | SW | | | 1 | | 6 | | | | | D. clouds | F. Lucas. |
| Plymouth | | | 30.15 | 765.8 | 62.5 | 16.9 | | S | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.00 | 762.0 | 63 | 17.2 | | WSW | | | 4 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.14 | 765.5 | 72.4 | 22.4 | | N | | | 2 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.72 | 754.9 | 54.8 | 12.7 | | S | 15 | 6.7 | | | 10 | | | | | Raining | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.88 | 758.9 | 82.8 | 28.2 | | NE | | | 2 | | 1 | | | | | Hazy | Sergt. W. H. Lyne. |
| Sheffield | | | 30.02 | 762.5 | 68.7 | 20.4 | | SW | | | 3 | | 7 | | | 0 | 0 | D. clouds | W. F. Cooper. |
| Silloth, Rectory | | | 29.90 | 759.4 | 62.8 | 17.1 | 76 | SW | | | 6 | | 6 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.00 | 762.0 | 61.0 | 17.1 | | SW | | | 4 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.64 | 752.8 | 56 | 13.3 | | SW | | | 5 | | 10 | | | | | Showery | John Smith. |
| Stratfield Turgiss | | | 30.12 | 765.0 | 72.5 | 22.5 | | SW | | | 1 | | 0 | | | | | Blue sky | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 29.69 | 754.1 | 55 | 12.8 | | Calm | | | 0 | | 10 | | | | | Raining | John Trotter. |
| Truro, Royal Institution | | | 30.13 | 765.3 | 65 | 18.3 | | S | | | 4 | | 8 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.96 | 761.0 | 59.0 | 15.0 | | S | 31 | 13.9 | | | 10 | | | | | D. clouds | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | S | | | 4 | 10 | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.21 | 767.3 | 78.0 | 25.6 | 38 | NE | 2 | 0.9 | | 0 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.04 | 763.0 | 54.0 | 12.2 | 87 | S | | | 1 | | 10n | | | 0 | 0 | Covered | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 29.84 | 757.9 | 64.2 | 17.9 | | W | | | 5 | | 4k | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.16 | 766.1 | 74.2 | 23.4 | 67 | | | | | 0 | 2 | | E | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.27 | 768.8 | 48.0 | 8.9 | 87 | WSW | 12 | 5.4 | | | 4 | | | 0.03 | 0.8 | Showery | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.68 | 753.9 | 53 | 11.7 | | SW | | | 6 | 5 | 5 | SW | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.66 | 753.4 | 48 | 8.9 | | SW | | | 6 | 7 | 4 | SW | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.: Bradford, 9 a. m.: Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.: Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 51° 45′, W. 7° 50′ | | | 29.97 | 761.2 | 57.0 | 13.9 | | SW | | | 4 | | 3 | | | 0 | Smooth | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 41° 35′, W. 58° 35′ | | | 30.24 | 768.1 | 61.5 | 16.4 | | SSE | | | 4 | | 3 | | | 3 | SE | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 51° 49′, W. 11° 34′ | | | 29.91 | 759.7 | 57 | 13.9 | | SW | | | 6 | | 7 | | | | | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.22 | 666.0 | | | 67.6 | 19.8 | 95 | S | | | 1 | | 9ck | | W | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.07 | 763.8 | 63.3 | 17.4 | 78 | S | | | 2 | | 10 | | | | | Thunder-storm. | |
| Fanöe | | | 29.98 | 761.4 | 70.3 | 21.3 | 65 | SW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 29.78 | 756.4 | 43.9 | 6.6 | 70 | ENE | | | 2 | | 3 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.73 | 755.1 | 41.2 | 5.1 | 94 | NE | | | 4 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.61 | 752.0 | 53.4 | 11.9 | 73 | Calm | | | 0 | | 5 | | | | | | |
| Vestervig | | | 29.94 | 760.5 | 64.4 | 18.0 | 80 | SSW | | | 4 | | 2 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.20 | 767.0 | 71.6 | 22 | 73 | SW | | | 1 | | 5k | | SW | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.07 | 763.6 | 83.5 | 28.6 | 64 | W | | | 1 | | 2 | | W | 0 | 0 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.14 | 765.5 | 89.1 | 31.7 | 43 | SE | | | 1 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 30.11 | 764.8 | 85.8 | 29.9 | 39 | SW | | | 2 | | 5k | | SW | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.11 | 764 9 | 81.5 | 27.5 | 58 | SW | | | 1 | | 5 | | WSW | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 30.15 | 765.8 | 84.6 | 29.2 | 47 | SW | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.27 | 768.8 | 87.8 | 31 | 60 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.19 | 766.7 | 84.2 | 29 | 57 | SW | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.07 | 763.6 | 71.1 | 21.7 | 62 | SW | | | 2 | | 1 | | | 0 | 0 | Clear | The Staff. |
| Carcassonne, Normal School | | | 30.09 | 764.3 | 90.3 | 32.4 | 53 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 30.13 | 765.3 | 71.6 | 22 | 74 | N | | | 4 | | | | | 0 | 0 | Slightly cov. | Normal School. |
| Chartres, Normal School | | | 30.13 | 765.2 | 84.2 | 29 | 85 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.15 | 765.7 | 86.9 | 30.5 | 39 | Calm | | | 0 | | 2ck | | | 0.039 | 1.0 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.20 | 767.0 | 89.2 | 31.8 | 37 | NE | | | 1 | | 5 | | | 0 | 0 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.15 | 765.7 | 80.6 | 27 | 56 | SW | | | 2 | | 5 | | SW | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.23 | 767.9 | 86.0 | 30.0 | 40 | NE | | | 1 | | 2 | | E | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.15 | 765.7 | 84.2 | 29 | 52 | NNE | | | 1 | | 2kns | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo' | | | 30.16 | 766.1 | 86.4 | 30.2 | 52 | SE | | | 1 | | 2 | | S | 0 | 0 | Slightly cl'dy | Mouillet, Director. |
| Le Mans, Normal School | | | 30.11 | 764.9 | 84.0 | 28.9 | 50 | SW | | | 2 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.14 | 765.5 | 81.1 | 27.3 | 57 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 30.16 | 766.1 | 72.3 | 22.4 | 66 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | T. Carré, Director. |
| Mâcon, Normal School | | | 30.13 | 765.4 | 79.5 | 26.4 | 76 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.22 | 767.6 | 79.7 | 26.5 | 50 | SSW | | | 1 | | 3k | | SW | 0 | 0 | | Normal School. |
| Mirecourt | | | 30.15 | 765.9 | 77.2 | 25.1 | 60 | N | | | 1 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School |
| Nismes, Normal School | | | 30.17 | 766.4 | 94.3 | 34.6 | 58 | S | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 30.02 | 762.5 | 84.6 | 29.2 | 53 | S | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.11 | 764.7 | 83.8 | 28.8 | 52 | SSE | | | 2 | | 2 | | SW | 0.021 | 0.53 | Slightly cl'dy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.12 | 765.1 | 87.4 | 30.8 | 43 | S | | | 3 | | 8 | | SW | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.10 | 764.5 | 79.9 | 26.6 | 57 | S | | | 1 | | 2 | | SW | 0 | 0 | Slightly cl'dy | F. Lucard, Director. |
| Tarbes, Normal School | 28.99 | 736.3 | 30.04 | 762.9 | 89.6 | 32 | 61 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.11 | 764.9 | 86.5 | 30.3 | 47 | E | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.87 | 758.8 | 81.0 | 27.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.15 | 765.7 | 79.3 | 26.3 | 54 | W | | | 1 | | 1 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Mont-Louis | 25.13 | 638.4 | 30.45 | 773.4 | 69.6 | 20.9 | 63 | ESE | 14.9 | 6.66 | | | 5 | | W | 0.252 | 6.4 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.11 | 764.9 | 86.4 | 30.2 | 50 | SSW | | | 1 | 3c | | S | | Inap. | Inap. | | Marie Davy, Director. |
| Perpignan | | | 30.16 | 766.1 | 80.4 | 26.9 | 66 | SE | 7.4 | 3.33 | | | 2 | | SW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.56 | 547.7 | | | 57.2 | 14.0 | | SW | | | 2 | | 5 | | | | | Fair | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.84 | 580.2 | | | 62.4 | 16.9 | | SW | | | 2 | | 5 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.12 | 765.0 | 84.7 | 29.3 | 52 | E | | | 1 | | 1 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.17 | 766.3 | 84.9 | 29.4 | 33 | SSE | | | 1 | | 3 | | | 0 | 0 | | The Staff |
| Tours | | | 30.10 | 764.6 | 87.1 | 30.6 | 41 | WSW | | | 1 | | 0 | | | 0 | 0 | Clear | C. Marquet. |
| Versailles, (near Paris) | | | 30.14 | 765.5 | 84.9 | 29.4 | 51 | SSW | | | 2 | | 5 | | | 0 | 0 | Fair | Dr. A Bérigny. |
| Zi-ka-Wei, (near Shanghai) | | | 29.72 | 755.0 | 66.2 | 19.0 | 100 | ENE | 6.3 | 2.8 | | | 10n | | | 2.283 | 58.0 | Rainy | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, [illegible] m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometer for observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.13 | 765.2 | 80.2 | 26.8 | 45 | SW | | | 2 | | 2 | SW | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.14 | 765.6 | 86.0 | 30.0 | 35 | SW | | | 4 | | 3 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.24 | 768.1 | 82.0 | 27.8 | 42 | S | | | 1 | | 2 | | | 0.091 | 2.3 | | Royal University Obs'y. |
| Carlsruhe | | | 30.09 | 764.3 | 85.3 | 29.6 | 49 | NE | | | 1 | | 1 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.23 | 767.9 | 84.6 | 29.2 | 44 | SSW | | | 2 | | 4 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.10 | 764.5 | 84.9 | 29.4 | 53 | NW | | | 3 | | 5 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.00 | 761.9 | 77.9 | 25.5 | 51 | SE | | | 3 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.17 | 766.4 | 86.0 | 30.0 | 34 | SW | | | 1 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.80 | 731.6 | 30.18 | 766.5 | 78.4 | 25.8 | 61 | SSW | | | 3 | | 0 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.09 | 764.2 | 75.2 | 24.0 | 80 | WSW | | | 1 | | 4ks | | | 0.165 | 4.2 | | Captain F. Hegemann. |
| Kiel | | | 30.04 | 762.9 | 75.2 | 24.0 | 65 | SW | | | 2 | | 3 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.15 | 765.9 | 71.8 | 22.1 | 37 | W | | | 5 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.16 | 766.0 | 88.2 | 31.2 | 37 | S | | | 2 | | 3 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.16 | 766.1 | 59.5 | 15.3 | 76 | W | | | 4 | | 3c | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.19 | 766.7 | 67.6 | 19.8 | 76 | E | | | 2 | | 3 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.19 | 766.7 | 84.2 | 29.0 | 34 | S | | | 2 | | 2 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.13 | 765.4 | 83.3 | 28.5 | 44 | ESE | | | 2 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.11 | 764.7 | 84.2 | 29.0 | 42 | SE | | | 1 | | 2 | S | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 30.00 | 762.0 | 85.6 | 29.8 | 44 | W | | | 4 | | 3 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.68 | 728.4 | 30.10 | 764.4 | 84.2 | 29.0 | 39 | E | | | 2 | | 3 | E | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.15 | 765.7 | 78.6 | 25.9 | 51 | SSW | | | 1 | | 10 | | | 0.283 | 7.2 | Thunder, lightn'g | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.98 | 761.5 | 84.7 | 29.3 | | NE | | | Strong | | ck | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.51 | 749.4 | 29.56 | 750.7 | 88.0 | 31.1 | 74 | WSW | 35.0? | 15.6? | | | 0 | | | 0 | 0 | Dust-haze. | |
| Deesa | 29.12 | 739.6 | 29.57 | 751.0 | 107.2 | 41.8 | 26 | SSW | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.68 | 754.0 | 29.72 | 754.9 | 87.3 | 30.7 | 76 | W | 10.0 | 4.4 | | | 10 | ENE | W | 0.28 | 7.1 | Dust-haze | |
| Poona | 27.70 | 703.5 | 29.67 | 753.7 | 82.4 | 28.0 | 70 | | | | | | | | E | 0.03 | 0.8 | Thunder, lightn'g | |
| Lahore | 28.72 | 729.5 | | | | | | N | 4.6 | 2.0 | | | | | | 0 | 0 | | |
| Belgaum | 27.16 | 689.8 | 29.69 | 754.2 | 73.2 | 22.8 | 90 | W | 7 | 3.1 | | | 10 | | W | 0.40 | 10.2 | Raining | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.54 | 725.0 | 29.39 | 746.5 | 103.9 | 39.9 | | NW | 6.7 | 2.9 | | | | | | 0 | 0 | Strong wind | |
| Agra | 28.88 | 733.4 | 29.40 | 746.8 | 109.2 | 42.9 | 18 | W | 3.6 | 1.6 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.58 | 725.8 | 29.59 | 751.5 | 92.5 | 33.6 | 36 | SE | 7.2 | 3.2 | | | 9 | | | | | Thunder-storm | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.06 | 738.1 | 29.41 | 747.0 | 105.0 | 40.6 | 21 | WNW | 3.4 | 1.5 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.12 | 739.6 | 29.41 | 747.0 | 101.7 | 38.7 | 38 | NW | 2.7 | 1.2 | | | | | | 0 | 0 | Blue sky | |
| Patna | 29.28 | 743.6 | 29.45 | 748.0 | 97.2 | 36.2 | 45 | Calm | 1.4 | 0.6 | | | 0 | | | 0 | 0 | Blue sky | |
| Hazaribagh | 27.55 | 699.7 | 29.48 | 748.7 | 95.0 | 35.0 | 32 | W | 10.4 | 4.6 | | | 1 | W | | | | Raining | |
| Cuttack | 29.54 | 750.2 | 29.62 | 752.2 | 93.6 | 34.2 | 58 | SSW | 4.3 | 1.9 | | | 3 | | | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.54 | 750.2 | 29.56 | 750.7 | 89.7 | 32.1 | 80 | SE | 8.0 | 3.5 | | | 3 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.18 | 741.3 | 29.57 | 751.0 | 82.3 | 27.9 | 83 | Calm | 2.7 | 1.2 | | | 1 | W | | 0.36 | 9.1 | D. clouds | |
| Chittagong | 29.56 | 750.9 | 29.65 | 753.2 | 83.1 | 28.4 | 82 | NNW | 4.3 | 1.9 | | | 8 | | | 0 | 0 | Threatening | |
| Sibsagar | 29.30 | 744.3 | 29.64 | 752.8 | 78.2 | 25.6 | 95 | SE | 2.5 | 1.1 | | | 10 | NW | | 0.79 | 20.1 | Gloomy | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.12 | 714.1 | 29.43 | 747.5 | 94.0 | 34.4 | 52 | SW | 5.9 | 2.6 | | | 8 | | | 0 | 0 | Overcast | |

NOTE.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,026 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.55 | 572.7 | 30.277 | 768.97 | 50.5 | 10.3 | 74 | NE | | | 2 | | 9 | WSW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.50 | 571.5 | 30.15 | 765.8 | 50.2 | 10.1 | | SE | | | 1 | | 2 | W | | 0.134 | 3.4 | | Signora Ernesta Manfredi. |
| Udine | | | 30.10 | 764.4 | 84.4 | 29.1 | 97 | NE | 1.8 | 0.8 | | | 8 | | | 0.571 | 14.5 | | Ab. Dom. Morgini. |
| Padua | | | 30.10 | 764.5 | 86.0 | 30.0 | 40 | NE | 5.6 | 2.5 | | | 1 | NW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.10 | 764.6 | 89.2 | 31.8 | 30 | NW | 1.8 | 0.8 | | | 0 | | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | | | | | | | | | | | | | | | | | Dott. B. Bertoncelli. |
| Bergamo | | | | | | | | | | | | | | | | | | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.10 | 764.5 | 82.4 | 28.0 | 53 | S | | | 6 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.14 | 765.5 | 95.7 | 35.4 | 56 | SE | | | 2 | | 1 | W | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.12 | 765.1 | 85.1 | 29.5 | 44 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.13 | 765.3 | 84.2 | 29.0 | 46 | ESE | 4.3 | 1.9 | | | 2 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.29 | 718.6 | 30.12 | 765.1 | 81.9 | 27.7 | 41 | NW | | | 4 | | 1 | | | 0.039 | 1.0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.187 | 766.57 | 80.8 | 27.1 | 52 | SW | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.14 | 765.5 | 77.0 | 25.0 | 61 | SW | 3.1 | 1.4 | | | 4 | NE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.13 | 765.4 | 84.9 | 29.4 | 46 | E | 2.5 | 1.1 | | | 0 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.11 | 764.8 | 88.2 | 31.2 | 44 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.11 | 764.9 | 88.7 | 31.5 | 30 | NE | | | 2 | | 1 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.13 | 765.2 | 78.8 | 26.0 | 67 | NNW | 3.1 | 1.4 | | | 3 | NW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.93 | 734.8 | 30.08 | 764.1 | 84.2 | 29.0 | 37 | ENE | 1.3 | 0.6 | | | 4 | NE | | 0.063 | 1.6 | | Prof. L. Toscani. |
| Urbino | 28.65 | 727.8 | 30.15 | 765.9 | 78.3 | 25.7 | 64 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.13 | 765.4 | 70.7 | 21.5 | 68 | N | 23.0 | 10.3 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.10 | 764.4 | 81.7 | 27.6 | 67 | NW | | | 2 | | 0 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.10 | 764.5 | 90.0 | 32.2 | 35 | WSW | | | 4 | | 3 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.10 | 764.5 | 87.8 | 31.0 | 40 | SW | 5.6 | 2.5 | | | 2 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.13 | 765.2 | 86.4 | 30.2 | 54 | SW | | | 1 | | 2 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.13 | 765.2 | 79.9 | 26.6 | 53 | NW | 15.4 | 6.9 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.04 | 763.0 | 88.7 | 31.5 | 52 | NNW | 13.7 | 6.1 | | | 3 | SW | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.08 | 764.1 | 80.6 | 27.0 | 49 | SE | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.15 | 765.9 | 80.6 | 27.0 | 57 | N | | | 2 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.08 | 764.0 | 76.8 | 24.9 | 73 | NE | 8.1 | 3.6 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.14 | 714.8 | 30.01 | 762.2 | 82.4 | 28.0 | 24 | S | | | 4 | | 3 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.04 | 763.0 | 79.5 | 26.4 | 69 | NNE | | | 4 | | 4 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.17 | 766.2 | 85.1 | 29.5 | 52 | SE | 0.7 | 0.3 | | | 1 | | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.98 | 761.5 | 67 | 19.4 | 63 | S | 4 | 1.8 | | 1c | | | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.13 | 587.5 | 30.11 | 764.9 | 59.9 | 15.5 | 74 | NW | 3.8 | 1.68 | | 10k | 10k | | | 0.012 | 0.3 | Cloudy | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.17 | 766.2 | 68.4 | 20.2 | | NW | | | 3 | | | | | 0 | 0 | | |
| Groningen | | | 30.05 | 763.2 | 75.0 | 23.9 | | W | | | 4 | | | | | 0 | 0 | | |
| Helder | | | 30.11 | 764.8 | 64.6 | 18.1 | | SW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.10 | 764.4 | 77.2 | 25.1 | 55 | W | | | 2 | | 2 | | | 0 | 0 | Light cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.86 | 758.5 | 55.4 | 13.0 | 87 | SSW | 15.0 | 6.7 | | | 4 | | | 0.047 | 1.2 | | |
| Brönö | | | 29.72 | 754.8 | 48.2 | 9.0 | 96 | WSW | 27 | 12 | | | 10 | | | | | Rain and fog | |
| Christiania | | | 29.89 | 759.3 | 64.8 | 18.2 | 68 | SSE | 9 | 4 | | | 9 | | | 0 | 0 | | |
| Tromsö | | | 29.59 | 751.5 | 44.4 | 6.9 | 87 | NW | 4 | 2 | | | 10 | | | 0.020 | 0.5 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.19 | 766.9 | 63.3 | 17.4 | 68 | W | 6.9 | 3.1 | | | 5 | | | 0.039 | 1.0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.95 | 760.6 | 95.4 | 35.2 | 23 | E | 7.4 | 3.33 | | | 0 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.00 | 762.1 | 70.0 | 21.1 | 73 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.09 | 761.9 | 83.8 | 28.8 | 44 | N | 1.3 | 0.6 | | | 0 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.16 | 766.0 | 65.1 | 18.4 | 60 | NNE | 6.3 | 2.8 | | | 7 | | | 0.252 | 6.4 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 9 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.18 | 766.5 | 78.4 | 25.8 | 46 | NW | 9 | 4 | | | 3 | | | | | | Astronomical Obs. |
| Wilna | | | 30.07 | 763.8 | 75.9 | 24.4 | 49 | W | 11 | 5 | | | 4 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.86 | 758.5 | 66.6 | 19.2 | 51 | WNW | 16 | 7 | | | 5 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.70 | 754.3 | 56.8 | 13.8 | 80 | WNW | 20 | 9 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.57 | 751.0 | 54.5 | 12.5 | 77 | NW | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 30.06 | 763.4 | 75.9 | 24.4 | 41 | NE | 4 | 2 | | | 8 | | | | | | Physical Cabinet. |
| Nikolajev | | | 30.05 | 763.3 | 78.1 | 25.6 | 36 | NE | 13 | 6 | | | 2 | | | | | | Kurdakof |
| Kertch | | | 29.97 | 761.1 | 80.4 | 26.9 | 69 | NNW | 9 | 4 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.87 | 758.8 | 69.4 | 20.8 | 55 | S | 9 | 4 | | | 5 | | | | | | Meteorological Obs. |
| Lugan | | | 29.89 | 759.3 | 75.4 | 24.1 | 46 | N | 4 | 2 | | | 2 | | | | | | Meteorological Obs. |
| Archangel | | | 29.56 | 750.9 | 51.3 | 10.7 | 56 | WNW | 13 | 6 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.47 | 723.0 | 29.80 | 756.9 | 84.1 | 29.0 | 27 | SE | 13 | 6 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.83 | 757.7 | 81.7 | 27.6 | 37 | N | 7 | 3 | | | 5 | | | | | | Sebastianof. |
| Kasan | | | 29.68 | 753.8 | 66.2 | 19.0 | 35 | W | 9 | 4 | | | 5 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 28.55 | 725.2 | 29.45 | 748.1 | 68.0 | 20.0 | 28 | WNW | 9 | 4 | | | 8 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.82 | 757.3 | 83.1 | 28.4 | 40 | WNW | 4 | 2 | | | 3 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.42 | 721.9 | 30.07 | 763.6 | 74.3 | 23.5 | 59 | Calm | 0 | 0 | | | 8 | | | | | | Michelson. |
| Barnaul | | | 29.69 | 754.1 | 71.4 | 21.9 | 65 | S | 2 | 1 | | | 8 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.48 | 748.8 | 68.9 | 20.5 | 60 | NW | 2 | 1 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 66.0 | 18.9 | | Calm | 0 | 0 | | | 3 | | | | | | Mossin. |
| Peking, (China) | | | 29.70 | 754.3 | 66.4 | 19.1 | 80 | Calm | 0 | 0 | | | 4 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.68 | 753.9 | 57.0 | 13.9 | 83 | SE | 9 | 4 | | | 4 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 32.9 | 0.5 | 90 | Calm | 0 | 0 | | | 2 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.98 | 761.4 | 92.1 | 33.4 | 26 | E | 5.2 | 2.33 | | 0 | 2 | | | 0 | 0 | Cloudy | The Staff. |
| San Fernando, Naval Obs'y | | | 29.98 | 761.6 | 82.8 | 28.2 | 48 | ESE | 19.5 | 8.7 | | 1 | 1 | SW | SW | 0 | 0 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.00 | 761.9 | 83.8 | 28.8 | 75 | SE | 6.3 | 2.8 | | 4c | 0 | | | 0 | 0 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W. I. | | | 29.96 | 760.9 | 81.7 | 27.6 | 86 | E | 1.1 | 0.50 | | 7k | 2n | | E | 0.364 | 9.25 | Cloudy | Leonardo de Tejeda, Chief of Engineers |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.61 | 752.2 | 58.3 | 14.6 | 53 | SW | | | 2 | | 7 | | | 0 | 0 | | |
| Umea | | | 29.72 | 754.8 | 63.0 | 17.2 | 55 | W | | | 4 | | 5 | | | 0 | 0 | | |
| Hernosand | | | 29.74 | 755.3 | 68.7 | 20.4 | 31 | WNW | | | 4 | | 5 | | | 0 | 0 | | |
| Stockholm | | | 29.90 | 759.5 | 68.9 | 20.5 | 39 | W | | | 6 | | 3 | | | 0 | 0 | | |
| Wisby | | | 30.02 | 762.6 | 68.0 | 20.0 | 49 | W | | | 6 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.85 | 758.1 | 70.3 | 21.3 | 40 | WSW | 13.7 | 6.1 | | | 8 | NW | WNW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.78 | 730.9 | 30.14 | 765.5 | 70.3 | 24.6 | 56 | NNE | | | 1 | | 3 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.56 | 725.5 | 30.11 | 764.7 | 81.0 | 28.9 | 47 | W | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +4.6 mm; Thermometer, +4.6 cent.; Relative Humidity, 0 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.94 | 760.6 | 79.5 | 26.4 | 55 | NE | 7 | 3.0 | | | 0 | | | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.96 | 760.9 | 86.0 | 30.0 | | NW | | | 0 | | 0 | | | | | | |
| Salonica | | | 30.09 | 764.3 | 84.7 | 29.3 | | SE | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.19 | 766.8 | 78.8 | 26.0 | | W | | | 1 | | 0 | | | 0 | 0 | Clear | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.1 | 84.0 | 28.9 | 52 | WSW | | | 3 | | 4k,ks | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.61 | 752.1 | 60 | 15.6 | | SW | 5 | 2.2 | | | 10s | | SW | 0.20 | 5.1 | Light rain | W. R. Bigg. |
| *Chatham, N. B. | | | 29.85 | 758.2 | 62 | 16.7 | 88 | SW | 12 | 5.4 | | | 10s | | SW | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.96 | 761.0 | 61 | 16.1 | 84 | S | 8 | 3.6 | | | 8ks | | S | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.55 | 750.6 | 68.6 | 20.3 | 84 | SW | | | 4 | | 10s | | | 0.221 | 5.62 | Raining | James Smith, M. A. |
| Dalhousie, N. B. | | | | | 64 | 17.8 | 88 | E | | | 2 | | | | | 0.02 | 0.5 | Threatening | H. A. Johnson. |
| Equimault, B. C. | | | 30.35 | 770.9 | 49.3 | 9.6 | 96 | N | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.61 | 752.1 | 71 | 21.7 | 71 | S | 17 | 7.6 | | 5k | 5s | SW | SW | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.90 | 759.4 | 63.0 | 17.2 | 82 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.84 | 757.9 | 45 | 7.2 | 92 | SE | 5 | 2.2 | | 2ck | 5ks | S | S | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.75 | 755.6 | 47.9 | 8.8 | 83 | SW | | | 3 | 6k | 4n | W | | 2.253 | 57.23 | Unsettled | H. J. Strang, M. A |
| Granton, Ontario | 28.61 | 727.4 | 29.73 | 755.1 | 48 | 8.9 | 84 | SW | | | 2 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| *Halifax, N. S. | | | 30.00 | 762.0 | 53 | 11.7 | 99 | SE | 8 | 3.6 | | | Fog | | | 0.105 | 2.67 | Foggy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.75 | 755.6 | 61.7 | 16.5 | 43 | SW | | | 5 | 8ck | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.19 | 766.8 | 57 | 13.9 | 87 | SW | | | 3 | | 10 | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 29.65 | 753.1 | 58 | 14.4 | 91 | SW | 14 | 6.3 | | | 10n | | SW | 0.39 | 9.9 | Light rain | S. Woods, M. A |
| *Montreal, Quebec | | | 29.57 | 751.1 | 70 | 21.1 | 93 | S | 12 | 5.4 | | | 10n | | S | 0.02 | 0.5 | Light rain | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.58 | 751.3 | 49 | 9.4 | 96 | SE | 12 | 5.4 | | | 10n | | SE | 1.30 | 33.0 | Cloudy | Rev. R. Moslev |
| Peterboro, Ontario | | | 29.61 | 752.1 | 59.7 | 15.4 | 82 | W | | | 1 | 10k | 0 | | | 0 | 0 | Cloudy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.76 | 755.9 | 51 | 10.6 | 79 | W | 15 | 6.7 | | 10k | 0 | SW | | 0.12 | 3.0 | Cloudy | H. Morgan. |
| Port Hastings, N. S. | | | | | | | | | | | | | | | | | | | Peter Grant |
| Port Stanley, Ontario | | | 29.78 | 756.4 | 50 | 10.0 | 73 | W | 16 | 7.2 | | | 10n | | SW | 0.22 | 5.6 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.59 | 751.6 | 71 | 21.7 | 85 | Calm | 0 | 0 | | | 10n | | SW | 0 | 0 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.50 | 749.3 | 60 | 15.6 | 79 | SW | 3 | 1.3 | | | 10s | | SW | 0.16 | 4.1 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 29.95 | 760.7 | 56 | 13.3 | 97 | SE | 3 | 1.3 | | | Fog | | | 0.01 | 0.3 | Cloudy | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.63 | 752.6 | 47 | 8.3 | 88 | SW | 30 | 13.4 | | | 10ks | | W | 1.19 | 30.2 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | 0.02 | 0.5 | | R. J. Cole. |
| Stratford, Ontario | 28.45 | 722.6 | 29.72 | 754.9 | 48.6 | 9.2 | 73 | W | 21 | 9.4 | | | 10n | | | 0.471 | 11.97 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 30.04 | 763.0 | 63 | 17.2 | 89 | SW | 6 | 2.7 | | | 10s | | SW | 0.01 | 0.3 | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 29.70 | 754.4 | 55 | 12.8 | 75 | SW | 19 | 8.5 | | | 10n | | W | 0.06 | 1.5 | Cloudy | Magnetic Observatory. |
| Windsor, N. S. | | | 29.90 | 759.4 | 63.0 | 17.2 | 89 | S | 12 | 5.4 | | | 10n | | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.74 | 755.4 | 49.2 | 9.6 | 78 | E | 13 | 5.8 | | 9k | 0 | | | 0.03 | 0.8 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.30 | 769.6 | 65.0 | 18.3 | 78 | SW | | | | 5k | 10s | SW | | 0 | 0 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 10; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.66 | 753.4 | 75 | 23.9 | 76 | S | 10 | 4.5 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Alpena, Mich. | | | 29.60 | 751.8 | 48 | 8.9 | 77 | W | 20 | 8.9 | | 2ck | 2ks | NW | W | 0.39 | 9.9 | Fair | |
| Atlantic City, N. J. | | | 29.83 | 757.7 | 64 | 17.8 | 94 | SW | 22 | 9.8 | | 2ck | 8s | W | W | 0 | 0 | Cloudy | |
| Augusta, Ga. | | | 29.93 | 760.2 | 76 | 24.4 | 91 | S | 5 | 2.2 | | 2k | 5ks | S | S | 0.60 | 15.2 | Fair | |
| Baltimore, Md. | | | 29.78 | 756.4 | 75 | 23.9 | 81 | SW | 8 | 3.6 | | | 10n | | SW | Inap. | Inap. | Light rain | |
| Barnegat, N. J. | | | 29.82 | 757.4 | 66 | 18.9 | 84 | S | 20 | 8.9 | | 5ck | 5s | SW | S | 0 | 0 | Cloudy | |
| Bismarck, Dakota | 28.12 | 714.2 | 29.73 | 755.1 | 53 | 11.7 | 67 | NW | 16 | 7.2 | | Haze | 1s | | | 0.04 | 1.0 | Clear | |
| Boston, Mass. | | | 29.78 | 756.4 | 68.5 | 20.3 | 87 | S | 16 | 7.2 | | | 9s | | S | 0.01 | 0.3 | Cloudy | |
| Breckenridge, Minn. | | | 29.81 | 757.2 | 44 | 6.7 | 84 | SE | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.69 | 754.1 | 53 | 11.7 | 86 | W | 24 | 10.7 | | | 10ks | | W | 0.06 | 1.5 | Cloudy | |
| Burlington, Vt. | | | 29.62 | 752.3 | 74 | 23.3 | 81 | S | 12 | 5.4 | | | 10s | | S | 0.01 | 0.3 | Cloudy | |
| Cairo, Ill. | | | 30.08 | 764 0 | 55 | 12.8 | 80 | W | 1 | 0.4 | | 0 | 0 | | | 0.22 | 5.6 | Clear | |
| Campo, Cal. | 27.47 | 697.7 | 30.04 | 763.0 | 55 | 12.8 | 62 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 68 | 20.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.94 | 760.5 | 76 | 24.4 | 86 | S | 19 | 8.5 | | 8k | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 29.87 | 758.7 | 77 | 25.0 | 72 | S | 16 | 7.2 | | | 10s | | SE | 0.19 | 4.8 | Cloudy | |
| Cape Lookout, N. C. | | | 30.02 | 762.5 | 77 | 25.0 | 86 | SW | 23 | 10.3 | | 2c | 1k | SW | SW | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.86 | 758.4 | 66 | 18.9 | 83 | S | 22 | 9.8 | | 5c | 2ks | NW | W | 0 | 0 | Fair | |
| Charleston, S. C. | | | 29.98 | 761.5 | 80 | 26.7 | 86 | S | 14 | 6.3 | | | 10s | | S | 0 | 0 | Cloudy | |
| Cheyenne, Wyoming | 24 18 | 614.2 | 30.12 | 765.0 | 45 | 7.2 | 85 | N | 28 | 12.5 | | 5ck | 0 | N | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 29 86 | 758.4 | 50 | 10.0 | 79 | W | 11 | 4.9 | | 0 | 0 | | | 0.26 | 6.6 | Clear | |
| Cincinnati, Ohio | | | 29.97 | 761.2 | 51 | 10.6 | 59 | NW | 12 | 5.4 | | 0 | 0 | | | 0.50 | 12.7 | Clear | |
| Cleveland, Ohio | | | 29.87 | 758.7 | 50.5 | 10.3 | 61 | SW | 17 | 7.6 | | | 10s | | SW | 0.21 | 5.3 | Cloudy | |
| Corsicana, Tex | | | 30.18 | 766.6 | 53 | 11 7 | 79 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 29.95 | 760.7 | 53 | 11.7 | 66 | SW | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Texas | | | 30.18 | 766.6 | 61 | 16.1 | 66 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.89 | 632.2 | 30.11 | 764.8 | 57 | 13.9 | 40 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.77 | 756.1 | 49 | 9.4 | 71 | W | 13 | 5.8 | | 8k | 0 | W | | 1.34 | 34.0 | Fair | |
| Dodge City, Kan. | 27.40 | 696.0 | 29.67 | 753.6 | 52 | 11.1 | 72 | SW | 10 | 4.5 | | 0 | 2s | | SW | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.89 | 759.2 | 48 | 8.9 | 70 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Duluth, Minn. | | | 29.83 | 757.7 | 45 | 7.2 | 76 | NW | 12 | 5.4 | | 5k | 0 | NW | | Inap. | Inap. | Fair | |
| Eagle Pass, Tex. | | | 30.19 | 766.8 | 54 | 12.2 | 73 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.89 | 759.2 | 52 | 11.1 | 100 | S | 4 | 1.8 | | | Fog | | S | 0 | 0 | Foggy | |
| Erie, Pa. | | | 29.77 | 756.1 | 51 | 10.6 | 86 | SW | 16 | 7.2 | | | 10n | | SW | 1.06 | 26.9 | Light rain | |
| Escanaba, Mich. | | | 29.69 | 754.1 | 43 | 6.1 | 76 | NW | 14 | 6.3 | | | 10n | | NW | 0.06 | 1.5 | Light rain | |
| Florence, Arizona | 28.38 | 720.8 | 29.98 | 761.5 | 77 | 25.0 | | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.11 | 764.8 | 54 | 12.2 | 86 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.90 | 734.0 | 30.21 | 767.3 | 46 | 7.8 | 70 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 30.09 | 764.3 | 50 | 4.4 | 100 | SW | | | 5 | 5ck | 2s | S | | 0.19 | 4.8 | Fair | |
| Fort Sill, Indian Ter. | 28.94 | 735.1 | 30.05 | 763.3 | 55 | 12.8 | 57 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.23 | 717.0 | 29.85 | 758.2 | 55 | 12.8 | 68 | NW | 12 | 5.4 | | 8ck | 0 | NW | | 0 | 0 | Fair | |
| Galveston, Tex. | | | 30.11 | 764.8 | 64 | 17.8 | 73 | N | 24 | 10.7 | | 0 | 0 | | | 0.84 | 21.3 | Clear | |
| Grand Haven, Mich. | | | 29.78 | 756.4 | 50 | 10.0 | 71 | W | 21 | 9.4 | | 0 | 5s | | W | 0.22 | 5.6 | Fair | |
| Indianapolis, Ind. | | | 29.98 | 761.5 | 51 | 10 6 | 72 | W | 3 | 1.3 | | 0 | 0 | | | 0.42 | 10.7 | Clear | |
| Indianola, Tex. | | | 30.15 | 765.8 | 62 | 16.7 | 61 | N | 24 | 10.7 | | 0 | 0 | | | 0.44 | 11.2 | Clear | |
| Jacksonville, Fla. | | | 30.00 | 762.0 | 84 | 28.9 | 67 | S | 12 | 5.4 | | 0 | Haze | | S | 0.01 | 0.3 | Fair | |
| Keokuk, Iowa | | | 29.88 | 758 9 | 57 | 13.9 | 81 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.98 | 761.5 | 82.0 | 27.8 | 74 | SE | 9 | 4.0 | | 2k | 1s | SE | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 29.96 | 761.0 | 79 | 26.1 | 75 | SW | 26 | 11.6 | | 8ck | 1ks | W | SW | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.06 | 763.5 | 50 | 10.0 | 93 | NW | 13 | 5.8 | | | 10s | | | 1.19 | 30.2 | Cloudy | |
| LaCrosse, Wis. | | | 29.85 | 758.2 | 47 | 8.3 | 69 | W | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.92 | 760.0 | 61 | 16.1 | 61 | SW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 30.03 | 762.7 | 58 | 14 4 | 57 | W | 8 | 3.6 | | 0 | 0 | | | 1.12 | 28.4 | Clear | |
| Lynchburg, Va. | | | 29.82 | 757.4 | 70 | 21.1 | 95 | W | 1 | 0.4 | | | 10n | | | 0.37 | 9.4 | Light rain | |
| Maricopa Wells, Arizona | | | | | 86 | 30.0 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.68 | 753.9 | 40 | 4 4 | 82 | NW | 8 | 3.6 | | | 10n | | | 0.36 | 9.1 | Light rain | |
| Mason, Tex. | 28.57 | 725.7 | 30.36 | 771.1 | 50 | 10.0 | 58 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.12 | 765.0 | 60 | 15.6 | 76 | Calm | 0 | 0 | | 0 | 0 | | | 0.11 | 2.8 | Clear | |
| Milwaukee, Wis. | | | 29.82 | 757.4 | 50 | 10.0 | 64 | W | 14 | 6.3 | | 0 | 2ks | | W | 0.02 | 0.5 | Clear | |
| Mobile, Ala. | | | 29.98 | 761.5 | 67 | 19.4 | 90 | N | 12 | 5.4 | | | 10s | | N | 1.63 | 41.4 | Cloudy | |
| Montgomery, Ala. | | | 29.96 | 761.0 | 65 | 18.3 | 92 | N | 6 | 2.7 | | | 10s | | N | 1.30 | 33.0 | Cloudy | |
| Morgantown, W. Va. | 28.84 | 732.5 | 29.86 | 758.4 | 62 | 16.7 | 66 | SW | 10 | 4.5 | | | 10s | | SW | 1.17 | 29.7 | Cloudy | |
| Mt. Washington, N. H. | 23.74 | 603.0 | 30.10 | 764.5 | 54 | 12.2 | 100 | W | 44 | 19.7 | | | Fog | | | 0.25 | 6.3 | Foggy | |
| Nashville, Tenn. | | | 30.08 | 764.0 | 60 | 15.6 | 70 | NW | 1 | 0.4 | | 0 | 0 | | | 0.52 | 13.2 | Clear | |
| New Haven, Conn. | | | 29.79 | 756.7 | 69 | 20.6 | 95 | SW | 10 | 4.5 | | | 10s, fg | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.83 | 757.7 | 66 | 18.9 | 94 | S | 12 | 5.4 | | | 10s, fg | | SE | 0.08 | 2.0 | Threatening | |
| New Orleans, La. | | | 30.00 | 762.0 | 67 | 19.4 | 74 | N | 15 | 6.7 | | | 10ks | | | 0.91 | 23.1 | Cloudy | |
| Newport, R. I. | | | 29.84 | 757.9 | 63 | 17.2 | 100 | SW | 8 | 3.6 | | | Fog | | | 0 | 0 | Foggy | |
| New York, N. Y. | | | 29.78 | 756.4 | 73 | 22.8 | 85 | S | 10 | 4.5 | | | 10ks | | SW | 0.03 | 0.8 | Cloudy | |
| Norfolk, Va. | | | 29.90 | 759.4 | 86 | 26.7 | 24 | SW | 18 | 8.0 | | | 10s | | | 0.37 | 9.4 | Cloudy | |
| North Platte, Neb. | 27.09 | 688.1 | 29.60 | 751.8 | 56 | 13.3 | 62 | N | 14 | 6.3 | | 10k | 0 | N | | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.72 | 729.5 | 29.76 | 755.9 | 57 | 13.9 | 69 | SW | 4 | 1.8 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 29.66 | 753.4 | 63 | 17.2 | 83 | SW | 8 | 3.6 | | | 10n | | | 0.15 | 3.8 | Light rain | |
| Pembina, Dakota | | | 29.83 | 757.7 | 49 | 9.4 | 78 | S | 4 | 1.8 | | 5k | 0 | | | 0 | 0 | Fair | |
| Philadelphia, Pa. | | | 29.78 | 756.4 | 76 | 24 4 | 81 | SW | 18 | 8.0 | | 2k | 8ks | W | SW | 0.02 | 0.5 | Cloudy | |
| Phœnix, Arizona | | | | | 73 | 22.8 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.92 | 455.2 | 30.13 | 765.3 | 20 | — 6.7 | 70 | NW | 38 | 17.0 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Pittsburgh, Pa. | | | 29.81 | 757.2 | 57 | 13.9 | 87 | W | 10 | 4.5 | | | 10n | | W | 0.38 | 9.7 | Light rain | |
| Port Huron, Mich. | | | 29.73 | 755.1 | 48 | 8.9 | 77 | SW | 19 | 8.5 | | | 10ks | | SW | 1.63 | 41.4 | Cloudy | |
| Portland, Me. | | | 29.78 | 756.4 | 59 | 15.0 | 94 | Calm | 0 | 0 | | | Fog | | | 0.02 | 0.5 | Dense fog | |
| Portland, Oregon | | | 30.31 | 769.9 | 52 | 11.1 | 86 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.98 | 634.5 | 30.34 | 770.6 | 51 | 10.6 | 32 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.02 | 762.5 | 82 | 27.8 | 70 | SE | 16 | 7.2 | | 0 | 2ks | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.65 | 753.1 | 60 | 15.6 | 94 | W | 15 | 6.7 | | | 10n | | W | 0.15 | 3.8 | Light rain | |
| Salt Lake City, Utah | 25.86 | 656.8 | 30.18 | 766.6 | 56 | 13.3 | 51 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.79 | 756.7 | 75 | 23.9 | 85 | S | 23 | 10.3 | | 8ck | 2ks | SW | S | 0.02 | 0.5 | Cloudy | |
| San Antonio, Tex. | | | 30.06 | 764.5 | 58 | 14.4 | 69 | N | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| San Diego, Cal. | | | 29.95 | 760.7 | 70 | 21.1 | 79 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 30.00 | 762.0 | 65 | 18.3 | 63 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fé, New Mexico | 23.42 | 594.9 | 29.96 | 761.0 | 58 | 14.4 | 13 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 29.98 | 761.5 | 84 | 28.9 | 71 | SW | 11 | 4.9 | | 8k | 0 | SW | | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.23 | 767.8 | 61 | 16.1 | 61 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 29.99 | 761.7 | 77 | 25.0 | 82 | S | 14 | 6.3 | | 0 | 2s | | | 0 | 0 | Fair | |
| Springfield, Mass. | | | 29.78 | 756.4 | 70 | 21.1 | 87 | S | 6 | 2.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 30.02 | 762.5 | 57 | 13.9 | 58 | SW | 8 | 3.6 | | 0 | 0 | | | 0.39 | 9.9 | Clear | |
| St. Marks, Fla. | | | 29.97 | 761.2 | 80 | 26.7 | 82 | S | 16 | 7 2 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| St. Paul, Minn. | | | 29.81 | 757.2 | 50 | 10.0 | 64 | NW | 3 | 1.3 | | 8c | 0 | NW | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 73 | 22.8 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 27.15 | 689.6 | 30.15 | 765.8 | 49 | 9.4 | 57 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 29.80 | 756.9 | 60 | 15.6 | 94 | S | 8 | 3.6 | | | | | | 0 | 0 | Dense fog | |
| Toledo, Ohio | | | 29.85 | 758.2 | 52 | 11.1 | 66 | SW | 18 | 8 0 | | 8k | 0 | SW | | 0.74 | 18.8 | Fair | |
| Tucson, Arizona | 27.02 | 701.5 | 30.16 | 766.1 | 74 | 23.3 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.97 | 761.2 | 81 | 27.2 | 78 | S | 16 | 7.2 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 30.13 | 765.3 | 62 | 16.7 | 61 | N | 12 | 5.4 | | 0 | 0 | | | 0.10 | 2 5 | Clear | |
| Virginia City, Montana | 24.54 | 623.3 | 30.02 | 762.5 | 42.5 | 5.8 | 62 | Calm | 0 | 0 | | 1c | 0 | N | | 0 | 0 | Clear | |
| Washington, D. C | | | 29.79 | 756.7 | 73.5 | 23.1 | 88 | S | 28 | 12.5 | | | 10n | | SW | Inap. | Inap. | Light rain | |
| Wickenburg, Arizona | | | | | 84 | 28.9 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.96 | 761.0 | 78 | 25.6 | 77 | S | 20 | 8.9 | | 2ck | 5ks | W | SW | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 29.88 | 758.9 | 63 | 17.2 | 100 | SW | 13 | 5.8 | | | Fog | | SW | 0 | 0 | Foggy | |
| Yankton, Dakota | 28.56 | 725 4 | 29.81 | 757.2 | 55 | 12.8 | 68 | W | 12 | 5 4 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Yuma, Arizona | | | 29.90 | 759.4 | 78 | 25.6 | 17 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.11 | 764.8 | 77 | 25.0 | 90 | Calm | 0 | 0 | | 10c | 8n | | SE | 0.66 | 16.8 | | James Gall. |
| Navassa, W. I | | | | | 80 | 26.7 | | NE | | | 3 | | | | | 0.40 | 10.2 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.02 | 762.5 | 81 | 27.2 | 87 | E | | | 2 | | 10n | | | 0.130 | 3.30 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.26 | 641.6 | | | 66.2 | 19.0 | 88 | Calm | | | 0 | | 10n | | | 0.59 | 15.0 | Light rain | Thomas Herran. |
| York Factory, B. A | | | 29.78 | 756.4 | 36 | 2.2 | 90 | SW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.10 | 764.5 | 74 | 23.3 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke. |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,892.9 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.92 | 760.0 | 78 | 25.6 | 74 | 23.3 | 90 | S | | | 4 | | 9 | | S | .0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.10 | 764.5 | 72 | 22.2 | 64 | 17.8 | | NW | | | 1 | | 0 | | | 0 | 0 | | | Fine | |
| Navy Yard, Pensacola, Fla. | 30.05 | 763.3 | | | 73 | 22.8 | 85 | NNW | 5 | 2.2 | | | 9 | | NE | 1.40 | 35.6 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.82 | 757.4 | 64 | 17.8 | 62 | 16.7 | 94 | Calm | 0 | 0 | | | 10 | | | 0.25 | 6.3 | | | Raining | |
| Naval Hospital, Yokohama, Japan | 29.87 | 758.7 | 70 | 21.1 | 66.5 | 19.2 | 79 | SW | | | 5 | | 4s,d,hz | | W | 0 | 0 | | | Threatening | |
| Alert, N. 9° 14′ 26″, E. 140° 30′ 39″ | 29.96† | 761.0† | 84 | 28.9 | 84 | 28.9 | 91 | Var. | | | 1–4 | | 4 | | E | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.07 | 763.8 | 77 | 25.0 | 76 | 24.4 | 82 | WNW | | | 1–2 | | 1 | | | | | Light | S&W | Hazy | |
| Ashuelot, Amoy, China | 30.01 | 762.2 | 82 | 27.8 | 81 | 27.2 | 78 | SW | | | 4 | | 6 | | S&W | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.00 | 762.0 | 50 | 10.0 | 67 | 19.4 | 69 | N | | | 4 | | 10 | | N | | | | | Cloudy | |
| Colorado, New York, N. Y | 29.90 | 759.4 | 67 | 19.4 | 75 | 23.9 | 81 | SW | 11 | 4.9 | | | 10 | | SW | 0.03 | 0.8 | | | D clouds | |
| Despatch, Smyrna, Turkey | 30.08 | 764.0 | 80 | 26.7 | 84 | 28.9 | 47 | NE | | | 3 | | 3 | | NE | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 29.95 | 760.7 | 74 | 23.3 | 76 | 24.4 | 91 | SW | 12 | 5.4 | | | 9 | | SW | 0.5 | 13. | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.19 | 766.8 | 72 | 22.2 | 73 | 22.8 | 95 | NW | | | 2 | | 7k | | N | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Spezia, Italy | 29.98 | 761.5 | | | 85 | 29.4 | 76 | SW | | | 2 | | 4 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.06 | 763.5 | 78 | 25.6 | 76 | 24.4 | 86 | S | 6.0 | 2.7 | | | 6 | | | 0 | 0 | | | Pleasant | |
| Huron, Cartagena, N. G | 30.08 | 764.0 | 82 | 27.8 | 81 | 27.2 | 91 | S | | | 0–3 | | 5 | | | 0 | 0 | Smooth | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.00 | 762.0 | 71 | 21.7 | 67 | 19.4 | 89 | NNE | | | 1 | | 10 | | S | ¶0.2 | 5. ¶ | | | Rainy | |
| Lackawana, N. 24° 25′, W. 122° 53′ | 30.11 | 764.8 | | | 67 | 19.4 | 74 | N | | | 1 | | 9 | | S&W | | | Long | NW | D. clouds | |
| Marion, N. 40° 30′, E. 22° 47′ | 30.06 | 763.5 | 80 | 26 7 | 82 | 27.8 | 71 | NW | | | 1 | | 7 | | NW | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.30 | 744.2 | 63 | 17.2 | 54 | 12.2 | 80 | W | | | 6 | | 10 | | W | | | | | Raining | |
| Monocacy, Tientsin, China | 29.58 | 751.3 | 64 | 17.8 | 60 | 15.6 | 94 | SW | | | 2 | | 4 | | S | Blank | Blank | | | D. clouds | |
| Monongahela, New London, Conn | 29.89 | 759.2 | 66 | 18.9 | 66 | 18.9 | 64 | SW | | | 1 | | 10k | | N&E | Light | Light | | | Foggy | |
| New Hampshire, Port Royal, S. C | 30.22 | 767.6 | | | 78 | 25.6 | 86 | SSW | 20 | 8.9 | | | 9 | | N | 0 | 0 | | | D. clouds | |
| Omaha, Chimbote, Peru | 30.06 | 763.5 | 70 | 21.1 | 70 | 21.1 | 95 | S&E | 1 | 0.4 | | | 9 | | | 0 | 0 | Smooth | | Misty. | |
| Ossipee, Norfolk, Va | 30.09 | 764.3 | 75 | 23.9 | 74 | 23.3 | 95 | SSW | | | 2 | | 8 | | SSW | | | | | D. clouds | |
| Palos, Shanghai, China | 29.80 | 756.9 | 75 | 23.9 | 70 | 21.1 | 90 | E | | | 2–3 | | 10 | | E | | | | | Rainy | |
| Pensacola, N. 19° 02′, W. 116° 38′ | 30.08 | 764.0 | | | 69 | 20.6 | 90 | NNW | | | 2–3 | | 9 | | | Light | Light | Moderate. | N&W | | |
| Plymouth, N. 19° 31′, W. 95° 25′ | 30.00 | 762.0 | 80 | 26.7 | 75 | 23.9 | 95 | NNW | | | 8 | | 10 | | N&W | 0.3 | 8. | Heavy | N&W | Rainy | |
| Ranger, N. 33° 14′, E. 27° 40′ | 30.14 | 765.5 | | | 76 | 24.4 | 86 | WSW | | | 3 | | 4 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.23 | 767.8 | 74.0 | 23.3 | 71.0 | 21.7 | 90 | NW | | | 1 | | 8 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 30.02 | 762.5 | | | 62 | 16.7 | 83 | NNW | | | 2 | | 4 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.00 | 762.0 | 77 | 25.0 | 75 | 23.9 | 86 | SW | | | 5 | | 10 | | | 0 | 0 | | | Cloudy | |
| Saratoga, N. 40° 34′, W. 70° 23′ | 30.40 | 772.1 | | | 62 | 16.7 | | SW | | | 4 | | 10 | | SW | | | Moderate. | SW | Foggy | |
| St. Louis, League Island, Pa | 29.78 | 756.4 | 79 | 26.1 | 77 | 25.0 | 77 | SW | 19 | 8.5 | | | 9 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 80 | 26.7 | 80 | 26.7 | 91 | SSE | | | 1 | | 4k | | SSE | Blank | Blank | Moderate | NE | Fair | |
| Tennessee, Yokohama, Japan | 29.91 | 759.7 | 74 | 23.3 | 71 | 21.7 | 85 | SSW | | | 2 | | 4 | | N&E | | | Smooth | | D. clouds | |
| Trenton, Salonica, Turkey | 29.86† | 758.4† | 75 | 23.9 | 85 | 29.4 | 83 | NNW | 12 | 5.4 | | | 2 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.02 | 762.5 | 74 | 23.3 | 77 | 25.0 | 65 | NE | | | 1 | | 1 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.85 | 758.2 | 69 | 20.6 | 71 | 21.7 | 95 | SSW | 9 | 4.0 | | | 8 | | S | 0.02 | 0.5 | | | D. clouds | |
| Wyoming, Washington, D.C | 29.91† | 759.7† | 74 | 23.3 | 75 | 23.9 | | SSW | | | 4 | | 10 | | | | | | | Raining | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | CHARACTER. | DIRECTION FROM— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 38° 00′, W. 125° 00′ | W½N | | 29.87 | 758.7 | 60.0 | 15.6 | 55 | NNW | | | 4 | | c | | NW | Heavy | NW | D. clouds | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 45° 44′, W. 38° 7′ | ENE | 9.5 | 30.34 | 770.6 | 63.5 | 17.5 | | WNW | | | 4 | | | | | Tranq'l | | Blue sky | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 49° 48′, W. 7° 40′ | W | 11.5 | 30.09 | 764.3 | 57.9 | 14.4 | | SSW | | | 5 | | Haze | | SW | Light, short | | Overcast | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, N. 40° 10′ W. 71° 48′ | NEbyN | 5 | 29.83 | 757.7 | 65 | 18.3 | 94 | SW | 15 | 6.7 | | | Fog | | | Rough | | Foggy | Capt. James Jorgensen. |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 11, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:30 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.89 | 761.8 | 75.2 | 24.0 | 75 | Calm | | | 0 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.02 | 762.5 | 73.0 | 22.8 | 89 | N | | | 1 | | 7 | | | 0 | 0 | Cloudy | Peter. |
| La Calle | | | 30.02 | 762.5 | 77.4 | 25.2 | 72 | ENE | | | 3 | | 3 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.06 | 763.4 | 86.0 | 30.0 | | E | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.14 | 765.6 | 84.2 | 29.0 | | S | | | 2 | | 1 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.04 | 762.9 | 89.6 | 32.0 | | SSW | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.11 | 764.9 | 83.3 | 28.5 | | S | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | 30.13 | 765.4 | 81.3 | 27.4 | 69 | SSE | | | 3 | | 6 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.15 | 765.7 | 87.8 | 31.0 | 20 | S | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.11 | 764.9 | 96.8 | 36.0 | | SE | | | 1 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.09 | 764.2 | 85.3 | 29.6 | 48 | SW | | | 1 | | 2 | | | Inap. | Inap. | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.11 | 764.7 | 83.1 | 28.4 | 49 | NE | | | 1 | | 0 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.08 | 763.9 | 81.0 | 27.2 | 43 | E | | | 2 | | 1cs | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.90 | 734.1 | 30.09 | 764.3 | 81.1 | 27.3 | 59 | SSE | | | 2 | | 1 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.73 | 729.7 | 30.08 | 764.1 | 78.1 | 25.6 | 50 | ESE | | | 3 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.78 | 731.1 | 30.06 | 763.4 | 80.6 | 27.0 | 35 | ENE | | | 2 | | 0 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.07 | 763.8 | 78.1 | 25.6 | 57 | SW | | | 2 | | 0 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.07 | 763.6 | 88.5 | 31.4 | 36 | E | | | 2 | | 1k | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.08 | 764.1 | 82.0 | 27.8 | 73 | S | | | 1 | | 6 | | | 0 | 0 | Lightning | Karl Stancel. |
| Trieste | | | 30.10 | 764.4 | 80.4 | 31.9 | 21 | E | | | 1 | | 1 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 30.08 | 763.9 | 85.5 | 29.7 | 37 | NE | | | 1 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.68 | 728.4 | 30.10 | 764.5 | 84.0 | 28.9 | 42 | SW | | | 1 | | 3 | | | 0 | 0 | | |
| Brussels | | | 30.06 | 763.5 | 83.8 | 28.8 | 68 | WSW | | | 1 | | 1k | | SW | 0 | 0 | | Royal Observatory. |
| Furnes | | | 30.10 | 764.6 | 75.7 | 24.3 | 59 | NW | | | 2 | | 4 | | | 0.366 | 9.3 | | |
| Maeseyck | | | 30.05 | 763.3 | 86.7 | 30.4 | 44 | W | | | 2 | | 3 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Lower. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.94 | 760.5 | 63.1 | 17.3 | | WSW | 14 | 6.3 | | | 3 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 30.01 | 762.2 | 57 | 13.9 | | SW | | | 3 | | 4 | | | | | D. clouds | William McNell. |
| Armagh, Observatory | | | 30.07 | 763.8 | 62.2 | 16.8 | | SSW | 7 | 3.1 | | | 8 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.08 | 764.0 | 62.0 | 16.7 | | WNW | 12 | 5.4 | | | 3 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.06 | 763.5 | 60.8 | 16.0 | | Calm | | | 0 | | 10 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.02 | 762.5 | 66.7 | 19.3 | | NE | | | 2 | | 3 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.95 | 760.7 | 79.5 | 26.4 | | NE | | | 2 | | 7 | | | | | Overcast | Pvt. G. W. Roberts, A. H.C. |
| Cambridge, Observatory | | | 30.06 | 763.5 | 75.0 | 23.9 | | SSE | | | 1 | | 5 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.08 | 764.0 | 80.6 | 27.0 | | | | | 1 | | 2 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.15 | 765.8 | 72.2 | 22.3 | | Calm | | | 0 | | 0 | | | | | Blue sky | Capt. Fellowes, R. E. |
| Dartmoor | 28.64 | 727.4 | 30.08 | 764.0 | 67.0 | 19.4 | | E | | | 2 | | 6 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.05 | 763.3 | 65 | 18.3 | | WSW | | | 4 | | 3 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.08 | 764.0 | 64 | 17.8 | | E | | | 2 | | 0 | | | | | Clear | J. Costello. |
| Eccles, (near Manchester) | | | 30.06 | 763.5 | 68.8 | 20.4 | | SW | 3.4 | 1.5 | | | | | | | | Hazy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.09 | 764.3 | 64.8 | 18.2 | | ESE | | | 1 | | 4 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.87 | 707.9 | 30.11 | 764.8 | 67.5 | 19.7 | | NE | | | 1 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.00 | 762.0 | 90 | 32.2 | | NW | | | 1 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.00 | 762.0 | 62 | 16.7 | | W | | | 1 | | 1 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.95 | 760.7 | 74.0 | 22.3 | | W | | | 3 | | 5 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.00 | 762.0 | 59.6 | 15.3 | | W | | | 3 | | 5 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 30.12 | 765.0 | 64 | 17.8 | | E | | | 2 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.07 | 763.8 | 78.0 | 25.6 | | N | | | 1 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 30.04 | 763.0 | 60 | 15.6 | | NE | | | 2 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.14 | 765.5 | 67 | 19.4 | | N | | | 0 | | 1c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.07 | 763.8 | 62 | 16.7 | | SSW | | | 3 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.07 | 763.8 | 75.3 | 24.1 | | SW | 5 | 2.2 | | | 1 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.07 | 763.8 | 61 | 16.1 | | Calm | | | 0 | | 9 | | | | | Gloomy | George Mitchell. |
| Leicester, Museum | | | 30.06 | 763.5 | 67.1 | 19.5 | | SW | | | 2 | | 9 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.08 | 764.0 | 82.0 | 27.8 | | NE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.88 | 758.9 | 62 | 16.7 | | SSW | | | 4 | | 2 | | | | | ¼ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.03 | 762.7 | 83.2 | 28.4 | | SE | | | 1 | | 8 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.08 | 764.0 | 74.2 | 23.4 | | SW | | | 2 | | 5k | | WSW | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.05 | 763.3 | 69.1 | 20.6 | | SSW | | | 3 | | 4 | | | | | Hazy | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.06 | 763.5 | 73 | 22.8 | | Calm | | | 0 | | 3 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 30.08 | 764.0 | 64.9 | 18.3 | | S | | | 1 | | 8 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.07 | 763.8 | 61 | 16.1 | | SW | | | 3 | | 10 | | | | | Dull | W. Kennedy. |
| Saint Ann's Head | | | 30.08 | 764.0 | 64 | 17.8 | | Calm | | | 0 | | 7 | | | | | Foggy | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.02 | 762.5 | 73.4 | 23.0 | | ENE | | | 4 | | 0 | | | | | Clear | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.87 | 758.7 | 51.6 | 10.9 | | WSW | 30 | 13.4 | | | 3 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.02 | 762.5 | 79.4 | 26.3 | | NNE | | | 2 | | 2 | | | | | Hazy | Sergt. W. H. Lyne. |
| Sheffield | | | 30.06 | 763.5 | 70.3 | 21.3 | | WSW | | | 3 | | 7 | | | 0.353 | 8.97 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.05 | 763.3 | 66.2 | 19.0 | 66 | SW | | | 3 | | 0 | | | 0 | 0 | Blue sky | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.07 | 763.8 | 55.1 | 12.8 | | W | | | 2 | | 5 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.85 | 758.2 | 56 | 13.3 | | W | | | 3 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.00 | 762.0 | 74.4 | 23.6 | | W | | | 1 | | 0 | | | | | Blue sky | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.87 | 758.7 | 52 | 11.1 | | WNW | | | 3 | | 7 | | | | | Showery | John Trotter. |
| Truro, Royal Institution | | | 30.07 | 763.8 | 71 | 21.7 | | N | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.05 | 763.3 | 60.1 | 15.6 | | NNW | 4 | 1.8 | | | 8 | | | | | Hazy | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 55 | 12.8 | | SW | | | 3 | 5 | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.19 | 766.8 | 72.2 | 22.3 | 47 | S | 8 | 3.6 | | 2 | 4 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.00 | 762.0 | 45.0 | 7.2 | 86 | SW | | | 1 | | 0 | | | 0.01 | 0.3 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.02 | 762.5 | 61.1 | 16.2 | | W | | | 3 | | 8k | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.11 | 764.8 | 74.9 | 23.8 | 74 | ESE | 12.9 | 5.8 | | | | | | 0 | 0 | | C. Meldrum. |
| Melbourne, Observatory | | | 30.23 | 767.8 | 47.9 | 8.8 | 84 | NNW | 10 | 4.5 | | | 8 | | | 0.11 | 2.8 | Showery | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.97 | 761.2 | 54 | 12.2 | | SW | | | 3 | 3 | 0 | SW | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.82 | 757.4 | 51 | 10.6 | | WNW | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. | Wind. Force. | Clouds. Amount. Upper. | Clouds. Amount. Lower. | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Sea or swell. Height scale 0–9. | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 51° 30′, W. 15° 0′ | | | 30.01 | 762.2 | 56.0 | 13.3 | | WNW | | 1 | | 2 | | | 5 | W | Blue sky | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 42° 10′, W. 54° 0′ | | | 30.43 | 772.9 | 63.0 | 17.2 | | S | | 4 | | 1 | | | 3 | S | Blue sky | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 51° 53′, W. 11° 28′ | | | 30.05 | 763.3 | 61 | 16.1 | | ENE | | 3 | | 6 | | | 2 | NW | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.22 | 666.0 | | | 68.9 | 20.5 | 92 | E | | | 1 | | 9ck | | W | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.05 | 763.3 | 71.1 | 21.7 | 53 | W | | | 2 | | 8 | | | | | | |
| Fanöe | | | 30.02 | 762.6 | 63.0 | 17.2 | 81 | W | | | 4 | | 3 | | | | | | |
| Godthaab, (Greenland) | | | 29.30 | 744.2 | 40.3 | 4.6 | 96 | ENE | | | 2 | | 10 | | | | | Raining | |
| Stykkisholm, (Iceland) | | | 29.72 | 754.9 | 46.9 | 8.3 | 94 | Calm | | | 0 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.73 | 755.1 | 49.1 | 9.5 | 83 | W | | | 2 | | 10 | | | | | Rain & fog | |
| Vestervig | | | 30.00 | 761.9 | 61.2 | 16.2 | 75 | SW | | | 6 | | 2 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alengon, Normal School | | | 30.11 | 764.8 | 73.4 | 23 | 47 | SW | | | 1 | | 5k | | SW | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.03 | 762.7 | 93.6 | 34.2 | 58 | SW | | | 1 | | 8 | | SW | 0 | 0 | Very cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.08 | 764.1 | 91.4 | 33 | 40 | SW | | | 2 | | 0 | | | 0 | 0 | Very cloudy | Mr. Giraud. |
| Bar-sur-Seine | | | 30.05 | 763.2 | 87.6 | 30.9 | 34 | SW | | | 1 | | 2k | | S | 0 | 0 | Slightly cl'dy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.06 | 763.4 | 84.7 | 29.3 | 56 | E | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 30.07 | 763.8 | 86.9 | 30.5 | 47 | SE | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.20 | 767.1 | 90.1 | 32.3 | 59 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.07 | 763.8 | 85.6 | 29.8 | 54 | N | | | 2 | | 0 | | | 0 | 0 | Clear | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.11 | 764.8 | 72.5 | 22.5 | 67 | NE | | | 4 | | 2 | | NE | 0 | 0 | Stormy | The Staff. |
| Carcassonne, Normal School | | | 30.01 | 762.2 | 86.9 | 30.5 | 56 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 30.06 | 763.4 | 70.2 | 21.2 | 67 | N | | | 2 | | 2 | | NE | 0.28 | 7. | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 30.07 | 763.7 | 87.6 | 30.9 | 76 | NW | | | 2 | | 2 | | E | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.05 | 763.3 | 89.2 | 31.8 | 39 | SSE | | | 1 | | 2ck | | SSE | 0 | 0 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.16 | 764.6 | 89.1 | 31.7 | 34 | SE | | | 1 | | 1 | | | 0 | 0 | Almost clear | Alluard, Director. |
| Commercy, Normal School | | | 30.10 | 764.6 | 82.4 | 28 | 43 | ESE | | | 2 | | 5 | | ESE | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.19 | 766.9 | 87.3 | 30.7 | 34 | N | | | 2 | | 5 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.11 | 764.8 | 83.7 | 28.7 | 55 | NNW | | | 2 | | 2ks | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.95 | 760.7 | 88.5 | 31.4 | 43 | SE | | | 2 | | 5 | | SE | 0 | 0 | Cloudy | Mouillet, Director. |
| Le Mans, Normal School | | | 29.95 | 760.6 | 89.2 | 31.8 | 34 | SSE | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.06 | 763.4 | 82.4 | 28 | 39 | N | | | 2 | | 0 | | | 0 | 0 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 29.97 | 761.3 | 83.8 | 28.8 | 62 | SE | | | 1 | | 2 | | NE | 0.008 | 0.2 | ½ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.12 | 765.1 | 80.1 | 26.7 | 78 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.18 | 766.6 | 82.4 | 28.0 | 41 | ENE | | | 1 | | 3k | | | 0 | 0 | | Normal School. |
| Mirecourt | | | 30.08 | 763.9 | 79.3 | 26.3 | 50 | N | | | 1 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 30.15 | 765.9 | 94.3 | 34.6 | 56 | E | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.97 | 761.2 | 88.5 | 31.4 | 39 | SE | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.03 | 762.8 | 88.0 | 31.1 | 43 | E | | | 2 | | 1ck | | SW | 0 | 0 | Clear | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.03 | 762.7 | 77.7 | 25.4 | 61 | WSW | | | 2 | | 5 | | WSW | 0.12 | 3. | ½ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.04 | 763.0 | 90.0 | 32.2 | 59 | SE | | | 1 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director, |
| Tarbes, Normal School | | | 30.15 | 765.9 | 94.3 | 34.6 | 56 | E | | | 2 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | 28.96 | 735.6 | 29.96 | 761.0 | 90.7 | 32.6 | 52 | W | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | 30.04 | 763.0 | 90.5 | 32.5 | 52 | SE | | | 1 | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési, |
| Marseilles, Observatory | | | 30.11 | 764.8 | 81.1 | 27.3 | 55 | W | | | 1-2 | | 4 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Mont-Louis | | | 30.11 | 764.8 | 81.1 | 27.3 | 55 | W | | | 1-2 | | 4 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Paris, Montsouris Obs'y | 25.07 | 636.8 | 30.39 | 771.8 | 72.7 | 22.6 | 53 | S | 16.8 | 7.50 | | | 4 | | SW | 0 | 0 | | Mr. Falguère. |
| Perpignan | | | 30.04 | 763.0 | 90.9 | 32.7 | 40 | E | | | 2 | | 4 | | SSW | 0 | 0 | | Marie Davy, Director. |
| Pic du Midi, (Summit,) H. P. | | | 30.07 | 763.8 | 76.6 | 24.8 | 43 | SE | 16.8 | 7.50 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Plantade,) H. P. | 21.48 | 545.6 | | | 55.0 | 13.1 | | SW | | | 2 | | 3 | | | | | Fair | M. Baylac. |
| Saint Maur, (near Paris) | 22.75 | 577.9 | | | 60.8 | 16.0 | | SW | | | 3 | | 3 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Toulouse, Observatory | | | 30.05 | 763.2 | 88.5 | 31.4 | 43 | S | | | 1 | | 1 | | | 0 | 0 | | E. Renou. |
| Tours | | | 30.04 | 762.9 | 85.1 | 29.5 | 26 | SE | | | 4 | | 1 | | | 0 | 0 | | The Staff |
| Versailles, (near Paris) | | | 29.99 | 761.8 | 91.0 | 32.8 | 32 | SE | | | 2 | | 3 | | WSW | 0 | 0 | | C. Marquet. |
| Zi-Ka-Wei, (near Shanghai) | | | 30.07 | 763.6 | 89.6 | 32.0 | 43 | S | | | 2 | | 3 | | | 0 | 0 | Fair | Dr. A Bérigny. |
| | | | 29.82 | 757.3 | 70.2 | 21.2 | 87 | SW | 4.9 | 2.2 | | | 10k | | | 0.028 | 0.7 | Rainy | Marc Dechevrens, S. J. |

NOTE.—Generally, the orignals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft. Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correspondence the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.08 | 763.9 | 80.6 | 27.0 | 44 | SW | | | 1 | | 1 | SW | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.11 | 764.9 | 82.2 | 27.9 | 52 | N | | | 1 | | 6 | | | 0.039 | 1.0 | | Prof. Arndt. |
| Breslau | | | 30.13 | 765.3 | 85.1 | 29.5 | 41 | WNW | | | 2 | | 3 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.06 | 763.4 | 86.0 | 30.0 | 44 | NE | | | 1 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.29 | 767.1 | 84.2 | 29.0 | 69 | ENE | | | 2 | | 3 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.07 | 763.6 | 90.5 | 32.5 | 41 | SW | | | 2 | | 4 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.98 | 761.6 | 78.3 | 25.7 | 60 | NW | | | 3 | | 1 | SW | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.13 | 765.4 | 87.4 | 30.8 | 38 | N | | | 1 | | 1 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.72 | 729.4 | 30.08 | 764.1 | 78.4 | 25.8 | 67 | WNW | | | 4 | | 2 | W | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.10 | 764.5 | 77.7 | 25.4 | 63 | SW | | | 2 | | 6k | | | 0 | 0 | Sultry | Captain F. Hegemann. |
| Kiel | | | 30.04 | 763.0 | 75.6 | 24.2 | 75 | W | | | 2 | | 2 | | | 0.004 | 0.1 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.06 | 763.4 | 66.7 | 19.3 | 59 | W | | | 5 | | 0 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.12 | 765.0 | 88.9 | 31.6 | 45 | S | | | 1 | | 3 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.04 | 763.0 | 59.9 | 15.5 | 80 | W | | | 6 | | 2 | | | | | Light fog | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.10 | 764.4 | 72.7 | 22.6 | 49 | NNW | | | 3 | | 0 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.10 | 764.4 | 85.3 | 29.6 | 43 | NW | | | 4 | | 3 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.08 | 764.0 | 85.8 | 29.9 | 39 | NE | | | 2 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.04 | 763.0 | 86.0 | 30.0 | 41 | NE | | | 1 | | 4 | E | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.96 | 761.0 | 86.5 | 30.3 | 46 | SW | | | 2 | | 2 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.64 | 727.4 | 30.05 | 763.2 | 85.3 | 29.6 | 36 | W | | | 1 | | 3 | | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.17 | 766.4 | 69.8 | 21.0 | 44 | N | | | 1 | | 0 | | | 0.228 | 5.8 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2.5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2.0, instead of 1.51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.06 | 763.4 | 84.6 | 29.2 | | NE | | | Strong | | c | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.48 | 748.8 | 29.53 | 750.1 | 89.7 | 32.1 | 68 | W | 39.0? | 17.4? | | | 0 | | | 0 | 0 | Dust-haze | |
| Deesa | 29.08 | 738.6 | 29.53 | 750.1 | 102.4 | 39.1 | 44 | S | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.64 | 752.9 | 29.68 | 753.8 | 88.7 | 31.5 | 69 | W | 14 | 6.2 | | | 0 | | | 0 | 0 | Dust-haze | |
| Poona | 27.70 | 703.6 | 29.67 | 753.6 | 85.6 | 29.8 | 65 | | | | | | | | S | 0 | 0 | Thunder, lightn'g | |
| Lahore | 28.73 | 729.6 | | | | | | S | 4.4 | 1.9 | | | 8 | | | 0 | 0 | Cloudy | |
| Belgaum | 27.09 | 688.1 | 29.60 | 752.0 | 76.6 | 24.8 | 84 | WSW | 13 | 5.8 | | | 10 | | WNW | 0.20 | 5.1 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.55 | 725.2 | 29.41 | 746.9 | 98.9 | 37.2 | | SE | 6.0 | 2.6 | | | | | | 0.12 | 3.0 | Strong wind | |
| Agra | 28.85 | 732.7 | 29.37 | 746.0 | 109.7 | 43.2 | 16 | SW | 6.0 | 2.6 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.60 | 726.4 | 29.63 | 752.7 | 80.6 | 27.0 | 71 | N | 7.1 | 3.7 | | | 9 | | | 0.30 | 7.6 | Thunder-storm | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.08 | 738.8 | 29.44 | 747.7 | 104.0 | 40.0 | 21 | NW | 3.1 | 1.3 | | | 3 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.17 | 740.9 | 29.46 | 748.4 | 99.0 | 37.2 | 48 | Calm | 2.0 | 0.8 | | | | | | 0 | 0 | Blue sky | |
| Patna | 29.33 | 745.0 | 29.51 | 749.4 | 95.4 | 35.2 | 52 | E | 2.3 | 1.4 | | | 0 | | | 0 | 0 | Blue sky | |
| Hazaribagh | 27.56 | 700.1 | 29.50 | 749.2 | 94.3 | 34.6 | 33 | NW | 9.8 | 4.3 | | | 10 | | | | | Raining | |
| Cuttack | 29.48 | 748.8 | 29.56 | 750.8 | 92.2 | 33.4 | 62 | S | 8.2 | 3.6 | | | 8 | | | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.57 | 751.1 | 29.59 | 751.6 | 83.5 | 28.8 | 80 | S | 6.0 | 2.6 | | | 8 | | | 0 | 0 | Overcast | |
| Goalpara | 29.20 | 741.8 | 29.59 | 751.5 | 83.8 | 28.8 | 82 | E | 4.8 | 2.1 | | | 4 | E | | 0 | 0 | D. clouds | |
| Chittagong | 29.56 | 750.7 | 29.65 | 753.0 | 81.6 | 27.6 | 84 | S | 6.6 | 2.9 | | | | | | | | Raining | |
| Sibsagar | 29.33 | 745.0 | 29.67 | 753.6 | 78.1 | 25.6 | 95 | E | 3.9 | 1.7 | | | 10 | WNW | | 1.92 | 48.8 | Gloomy | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.22 | 716.8 | 29.54 | 750.3 | 94.0 | 34.4 | 27 | SW | 4.5 | 2.0 | | | 7 | | | 0 | 0 | D. clouds | |

NOTE.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.52 | 572.1 | 30.15? | 765.9? | 52.7 | 11.5 | 80 | NE | | | 1 | | 9 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22 48 | 571.1 | 30.08 | 764.1 | 49.6 | 9.8 | | SSE | | | 1 | | 6 | ENE | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.07 | 763.6 | 86.7 | 30.4 | 35 | S | 1.3 | 0.6 | | | 3 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.08 | 764.0 | 85.6 | 29.8 | 36 | ESE | 0.9 | 3.1 | | | 1 | E | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.07 | 763.8 | 90.7 | 32.6 | 34 | SE | 4.9 | 2.2 | | | 7 | E | | 0 | 0 | | Conte Alm. Da Schio |
| Verona | | | 30.08 | 763.9 | 88.2 | 31.2 | 57 | E | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.82 | 731.9 | 30.08 | 763.9 | 88.5 | 31.4 | 34 | S | | | 1 | | 5 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.06 | 763.5 | 85.1 | 29.5 | 40 | S | | | 6 | | 7 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.11 | 764.7 | 96.6 | 35.9 | 58 | S | | | 1 | | 2 | ENE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.08 | 764.1 | 87.3 | 30.7 | 42 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.10 | 764.4 | 85.5 | 29.7 | 43 | SSE | 1.8 | 0.8 | | | 2 | E | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.26 | 717.9 | 30.09 | 764.2 | 82.4 | 28.0 | 34 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.15? | 765.9? | 81.9 | 27.7 | 55 | ESE | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.11 | 764.7 | 82.0 | 27.8 | 46 | SW | 4.9 | 2.2 | | | 2 | N | | 0.051 | 1.3 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.10 | 764.5 | 86.7 | 30.4 | 43 | NE | 3.1 | 1.4 | | | 2 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 30.08 | 764.0 | 90.5 | 32.5 | 44 | SE | | | 4 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.08 | 764.1 | 90.1 | 32.3 | 31 | NE | | | 2 | | 0 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.08 | 763.9 | 83.3 | 28.5 | 55 | NW | 7.4 | 3.3 | | | 3 | NW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.90 | 734.0 | 30.06 | 763.4 | 85.3 | 29.6 | 35 | NE | 0.7 | 0.3 | | | 6 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.62 | 726.9 | 30.12 | 765.0 | 79.5 | 26.4 | 48 | NE | | | 4 | | 1 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.11 | 764.7 | 81.1 | 27.3 | 58 | N | 13.0 | 5.8 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.07 | 763.7 | 83.1 | 28.4 | 57 | NE | | | 4 | | 0 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.08 | 764.0 | 87.8 | 31.0 | 42 | SSE | | | 4 | | 3 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.10 | 764.6 | 85.1 | 29.5 | 66 | SW | 7.4 | 3.3 | | | 6 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.10 | 764.6 | 85.1 | 29.5 | 59 | SW | | | 2 | | 3 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.10 | 764.4 | 82.0 | 27.8 | 47 | WNW | 9.8 | 4.4 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.07 | 763.8 | 88.3 | 31.3 | 45 | SW | 4.9 | 2.2 | | | 5 | SW | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.05 | 763.3 | 82.8 | 28.2 | 47 | S | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.17? | 766.3? | 79.0 | 26.1 | 59 | S | | | 2 | | 7 | N | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.05 | 763.3 | 77.4 | 25.2 | 73 | ENE | 4.3 | 1.9 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.15 | 715.0 | 30.01 | 762.2 | 82.8 | 28.2 | 28 | S | | | 2 | | 8 | NE | | 0.035 | 0.9 | | Prof. A. Pagani. |
| Syracuse | | | 30.03 | 762.7 | 78.4 | 25.8 | 70 | E | | | 2 | | 6 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.15 | 765.9 | 82.8 | 28.2 | 62 | ESE | 1.3 | 0.6 | | | 2 | | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.4 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.30 | 744.2 | 72 | 22.2 | 92 | SW to SE | 20to35 | 8.9 to 15.6 | | | 10n | | | | | Heavy storm | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.10 | 586.8 | 30.08 | 763.9 | 56.3 | 13.5 | 80 | NW | 0.9 | 0.39 | | 10k | 3k | NE | | 0 | 0 | Covered | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.11 | 764.9 | 78.4 | 25.8 | | NNW | | | 2 | | | | | 0 | 0 | | |
| Groningen | | | 30.03 | 762.8 | 75.0 | 23.9 | | NW | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.10 | 764.5 | 62.8 | 17.1 | | W | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.05 | 763.2 | 82.4 | 28.0 | 62 | W | | | 3 | | 5 | | | 0 | 0 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.85 | 758.1 | 53.2 | 11.8 | 86 | SSW | 7.4 | 3.3 | | | 10 | | | 0.839 | 21.3 | Raining | |
| Brönö | | | 29.63 | 752.6 | 46.8 | 8.2 | 94 | WSW | 18 | 8 | | | 10 | | | 0.827 | 21.0 | Raining | |
| Christiania | | | 29.79 | 756.7 | 67.3 | 19.6 | 78 | WNW | 18 | 8 | | | 9 | | | 0.004 | 0.1 | | |
| Tromsö | | | 29.45 | 748.1 | 46.4 | 8.0 | 73 | NE | 0 | 4 | | | 10 | | | 0.382 | 9.7 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.29 | 769.4 | 62.6 | 17.0 | 67 | W | 13.7 | 6.1 | | | 7 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.88 | 758.9 | 90.5 | 32.5 | 36 | ESE | 3.7 | 1.67 | | | 1 | | | 0.236 | 6.0 | Solar corona | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 29.92 | 759.9 | 71.2 | 21.8 | 73 | SE | 2.5 | 1.1 | | | 9 | | | 0.016 | 0.4 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.88 | 758.9 | 82.4 | 28.0 | 42 | WSW | 16.1 | 7.2 | | | 5 | SSW | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.27 | 768.9 | 69.4 | 20.8 | 51 | NW | 6.9 | 3.1 | | | 3 | | | 0.016 | 0.4 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.06 | 763.4 | 83.1 | 28.4 | 50 | WSW | 11 | 5 | | | 1 | | | | | | Astronomical Obs. |
| Wilna | | | 29.91 | 759.7 | 81.5 | 27.5 | 48 | W | 16 | 7 | | | 8 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.74 | 755.4 | 68.9 | 20.5 | 44 | WSW | 9 | 4 | | | 8 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.67 | 753.6 | 55.9 | 13.3 | 87 | WNW | 4 | 2 | | | 10 | | | | | Raining | Central Physical Obs. |
| Kuopio | | | 29.54 | 750.2 | 63.3 | 17.4 | 60 | S | 13 | 6 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.99 | 761.8 | 79.2 | 26.2 | 28 | NW | 9 | 4 | | | 2 | | | | | Dust-haze | Physical Cabinet. |
| Nikolaiev | | | 30.12 | 765.0 | 82.8 | 28.2 | 41 | Calm | 0 | 0 | | | 1 | | | | | | Kurdakof |
| Kertch | | | 30.07 | 763.8 | 82.4 | 28.0 | 58 | N | 7 | 3 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.80 | 756.9 | 66.9 | 19.4 | 55 | N | 9 | 4 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.86 | 758.4 | 79.9 | 26.6 | 47 | NW | 13 | 6 | | | 3 | | | | | | Meteorological Obs. |
| Archangel | | | 29.60 | 751.7 | 53.4 | 11.9 | 45 | NW | 18 | 8 | | | 8 | | | | | | Ogorodnikof. |
| Tiflis | 28.52 | 724.5 | 29.90 | 759.5 | 68.0 | 20.0 | 70 | N | 13 | 6 | | | 10 | | | | | Raining | Physical Observatory. |
| Astrakhan | | | 29.84 | 757.9 | 78.6 | 25.9 | 29 | N | 11 | 5 | | | 1 | | | | | | Sebastianof. |
| Kasan | | | 29.48 | 748.8 | 57.7 | 14.3 | 74 | SW | 2 | 1 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.87 | 758.6 | 71.8 | 22.1 | 85 | NE | 11 | 5 | | | 10 | | | | | | Tschernischef. |
| Ekaterinburg | 28.53 | 724.7 | 29.44 | 747.7 | 65.3 | 18.5 | 35 | NNW | 2 | 1 | | | 7 | | | | | | Meteorogical Obs |
| Nukuss | | | 29.76 | 755.9 | 86.4 | 30.2 | 32 | NNE | 2 | 1 | | | 1 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.31 | 719.1 | 29.93 | 760.3 | 78.6 | 25.9 | 46 | N | 9 | 4 | | | 6 | | | | | | Michelson. |
| Barnaul | | | 29.57 | 751.1 | 75.4 | 24.1 | 49 | SE | 2 | 1 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.53 | 750.0 | 72.1 | 22.3 | 63 | NW | 7 | 3 | | | 8 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 70.7 | 21.5 | | Calm | 0 | 0 | | | 0 | | | | | | Mossin. |
| Peking, (China) | | | 29.61 | 752.2 | 81.3 | 27.4 | 39 | Calm | 0 | 0 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.39 | 746.6 | 54.9 | 12.7 | 82 | Calm | 0 | 0 | | | 8 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 43.7 | 6.5 | 88 | Calm | 0 | 0 | | | 2 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.89 | 759.2 | 88.0 | 31.1 | 34 | SE | 8.9 | 4.00 | | 1 | 1 | SW | | 0.043 | 1.1 | Cloudy | The Staff. |
| San Fernando, Naval Obs'y | | | 29.95 | 760.6 | 77.4 | 25.2 | 60 | ESE | 17.0 | 7.6 | | 0 | 10 | | SE | 0 | 0 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.98 | 761.4 | 78.6 | 25.9 | 84 | E | 4.3 | 1.9 | | 2c | 0 | | | 0.902 | 22.9 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.98 | 761.5 | 81.0 | 27.2 | 85 | E | 0 | 0 | | 6cs | 1k | | E | 1.240 | 31.50 | D. clouds | Leonardo de Tejeda, Chief of Engineers |

Note.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.54 | 750.3 | 55.0 | 12.8 | 66 | SW | | | 4 | | 5 | | | 0 | 0 | | |
| Umea | | | 29.61 | 752.0 | 60.3 | 15.7 | 76 | NW | | | 2 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.63 | 752.7 | 59.0 | 15.0 | 72 | NW | | | 2 | | 7 | | | 0 | 0 | | |
| Stockholm | | | 29.75 | 755.7 | 69.1 | 20.6 | 47 | W | | | 7 | | 2 | | | 0 | 0 | | |
| Wisby | | | 29.89 | 759.1 | 59.7 | 15.4 | 62 | W | | | 4 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.70 | 754.3 | 72.3 | 22.4 | 36 | W | 13.2 | 5.9 | | 4 | | W | WNW | 0 | 0 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.72 | 729.4 | 30.08 | 763.9 | 78.8 | 26.0 | 57 | NNE | | | 1 | | 1 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.52 | 724.4 | 30.06 | 763.4 | 86.7 | 30.4 | 43 | NE | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +3.1 mm; Thermometer, +5.7 cent.; Relative Humidity, +1 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds: the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.07 | 763.8 | 75.6 | 24.2 | 64 | N | 17 | 7.5 | | | 3 | | NNE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.95 | 760.7 | 87.8 | 31.0 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 30.17 | 766.2 | 83.1 | 28.4 | | SE | | | 2 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.21 | 767.2 | 83.3 | 28.5 | | W | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.96 | 760.9 | 80.4 | 26.9 | 61 | W | | | 2 | | 3k,ks | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.80 | 756.9 | 65.9 | 18.8 | 44 | NW | 5 | 2.2 | | | 0 | | | | | | Hon. J. Ferguson |
| Brockville, Ontario | | | 30.07 | 763.8 | 60 | 15.6 | | Calm | 0 | 0 | | 0 | 0 | | | 0.02 | 0.5 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 29.85 | 758.2 | 61 | 16.1 | 60 | SW | 14 | 6.3 | | 2ck | 0 | SW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.93 | 760.2 | 63 | 17.2 | 79 | SW | 8 | 3.6 | | | 8ks | | SW | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.06 | 763.5 | 52.8 | 11.6 | 70 | SW | | | 3 | 3k | 0 | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.85 | 758 2 | 62.4 | 16.9 | 86 | W | | | 3 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| Esquimault, B. C. | | | 30.18 | 766.6 | 52.3 | 11.3 | 93 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Revis. |
| *Father Point, Quebec | | | 29.84 | 757.9 | 49 | 9.4 | 85 | W | 20 | 8.9 | | 0 | 5ks | | W | 0.68 | 17.3 | Fair | J. McWilliams. |
| Fredericton, N. B. | | | 29.90 | 761.7 | 61.1 | 16.2 | 51 | NW | 10 | 4.5 | | 5ck | 0 | SW | | 0 | 0 | Fine | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.98 | 761.5 | 49 | 9.4 | 89 | Calm | 0 | 0 | | 2ck | 2ks | W | W | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.05 | 763.3 | 51.4 | 10.8 | | SE | | | 2 | 3k | 0 | W | | 0 | 0 | Clearing | H. J. Strang, M. A. |
| Granton, Ontario | 28.93 | 734.8 | 30.02 | 762.5 | 55 | 12.8 | 81 | E | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.99 | 761.7 | 58 | 14.4 | 97 | SW | 8 | 3.6 | | | 8n | | | 0.024 | 0.61 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.10 | 764.5 | 52.2 | 11.2 | 69 | NW | | | 4 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.05 | 763.3 | 60 | 15.6 | 94 | SW | | | 4 | | 10 | | | 0.05 | 1.3 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.13 | 765.3 | 53 | 11.7 | 69 | W | 2 | 0.9 | | 0 | 0 | | | 0.04 | 1.0 | Clear | S. Woods, M. A |
| *Montreal, Quebec | | | 30.04 | 763.0 | 54 | 12.2 | 63 | W | 10 | 4.5 | | 0 | 5ks | | W | 0.19 | 4.8 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.09 | 764.3 | 46 | 7.8 | 69 | E | 4 | 1.8 | | 0 | 0 | | | 0.10 | 2.5 | Clear | Rev. R. Mosley |
| Peterboro, Ontario | | | 30.09 | 764.3 | 53.7 | 12.1 | 74 | W | | | 0 | 1k | 0 | | | 0.10 | 2.5 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.06 | 763.5 | 54 | 12.2 | 87 | E | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 30.11 | 764.8 | 56.5 | 13.6 | | W | 3 | 1.3 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.02 | 762.5 | 56 | 13.3 | 87 | E | 6 | 2.7 | | 0 | 0 | | | Inap. | Inap. | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.94 | 760.5 | 56 | 13.3 | 94 | SW | 10 | 4.5 | | | 10n | | SW | 0.46 | 11.7 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.99 | 761.7 | 44 | 6.7 | 64 | NW | 8 | 3.6 | | | 8s | | NW | 0.02 | 0.5 | Cloudy | W. H. McIntyre. |
| St. John, N. B. | | | 30.01 | 762.2 | 56 | 13.3 | 90 | SW | 3 | 1.3 | | 1ck | 0 | | | 0 | 0 | Clear | G. Murdock, C. E |
| *Saugeen, Ontario | | | 30.03 | 762.7 | 49 | 9.4 | 78 | N | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 30.10 | 764.5 | 50 | 10.0 | 86 | Calm | 0 | 0 | | 2k | 0 | SW | | 0.60 | 15.2 | Fair | R. J. Cole. |
| Stratford, Ontario | | | 30.04 | 763.0 | 49.0 | 9.4 | 81 | SE | 8 | 3.6 | | 3c | 1s | | | 0 | 0 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28 75 | 730.2 | 29.94 | 760.5 | 75 | 23.9 | 73 | SW | 11 | 4.9 | | 5ck | 2ks | W | SW | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 30.10 | 764.5 | 52 | 11.1 | 65 | NE | 5 | 2.2 | | 5ck | 0 | W | | Inap. | Inap. | Fair | Magnetic Observatory. |
| Windsor, N. S. | | | 29.92 | 760.0 | 64.0 | 17.8 | 81 | NW | | | | | 10k,n | | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.05 | 763.3 | 52.9 | 11.6 | 81 | SW | 24 | 10.7 | | 3k | 0 | | | 0 | 0 | Fair | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.26 | 768.6 | 69.0 | 20.6 | 70 | S | | | | 5k | 5s | | | 0 | 0 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.08 | 764.0 | 56 | 13.3 | 62 | NW | 4 | 1.8 | | 1c | 0 | | | 0.80 | 20.3 | Clear | |
| Alpena, Mich. | | | 30.06 | 763.5 | 44 | 6.7 | 75 | E | 14 | 6.3 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Atlantic City, N. J. | | | 30.08 | 764.0 | 56 | 13.3 | 93 | NE | 24 | 10.7 | | | 10n | | NE | 0.39 | 9.9 | Light rain | |
| Augusta, Ga. | | | 30.02 | 762.5 | 70 | 21.1 | 85 | Calm | 0 | 0 | | | 10s | | | 0.71 | 18.0 | Cloudy | |
| Baltimore, Md. | | | 30.10 | 764.5 | 62 | 16.7 | 50 | NE | 12 | 5.4 | | 2k | 8s | W | | 0.02 | 0.5 | Cloudy | |
| Barnegat, N. J. | | | 30.09 | 764.3 | 56 | 13.3 | 87 | E | 19 | 8.5 | | | 10n | | | 0.25 | 6.3 | Light rain | |
| Bismarck, Dakota | 28.23 | 717.0 | 29.87 | 758.7 | 49 | 9.4 | 77 | NW | 10 | 4.5 | | 5c | Haze | | | 0.12 | 3.0 | Fair | |
| Boston, Mass. | | | 30.09 | 764.3 | 60 | 15.6 | 55 | NW | 6 | 2.7 | | 9cs | 0 | SW | | Inap. | Inap | Cloudy | |
| Breckenridge, Minn | | | 29.86 | 758.4 | 48 | 8.9 | 96 | S | 4 | 1.8 | | 0 | 5ks | | S | 0.05 | 1.3 | Clearing | |
| Buffalo, N. Y. | | | 30.04 | 763.0 | 56 | 13.3 | 68 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.07 | 763.8 | 59 | 15.0 | 58 | S | 4 | 1.8 | | 2k | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.00 | 762.0 | 61 | 16.1 | 77 | W | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.40 | 696.0 | 29.97 | 761.2 | 60 | 15.6 | 44 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 70 | 21.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.96 | 761.0 | 75 | 23.9 | 85 | SW | 20 | 8.9 | | | 10n | | SW | 0.30 | 7.6 | Light rain | |
| Cape Henry, Va. | | | 30.06 | 763.5 | 59 | 15.0 | 87 | NE | 28 | 12.5 | | | 10s | | | 0.55 | 14.0 | Cloudy | |
| Cape Lookout, N. C. | | | 30.02 | 762.5 | 76 | 24.4 | 95 | S | 20 | 8.9 | | | 10n | | | 0.98 | 24.9 | Light rain | |
| Cape May, N. J. | | | 30.08 | 764.0 | 56 | 13.3 | 87 | N | 12 | 5.4 | | | 10n | | | 0.83 | 21.1 | Light rain | |
| Charleston, S. C. | | | 30.01 | 762.2 | 76 | 24.4 | 86 | W | 6 | 2.7 | | | 10s | | W | 1.28 | 32.5 | Cloudy | |
| Cheyenne, Wyoming | 24.22 | 615.2 | 30.16 | 766.1 | 45 | 7.2 | 67 | NW | 12 | 5.4 | | 8ck | 2s | NW | NW | 0.04 | 1.0 | Cloudy | |
| Chicago, Ill. | | | 29.77 | 756.1 | 59 | 15.0 | 76 | SW | 16 | 7.2 | | 2c | 0 | SW | | 0.05 | 1.3 | Fair | |
| Cincinnati, Ohio | | | 29.95 | 760.7 | 60 | 15.6 | 64 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.02 | 762.5 | 56.5 | 13.6 | 60 | S | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 30.11 | 764.8 | 56 | 13.3 | 87 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 29.82 | 757.4 | 53 | 11.7 | 86 | NW | 4 | 1.8 | | 8k | 0 | W | | 0.29 | 7.4 | Fair | |
| Denison, Texas | | | 30.08 | 764.0 | 63 | 17.2 | 71 | SW | 6 | 2.7 | | 2ck | 0 | NW | | 0 | 0 | Fair | |
| Denver, Col. | 25.04 | 636.0 | 30.26 | 768.6 | 47 | 8.3 | 70 | S | 4 | 1.8 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 29.93 | 760.2 | 59 | 15.0 | 70 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.57 | 700.3 | 29.86 | 758.4 | 52 | 11.1 | 86 | SW | 14 | 6.3 | | | 10n | | W | 0.08 | 2.0 | Light rain | |
| Dubuque, Iowa | | | 29.77 | 756.1 | 52 | 11.1 | 86 | NE | 4 | 1.8 | | | 10s | | NE | 0.75 | 19.1 | Cloudy | |
| Duluth, Minn. | | | 29.94 | 760.5 | 44 | 6.7 | 84 | NE | 22 | 9.8 | | | 10n | | NE | 0.02 | 0.5 | Light rain | |
| Eagle Pass, Tex. | | | 30.14 | 765.5 | 53 | 11.7 | 68 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.99 | 761.7 | 61 | 16.1 | 66 | W | 6 | 2.7 | | 8k | 5s | SW | | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 30.00 | 762.0 | 60 | 15.6 | 65 | S | 10 | 4.5 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Escanaba, Mich. | | | 29.96 | 759.4 | 44 | 6.7 | 92 | NE | 20 | 8.9 | | | 10n | | | 0.25 | 6.3 | Heavy rain | |
| Florence, Arizona | 28.26 | 717.8 | 29.86 | 758.4 | 80 | 26.7 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.03 | 762.7 | 67 | 19.4 | 82 | NW | 2 | 0.9 | | 2ck | 2s | SW | NW | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.78 | 731.0 | 30.03 | 762.7 | 58 | 14.4 | 75 | Calm | 0 | 0 | | 2ck | 0 | W | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 30.07 | 763.8 | 44 | 6.7 | 84 | SW | | | 5 | 2c | 0 | S | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.86 | 733.0 | 29.96 | 761.0 | 59 | 15.0 | 76 | N | 4 | 1.8 | | 5k | 2s | NW | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.32 | 719.3 | 29.97 | 761.2 | 52 | 11.1 | 66 | NW | 10 | 4.5 | | Haze | Haze | | | 0.07 | 1.8 | Hazy | |
| Galveston, Tex. | | | 30.09 | 764.3 | 69 | 20.6 | 70 | NE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 29.89 | 759.9 | 54 | 12.2 | 83 | SE | 6 | 2.7 | | 0 | 9s | | SW | 0 | 0 | Cloudy | |
| Indianapolis, Ind. | | | 29.91 | 759.7 | 59 | 15.0 | 70 | SE | 6 | 2.7 | | 2ck | 8s | W | SW | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 30.09 | 764.3 | 72 | 22.2 | 53 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 29.99 | 761.7 | 83 | 28.3 | 70 | Calm | 0 | 0 | | 8k | 0 | | | 0.08 | 2.0 | Cloudy | |
| Keokuk, Iowa | | | 29.78 | 756.4 | 59 | 15.0 | 81 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 29.96 | 761.0 | 81.0 | 27.2 | 78 | E | 7 | 3.1 | | 5cs | 2s | SE | E | 0.01 | 0.3 | Cloudy | |
| Kittyhawk, N. C. | | | 30.00 | 762.0 | 62 | 16.7 | 100 | NW | 8 | 3.6 | | | 10n | | SW | 3.97 | 100.8 | Light rain | |
| Knoxville, Tenn. | | | 30.08 | 764.0 | 53 | 11.7 | 86 | NE | 5 | 2.2 | | 1k | 0 | NE | | 0 | 0 | Clear | |
| LaCrosse, Wis. | | | 29.80 | 756.9 | 47 | 8.3 | 100 | NE | 5 | 2.2 | | | 10n | | NE | 0.14 | 3.6 | Light rain | |
| Leavenworth, Kan. | | | 29.97 | 761.2 | 60 | 15.6 | 76 | NW | 6 | 2.7 | | 2k | 0 | NW | | Inap. | Inap. | Fair | |
| Louisville, Ky. | | | 29.98 | 761.5 | 63 | 17.2 | 71 | S | 7 | 3.1 | | 2ck | 0 | SW | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.07 | 763.8 | 65 | 18.3 | 58 | NE | 6 | 2.7 | | 5k | 0 | W | | 0.13 | 3.3 | Fair | |
| Maricopa Wells, Arizona | | | | | 87 | 30.6 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | | | | | | | | | | | | | | | | | |
| Mason, Tex. | 28.46 | 722.9 | 30.22 | 767.6 | 54 | 12.8 | 61 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.05 | 763.3 | 67 | 19.4 | 73 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.74 | 755.4 | 56 | 13.3 | 80 | SW | 12 | 5.4 | | | 10ks | | SW | 0.77 | 19.6 | Cloudy | |
| Mobile, Ala. | | | 30.07 | 763.8 | 65 | 18.3 | 73 | N | 9 | 4.0 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.09 | 764.3 | 62.5 | 16.9 | 69 | N | 5 | 2.2 | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.02 | 737.1 | 30.08 | 764.0 | 58 | 14.4 | 69 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 23.84 | 605.5 | 30.20 | 767.1 | 35 | 1.7 | 90 | NW | 30 | 13.4 | | 5c | 0 | NW | | 0.82 | 20.8 | Fair | |
| Nashville, Tenn. | | | 30.06 | 763.5 | 59 | 15.0 | 81 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.10 | 764.5 | 59 | 15.0 | 69 | NE | 10 | 4.5 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| New London, Conn. | | | 30.10 | 764.5 | 61 | 16.1 | 66 | N | 4 | 1.8 | | 2cs | 0s | W | W | 0.06 | 1.5 | Fair | |
| New Orleans, La. | | | 30.06 | 763.5 | 70 | 21.1 | 59 | NE | 8 | 3.6 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.09 | 764.3 | 62 | 16.7 | 78 | N | 4 | 1.8 | | | 10ks | | SW | 0.02 | 0.5 | Threatening | |
| New York, N. Y. | | | 30.12 | 765.0 | 60 | 15.6 | 49 | NE | 7 | 3.1 | | | 10s | | | 0.14 | 3.6 | Cloudy | |
| Norfolk, Va. | | | 30.05 | 763.3 | 59 | 15.0 | 100 | NE | 12 | 5.4 | | | 10n | | NE | 0.87 | 22.1 | Light rain | |
| North Platte, Neb. | 27.20 | 690.9 | 29.78 | 756.4 | 49 | 9.4 | 63 | W | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.81 | 731.8 | 29.86 | 758.4 | 56 | 13.3 | 62 | W | 11 | 4.9 | | 5cs | 2s | NW | NW | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 30.11 | 764.8 | 54 | 12.2 | 73 | W | 4 | 1.8 | | 0 | 0 | | | 0.11 | 2.8 | Clear | |
| Pembina, Dakota | | | 29.95 | 760.7 | 51 | 10.6 | 93 | E | 7 | 3.1 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Philadelphia, Pa. | | | 30.11 | 764.8 | 59 | 15.0 | 59 | E | 12 | 5.4 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Phœnix, Arizona | | | | | 72 | 22.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.89 | 454.4 | 30.10 | 764.5 | 19 | — 7.2 | 84 | N | 28 | 12.5 | | 8c | 8k | NW | | Inap. | Inap. | Fair | |
| Pittsburgh, Pa. | | | 30.05 | 763.3 | 53 | 11.7 | 86 | SE | 3 | 1.3 | | Sm'e | Fog | | | 0.02 | 0.5 | Fair | |
| Port Huron, Mich. | | | 29.96 | 761.0 | 54 | 12.2 | 67 | E | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Portland, Me. | | | 30.05 | 763.3 | 59 | 15.0 | 59 | W | 4 | 1.8 | | 5k | 1s | SW | | 0.01 | 0.3 | Fair | |
| Portland, Oregon | | | 30.22 | 767.6 | 63 | 17.2 | 42 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.92 | 633.0 | 30.28 | 769.1 | 51 | 10.6 | 40 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.01 | 762.2 | 82 | 27.8 | 67 | E | 12 | 5.4 | | 0 | 5ks | | | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 30.07 | 763.8 | 55 | 12.8 | 68 | W | 2 | 0.9 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Salt Lake City, Utah | 25.80 | 655.3 | 30.13 | 765.3 | 60 | 15.6 | 33 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.12 | 765.0 | 59 | 15.0 | 64 | NE | 12 | 5.4 | | | 10s | | | 0.04 | 1.0 | Threatening | |
| San Antonio, Tex. | | | 29.97 | 761.2 | 61 | 16.1 | 77 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | Clear | |
| San Diego, Cal. | | | 29.86 | 758.4 | 71 | 21.7 | 49 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 29.91 | 759.7 | 63 | 17.2 | 78 | Calm | 0 | 0 | | Haze | Sm'e | | | 0 | 0 | Hazy | |
| Santa Fé, New Mexico | 23.38 | 593.8 | 29.92 | 760.0 | 53 | 11.7 | 43 | E | 6 | 2.7 | | 2cs | 0 | | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.02 | 762.5 | 72 | 22.2 | 95 | N | 10 | 4.5 | | | 10n | | | 1.07 | 27.2 | Light rain | |
| Shreveport, La. | | | 30.18 | 766.6 | 63 | 17.2 | 89 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.01 | 762.2 | 74 | 23.3 | 90 | SW | 8 | 3.6 | | | 10s | | SW | 1.30 | 33.0 | Cloudy | |
| Springfield, Mass. | | | 30.11 | 764.8 | 62.5 | 16.9 | 50 | N | 2 | 0.9 | | 10ck | 0 | SW | | 0.57 | 14.5 | Cloudy | |
| St. Louis, Mo. | | | 29.93 | 760.2 | 61 | 16.1 | 71 | W | 12 | 5.4 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| St. Marks, Fla. | | | 29.99 | 761.7 | 70 | 21.1 | 95 | NE | 8 | 3.6 | | | 10s | | | 0.32 | 8.1 | Cloudy | |
| St. Paul, Minn. | | | 29.80 | 756.9 | 47 | 8.3 | 92 | NW | 4 | 1.8 | | | 10n | | | 0.24 | 6.1 | Light rain | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 67 | 19.4 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 27.03 | 686.6 | 30.03 | 762.7 | 55 | 12.8 | 50 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear. | |
| Thatcher's Island, Mass | | | 30.08 | 764.0 | 58 | 14.4 | 58 | NW | 12 | 5.4 | | 8c,ck | 0 | W | | 0 | 0 | Fair | |
| Toledo, Ohio | | | 29.95 | 760.7 | 62 | 16.7 | 66 | SW | 4 | 1.8 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.53 | 699.2 | 30.02 | 762.5 | 69 | 20.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear... | |
| Tybee Island, Ga | | | 30.00 | 762.0 | 74 | 23.3 | 95 | NW | 6 | 2.7 | | | 10s | | NW | 0.27 | 6.9 | Cloudy | |
| Vicksburg, Miss | | | 30.11 | 764.8 | 70 | 21.1 | 56 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear. | |
| Virginia City, Montana | 24.46 | 621.3 | 29.94 | 760.5 | 47 | 8.3 | 55 | Calm | 0 | 0 | | 1c | 0 | NW | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.11 | 764.8 | 61 | 16.1 | 57 | NE | 10 | 4.5 | | 2k | 5s | SW | SW | 0.05 | 1.3 | Fair | |
| Wickenburg, Arizona | | | | | 80 | 26.7 | | N | | | | 0 | 0 | | | 0 | 0 | Clear... | |
| Wilmington, N. C | | | 30.00 | 762.0 | 73 | 22.8 | 95 | S | 6 | 2.7 | | | 10n | | | 1.14 | 29.0 | Light rain | |
| Wood's Holl, Mass | | | 30.11 | 764.8 | 60 | 15.6 | 65 | N | 5 | 2.2 | | | 10s | | SW | 0.06 | 1.5 | Cloudy | |
| Yankton, Dakota | 28.65 | 727.7 | 29.93 | 760.2 | 49 | 9.4 | 92 | NW | 12 | 5.4 | | | 10n | | | 0.03 | 0.8 | Light rain | |
| Yuma, Arizona | | | 29.81 | 757.2 | 74 | 23.3 | 24 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.13 | 765.3 | 77 | 25.0 | 90 | SE | 14 | 6.3 | | | 10n | | SE | 5.87 | 149.1 | | James Gall. |
| Navassa, W. I | | | | | 78 | 25.6 | | E | | | 4 | | | | | 1.03 | 26.2 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.04 | 763.0 | 82 | 27.8 | 83 | E | | | 2 | 5k | 6ks | E | | 0.400 | 10.16 | ¾ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.27 | 641.8 | | | 65.0 | 18.3 | 84 | Calm | | | 0 | 8ck,k | 2s | | | 0.36 | 9.1 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.97 | 761.2 | 36 | 2.2 | 95 | S | 8 | 3.6 | | 2c | 0 | N | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.08 | 764.0 | 73 | 22.8 | | NE | | | 3 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet: the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.17 | 766.3 | 72 | 22 2 | 62 | 16.7 | 66 | ENE | | | 3 | | 7 | | ENE | 0.10 | 2.5 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.10 | 764.5 | 74 | 23.3 | 66 | 18.9 | | W | | | 1 | | 0 | | | 0 | 0 | | | Pleasant. | |
| Navy Yard, Pensacola, Fla. | 30.12 | 765.0 | | | 69 | 20.6 | 75 | NNW | 7 | 3.1 | | | 9 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.12 | 765.0 | 70 | 21.1 | 57 | 13.9 | 69 | NW | 6 | 2.7 | | | | | | 0.25 | 6.3 | | | Raining | |
| Naval Hospital, Yokohama, Japan | 29.25 | 742.9 | 73 | 22.8 | 72 | 22.2 | 90 | SSW | | | 8 | | 8nd | | SW | 0.65 | 16.5 | | | Raining | |
| Alert, N. 80 20′ 02″, E. 139° 38′ 12″ | 29.93† | 760.2† | 84 | 28.9 | 83 | 28.3 | 100 | E | | | 4 | | 3 | | E | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.09 | 764.3 | 78 | 25.6 | 77 | 25.0 | 91 | NW | | | 1 | | 3 | | | | | Smooth | | Clear | |
| Ashuelot, Amoy, China | 29.92 | 760.0 | 82 | 27.8 | 82 | 27.8 | 79 | SW | | | 1 | | 6 | | S&W | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.03 | 762.7 | 51 | 10.6 | 69 | 20.6 | 65 | NE | | | 2 | | 3 | | NE | | | | | Clear | |
| Colorado, New York, N. Y | 30.15 | 765.8 | 59 | 15.0 | 60 | 15.6 | 65 | E | 3 | 1.3 | | | 10 | | | 0.41 | 10.4 | | | Overcast | |
| Despatch, Smyrna, Turkey | 30.15 | 765.8 | 76 | 24.4 | 82 | 27.8 | 56 | NE | | | 3 | | 2 | | NE | | | Smooth | | Clear. | |
| Franklin, Norfolk, Va. | 30.12 | 765.0 | 61 | 16.1 | 62 | 16.7 | 88 | NNE | 8 | 3.6 | | | 10 | | NNE | 1. | 25. | | | Overcast | |
| Frolic, Rio de Janeiro, Brazil | 30.31 | 769.9 | 67 | 19.4 | 69 | 20.6 | 95 | SE | | | 2 | | 10n | | | | | | | Drizzling | |
| ‡Gettysburg, Spezia, Italy | 29.95 | 760.7 | | | 86 | 30.0 | 76 | SSW | | | 3 | | 2 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.20 | 767.1 | 75 | 23.9 | 62 | 16.7 | 100 | NE | 12 | 5.4 | | | 10 | | | 0.50 | 12.7 | | | Pleasant | |
| Huron, Cartagena, N. G | 30.10 | 764.5 | 84 | 28.9 | 86 | 30.0 | 88 | ESE | | | 1–2 | | 4 | | SSE | 0 | 0 | Smooth | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.79 | 756.7 | 72 | 22.2 | 68 | 20.0 | 90 | W | | | 2 | | 10 | | | ¶1.3 | 33.¶ | | | Cloudy | |
| Lackawana, N 26° 16′, W. 124° 23′ | 30.03 | 762.7 | | | 67 | 19.4 | 84 | NNW | | | 2 | | 3 | | NNW | | | Long | NNW | D. clouds | |
| Marion, Salonica, Turkey | 30.15 | 765.8 | 78 | 25.6 | 80 | 26.7 | 66 | SW | | | 3 | | 8 | | WNW | Light | Light | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.52 | 749.8 | 60 | 15.6 | 60 | 15.6 | 65 | S | | | 2 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.60 | 751.8 | 73 | 22.8 | 75 | 23.9 | 56 | SW | | | 2 | | 1 | | SW | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.10 | 764.5 | 61 | 16.1 | 61 | 16.1 | 66 | NE | | | 1–2 | | 9kn | | | Light | Light | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.26 | 768.6 | | | 75 | 23.9 | 90 | NW | 16 | 7.2 | | | 9 | | SE | 0.22 | 5.6 | | | D. clouds | |
| Omaha, Chimbote, Peru | 30.08 | 764 0 | 69 | 20.6 | 68 | 20.0 | 82 | NE | 1 | 0.4 | | | 10 | | | 0 | 0 | Slight | S&W | Cloudy | |
| Ossipee, Norfolk, Va | 30.09 | 764.3 | 69 | 20.6 | 65 | 18.3 | 89 | NNE | | | 3 | | 10 | | NNE | | | | | Raining | |
| Palos, Shanghai, China | 29.88 | 758.9 | 77 | 25.0 | 74 | 23.3 | 100 | WSW | | | 1 | | 10 | | W | Blank | Blank | | | Cloudy | |
| Pensacola, N. 18° 29′, W. 118° 22′ | 30.06 | 763.5 | | | 71 | 21.7 | 75 | NW | | | 2–3 | | 9 | | S&E | Light | Light | Long | NNW | | |
| Plymouth, N. 19° 55′, W. 94° 39′ | 30.00 | 762.0 | 80 | 26.7 | 78 | 25.6 | | NW | | | 7 | | 10 | | N | 0 | 0 | Heavy | N&W | Overcast | |
| Ranger, N. 32° 34′, E. 27° 54′ | 30.24 | 768.1 | | | 75 | 23.9 | 77 | NNE | | | 3 | | 4 | | W | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.37 | 771.4 | 71.2 | 21.8 | 67.5 | 19.7 | 95 | S | | | 2 | | Fog | | | | | | | Rain and fog | |
| Rio Bravo, Matamoras, Mexico | 29.97 | 761.2 | | | 58 | 14.4 | 94 | N | | | 1 | | 3 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.14 | 765 5 | 64 | 17.8 | 62 | 16 7 | 66 | ENE | | | 2–3 | | 10 | | | 0.11 | 2.8 | | | Overcast | |
| Saratoga, N. 41° 38′, W. 69° 04′ | 30.40 | 772.1 | | | 62 | 16.7 | | NNE | | | 1 | | 10 | | N&E | Light | Light | Moderate. | S | Foggy | |
| St. Louis, League Island, Pa | 30.01 | 762 2 | 62 | 16.7 | 62 | 16.7 | 94 | E | 10 | 4 5 | | | 10 | | NE | 0.10 | 2.5 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 29.98 | 761.5 | 81 | 27.2 | 81 | 27.2 | 87 | SSE | | | 1 | | 3k | | SE | Blank | Blank | Moderate. | NE | Fair | |
| Tennessee, Yokohama, Japan | 29.26 | 743.2 | 74 | 23.3 | 76 | 24.4 | 91 | S | | | 6–8 | | 10 | | | | | Rough | | Raining | |
| Trenton, Salonica, Turkey | 30.01† | 762.2† | 76 | 24.4 | 86 | 30.0 | 76 | WSW | 12 | 5.4 | | | 3 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.15 | 765.8 | 73 | 22.8 | 74 | 23.3 | 68 | NNE | | | 1 | | 2 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.11 | 764.8 | 62 | 16.7 | 60 | 15.6 | 55 | NW | 5 | 2.2 | | | 6 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.32† | 770.1† | 66 | 18.9 | 65 | 18.3 | | NNE | | | 2 | | 9 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

# UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
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## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 38° 45′, W. 130° 00′ | W½N | | 29.97 | 761.2 | 62 | 16.7 | 77 | NNE | | | 5 | | 8 | | E | Rough | | D. clouds | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 47° 25′, W. 32° 12′ | ENE | 11 | 30.04 | 763.0 | 55.6 | 13.1 | | NW | | | 6 | | k,hz | | NNE | Rough | | Hazy | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 50° 3′, W. 14° 35′ | W ¼ N | 11.5 | 30.05 | 763.3 | 62.4 | 16.9 | | WNW | | | 1 | | d | | SW | Long | W | Clear. | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
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| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, off Gay Head | E | 2 | 30.02 | 762.5 | 60 | 15.6 | 76 | NNE | 6 | 2.7 | | | 10s | | | Swell | SW | Overcast | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 12, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.96 | 760.9 | 77.0 | 25.0 | 72 | Calm | | | 0 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 29.98 | 761.5 | 77.0 | 25.0 | 80 | N | | | 1 | | 1 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.96 | 760.9 | 80.1 | 26.7 | 65 | E | | | 2 | | 3 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.98 | 761.6 | 87.8 | 31.0 | | E | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.08 | 764.0 | 82.4 | 28.0 | | S | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.98 | 761.4 | 88.5 | 31.4 | | NW | | | 4 | | 2 | | | Inap. | Inap. | Clear | Millot. |
| Tebessa | | | 30.06 | 763.4 | 79.5 | 26.4 | | SW | | | 2 | | 2 | | | 0.197 | 5.0 | Clear | Bourgeois. |
| Geriville | | | 30.07 | 763.6 | 87.1 | 30.6 | | W | | | 2 | | 6 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.09 | 764.3 | 91.4 | 33.0 | 22 | W | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.06 | 763.4 | 94.1 | 34.5 | 25 | SE | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.96 | 761.0 | 86.2 | 30.2 | 45 | SW | | | 2 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.93 | 760.3 | 86.7 | 30.4 | 44 | E | | | 1 | | 1 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.95 | 760.8 | 84.6 | 29.2 | 52 | SE | | | 2 | | 3c8,8 | | | 0.516 | 13.10 | | Julius Mikolik. |
| Gratz | | | 29.95 | 760.6 | 82.8 | 28.2 | 63 | SW | | | 3 | | 0 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.77 | 730.7 | 29.95 | 760.6 | 83.5 | 28.6 | 44 | ESE | | | 2 | | 2 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.66 | 727.9 | 29.98 | 761.6 | 81.0 | 27.2 | 51 | ENE | | | 2 | | 0 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | 28.60 | 726.4 | 29.86 | 758.5 | 82.6 | 28.1 | 55 | SW | | | 2 | | 1 | | | 0 | 0 | | Dr. T. Stanecki. |
| Poln | | | 29.92 | 759.9 | 84.9 | 29.4 | 51 | WSW | | | 1 | | 0 | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.01 | 762.2 | 81.7 | 27.6 | 52 | S | | | 1 | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.02 | 762.4 | 85.8 | 29.9 | 51 | W | | | 1 | | 1 | | | 0 | 0 | Almost clear | P. Busin. |
| Vienna | | | 30.03 | 762.7 | 86.0 | 30.0 | 41 | SE | | | 3 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.46 | 722.9 | 29.87 | 758.8 | 82.4 | 28.0 | 46 | SW | | | 2 | | 2 | | | 0.488 | 12.4 | | Royal Observatory |
| Brussels | | | 29.86 | 758.5 | 76.5 | 24.7 | 75 | SW | | | 1 | | 10k | | SW | 0.039 | 1.00 | | |
| Furnes | | | 29.90 | 759.5 | 77.9 | 25.5 | 70 | WNW | | | 2 | | 5 | | | 0 | 0 | | |
| Maeseyck | | | 29.87 | 758.6 | 79.7 | 26.5 | 65 | SE | | | 2 | | 5 | | | 0.008 | 0.2 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.04 | 763.0 | 51.4 | 10.8 | | SE | 5 | 2.2 | | | 8 | | | | | Raining | William Boswell. |
| Ardrossan | | | 29.99 | 761.7 | | | | NW | | | 3 | | 3 | | | | | Blue sky | William McNeil. |
| Armagh, Observatory | | | 30.03 | 762.7 | 61.8 | 16.6 | | NE | 5 | 2.2 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.95 | 760.7 | 56.8 | 13.8 | | NE | 4 | 1.8 | | | 10 | | | | | Raining | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.00 | 762.0 | 62.6 | 17.0 | | Calm | | | 0 | | 10 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 29.95 | 760.7 | 54.8 | 12.7 | | NE | | | 0 | | 10 | | | 0.22 | 5.6 | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.02 | 762.5 | 77.0 | 25.0 | | NE | | | 2 | | 9 | | | | | Overcast | Pvt. G. W. Roberts, A. [H. C. |
| Cambridge, Observatory | | | 29.89 | 759.2 | 69.5 | 20.8 | | NE | | | 1 | | 10 | | | Blank | Blank | Overcast | H. Todd. |
| Cardington | | | 29.95 | 760.7 | 70.4 | 21.3 | | | | | 1 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 29.91 | 759.7 | 68.2 | 20.1 | | SE | | | 2 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.47 | 723.1 | 29.90 | 759.4 | 63.0 | 17.2 | | E | | | 2 | | 8 | | | | | Hazy | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.01 | 762.2 | 57 | 13.9 | | NNE | | | 4 | | 2 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 29.86 | 758.4 | 63 | 17.2 | | E | | | 3 | | 2 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.92 | 760.0 | 57.7 | 14.3 | | NE | 2.8 | 1.3 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.87 | 758.7 | 64.3 | 17.9 | | ESE | | | 1 | | 10 | | | | | Hazy | The Staff. |
| Fort Napier, (Natal) | 27.84 | 707.1 | 30.08 | 764.0 | 70.5 | 21.4 | | E | | | 1 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.03 | 762.7 | 81 | 27.2 | | E | | | 1 | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.96 | 761.0 | 66 | 18.9 | | N | | | 1 | | 5 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.94 | 760.5 | 77.0 | 25.0 | | W | | | 3 | | 6 | | | | | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgov, Observatory | | | 29.98 | 761.5 | 62.4 | 16.9 | | W | | | 1 | | 4 | | | | | D. clouds | William Wallace. |
| Great Yarmouth | | | 29.92 | 760.0 | 60 | 15.6 | | ENE | | | 3 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.87 | 758.7 | 75.0 | 23.9 | | ESE | | | 1 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 29.88 | 758.9 | 65 | 18.3 | | WSW | | | 1 | | 5 | | | Blank | Blank | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.93 | 760.2 | 64 | 17.8 | | NW | | | 0 | | 10k | | | Inap. | Inap. | Hazy | M. P. Moyle. |
| Holyhead | | | 29.95 | 760.7 | 56 | 13.3 | | NNE | | | 4 | | 10 | | | | | Overcast | John Tilston. |
| Kew, Observatory | | | 29.86 | 758.4 | 75.6 | 24.2 | | NW | 4 | 1.8 | | | 7k | | | | | Threatening | The Staff. |
| Kingstown | | | 30.01 | 762.2 | 55 | 12.8 | | N | | | 5 | | 1 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 29.90 | 759.4 | 58.1 | 14.5 | | NE | | | 2 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.04 | 763.0 | 79.8 | 26.6 | | N | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.99 | 761.7 | 62 | 16.7 | | W | | | 1 | | 2 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.06 | 763.5 | 80.8 | 27.1 | | E | | | 3 | | 10 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 29.93 | 760.2 | 54.3 | 12.4 | | NE | | | 3 | | 10d | | N | 0.190 | 4.83 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.91 | 759.7 | 56.8 | 13.8 | | NNE | | | 2 | | 10 | | | | | Rain & fog | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.87 | 758.7 | 68 | 20.0 | | Calm | | | 0 | | 10 | | | | | Gloomy | F. Lucas. |
| Plymouth | | | 29.86 | 758.4 | 64.6 | 18.1 | | S | | | 1 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.96 | 761.0 | 64 | 17.8 | | E | | | 1 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.87 | 758.7 | 62 | 16.7 | | NE | | | 1 | | 10 | | | | | Overcast | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.88 | 758.9 | 74.0 | 23.3 | | W | | | 2 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.04 | 763.0 | 51.2 | 10.7 | | WSW | 14 | 6.3 | | | 3 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.02 | 762.5 | 81.2 | 27.3 | | NE | | | 2 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.96 | 761.0 | 52.9 | 11.6 | | NE | | | 1 | | 10 | | | 0.470 | 11.94 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.96 | 761.0 | 65.7 | 18.7 | 58 | S | | | 2 | | 2 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.96 | 761.0 | 58.7 | 14.8 | | NE | | | 1 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.99 | 761.7 | 54 | 12.2 | | SSE | | | 1 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgis | | | 29.87 | 758.7 | 73.8 | 23.2 | | SE | | | 1 | | 9 | | | | | D. clouds | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 30.00 | 762.0 | 58 | 14.4 | | NNE | | | 1 | | 4 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.89 | 759.2 | 69 | 20.6 | | NW | | | 2 | | 10 | | | Blank | Blank | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.99 | 761.7 | 61.7 | 16.5 | | N | 23 | 10.3 | | | 5 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 57 | 13.9 | | NE | | | 3 | | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.19 | 766.8 | 69.0 | 20.6 | 59 | SSE | 20 | 8.9 | | 6 | 6 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.74 | 755.4 | 47.0 | 8.3 | 86 | W | | | 3 | | 5kn | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.03 | 762.7 | 64.0 | 17.8 | | E | | | 2 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.11 | 764.8 | 75.8 | 24.3 | 76 | ENE | 11.3 | 5.1 | | 4 | 5 | | ENE | 0 | 0 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 30.16 | 766.1 | 49.2 | 4.6 | 86 | W | 10 | 4.5 | | | 0 | | | 0.09 | 2.3 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.04 | 763.0 | 60 | 15.6 | | Calm | | | 0 | 0 | 0 | W | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.97 | 761.2 | 50 | 10.0 | | W | | | 3 | 7 | 3 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,409 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 50° 40′, W. 23° 5′ | | | 30.05 | 763.3 | 56.0 | 13.3 | | SSE | | | 1 | | 5 | N | SW | 10* | WSW & N | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Monland. |
| Ship Camperdown, N. 42° 50′, W. 49° 55′ | | | 30.53 | 775.4 | 52.0 | 11.1 | | SW | | | 3 | | 10 | | | 2 | SW | Drizzling | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Quang Le | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 51° 52′, W. 11° 14′ | | | 30.01 | 762.2 | 55 | 12.8 | | NE | | | 3 | | 6 | | | 2 | W | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.24 | 666.5 | | | 71.2 | 21.8 | 89 | S | | | 1 | | 5cs | | | 0.4 | 10. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10 | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.95 | 760.8 | 60.3 | 15.7 | 56 | N | | | 4 | | 10 | | | | | | |
| Fanöe | | | 29.93 | 760.3 | 56.7 | 13.7 | 71 | ENE | | | 2 | | 10 | | | | | Raining | |
| Godthaab, (Greenland) | | | 29.43 | 747.5 | 32.5 | 0.3 | 90 | NW | | | 6 | | 10 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.67 | 753.5 | 48.4 | 9.1 | 98 | SE | | | 4 | | 10 | | | | | Raining | |
| Thorshavn, (Faröe) | | | 29.92 | 759.9 | 52.7 | 11.5 | 75 | W | | | 4 | | 5 | | | | | | |
| Vest-rvig | | | 29.95 | 760.7 | 55.0 | 12.8 | 73 | W | | | 4 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10 | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 29.99 | 761.8 | 75.2 | 24 | 63 | SW | | | 1 | 2c | | SW | | 0.795 | 20.2 | Slightly cl'dy | Collignon, Director. |
| Amiens, Naval Observatory | | | 29.85 | 758.1 | 83.5 | 28.6 | 69 | E | | | 1 | | 8 | | E | 0.307 | 7.8 | Very cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.04 | 763.1 | 88.9 | 31.6 | 35 | S | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.90 | 759.5 | 84.0 | 28.9 | 46 | SW | | | 2 | | 5n | | SW | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.87 | 758.8 | 80.1 | 26.7 | 66 | S | | | 2 | | 2 | | SW | 0.482 | 12.25 | Slightly cl'dy | Normal School. |
| Besançon | | | 29.94 | 760.5 | 86.7 | 30.4 | 40 | SW | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.09 | 764.3 | 87.3 | 30.7 | 58 | S | | | 8 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 29.91 | 759.7 | 78.8 | 26 | 69 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.86 | 758.4 | 62.1 | 16.7 | 81 | SW | | | 3 | | 10 | | SW | 0 | 0 | Misty | The Staff. |
| Carcassonne, Normal School | | | 29.95 | 760.8 | 83.1 | 28.4 | 57 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 29.85 | 758.2 | 84.0 | 28.9 | 55 | WSW | | | 1 | | 2 | | SW | 1.268 | 32.2 | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 29.84 | 757.8 | 84.6 | 29.2 | 75 | SW | | | 3 | | 6 | | E | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.82 | 757.5 | 88.5 | 31.4 | 45 | W | | | 3 | | 2ck | | W | 0 | 0 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.88 | 758.9 | 91.0 | 32.8 | 22 | S | | | 2 | | 1 | | | 0 | 0 | Almost clear | Alluard, Director. |
| Commercy, Normal School | | | 29.91 | 759.8 | 82.9 | 28.3 | 41 | SSW | | | 4 | | 2 | | SSW | 0 | 0 | Slightly cl'dy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.13 | 765.2 | 86.5 | 30.3 | 33 | SW | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.98 | 761.6 | 83.7 | 28.7 | 49 | NW | | | 6 | | 2k | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.97 | 761.2 | 77.0 | 25.0 | 61 | W | | | 4 | | 5 | | N | 0 | 0 | Cloudy | Mouillet, Director. |
| Le Mans, Normal School | | | 29.90 | 759.5 | 82.9 | 28.3 | 65 | SW | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 29.94 | 760.5 | 85.5 | 29.7 | 52 | NW | | | 6 | | 0 | | | 0 | 0 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 29.96 | 760.9 | 66.9 | 19.4 | 70 | WSW | | | 2 | | 5 | | S | 0 | 0 | ½ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.95 | 760.8 | 83.3 | 28.5 | 65 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 29.98 | 761.5 | 81.9 | 27.7 | 43 | SW | | | 2 | | 2k | | SW | 0 | 0 | | Normal School. |
| Mirecourt | | | 29.91 | 759.7 | 80.1 | 26.7 | 56 | N | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Nismes, Normal School | | | 30.03 | 762.8 | 92.5 | 33.6 | 48 | S | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.89 | 759.1 | 86.0 | 30 | 42 | SW | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Paris, Observatory | | | 29.87 | 758.7 | 85.3 | 29.6 | 50 | W | | | 3 | | 0 | | | 0 | 0 | Clear | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.87 | 758.7 | 87.1 | 30.6 | 50 | SW | | | 1 | | 0 | | | 0.08 | 2. | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.85 | 758.1 | 83.8 | 28.8 | 53 | SE | | | 3 | | 0 | | | 0.209 | 5.3 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 28.87 | 733 2 | 29.87 | 758.6 | 90.3 | 32.4 | 42 | SW | | | 1 | | 0 | | | 0 | 0 | Clear. | T. Hugues, Director. |
| Villefranche | | | 29.92 | 759.9 | 90.9 | 32.7 | 69 | SE | | | 4 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.7 | 82.4 | 28 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 30.04 | 762.9 | 81.9 | 27.7 | 48 | WSW | | | 1–2 | | 1 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 25.00 | 634.9 | 30.31 | 769.9 | 74.3 | 23.5 | 41 | SSW | 18.6 | 8.33 | | | 2 | | SW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.88 | 758.9 | 87.9 | 30.9 | 47 | SW | | | 2–3 | | 0 | | | Inap. | Inap. | | Marié Davy, Director. |
| Perpignan | | | 29.99 | 761.8 | 76.1 | 24.5 | 57 | SE | 13.0 | 5.83 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.44 | 544.6 | | | 55.0 | 12.8 | | SW | | | 1 | | 5 | | | | | Fair | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.71 | 576.7 | | | 60.1 | 15.6 | | SW | | | 1 | | 5 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.89 | 759.1 | 86.2 | 30.1 | 47 | SSW | | | 2–3 | | 0 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.00 | 761.9 | 83.8 | 28.8 | 33 | SSE | | | 3 | | 1 | | | 0 | 0 | | The Staff |
| Tours | | | 29.91 | 759.7 | 86.9 | 30.5 | 45 | SSW | | | 3 | | 0 | | | 0 | 0 | Clear. | C. Marquet. |
| Versailles, (near Paris) | | | 29.90 | 759.4 | 85.6 | 29.8 | 47 | W | | | 2 | | 0 | | | 0 | 0 | Very clear | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.83 | 757.6 | 71.4 | 21.9 | 90 | SE | 7.4 | 3 3 | | | 8k | | | 0 | 0 | Cloudy | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, [illegible] p. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2.877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In connection with the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.91 | 759.6 | 83.8 | 28.8 | 43 | SW | | | 4 | | 0 | | | 0 | 0 | | Prof. T. Hoh |
| Berlin | | | 29.88 | 758.9 | 71.2 | 21.8 | 80 | E | | | 2 | | 9 | | | 0.295 | 7.5 | | Prof. Arndt. |
| Breslau | | | 29.94 | 760.5 | 92.5 | 33.6 | 60 | SSE | | | 3 | | 6 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.85 | 758.3 | 88.2 | 31.2 | 45 | SW | | | 4 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.87 | 758.8 | 88.3 | 31.3 | 44 | SW | | | 3 | | 5 | SW | | 0.783 | 19.9 | Thunder, lightn'g | Dr. H. Möhl. |
| Crefeld | | | 29.82 | 757.3 | 82.6 | 28.1 | 53 | N | | | 2 | | 5 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.84 | 758.0 | 60.8 | 16.0 | 78 | NE | | | 3 | | 10 | | | 0.354 | 9.0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.89 | 759.1 | 91.6 | 33.1 | 33 | SSW | | | 3 | | 1 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.58 | 725.9 | 29.93 | 760.3 | 80.4 | 26.9 | 68 | S | | | 4 | | 1 | SW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 29.98 | 761.4 | 55.6 | 13.1 | 95 | NNE | | | 6 | | 10n | | | 0.205 | 5.2 | Thunder-storm | Captain F. Hegemann. |
| Kiel | | | 29.95 | 760.6 | 56.8 | 13.8 | 80 | NE | | | 3 | | 10 | | | 0.008 | 0.2 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.95 | 760.6 | 70.0 | 21.1 | 53 | W | | | 2 | | 4 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 29.87 | 758.6 | 91.9 | 33.3 | 35 | SSW | | | 2 | | 3 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.94 | 760.5 | 57.7 | 14.3 | 73 | NW | | | 5 | | 9cs,ks | | | | | Squally | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 29.97 | 761.1 | 64.6 | 18.1 | 65 | NNE | | | 3 | | 4 | WNW | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.96 | 760.9 | 79.5 | 26.4 | 55 | SW | | | 7 | | 10 | | | 0.295 | 7.5 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.89 | 759.2 | 90.1 | 32.3 | 43 | SW | | | 3 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.86 | 758.4 | 88.2 | 31.2 | 44 | E | | | 2 | | 4 | W | | Inap. | Inap | | Prof. Schoder |
| Treves, (Trier) | | | 29.74 | 755.3 | 86.9 | 30.5 | 43 | SW | | | 6 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.45 | 722.5 | 29.81 | 757.1 | 86.4 | 30.2 | 39 | WSW | | | 2 | | 3 | SW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.00 | 762.0 | 60.1 | 15.6 | 66 | NE | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.03 | 762.7 | 83.7 | 28.7 | | NE | | | Strong | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.49 | 749.0 | 29.54 | 750.3 | 88.8 | 31.6 | 75 | WSW | 32.0? | 14.3? | | | 0 | | | 0 | 0 | Blue sky | |
| Deesa | 29.14 | 740.1 | 29.59 | 751.5 | 104.4 | 40.2 | 27 | Calm | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.63 | 752.6 | 29.67 | 753.5 | 88.2 | 31.2 | 75 | WNW | 12.0 | 5.3 | | | 10 | N | | 0 | 0 | Dust-haze | |
| Poona | 27.65 | 702.4 | 29.59 | 751.6 | 92.2 | 33.4 | 47 | | | | | | | | E | 0 | 0 | D. clouds | |
| Lahore | 28.86 | 733.1 | | | | | | N | 4.1 | 1.8 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.01 | 686.1 | 29.49 | 749.0 | 83.1 | 28.4 | 75 | W | 29.0 | 12.9 | | | 7 | | E | 0 | 0 | Dust-haze | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.70 | 728.9 | 29.56 | 750.9 | 95.4 | 35.2 | | Calm | 4.4 | 1.9 | | | | | | 0 | 0 | Strong wind | |
| Agra | 28.97 | 735.8 | 29.50 | 749.3 | 103.7 | 39.8 | 26 | N | 2.4 | 1.0 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.66 | 728.0 | 29.70 | 754.3 | 82.1 | 27.8 | 70 | Calm | 4.9 | 2.1 | | | 5 | | | 0.04 | 1.0 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.16 | 740.6 | 29.51 | 749.6 | 101.0 | 28.3 | 35 | SE | 8.0 | 3.5 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.22 | 742.1 | 29.51 | 749.6 | 97.7 | 36.5 | 43 | SSE | 3.5 | 1.5 | | | 9 | E | W | 0 | 0 | D. clouds | |
| Patna | 29.38 | 746.3 | 29.56 | 750.8 | 95.4 | 35.2 | 52 | E | 4.4 | 1.9 | | | 8 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.60 | 700.9 | 29.54 | 750.2 | 92.6 | 33.7 | 44 | ESE | 7.1 | 3.1 | | | 10 | WNW | SE | 0 | 0 | Thunder | |
| Cuttack | 29.59 | 751.5 | 29.67 | 753.6 | 79.0 | 26.1 | 82 | S | 7.2 | 3.2 | | | 9 | | | 0.17 | 4.3 | Showery | |
| Calcutta, (Alipore) | 29.65 | 753.1 | 29.67 | 753.6 | 77.6 | 25.3 | 91 | ESE | 7.0 | 3.1 | | | 9 | | | 0 | 0 | Overcast | |
| Goalpara | 29.26 | 743.2 | 29.64 | 753.0 | 81.1 | 27.3 | 80 | S | 1.9 | 0.8 | | | 3 | S | | 1.22 | 31.0 | D. clouds | |
| Chittagong | 29.64 | 752.8 | 29.73 | 755.1 | 83.1 | 28.4 | 82 | SW | 3.4 | 1.5 | | | 10 | | | 0 | 0 | Gloomy | |
| Sibsagar | 29.35 | 745.5 | 29.68 | 753.9 | 83.2 | 28.4 | 85 | ENE | 4.2 | 1.8 | | | 10 | | SW | 0.23 | 5.8 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.22 | 716.8 | 29.53 | 750.1 | 96.0 | 35.6 | 32 | N | 6.6 | 2.9 | | | 8 | | | 0 | 0 | Overcast | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.45 | 570.3 | 30.08? | 764.1? | 55.0 | 12.8 | 74 | W | | | 2 | | 9 | NE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.41 | 569.3 | 30.01 | 762.3 | 53.6 | 12.0 | | S | | | 1 | | 5 | NE | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.98 | 761.6 | 85.6 | 29.8 | 43 | S | 4.3 | 1.9 | | | 1 | | | 0.020 | 0.5 | | Ab. Dom. Morgini. |
| Padua | | | 29.97 | 761.1 | 86.4 | 30.2 | 47 | SW | 2.5 | 1.1 | | | 2 | WSW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.97 | 761.1 | 90.7 | 32.6 | 36 | S | 4.9 | 2.2 | | | 1 | | | 0 | 0 | | Conte Alm. Da Schio |
| Verona | | | 29.98 | 761.4 | 89.2 | 31.8 | 46 | E | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.73 | 729.7 | 29.99 | 761.7 | 89.2 | 31.8 | 41 | S | | | 2 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.93 | 760.1 | 84.6 | 29.2 | 48 | SW | | | 6 | | 6 | | | 0 | 0 | | Prof. Giuseppe Calza |
| Milan | | | 29.98 | 761.4 | 91.0 | 32.8 | 55 | N | | | 2 | | 1 | NW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.98 | 761.6 | 87.4 | 30.8 | 39 | SE | | | 1 | | 1 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.00 | 762.1 | 86.0 | 30.0 | 43 | SSE | 1.8 | 0.8 | | | 5 | NE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.18 | 715.8 | 30.00 | 762.5 | 83.8 | 28.8 | 46 | ESE | | | 4 | | 2 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.08? | 763.9? | 82.4 | 28.0 | 58 | ESE | | | 2 | | 2 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.04 | 763.0 | 80.2 | 26.8 | 57 | SW | 4.9 | 2.2 | | | 2 | N | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.00 | 762.1 | 86.9 | 30.5 | 38 | NW | 3.8 | 1.7 | | | 1 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 29.98 | 761.5 | 91.4 | 33.0 | 41 | SSW | | | 4 | | 0 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.01 | 762.3 | 91.0 | 32.8 | 27 | SW | | | 2 | | 1 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.03 | 762.7 | 82.9 | 28.3 | 53 | WSW | 5.6 | 2.5 | | | 2 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.84 | 732.4 | 29.99 | 761.8 | 85.3 | 29.6 | 29 | SE | 0 | 0 | | | 3 | E | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.55 | 725.2 | 30.05 | 763.3 | 79.5 | 26.4 | 43 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.11 | 764.7 | 80.4 | 26.9 | 65 | N | 13.0 | 5.8 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.00 | 762.1 | 84.2 | 29.0 | 51 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.05 | 763.2 | 78.8 | 26.0 | 67 | SSE | | | 2 | | 6 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.04 | 763.0 | 85.0 | 29.8 | 51 | SW | 7.4 | 3.3 | | | 3 | E | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.07 | 763.8 | 83.5 | 28.6 | 56 | SW | | | 4 | | 3 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.02 | 762.4 | 81.0 | 27.2 | 55 | NNW | 9.8 | 4.4 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.04 | 763.1 | 89.2 | 31.8 | 45 | NE | 1.8 | 0.8 | | | 7 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.00 | 761.9 | 81.5 | 27.5 | 60 | SE | | | 2 | | 4 | E | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.93? | 760.1? | 75.2 | 24.0 | 83 | SE | | | 2 | | 5 | S | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.01 | 762.3 | 77.7 | 25.4 | 72 | ENE | 6.9 | 3.1 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.12 | 714.1 | 29.97 | 761.3 | 82.9 | 28.3 | 33 | SSW | | | 2 | | 4 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.99 | 761.8 | 82.4 | 28.3 | 51 | E | | | 1 | | 4 | SE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.09 | 764.2 | 83.5 | 28.6 | 60 | WSW | 1.8 | 0.8 | | | 3 | W | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.68 | 753.9 | 66 | 18.9 | 68 | N | 2 | 0.9 | | | 18 | | | 0.53 | 13.5 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.09 | 586.4 | 30.06 | 763.4 | 59.0 | 15.0 | 84 | NW | 0.0 | 0.01 | | 4ck | 3ck | S | S | 0.067 | 1.7 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.89 | 759.1 | 73.8 | 23.2 | | SE | | | 2 | | | | | 0.295 | 7.5 | | |
| Groningen | | | 29.84 | 757.9 | 60.3 | 15.7 | | ENE | | | 3 | | | | | 0.358 | 9.1 | | |
| Helder | | | 29.90 | 759.4 | 61.5 | 16.4 | | ENE | | | 4 | | | | | 0.303 | 7.7 | | |
| Utrecht | | | 29.83 | 757.7 | 72.0 | 22.2 | 66 | ESE | | | 2 | | 5 | | | 0.610 | 15.5 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall. Inches. | Rain-fall. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.91 | 759.7 | 48.9 | 9.4 | 98 | N | 2.5 | 1.3 | | | 8 | | | 0.228 | 5.8 | Raining | |
| Brönö | | | 29.86 | 758.5 | 46.3 | 7.8 | 78 | WNW | 18 | 8 | | | 6 | | | 0 | 0 | | |
| Christiania | | | 29.78 | 756.5 | 69.8 | 20.7 | 88 | SW | 7 | 3 | | | 5 | | | 0 | 0 | | |
| Tromsö | | | 29.57 | 751.1 | 44.8 | 7.1 | 84 | SW | 4 | 2 | | | 10 | | | 0.039 | 1.0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.02 | 762.5 | 61.7 | 16.5 | 85 | NNW | 4.3 | 1.9 | | | 8 | | | 0.134 | 3.4 | Raining | Dr. J. A. Sampaio |
| Campo Major | | | 29.90 | 759.4 | 77.7 | 25.4 | 47 | SSW | 9.9 | 4.42 | | | 7 | SSW | | 0.047 | 1.2 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.08 | 764.0 | 70.5 | 21.4 | 54 | SW | 5.6 | 2.5 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.92 | 759.9 | 67.1 | 19.5 | 81 | SW | 12.5 | 5.6 | | | 10 | | | | | Light rain | The Staff. |
| Ponta Delgada, (Azores) | | | 30.22 | 767.6 | 65.1 | 18.4 | 71 | NNW | 4.9 | 2.2 | | | 2 | | | 0.063 | 1.6 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 9 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.90 | 759.4 | 85.5 | 29.7 | 57 | WNW | 7 | 3 | | | 5 | | | | | | Astronomical Obs. |
| Wilna | | | 29.84 | 757.8 | 73.4 | 23.0 | 55 | WSW | 11 | 5 | | | 10 | | | | | Raining | Astronomical Obs. |
| Dorpat | | | 29.67 | 753.5 | 53.4 | 11.9 | 81 | WNW | 11 | 5 | | | 10 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.54 | 750.2 | 57.0 | 13.9 | 76 | WNW | 18 | 8 | | | 4 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.52 | 749.9 | 61.2 | 16.2 | 53 | NW | 18 | 8 | | | 7 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.86 | 758.5 | 80.6 | 27.0 | 44 | NW | 13 | 6 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.04 | 762.9 | 86.0 | 30.0 | 40 | WNW | 13 | 6 | | | 0 | | | | | | Kurdakof |
| Kertch | | | 30.01 | 762.3 | 88.7 | 31.5 | 42 | WNW | 4 | 2 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.58 | 751.4 | 66.0 | 18.9 | 58 | ESE | 27 | 12 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 29.71 | 754.7 | 83.7 | 28.7 | 47 | W | 13 | 6 | | | 1 | | | | | | Meteorological Obs. |
| Archangel | | | 29.48 | 748.8 | 57.4 | 14.1 | 45 | N | 13 | 6 | | | 4 | | | | | | Ogorodnikof. |
| Tiflis | 28.58 | 726.0 | 29.92 | 760.0 | 85.3 | 29.6 | 30 | NW | 4 | 2 | | | 5 | | | | | Thunder-storm | Physical Observatory. |
| Astrakhan | | | 29.76 | 756.0 | 86.0 | 30.0 | 25 | WNW | 11 | 5 | | | 3 | | | | | | Sebastianof. |
| Kasan | | | 29.46 | 748.3 | 60.8 | 16.0 | 64 | W | 7 | 3 | | | 5 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.77 | 756.2 | 61.7 | 16.5 | 82 | N | 13 | 6 | | | 10 | | | | | | Tschernischef. |
| Ekaterinburg | 28.40 | 721.4 | 29.31 | 744.4 | 62.8 | 17.1 | 36 | WNW | 13 | 6 | | | 8 | | | | | | Meteorogical Obs |
| Nukuss | | | 29.82 | 757.4 | 83.8 | 28.8 | 38 | N | 2 | 1 | | | 1 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.30 | 718.9 | 29.90 | 759.5 | 83.5 | 28.6 | 58 | Calm | 0 | 0 | | | 8 | | | | | | Michelson. |
| Barnaul | | | 29.58 | 751.4 | 71.8 | 22.1 | 59 | SW | 4 | 2 | | | 9 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.43 | 747.5 | 69.4 | 20.8 | 80 | SE | 2 | 1 | | | 2 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 70.3 | 21.3 | | NW | 4 | 2 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.32 | 744.7 | 92.3 | 33.5 | 18 | SW | 27 | 12 | | | 1 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.48 | 748.7 | 57.0 | 13.9 | 73 | Calm | 0 | 0 | | | 6 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 41.9 | 5.5 | 85 | Calm | 0 | 0 | | | 6 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.80 | 756.9 | 89.6 | 32.0 | 29 | SE | 14.2 | 6.33 | | 2 | 1 | SW | | 0.114 | 2.9 | Light clouds | The Staff. |
| San Fernando, Naval Obs'y | | | 30.01 | 762.2 | 74.3 | 23.5 | 67 | S | 10.3 | 4.6 | | 1 | 8 | SW | S | 0.071 | 1.8 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 29.95 | 760.8 | 78.1 | 25.6 | 88 | E | 2.5 | 1.1 | | 10c | 0 | | | 0.665 | 16.9 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.99 | 761.8 | 81.0 | 27.2 | 84 | E | 0 | 0 | | 3cs | 1k | | | 0.118 | 3.00 | Clear | Leonardo de Tejeda, Chief of Engineers |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.52 | 749.8 | 51.4 | 10.8 | 81 | N | | | 2 | | 10 | | | | | Raining | |
| Umea | | | 29.61 | 752.1 | 59.0 | 15.0 | 28 | NW | | | 6 | | 6 | | | 0.004 | 0.1 | | |
| Hernosand | | | 29.65 | 753.0 | 62.2 | 16.8 | 29 | NW | | | 6 | | 2 | | | 0.039 | 1.0 | Raining | |
| Stockholm | | | 29.78 | 756.5 | 64.2 | 17.9 | 38 | WNW | | | 4 | | 2 | | | 0 | 0 | | |
| Wisby | | | 29.85 | 758.3 | 57.6 | 14.2 | 59 | W | | | 4 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.76 | 755.8 | 64.9 | 18.3 | 37 | NW | 11.4 | 5.1 | | | 3 | | NW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.61 | 726.7 | 29.95 | 760.7 | 86.4 | 30.2 | 39 | SSW | | | 3 | | 0 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.38 | 720.8 | 29.90 | 759.5 | 90.3 | 32.4 | 37 | SW | | | 1 | | 2 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +0.3 mm; Thermometer, +0.8 cent.; Relative Humidity, —17 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds: the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0-10. | 0-10. | 0-10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.07 | 763.7 | 75.4 | 24.1 | 56 | ENE | 12 | 5.5 | | | 0 | | | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | | | | | | | | | | | | | | | | | |
| Salonica | | | 30.16 | 766.1 | 82.9 | 28.3 | | S | | | 2 | | 2 | | | | | | B. Stéfanidès. |
| Valona | | | 30.20 | 767.1 | 90.9 | 32.7 | | SW | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.95 | 760.8 | 80.4 | 26.9 | 63 | NW | | | 2 | | 5k,ks | | NW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0-10. | 0-10. | 0-10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 30.33 | 770.4 | 67.9 | 19.9 | 30 | NE | 18 | 8.0 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.11 | 764.8 | 70 | 21.1 | | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B | | | 30.29 | 769.4 | 56 | 13.3 | 77 | NE | 11 | 4.9 | | 8ck | 0 | W | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.29 | 769.4 | 62 | 16.7 | 63 | NE | 5 | 2.2 | | | 8ks | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.10 | 764.5 | 66 0 | 18.9 | 73 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Bright | James Smith, M. A. |
| Dalhousie, N. B | | | 30.37 | 771.4 | 57.0 | 13.9 | 58 | E | | | 4 | | | | | 0 | 0 | Clear | H. A. Johnson. |
| Esquimault, B. C | | | 30.20 | 767.1 | 49.8 | 9.9 | 96 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.26 | 768.6 | 49 | 9.4 | 85 | E | 16 | 7.2 | | 0 | 5s | | E | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B | | | 30.27 | 768.8 | 63.3 | 17.4 | 57 | NE | 6 | 2.7 | | 7c | 0 | SW | | 0.025 | 0.63 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.77 | 756.1 | 50 | 10.0 | 93 | SW | 5 | 2.2 | | 5k | 5ks | SE | SE | 0 | 0 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 30.02 | 762.5 | 59.4 | 15.2 | | S | | | 3 | 3ck | 0 | SW | | 0.229 | 5.82 | Clearing | H. J. Strang, M. A. |
| Granton, Ontario | 28.93 | 734.8 | 30.01 | 762.2 | 57 | 13.9 | 87 | S | | | 2 | 3ck | 0 | E | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S | | | 30.23 | 767.8 | 54 | 12.2 | 99 | SE | 6 | 2.7 | | | Fog | | | 0.828 | 21.03 | Light rain | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.10 | 764.5 | 59.1 | 15.1 | 76 | NW | | | 1 | 8ck | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 30.39 | 771.9 | 47 | 8.3 | 77 | NE | | | 3 | 1c | 2ks | | | 0.01 | 0.3 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.17 | 766.3 | 61 | 16.1 | 76 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A |
| *Montreal, Quebec | | | 30.15 | 765.8 | 59 | 15.0 | 71 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.01 | 762.2 | 59 | 15.0 | 82 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Mosley |
| Peterboro, Ontario | | | 30.08 | 764.0 | 64.5 | 18.1 | 77 | SW | | | 1 | | 6ks | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.08 | 764.0 | 58 | 14.4 | 88 | S | 4 | 1.8 | | 10k | 0 | SW | | 0.10 | 2.5 | Fair | H. Morgan. |
| Port Hastings, N. S | | | 30.32 | 770.1 | 58.5 | 14.7 | | S | 3 | 1.3 | | | | | | 0.60 | 15.2 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.05 | 763.3 | 57 | 13.9 | 91 | SE | 4 | 1.8 | | | 10n | | SW | 0.14 | 3.6 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 30.15 | 765.8 | 60 | 15.6 | 88 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.05 | 763.3 | 56 | 13.3 | 74 | E | 8 | 3.6 | | 5ck | 0 | W | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | 30.25 | 768.3 | 62 | 16.7 | 64 | Calm | 0 | 0 | | 5cs | 0 | | | 0 | 0 | Fair | G. Murdock, C. E |
| *Saugeen, Ontario | | | 29.96 | 761.0 | 60 | 15.6 | 87 | SW | 2 | 0.9 | | 2k | 0 | W | | 0.30 | 7.6 | Clear | K. Stewart. |
| Stayner, Ontario | | | 30.00 | 762.0 | 54 | 12.2 | 87 | SE | 5 | 2.2 | | 8k | 0 | S | | Inap. | Inap. | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.74 | 730 0 | 30.01 | 762.2 | 56.2 | 13.4 | 93 | SE | 9 | 4.0 | | 2c | 3s | SW | | 0.045 | 1.14 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 30.33 | 770.4 | 61 | 16.1 | 90 | SE | 1 | 0.4 | | | 10n | | | 0.03 | 0.8 | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 30.08 | 764.0 | 58 | 14.4 | 78 | E | 2 | 0.9 | | 8ck | 2s | SW | SW | 0 | 0 | Cloudy | Magnetic Observatory. |
| Windsor, N. S | | | 30.17 | 766.3 | 60.0 | 15.6 | 94 | NE | 11 | 4.9 | | | 10n | | | | | Raining | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.04 | 763.0 | 57.6 | 14.2 | 91 | S | 18 | 8.0 | | | 10s | | | 0.21 | 5.3 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.49 | 774.4 | 49.0 | 9.4 | 71 | NE | | | | 10k | 10s | | | 0.19 | 4.8 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Brockville is 1,015 feet, or 309.4 meters: Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.20 | 767.1 | 59 | 15.0 | 81 | S | 6 | 2.7 | | 2c | 2ks | S | S | 0 | 0 | Fair | |
| Alpena, Mich. | | | 29.91 | 759.7 | 52 | 11.1 | 86 | SW | 8 | 3.6 | | 8ck | 0 | SW | | 0.22 | 5.6 | Fair | |
| Atlantic City, N. J. | | | 30.24 | 768.1 | 60 | 15.6 | 94 | E | 4 | 1.8 | | 5ck | 5s | W | | 0.08 | 2.0 | Cloudy | |
| Augusta, Ga. | | | 30.15 | 765.8 | 71 | 21.7 | 90 | E | 3 | 1.3 | | | 10n | | E | 0.02 | 0.5 | Light rain | |
| Baltimore, Md. | | | 30.20 | 767.1 | 67 | 19.4 | 74 | SE | 3 | 1.3 | | 5c | 5s | SW | | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 30.24 | 768.1 | 60 | 15.6 | 88 | E | 3 | 1.3 | | 10ck | 0 | NW | | 0.09 | 2.3 | Fair | |
| Bismarck, Dakota | 28.05 | 712.5 | 29.66 | 753.4 | 50 | 10.0 | 93 | Calm | 0 | 0 | | | 10s | | NW | 0.07 | 1.8 | Cloudy | |
| Boston, Mass. | | | 30.24 | 768.1 | 60 | 15.6 | 82 | E | 6 | 2.7 | | 5cs | Haze | SW | | Inap. | Inap. | Fair | |
| Breckenridge, Minn. | | | 29.86 | 758.4 | 44 | 6.7 | 92 | S | 8 | 3.6 | | 2k | 0 | | | 0.02 | 0.5 | Fair | |
| Buffalo, N. Y. | | | 30.05 | 763.3 | 65 | 18.3 | 58 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.18 | 766.6 | 64 | 17.8 | 67 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.13 | 765.3 | 62 | 16.7 | 83 | S | 5 | 2.2 | | 1c | 0 | | | 0.05 | 1.3 | Clear | |
| Campo, Cal. | 27.34 | 694.4 | 29.91 | 759.7 | 69 | 20.6 | 20 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 68 | 20.0 | | Calm | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.13 | 765.3 | 73 | 22.8 | 90 | SE | 14 | 6.3 | | | 10n | | SE | 2.21 | 56.1 | Light rain | |
| Cape Henry, Va. | | | 30.21 | 767.3 | 63 | 17.2 | 94 | NE | 9 | 4.0 | | | 10s | | N | 0.32 | 8.1 | Cloudy | |
| Cape Lookout, N. C. | | | 30.21 | 767.3 | 71 | 21.7 | 100 | S | 12 | 5.4 | | | 10n | | | 2.90 | 73.7 | Heavy rain | |
| Cape May, N. J. | | | 30.23 | 767.8 | 64 | 17.8 | 68 | E | 6 | 2.7 | | 2ck | 8ks | W | W | 0.06 | 1.5 | Cloudy | |
| Charleston, S. C. | | | 30.15 | 765.8 | 71 | 21.7 | 100 | NE | 10 | 4.5 | | | 10n | | NE | 2.74 | 69.6 | Light rain | |
| Cheyenne, Wyoming | 23.94 | 608.1 | 29.88 | 758.9 | 55 | 12.8 | 38 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.92 | 760.0 | 56 | 13.3 | 75 | SW | 10 | 4.5 | | Haze | 2s | SW | | 0.32 | 8.1 | Fair | |
| Cincinnati, Ohio | | | 30.04 | 763.0 | 61 | 16.1 | 82 | S | 6 | 2.7 | | | 10n | | S | 0.12 | 3.0 | Light rain | |
| Cleveland, Ohio | | | 30.06 | 763.5 | 57.5 | 14.2 | 78 | SE | 7 | 3.1 | | | 10s | | SW | 0.16 | 4.1 | Cloudy | |
| Corsicana, Tex. | | | 30.12 | 765.0 | 63 | 17.2 | 83 | N | 4 | 1.8 | | 2cs | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 29.93 | 760.2 | 56 | 13.3 | 86 | SW | 12 | 5.4 | | 1ck | 0 | SW | | Inap. | Inap. | Clear | |
| Denison, Texas | | | 30.12 | 765.0 | 66 | 18.9 | 68 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.74 | 628.4 | 29.96 | 761.0 | 55 | 12.8 | 50 | S | 4 | 1.8 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Detroit, Mich. | | | 29.99 | 761.7 | 57 | 13.9 | 75 | SW | 10 | 4.5 | | 0 | 0 | | | 0.32 | 8.1 | Clear | |
| Dodge City, Kan. | 27.40 | 696.0 | 29.65 | 753.1 | 56 | 13.3 | 80 | SW | 16 | 7.2 | | 2c | Haze | SW | | 0.02 | 0.5 | Clear | |
| Dubuque, Iowa | | | 29.89 | 759.2 | 53 | 11.7 | 79 | W | 4 | 1.8 | | | 10s | | | 0.15 | 3.8 | Cloudy | |
| Duluth, Minn. | | | 29.79 | 756.7 | 46 | 7.8 | 84 | NW | 8 | 3.6 | | | 10s | | NW | 0.23 | 5.8 | Cloudy | |
| Eagle Pass, Tex. | | | 30.10 | 764.5 | 59 | 15.0 | 61 | S | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| Eastport, Me. | | | 30.20 | 767.1 | 57 | 13.9 | 100 | NW | 5 | 2.2 | | 5ck | 8s | W | | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 30.02 | 762.5 | 64 | 17.8 | 73 | SE | 16 | 7.2 | | 2ck | 2cs | S | | Inap. | Inap. | Fair | |
| Escanaba, Mich. | | | 29.82 | 757.4 | 49 | 9.4 | 85 | S | 5 | 2.2 | | | 10s | | S | 0.48 | 12.2 | Cloudy | |
| Florence, Arizona | 28.25 | 717.5 | 29.85 | 758.2 | 82 | 27.8 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.09 | 764.3 | 62 | 16.7 | 83 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Fort Griffin, Tex. | 28.84 | 732.5 | 30.09 | 764.3 | 65 | 18.3 | 73 | Calm | 0 | 0 | | 0 | 2s | | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 30.31 | 769.9 | 48 | 8.9 | 78 | SW | | | 4 | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sill, Indian Ter. | 28.88 | 733.5 | 29.97 | 761.2 | 64 | 17.8 | 73 | SW | 1 | 0.4 | | 1c | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.11 | 714.0 | 29.73 | 755.1 | 52 | 11.1 | 93 | NW | 3 | 1.3 | | | 10n | | NW | 0.12 | 3.0 | Light rain | |
| Galveston, Tex. | | | 30.12 | 765.0 | 72 | 22.2 | 75 | N | 16 | 7.2 | | 8cs | 0 | W | | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.92 | 760.0 | 56 | 13.3 | 83 | S | 9 | 4.0 | | | Fog | | S | Inap. | Inap. | Foggy | |
| Indianapolis, Ind. | | | 30.03 | 762.7 | 63 | 17. | 67 | SW | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Indianola, Tex. | | | 30.11 | 764.8 | 69 | 20.6 | 79 | N | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.07 | 763.8 | 78 | 25.6 | 90 | E | 2 | 0.9 | | | 10s | | SW | 3.46 | 87.9 | Cloudy | |
| Keokuk, Iowa | | | 29.88 | 758.9 | 61 | 16.1 | 70 | W | 11 | 4.9 | | 0 | 0 | | | 0.40 | 10.2 | Clear | |
| Key West, Fla. | | | 29.95 | 760.7 | 79.0 | 26.1 | 82 | SE | 12 | 5.4 | | | 10s | | SE | 0.02 | 0.5 | Cloudy | |
| Kittyhawk, N. C. | | | 30.20 | 767.1 | 64 | 17.8 | 100 | N | 13 | 5.8 | | | 10n | | N | 0.76 | 19.3 | Light rain | |
| Knoxville, Tenn. | | | 30.16 | 766.1 | 58 | 14.4 | 87 | SE | 2 | 0.9 | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| LaCrosse, Wis. | | | 29.87 | 758.7 | 48 | 8.9 | 77 | Calm | 0 | 0 | | 5k | 0 | | | 0.07 | 1.8 | Fair | |
| Leavenworth, Kan. | | | 29.94 | 760.5 | 61 | 16.1 | 60 | SW | 9 | 4.0 | | 5c | 0 | SW | | 0.01 | 0.3 | Fair | |
| Louisville, Ky. | | | 30.08 | 764.0 | 63 | 17.2 | 77 | S | 5 | 2.2 | | 0 | 5s | | SW | 0.13 | 3.3 | Fair | |
| Lynchburg, Va. | | | 30.18 | 766.6 | 65 | 18.3 | 83 | Calm | 0 | 0 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 80 | 26.7 | | W | | | | 0 | 0 | | | 0 | 0 | | |
| Marquette, Mich. | | | | | | | | | | | | | | | | | | | |
| Mason, Tex. | 28.51 | 724.1 | 30.30 | 769.6 | 57 | 13.9 | 69 | NW | 3 | 1.3 | | 0 | 2s | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.15 | 765.8 | 67 | 19.4 | 68 | NE | 4 | 1.8 | | 0 | 5ks | | SW | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 29.89 | 759.2 | 54 | 12.2 | 86 | SW | 8 | 3.6 | | 0 | 5ks | | SW | 0.04 | 1.0 | Fair | |
| Mobile, Ala. | | | 30.09 | 764.3 | 69 | 20.6 | 70 | N | 7 | 3.1 | | 8c | 2s | | | 0 | 0 | Cloudy | |
| Montgomery, Ala. | | | 30.11 | 764.8 | 68.5 | 20.3 | 77 | N | 4 | 1.8 | | 10cs | 0 | | | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 29.07 | 738.4 | 30.11 | 764.8 | 60 | 15.6 | 76 | Calm | 0 | 0 | | 8c | 0 | SW | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 24.06 | 611.1 | 30.42 | 772.7 | 45 | 7.2 | 31 | W | 12 | 5.4 | | 8c | 0 | W | | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 30.13 | 765.3 | 71 | 21.7 | 62 | N | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.22 | 767.6 | 63 | 17.2 | 72 | Calm | 0 | 0 | | | 10s, fg | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 30.24 | 768.1 | 59 | 15.0 | 87 | SW | 4 | 1.8 | | 5cs | 5s, fg | SW | | 0.01 | 0.3 | Cloudy | |
| New Orleans, La. | | | 30.06 | 763.5 | 73 | 22.8 | 58 | NE | 6 | 2.7 | | 9cs | 0 | W | | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 30.24 | 768.1 | 61 | 16.1 | 83 | W | 1 | 0.4 | | | 10ks | | SW | 0.11 | 2.8 | Cloudy | |
| New York, N. Y. | | | 30.24 | 768.1 | 60 | 15.6 | 76 | W | 2 | 0.9 | | 2c | 8s | | | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 30.22 | 767.6 | 65 | 18.3 | 89 | E | 4 | 1.8 | | | 10s | | NE | 0.20 | 5.1 | Cloudy | |
| North Platte, Neb. | 26.90 | 683.2 | 30.36 | 771.1 | 60 | 15.6 | 59 | Calm | 0 | 0 | | 2c | 2s | | | 0 | 0 | Fair | |
| Omaha, Neb. | 28.78 | 731.0 | 29.84 | 757.9 | 55 | 12.8 | 68 | W | 2 | 0.9 | | 5ck | 0 | NW | | Inap. | Inap. | Fair | |
| Oswego, N. Y. | | | 30.13 | 765.3 | 63 | 17.2 | 67 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.83 | 757.7 | 47 | 8.3 | 92 | Calm | 0 | 0 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Philadelphia, Pa. | | | 30.26 | 768.6 | 60 | 15.6 | 82 | S | 1 | 0.4 | | 5ck, cs | Sm'e | S | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 72 | 22.2 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.85 | 453.4 | 30.06 | 763.5 | 23 | — 5.0 | 80 | NW | 36 | 16.1 | | 5c | 0 | NW | | 0.41 | 10.4 | Fair | |
| Pittsburgh, Pa. | | | 30.07 | 763.8 | 65 | 18.3 | 68 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 29.98 | 761.5 | 59 | 15.0 | 76 | S | 12 | 5.4 | | 1cs | 0 | SW | | 0.29 | 7.4 | Clear | |
| Portland, Me. | | | 30.24 | 768.1 | 57 | 13.9 | 61 | NE | 3 | 1.3 | | 5k | 2s | SW | SW | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.23 | 767.8 | 49 | 9.4 | 85 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.87 | 631.7 | 30.23 | 767.8 | 55 | 12.8 | 28 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | | | | | | | | | | | | | | | | | |
| Rochester, N. Y. | | | 30.08 | 764.0 | 64 | 17.8 | 62 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.64 | 651.2 | 29.97 | 761.2 | 60 | 15.6 | 44 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.24 | 768.1 | 64 | 17.8 | 72 | W | 2 | 0.9 | | 10ck | 0 | SW | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 30.09 | 762.0 | 61 | 16.1 | 77 | Calm | 0 | 0 | | 10cs | 0 | SW | | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.81 | 757.2 | 68 | 20.0 | 52 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 29.80 | 756.9 | 67 | 19.4 | 64 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Santa Fé, New Mexico | 23.38 | 593.8 | 29.92 | 760.0 | 49 | 9.4 | 71 | SE | 2 | 0.9 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.15 | 765.8 | 72 | 22.2 | 95 | NE | 5 | 2.2 | | | 10n | | NE | 2.60 | 66.0 | Light rain | |
| Shreveport, La. | | | 30.20 | 767.1 | 70 | 21.1 | 70 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.19 | 766.8 | 70 | 21.1 | 100 | N | 1 | 0.4 | | | 10n | | S | 0.80 | 20.3 | Light rain | |
| Springfield, Mass. | | | 30.24 | 768.1 | 60 | 15.6 | 78 | SW | 3 | 1.3 | | | Fog | | | 0 | 0 | Foggy | |
| St. Louis, Mo. | | | 30.05 | 763.3 | 60 | 15.6 | 65 | SW | 12 | 5.4 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| St. Marks, Fla. | | | 30.04 | 763.0 | 74 | 23.3 | 95 | E | 4 | 1.8 | | 2k | 2s | | | 1.47 | 37.3 | Fair | |
| St. Paul, Minn. | | | 29.84 | 757.9 | 47 | 8.3 | 77 | SW | 7 | 3.1 | | 2c | 0 | SW | | 0.02 | 0.5 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upp'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 72 | 22.2 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 27.07 | 687.6 | 30.07 | 763.8 | 57 | 13.9 | 52 | SE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 30.25 | 768.3 | 60 | 15.6 | 88 | SE | 4 | 1.8 | | 5c | 2s | W | W | 0 | 0 | Fair | |
| Toledo, Ohio | | | 30.01 | 762.2 | 63 | 17.2 | 66 | SW | 5 | 2.2 | | 5k | 0 | S | | 0.23 | 5.8 | Fair | |
| Tucson, Arizona | 27.46 | 697.5 | 30.06 | 762.0 | 69 | 20.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.10 | 764.5 | 74 | 23.3 | 95 | N | 18 | 8 0 | | | 10n | | | 1.20 | 30.5 | Light rain | |
| Vicksburg, Miss | | | 30.14 | 765.5 | 75 | 23.9 | 55 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, Montana | 24.25 | 615.9 | 29.73 | 755.1 | 50 | 10.0 | 51 | SE | 2 | 0.9 | | 1c | 0 | NW | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.22 | 767.6 | 65 | 18.3 | 78 | NE | 3 | 1.3 | | 5cs | 5s | W | W | 0 | 0 | Smoky | |
| Wickenburg, Arizona | | | | | 81 | 27.2 | | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.18 | 766.6 | 69 | 20.6 | 95 | NE | 2 | 0.9 | | | 10n | | S | 2.99 | 75.9 | Light rain | |
| Wood's Holl, Mass | | | 30.26 | 768.6 | 61 | 16.1 | 88 | W | 1 | 0.4 | | | 10s | | | 0.28 | 7.1 | Cloudy | |
| Yankton, Dakota | 28.59 | 726.2 | 29.85 | 758.2 | 52 | 11.1 | 82 | Calm | 0 | 0 | | 8cs | 0 | W | | 0.08 | 2 0 | Fair | |
| Yuma, Arizona | | | 29.71 | 754.6 | 75 | 23.9 | 36 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.19 | 766.8 | 78 | 25.6 | 86 | SE | 11 | 4.9 | | 10c | 10n | | SE | 0.20 | 5.1 | | James Gall. |
| Navassa, W. I | | | 29.98 | 761.5 | 80 | 26.7 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.05 | 763.3 | 82 | 27.8 | 83 | NE | | | 2 | 0 | 6k | | | 0 | 0 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.29 | 642.4 | | | 65.5 | 18.6 | 89 | Calm | | | 0 | | 10s | | | 0.09 | 2.3 | Cloudy | Thomas Herran. |
| York Factory, B. A. | | | 29.81 | 757.2 | 39.5 | 4.2 | 95 | N | 10 | 4.5 | | 4k | 4s | N | N | 0.20 | 5.1 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.07 | 763.8 | 71 | 21.7 | | NE | | | 2 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.29 | 769.4 | 70 | 21.1 | 65 | 18.3 | 84 | E | | | 1 | | 6 | | E | 0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 29.92 | 760 0 | 71.5 | 21.9 | 69.8 | 21.0 | | WNW | | | 1 | | 0 | | | 0 | 0 | | | Fine | |
| Navy Yard, Pensacola, Fla. | 30.19 | 766.8 | | | 74 | 23.3 | 72 | NNE | 4 | 1.8 | | | 8 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.27 | 768.8 | 69 | 20.6 | 62 | 16.7 | 77 | SSE | | | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.56 | 750.8 | 71.5 | 21.9 | 68.5 | 20.3 | 82 | NE | | | 5 | | 4k | | NNW | 0.05 | 1.3 | | | Fair | |
| Alert, N. 8° 05′ 24″, E. 138° 29′ 15″ | 29.94† | 760 5† | 83 | 28.3 | 83 | 28.3 | 100 | NE | | | 1 | | 4 | | SE | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.08 | 764.0 | 78 | 25.6 | 78 | 25.6 | 91 | NW | | | 0–1 | | 4 | | | | | Smooth | | Clear | |
| Ashuelot, Amoy, China | 29.94 | 760.5 | 76 | 24.4 | 75 | 23.9 | 95 | NE | | | 3 | | 10 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.06 | 763.5 | 52 | 11.1 | 75 | 23.9 | 81 | NE | | | 2 | | 10 | | W | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.38 | 771.6 | 60 | 15.6 | 61 | 16.1 | 77 | Calm | 0 | 0 | | | 9 | | | 0 | 0 | | | Hazy | |
| Despatch, Smyrna, Turkey | 30.13 | 765.3 | 73 | 22.8 | 74 | 23.3 | 72 | W | | | 3 | | 1 | | | | | Smooth | | Clear. | |
| Franklin, Norfolk, Va. | 30.24 | 768.1 | 69 | 20.6 | 65 | 18.3 | 89 | ENE | 5 | 2.2 | | | 10 | | ENE | 0.2 | 5. | | | Overcast | |
| Frolic, Rio de Janeiro, Brazil | 30.39 | 771.9 | 68 | 20.0 | 68 | 20.0 | 95 | ENE | | | 2 | | 8kn | | | 0 | 0 | Ground | S | D. clouds | |
| ‡Gettysburg, Spezia, Italy | 29.93 | 760.2 | | | 80 | 26.7 | 96 | SE | | | 2 | | 1 | | | 0 | 0 | Calm | None | D clouds | |
| Hartford, Hampton Roads, Va | 30.37 | 771.4 | 68 | 20.0 | 66 | 18.9 | 94 | NE | 4.8 | 2.1 | | | 10 | | | 0.062 | 1.57 | | | Overcast | |
| Huron, Cartagena, N. G | 30.25 | 768 3 | 83 | 28.3 | 80 | 26.7 | 82 | SE | | | 1 | | 9 | | SE | 0 | 0 | Smooth | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.95 | 760.7 | 73 | 22.8 | 68 | 20 0 | 90 | Calm | | | 0 | | 0 | | | ¶0.02 | 0.5¶ | | | Blue sky | |
| Lackawana, N 29° 32′, W. 125° 58′ | 30.06 | 763.5 | | | 64 | 17.8 | 83 | NNW | | | 2 | | 4 | | NNW | | | Moderate. | NNW | D. clouds | |
| Marion, Salonica, Turkey | 30.12 | 765.0 | 80 | 26 7 | 81 | 27.2 | 87 | SW | | | 2 | | 3 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.55 | 750.6 | 65 | 18.3 | 63 | 17.2 | 67 | S | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.35 | 745.5 | 87 | 30.6 | 86 | 30.0 | 58 | W | | | 2 | | 1 | | W | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.28 | 769.1 | 60 | 15.6 | 60 | 15 6 | 88 | Calm | | | 0 | | 8ck | | | | | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.36 | 771.1 | | | 72 | 22.2 | 95 | NE | 12 | 5.4 | | | 10 | | SE | 0.75 | 19.1 | | | Raining | |
| Omaha, Chimbote, Peru | 30.10 | 764 5 | 71 | 21.7 | 70.5 | 21.4 | 80 | Calm | 0 | 0 | | | 2 | | | 0 | 0 | Moderate. | S&W | Bright | |
| Ossipee, Norfolk, Va | 30.25 | 768.3 | 68 | 20.0 | 67 | 19.4 | 95 | ENE | | | 2 | | 10 | | ENE | | | | | D. clouds | |
| Palos, Shanghai, China | 29.90 | 759.4 | 74 | 23.3 | 74 | 23.3 | 90 | SSE | | | 2 | | 6 | | S&E | 0 | 0 | | | Partly cl'dy | |
| Pensacola, N. 17° 49′, W. 119° 49′ | 30.04 | 763.0 | | | 72 | 22.2 | 80 | WNW | | | 2 | | 9 | | | 0 | 0 | Long | N&W | Pleasant | |
| Plymouth, N. 19° 16′, W. 93° 52′ | 30.11 | 764.8 | 84 | 28.9 | 80 | 26.7 | 87 | SSE | | | 3 | | 9 | | N | 0.35 | 8.9 | Moderate | S&E | Rainy | |
| Ranger, N. 31° 31′, E. 32° 20′ | 30.10 | 764.5 | | | 78 | 25 6 | 86 | NE | | | 3 | | 1 | | | | | Smooth | | Clear. | |
| Richmond, Rio de Janeiro, Brazil | 30.39 | 771.9 | 70.5 | 21.4 | 69.5 | 20.8 | 85 | E | | | 4 | | 6 | | E | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.97 | 761.2 | | | 64 | 17.8 | 89 | NW | | | 1 | | 7 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.28 | 769.1 | 68 | 20.0 | 66 | 18.9 | 79 | W | | | 0–1 | | 10 | | | 0 | 0 | | | Overcast | |
| Saratoga, Off Cape Cod, Mass | 30.54 | 775.7 | | | 61 | 16.1 | | Var. | | | 0–1 | | 8 | | | Blank | Blank | Smooth | S&E | Fair | |
| St. Louis, League Island, Pa | 30.16 | 766.1 | 62 | 16.7 | 61 | 16.1 | 88 | E | 3 | 1.3 | | | 7 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 81 | 27.2 | 81 | 27.2 | 96 | Calm | | | 0 | | 8k | | | | | Moderate. | NE | Overcast | |
| Tennessee, Yokohama, Japan | 29.62 | 752.3 | 76 | 24.4 | 73 | 22.8 | 90 | NNE | | | 5 | | 5 | | S&W | Blank | Blank | Light | SW | D. clouds | |
| Trenton, Salonica, Turkey | 30.00† | 762.0† | 77 | 25.0 | 86 | 30.0 | 76 | NW | 12 | 5.4 | | | 4 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.15 | 765.8 | 74 | 23.3 | 76 | 24.4 | 60 | NE | | | 2 | | 1 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.28 | 769.1 | 62 | 16.7 | 63 | 17.2 | 83 | ESE | 5 | 2.2 | | | 5 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D. C | 30.44† | 773 2† | 67 | 19.4 | 69 | 20.6 | | E | | | 0–1 | | 10 | | | | | | | Overcast | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | CHARACTER. | DIRECTION FROM— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Granada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 39° 24′, W. 135° 05′ | W½N | | 30.09 | 764.3 | 58 | 14.4 | | NE | | | 4 | | cs | | W | Rough | | D. clouds | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andresen. |
| S. S. Berlin, N. 48° 6′, W. 26° 21′ | E¾N | 10.5 | 30.10 | 764.5 | 62.4 | 16.9 | | E | | | 1 | | ck | | E | Smooth | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 50° 3′, W. 21° 53′ | W | 12 | 30.07 | 763.8 | 56.8 | 13.8 | | S | | | 2 | | c | | WNW, SE | Long | WNW | D. clouds | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Vineyard Sound, Mass. | | | 30.16 | 766.1 | 60 | 15.6 | 88 | Calm | 0 | 0 | | | 10s | | | Smooth | | Raining | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 13, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.89 | 759.2 | 76.5 | 24.7 | 71 | Calm | | | 0 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 29.91 | 759.8 | 77.4 | 25.2 | 72 | N | | | 3 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.92 | 759.9 | 82.6 | 28.1 | 67 | N | | | 1 | | 5 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.97 | 761.2 | 93.2 | 34.0 | | SE | | | 3 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.00 | 762.0 | 82.4 | 28 | | SSE | | | 3 | | 1 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.90 | 759.4 | 95.0 | 35.0 | | SSE | | | 5 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.01 | 762.3 | 82.8 | 28.2 | | SE | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.01 | 762.2 | 86.7 | 30.4 | | W | | | 5 | | 5 | | | 0 | 0 | Fair | Lemaillot. |
| Laghonat | | | 30.05 | 763.2 | 93.6 | 34.2 | 20 | W | | | 2 | | 2 | | | 0 | 0 | Clear. | Guyot. |
| Biskra | | | 29.99 | 761 7 | 97.0 | 36.1 | | SE | | | 1 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2.919.9? feet; Tebessa, 1,088? m., or 3,569,4 ? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.79 | 756.7 | 86.9 | 30.5 | 50 | NE | | | 4 | | 4 | | | Inap. | Inap. | Thunder-storm | Prof. Ivan Stozir |
| Cracow, I. R. Observatory | | | 29.74 | 755.5 | 64.4 | 18.0 | 100 | W | | | 2 | | 10 | | | 0.890 | 22.6 | | Dr. Wierzbiski. |
| Eperies | | | 29.67 | 753.7 | 87.3 | 30.7 | 46 | S | | | 4 | | 28 | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.63 | 727.2 | 29.80 | 757.0 | 83.3 | 28.5 | 54 | SW | | | 2 | | 6 | | | 0.256 | 6.5 | Thunder-storm | Andreas Rospini. |
| Hermannstadt | 28.47 | 723.0 | 29.78 | 756.5 | 83.5 | 28.6 | 34 | NW | | | 3 | | 0 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.60 | 726 3 | 29.90 | 759.5 | 64.0 | 17.8 | 86 | WSW | | | 3 | | 10 | | | 0.709 | 18.0 | | Prof. C. Wagner |
| Lemberg | | | 29.66 | 753.3 | 82.0 | 27.8 | 53 | W | | | 3 | | 3 | | | 0.118 | 3.0 | | Dr. T. Stanecki. |
| Pola | | | 30.91 | 759.8 | 81.3 | 27.4 | 66 | SSE | | | 2 | | 8cs | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 29.83 | 757.7 | 83.8 | 28.8 | 55 | S | | | 1 | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.95 | 760.6 | 80.8 | 27.1 | 69 | NW | | | 1 | | 8 | | | 0.197 | 5.0 | Almost cov'd | P. Busin. |
| Vienna | | | 29.76 | 755.8 | 80.2 | 26.8 | 44 | W | | | 4 | | 5 | | | 0.020 | 0.5 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.48 | 723.3 | 29.91 | 759 8 | 75.7 | 24.3 | 56 | W | | | 1 | | 7 | | | 0.004 | 0.1 | | |
| Brussels | | | 29.96 | 760.9 | 69.1 | 20.6 | 68 | N | | | 2 | | 10k | | NE | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.00 | 761.9 | 65.7 | 18.7 | 79 | NE | | | 4 | | 10 | | | 0 | 0 | | |
| Maeseyck | | | 30.07 | 761.2 | 64.2 | 17.9 | 78 | NNW | | | 4 | | 8 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.09 | 764.3 | 54.1 | 12.3 | | SSE | 20 | 8.9 | | | 1 | | | 0.165 | 4.19 | Blue sky | William Boswell. |
| Ardrossan | | | 30.05 | 763.3 | 62 | 16.7 | | WSW | | | 2 | | 3 | | | | | Blue sky | William McNeil. |
| Armagh, Observatory | | | 30.06 | 763.5 | 64.9 | 18.3 | | SSE | 4 | 1.8 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.05 | 763.3 | 62.3 | 16.8 | | ESE | 13 | 5.8 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.02 | 762.5 | 67.3 | 19.6 | | Calm | | | 0 | | 8 | | | | | D. clouds | J. Dreyer. |
| Bradford, Yorkshire | | | 30.08 | 764.0 | 56.3 | 13.5 | | E | | | 0 | | 10 | | | 0.12 | 3.0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 78.5 | 25.8 | | NE | | | 2 | | 6? | | | | | Overcast? | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.05 | 763.3 | 63.0 | 17.2 | | ENE | | | 1 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 30.05 | 763.3 | 64.0 | 17.8 | | | | | 1 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.07 | 763.8 | 62.2 | 16.8 | | E | | | 2 | | 8 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.56 | 725.4 | 30.00 | 762.0 | 63.0 | 17.2 | | E | | | 3 | | 8 | | | | | Hazy | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.06 | 763.5 | 61 | 16.1 | | SSE | | | 2 | | 3 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 30.10 | 764.5 | 61 | 16.1 | | NE | | | 4 | | 0 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.05 | 763.3 | 60.6 | 15.9 | | SE | 1.6 | 0.7 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.98 | 761.5 | 60.4 | 15.8 | | ESE | | | 1 | | 10 | | | | | Foggy | The Staff. |
| Fort Napier, (Natal) | 27.97 | 710.4 | 30.20 | 767.1 | 63.2 | 17.3 | | E | | | 1 | | 9 | | | | | Overcast | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.01 | 762.2 | 87 | 30.6 | | NW | | | 1 | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.08 | 764.0 | 70 | 21.1 | | Calm | | | 0 | | 0 | | | | | Blue sky | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.84 | 757.9 | 75.6 | 24.2 | | SW | | | 4 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.04 | 763.0 | 62.4 | 16.9 | | W | | | 1 | | 9 | | | | | Threatening | William Wallace. |
| Great Yarmouth | | | 30.07 | 763.8 | 58 | 14.4 | | ENE | | | 3 | | 3 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.02 | 762.5 | 62.2 | 16.8 | | E | | | 1 | | 10 | | | | | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 29.94 | 760.5 | 62 | 16.7 | | NNE | | | 1 | | 8 | | | | | Gloomy | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.00 | 762.0 | 66 | 18.9 | | E | | | 0 | | 6k | | | 0 | 0 | Fog and haze | M. P. Moyle. |
| Holyhead | | | 30.02 | 762.5 | 64 | 17.8 | | ENE | | | 3 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.02 | 762.5 | 61.5 | 16.4 | | ENE | 17 | 7.6 | | | 10 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.07 | 763.8 | 58 | 14.4 | | E | | | 3 | | 1 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.05 | 763.3 | 59.1 | 15.1 | | E | | | 4 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.98 | 761.5 | 83.2 | 28.4 | | NE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 30.00 | 762.0 | 66 | 18.9 | | Calm | | | 0 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.11 | 764.8 | 84.4 | 29.1 | | NE | | | 2 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.09 | 764.3 | 61.0 | 16.1 | | ENE | | | 4 | | 10k | | E | 0 | 0 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.04 | 763.0 | 58.2 | 14.6 | | ENE | | | 3 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.02 | 762.5 | 58 | 14.4 | | NE | | | 1 | | 10 | | | | | Gloomy | F. Lucas. |
| Plymouth | | | 29.96 | 761.0 | 65.8 | 18.8 | | SE | | | 1 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.0[illegible] | 762.5 | 65 | 18.3 | | SE | | | 3 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 29.99 | 761.7 | 62 | 16.7 | | S | | | 1 | | 10 | | | | | Overcast | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.94 | 760.5 | 69.6 | 20.9 | | NE | | | 1 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.03 | 763.5 | 57.6 | 14.2 | | S | 14 | 6.3 | | | 4 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.88 | 758.9 | 82.8 | 28. | | NE | | | 1 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 30.08 | 764.0 | 59.1 | 15.1 | | E | | | 1 | | 10 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.04 | 763.0 | 68.0 | 20.0 | 60 | S | | | 2 | | 0 | | | 0 | 0 | Blue sky | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.06 | 763.5 | 62.1 | 16.7 | | E | | | 1 | | 10 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.00 | 762.0 | 58 | 14.4 | | SSE | | | 1 | | 5 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.02 | 762.5 | 58.7 | 14.8 | | E | | | 1 | | 10 | | | | | Foggy | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 30.01 | 762.2 | 61 | 16.1 | | NW | | | 1 | | 4 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 29.97 | 761.2 | 68 | 20.0 | | SE | | | 2 | | 10 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 29.99 | 761.7 | 65.1 | 18.4 | | NW | 11 | 4.9 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 59 | 15.0 | | E | | | 1 | | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.12 | 765.0 | 76.0 | 24.4 | 40 | NE | 13 | 5.8 | | 0 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.81 | 757.2 | 49.0 | 9.4 | 86 | NW | | | 3 | | 5k | | | 0.02 | 0.5 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.07 | 763.8 | 59.5 | 15.0 | | E | | | 2 | 5clr | | W | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.07 | 763.8 | 75.3 | 24.1 | 70 | ENE | 8.0 | 3.6 | | 1 | 1 | | ENE | 0.27 | 6.9 | Blue sky | C. Meldrum. |
| Melbourne, Observatory | | | 30.21 | 767.3 | 46.3 | 7.9 | 81 | NW | 9 | 4.0 | | | 5 | | | 0.04 | 1.0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.04 | 763.0 | 55 | 12.8 | | S | | | 3 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.06 | 763.5 | 55 | 12.8 | | S | | | 1 | 1 | 2 | S | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,409 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0 m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Inches | Barometer. Millimeters | Reduced to sea-level. Inches. | Reduced to sea-level. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. 0—10 | Clouds. Direction. From— | Clouds. Direction. From— | Sea or swell. Height scale 0—9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 49° 15′, W. 30° 50′ | | | 30.12 | 765.0 | 51.0 | 10.6 | | N | | | 4 | 7 | | | 10 | W & N | D. clouds | Capt. W. Watson |
| S. S. Batavia | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 43° 15′, W. 47° 55′ | | | 30.46 | 773.7 | 60.0 | 15.6 | | WNW | | | 1 | | | | 1 | SSW | Drizzling | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 15′ | | | 30.00 | 762.0 | 59.8 | 15.4 | | SSE | | | 1 | 3 | | | 2 | W | D. clouds | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, off Fire Inlet, New York | | | 30.28 | 769.1 | 62.5 | 16.9 | | Var. | | | 1 | 10 | | | 4 | S | Foggy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine | | | | | | | | | | | | | | | | | | Capt. H. Manning. |
| Barque Soruta | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.24 | 666.5 | | | 68 0 | 20.5 | 95 | SW | | | 1 | | 6ck | | W | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 20.83 | 757.6 | 58.5 | 14.7 | 56 | WNW | | | 2 | | 5 | | | | | | |
| Fanöe | | | 29.91 | 759.6 | 55.8 | 13.2 | 74 | WNW | | | 6 | | 9 | | | | | | |
| Godthaab, (Greenland) | | | 29 80 | 756.9 | 37.4 | 3.0 | 74 | N | | | 5 | | 8 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.21 | 741.8 | 48.7 | 9.3 | 98 | S | | | 7 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.87 | 758.7 | 51.6 | 10.9 | 80 | WSW | | | 4 | | 10 | | | | | Rain & fog | |
| Vestervig | | | 29.85 | 758.3 | 59.0 | 15.0 | 68 | N | | | 4 | | 2 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.02 | 762.4 | 75.2 | 24 | 63 | NE | | | 1 | | 8ck | | NE | 0 | 0 | Very cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 29.96 | 761.0 | 69.8 | 21.0 | 87 | NW | | | 2 | | 10 | | | 0 | 0 | Covered | Bonvarne, Director. |
| Avignon, Normal School | | | 29.95 | 760.8 | 89.6 | 32 | 29 | SSW | | | 1 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.93 | 760.2 | 73.0 | 22.8 | 85 | W | | | 2 | | 8kn | | W | 0 | 0 | Thunder | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 29.94 | 760 5 | 75.2 | 24 | 68 | NE | | | 2 | | 5 | | WSW | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 29.95 | 760.8 | 81.3 | 27.4 | 53 | SW | | | 4 | | 8 | | SW | 0 | 0 | Very cloudy | Normal School. |
| Bourg-en-Bresse | | | 30.06 | 763.4 | 85.1 | 29.5 | 51 | S | | | 6 | 2c | | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges, Normal School | | | 29.87 | 758.6 | 81.0 | 27.2 | 81 | SW | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.86 | 758.4 | 80.8 | 27.1 | 87 | Calm | | | 0 | | 9 | | | 0 | 0 | Stormy | The Staff. |
| Carcassonne, Normal School | | | 29.91 | 759.6 | 86.0 | 30 | 62 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 29.91 | 759.8 | 69.4 | 20.8 | 75 | NE | | | 4 | | 5 | | NE | 0 | 0 | Partly cl'dy. | Normal School. |
| Chartres, Normal School | | | 29.87 | 758.6 | 82.4 | 28 | 75 | N | | | 2 | | 4 | | E | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.91 | 759.6 | 78.8 | 26.0 | 69 | NW | | | 3 | | 8ck | | NW | 0 | 0 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.85 | 758.2 | 86.0 | 30.0 | 32 | NE | | | 2 | | 1 | | | 0 | 0 | Almost clear. | Alluard, Director. |
| Commercy, Normal School | | | 29.97 | 761.3 | 73.4 | 23 | 74 | W | | | 4 | | | | W | 0 | 0 | Stormy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.05 | 763.2 | 87.6 | 30.9 | 19 | SW | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.92 | 760.0 | 82.8 | 28.2 | 46 | NW | | | 6 | | 2ks | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.85 | 758.3 | 85.6 | 29.8 | 45 | NNE | | | 2 | | 2 | | NNE | 0 | 0 | Slightly cl'dy | Mouillet, Director. |
| Le Mans, Normal School | | | 29.92 | 759.9 | 83.1 | 28.4 | 53 | N | | | 2 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 29.94 | 760.4 | 75.6 | 24.2 | 85 | N | | | 6 | | 5 | | E | 0 | 0 | Cloudy | Pin, Director. |
| Lorient, Naval Observatory | | | 29.93 | 760.1 | 75.6 | 24.2 | 67 | ENE | | | 1 | | 8 | | E | 0.004 | 0.1 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.93 | 760.2 | 75.4 | 24.1 | 93 | Calm | | | 0 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 29.99 | 761.8 | 74.5 | 22.6 | 80 | WSW | | | 2 | | 10 | | | 0 | 0 | Covered | Normal School. |
| Mirecourt | | | 29.93 | 760.2 | 71.8 | 22.1 | 77 | N | | | 2 | | 10 | | S | 0 | 0 | Covered | Normal School |
| Nismes, Normal School | | | 29.96 | 761.0 | 91.0 | 32.8 | 52 | W | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.84 | 757.8 | 83.8 | 28.8 | 51 | NW | | | 1 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 29.91 | 759.7 | 79.0 | 26.1 | 54 | WNW | | | 2 | | 1 | | | 0 | 0 | Clear | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.86 | 758.5 | 87.8 | 31.0 | 40 | SE | | | 2 | | 2 | | SE | 2.09 | 53. | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.95 | 760.6 | 77.9 | 25.5 | 63 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 28.94 | 735.1 | 29.96 | 760.9 | 85.1 | 29.5 | 49 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 29.91 | 759.7 | 85.1 | 29.5 | 70 | ESE | | | 1 | | 5 | | | 0 | 0 | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.90 | 759.5 | 79.2 | 26.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | 29.96 | 760.9 | 84.7 | 29.3 | 38 | SW | | | 1 | | 0 | | | 0 | 0 | Clear | The Staff. |
| Mont-Louis | 24.95 | 633.6 | 30.26 | 768.6 | 74.1 | 23.4 | 40 | SSW | 18.6 | 8.33 | | | 5 | | SSW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.91 | 759.8 | 81.5 | 27.5 | 52 | NW | | | 2 | | 2 | | | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 29.93 | 760.2 | 76.1 | 24.5 | 71 | E | 11.2 | 5.00 | | | 1 | | NW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.40 | 543.6 | | | 52.9 | 11.6 | | S | | | 2 | | 2 | | | | | Clear | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.65 | 575.3 | | | 60.4 | 15.8 | | S | | | 3 | | 2 | | | 0 | 0 | Clear | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.92 | 760.0 | 81.3 | 27.4 | 53 | N | | | 1 | | 1 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 29.98 | 761.4 | 80.4 | 26.9 | 51 | ENE | | | 1 | | 1 | | | 0 | 0 | | The Staff |
| Tours | | | 29.88 | 758.9 | 88.2 | 31.2 | 36 | N | | | 2 | | 2 | | N | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.93 | 760.3 | 81.0 | 27.2 | 55 | N | | | 2 | | 3 | | | 0 | 0 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.80 | 756.9 | 68.2 | 20.1 | 95 | SE | 8.3 | 3.7 | | | 0 | | | 0 | 0 | Clear | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi. (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 136. millimeters has been added. At Clermont-Ferrand the observations have been taken at 6:50, instead of 6:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.87 | 758.6 | 74.3 | 23.5 | 71 | W | | | 5 | | 9 | W | | 0.40 | 10. | | Prof. T. Hoh |
| Berlin | | | 29.91 | 759.8 | 60.4 | 15.8 | 74 | NE | | | 1 | | 10 | | | 0.197 | 5.0 | Rainy | Prof. Arndt. |
| Breslau | | | 29.80 | 757.0 | 73.0 | 22.8 | 58 | NW | | | 5 | | 3 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.23 | 767.8 | 70.9 | 21.6 | 92 | SE | | | 1 | | 10 | | | 0.862 | 21.9 | Thunder-storm | Albert Senz. |
| Cassel | | | 30.04 | 763.0 | 59.9 | 15.5 | 87 | N | | | 6 | | 10 | NW | | 0.091 | 2.3 | Thunder, lightn'g | Dr. H. Möhl. |
| Crefeld | | | 29.94 | 760.5 | 65.5 | 18.6 | 73 | NE | | | 4 | | 9 | | | 1.06 | 27. | | Director Lose. |
| Emden | | | 29.99 | 761.8 | 60.3 | 15.7 | 56 | NNW | | | 3 | | 2 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.88 | 758.9 | 82.4 | 28.0 | 45 | NW | | | 2 | | 8 | | | 0.079 | 2.0 | | Physical Society. |
| Friedrichshafen | 28.48 | 723.4 | 29.83 | 757.6 | 80.6 | 27.0 | 63 | SSW | | | 3 | | 3 | S | | 0.241 | 6.2 | Thunner-storm | M. Wilhelm. |
| Hamburg | | | 29.97 | 761.1 | 59.5 | 15.3 | 67 | NW | | | 4 | | 4k | NW | | 0.268 | 6.8 | Fine | Captain F. Hegemann. |
| Kiel | | | 29.90 | 759.5 | 61.5 | 16.4 | 83 | NW | | | 3 | | 5 | | | 0.098 | 2.5 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.74 | 755.3 | 63.1 | 17.3 | 56 | N | | | 5 | | 5 | | | 0.016 | 0.4 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 29.92 | 759.9 | 58.3 | 14.6 | 100 | NNW | | | 2 | | 10 | NW | | 0.087 | 2.2 | Rainy | Prof. Bruhns. |
| Memel, Naval School | | | 29.76 | 756.0 | 57.7 | 14.3 | 64 | NW | | | 3 | | 10ks,ck | | | | | Threatening | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 29.79 | 756.7 | 58.5 | 14.7 | 71 | NNW | | | 4 | | 10 | | | 0.579 | 14.7 | | A. Lothes. |
| Posen | | | 29.80 | 756.9 | 65.3 | 18.5 | 59 | NW | | | 7 | | 10 | | | 0.063 | 1.6 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.89 | 759.3 | 69.3 | 20.7 | 98 | NNW | | | 9 | | 10 | NW | | | | Thunder-storm | Dr. Schur. |
| Stuttgart | | | 29.82 | 757.3 | 79.2 | 26.2 | 62 | N | | | 1 | | 8 | W | | 0.445 | 11.3 | Thunder-storm | Prof. Schoder |
| Treves, (Trier) | | | 29.74 | 755.5 | 82.4 | 28.0 | 50 | NW | | | 5 | | 10 | | | 0.283 | 7.2 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.41 | 721.6 | 30.03 | 762.7 | 75.0 | 23.9 | 68 | W | | | 1 | | 5 | | | 0.276 | 7.0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.96 | 760.9 | 58.8 | 14.9 | 70 | W | | | 4 | | 5 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2.5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2.0, instead of 1.51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.94 | 760.5 | 86.7 | 30.4 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.58 | 751.4 | 29.63 | 752.6 | 86.8 | 30.4 | 78 | SW | 19.0? | 8.4? | | | 7 | | WSW | 0 | 0 | D. clouds | |
| Deesa | 29.18 | 715.8 | 29.63 | 752.6 | 104.5 | 40.3 | 29 | S | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.68 | 753.9 | 29.72 | 754.8 | 87.5 | 30.8 | 74 | WNW | 9.0 | 4.0 | | | 10 | | WNW | 0 | 0 | Dust-haze | |
| Poona | 27.67 | 702.8 | 29.65 | 753.2 | 79.6 | 26.4 | 72 | | | | | | | | | 0.15 | 3.8 | Thunder-storm | |
| Lahore | 28.87 | 733.4 | | | | | | NW | 1.0 | 0.4 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.07 | 687.6 | 29.57 | 751.1 | 79.8 | 26.6 | 80 | W | 15.0 | 6.7 | | | 9 | | S | 0.77 | 19.6 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.70 | 729.1 | 29.56 | 750.9 | 99.5 | 37.5 | | NW | 2.7 | 1.2 | | | 1 | | | 0 | 0 | Strong wind | |
| Agra | 29.00 | 736.5 | 29.53 | 750.0 | 106.2 | 41.2 | 19 | NW | 2.4 | 1.0 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.68 | 728.4 | 29.70 | 754.4 | 87.5 | 30.8 | 54 | NW | 8.1 | 3.6 | | | 8 | | | | | Thunder-storm | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.22 | 742.2 | 29.58 | 751.2 | 101.2 | 38.4 | 27 | NW | 4.0 | 1.7 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.27 | 743.5 | 29.57 | 751.1 | 100.6 | 37.8 | 35 | NNE | 2.2 | 1.0 | | | 10 | | | 0 | 0 | Overcast | |
| Patna | 29.43 | 747.4 | 29.60 | 751.9 | 91.9 | 33.3 | 56 | W | 2.6 | 1.1 | | | 8 | | | 0.06 | 1.5 | D. clouds | |
| Hazaribagh | 27.65 | 702.3 | 29.59 | 751.5 | 94.6 | 34.8 | 22 | WNW | 10.4 | 4.6 | | | 2 | W | NW | 0.02 | 0.5 | Thunder-storm | |
| Cuttack | 29.60 | 751.9 | 29.68 | 753.9 | 87.2 | 30.7 | 64 | S | 6.4 | 2.8 | | | 4 | | | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.65 | 753.1 | 29.67 | 753.6 | 89.3 | 31.8 | 73 | S | 5.0 | 2.2 | | | 0 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.30 | 744.2 | 29.69 | 754.0 | 80.2 | 26.8 | 76 | SW | 2.0 | 0.8 | | | 4 | SW | | 0 | 0 | D. clouds | |
| Chittagong | 29.66 | 753.4 | 29.75 | 755.7 | 84.4 | 29.1 | 82 | SE | 5.8 | 2.5 | | | 8 | | | 0 | 0 | Gloomy | |
| Sibsagar | 29.41 | 746.9 | 29.74 | 755.4 | 79.9 | 26.6 | 91 | SE | 3.7 | 1.6 | | | 10 | WSW | WSW | 1.96 | 49.8 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.29 | 718.5 | 29.60 | 751.8 | 98.0 | 36.7 | 34 | S | 4.7 | 2.1 | | | 7 | | | 0 | 0 | D. clouds | |

Note.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.: Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. (1—10.) | Clouds. Amount. Up'er (0—10.) | Clouds. Amount. Low'r (0—10.) | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.37 | 568.2 | 30.00? | 762.0? | 56.7 | 13.7 | 78 | W | | | 1 | | 10 | W | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.33 | 567.2 | 29.93 | 760.2 | 52.7 | 11.5 | | SW | | | 1 | | 5 | NW | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.80 | 759.2 | 81.0 | 27.2 | 67 | S | 2.5 | 1.1 | | | 6 | | | 0.020 | 0.5 | | Ab. Dom. Morgini. |
| Padua | | | 29.86 | 758.5 | 85.3 | 29.6 | 57 | S | 2.5 | 1.1 | | | 5 | NNE | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.86 | 758.5 | 87.8 | 31.0 | 50 | N | 2.5 | 1.1 | | | 5 | E | | 0 | 0 | | Conte Alm. Da Schio |
| Veronna | | | 29.89 | 759.3 | 87.4 | 30.8 | 42 | W | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.62 | 727.0 | 29.88 | 759.0 | 88.5 | 31.4 | 43 | SSW | | | 2 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.85 | 758.1 | 83.7 | 28.7 | 51 | S | | | 6 | | 6 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.89 | 759.1 | 89.8 | 32.1 | 49 | W | | | 2 | | 1 | WNW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.88 | 759.1 | 89.1 | 31.7 | 39 | SW | | | 2 | | 1 | NW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.88 | 759.0 | 86.0 | 30.0 | 44 | SSE | 6.3 | 2.8 | | | 2 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.06 | 712.7 | 29.88 | 759.0 | 84.6 | 29.2 | 40 | SSE | | | 4 | | 1 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.02? | 762.4? | 80.8 | 27.1 | 67 | SSE | | | 2 | | 2 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.99 | 761.7 | 78.6 | 25.9 | 69 | SW | 6.3 | 2.8 | | | 2 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.90 | 759.4 | 85.1 | 29.5 | 42 | NW | 1.8 | 0.8 | | | 1 | | | 0 | 0 | | Dott. G. Manzi. |
| Parmn | | | 29.87 | 758.6 | 92.3 | 33.5 | 41 | NW | | | 2 | | 0 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.97 | 761.3 | 85.8 | 29.9 | 51 | W | | | 2 | | 5 | WSW | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.03 | 762.8 | 81.3 | 27.4 | 66 | WSW | 9.8 | 4.4 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.78 | 731.0 | 29.94 | 760.4 | 84.2 | 29.0 | 41 | W | 1.8 | 0.8 | | | 7 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.46 | 722.8 | 29.96 | 760.9 | 84.4 | 29.1 | 46 | SW | | | 2 | | 10 | | | 1.142 | 29.0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.92 | 759.9 | 81.9 | 27.7 | 58 | NE | 19.2 | 8.6 | | | 1 | NE | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.90 | 759.5 | 86.0 | 30.5 | 45 | SW | | | 4 | | 4 | | | 0 | 0 | | Prof. F. DeBoeis. |
| Grosseto | | | 30.00 | 761.9 | 84.2 | 29.0 | 41 | SSW | | | 2 | | 4 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.98 | 761.4 | 84.6 | 29.2 | 47 | SW | 8.7 | 3.9 | | | 2 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.00 | 762.1 | 83.1 | 28.4 | 60 | SW | | | 4 | | 4 | W | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.98 | 761.4 | 84.6 | 29.2 | 36 | NNW | 6.3 | 2.8 | | | 3 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.96 | 761.0 | 89.4 | 31.9 | 44 | WNW | 7.4 | 3.3 | | | 3 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.93 | 760.1 | 84.2 | 29.0 | 43 | S | | | 2 | | 4 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Rimosto, (Sicily) | | | 30.04? | 763.1? | 82.4 | 28.0 | 50 | S | | | 2 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.97 | 761.2 | 78.8 | 26.0 | 68 | E | 4.9 | 2.2 | | | 2 | S | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.06 | 712.8 | 29.92 | 760.0 | 80.6 | 27.0 | 32 | SW | | | 2 | | 6 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.93 | 760.2 | 82.4 | 28.0 | 56 | SE | | | 6 | | 2 | WSW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.03 | 762.7 | 81.9 | 27.7 | 60 | SSW | 4.3 | 1.9 | | | 3 | SW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no d s inction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.8 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 461 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.93 | 760.2 | 68.5 | 20.3 | 77 | S | 4 | 1.8 | | | | | | 0 | 0 | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.3 | 30.05 | 763.2 | 55.4 | 13.0 | 80 | SE | 1.1 | 0.49 | | 10n | 4k | | | 0.118 | 3.0 | Light rain | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.01 | 762.3 | 66.2 | 19.0 | | NE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.97 | 761.2 | 60.6 | 15.9 | | N | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.04 | 762.9 | 59.7 | 15.4 | | NE | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 29.97 | 761.2 | 66.7 | 19.3 | 60 | NNE | | | 4 | | 5 | | | 0.016 | 0.4 | Cloudy | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.97 | 761.2 | 54.3 | 12.4 | 65 | NNW | 16.3 | 7.3 | | | 0 | | | 0 | 0 | | |
| Brono | | | 30.01 | 762.2 | 50.7 | 10.4 | 58 | NNE | 18 | 8 | | | 2 | | | 0 | 0 | | |
| Christiania | | | 29.86 | 758.4 | 63.3 | 17.4 | 57 | N | 0 | 0 | | | 7 | | | 0.004 | 0.1 | | |
| Tromsö | | | 29.95 | 760.6 | 44.2 | 6.8 | 68 | NE | 4 | 2 | | | 10 | | | 0.094 | 2.4 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the cooperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.89 | 759.3 | 63.5 | 17.5 | 71 | N | 11.2 | 5.0 | | | 6 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.86 | 758.4 | 79.0 | 26.1 | 41 | ESE | 4.9 | 2.17 | | | 3 | | | 0 | 0* | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 29.83 | 757.7 | 66.4 | 19.1 | 88 | WSW | 6.9 | 3.1 | | | 10 | | | 1.063 | 27.0 | Heavy rain | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.91 | 759.7 | 66.6 | 19.2 | 68 | SW | 9.8 | 4.4 | | | 4 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.26 | 768.5 | 68.2 | 20.1 | 65 | NNW | 6.3 | 2.8 | | | 4 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funch l to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. W ld, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.69 | 754.0 | 70.7 | 21.5 | 78 | W | 16 | 7 | | | 10 | | | | | Raining | Astronomical Obs. |
| Wilna | | | 29.72 | 754.9 | 56.1 | 13.4 | 94 | NE | 2 | 1 | | | 10 | | | | | Raining | Astronomical Obs. |
| Dorpat | | | 29.70 | 754.4 | 56.1 | 13.4 | 61 | NW | 9 | 4 | | | 10 | | | | | Raining | Physical Cabinet. |
| St. Petersburg | | | 29.63 | 752.5 | 56.3 | 13.5 | 51 | WNW | 18 | 8 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.58 | 751.3 | 48.7 | 9.3 | 100 | NNW | 13 | 6 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.55 | 750.6 | 86.2 | 30.1 | 39 | WSW | 16 | 7 | | | 6 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.87 | 758.8 | 82.8 | 28.2 | 32 | SW | 27 | 12 | | | 0 | | | | | | Kurdakof |
| Kertch | | | 30.07 | 763.7 | 80.8 | 27.1 | 67 | SSE | 11 | 5 | | | 2 | | | | | | Lagorio. |
| Moscow | | | 29.64 | 752.8 | 67.5 | 19.7 | 58 | SW | 7 | 3 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 29.74 | 755.3 | 67.3 | 19.6 | 84 | Calm | 0 | 0 | | | 9 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.51 | 749.6 | 59.2 | 15.1 | 32 | NE | 18 | 8 | | | 8 | | | | | | Ogorodnikof. |
| Tiflis | 28.53 | 724.7 | 29.86 | 758.5 | 86.4 | 30.2 | 31 | ESE | 4 | 2 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.71 | 754.6 | 84.0 | 28.9 | 25 | NW | 16 | 7 | | | 10 | | | | | | Sebastianof. |
| Kasan | | | 29.46 | 748.2 | 66.2 | 19.0 | 58 | WSW | 2 | 1 | | | 8 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.63 | 752.5 | 66.0 | 18.9 | 75 | E | 13 | 6 | | | 5 | | | | | | Tschernischef. |
| Ekaterinburg | 28.47 | 723.2 | 29.38 | 746.3 | 60.8 | 16.0 | 57 | ESE | 2 | 1 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.78 | 756.5 | 85.8 | 29.9 | 30 | NW | 4 | 2 | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.38 | 720.9 | 30.01 | 762.2 | 78.8 | 26.0 | 53 | NNW | 9 | 4 | | | 8 | | | | | | Michelson. |
| Barnaul | | | 29.52 | 749.8 | 77.2 | 25.1 | 57 | SE | 2 | 1 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.43 | 747.4 | 79.0 | 26.1 | 55 | S | 2 | 1 | | | 6 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 68.2 | 20.1 | | N | 2 | 1 | | | 7 | | | | | | Mossin. |
| Peking, (China) | | | 29.74 | 755.5 | 69.2 | 26.8 | 37 | SSW | 13 | 6 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.67 | 753.7 | 52.7 | 11.5 | 98 | Calm | 0 | 0 | | | 10 | | | | | Dense fog | |
| Nikolaievsk, on the Amoor | | | | | 36.9 | 2.7 | 91 | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.79 | 756.6 | 86.5 | 30.3 | 37 | SE | 12.0 | 5.34 | | 2 | 3 | SW | | 0 | 0 | Light clouds | The Staff. |
| San Fernando, Naval Obs'y. | | | 29.91 | 759.7 | 71.6 | 22.0 | 62 | NW | 13.0 | 5.8 | | 0 | 2 | | W | 0 | 0 | | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.01 | 762.3 | 80.2 | 26.8 | 87 | SE | 7.4 | 3.3 | | 7c,cs | 1k | | | 0.067 | 1.7 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.95 | 760.6 | 81.3 | 27.4 | 82 | E | 4.5 | 2.00 | | 3k | 1n | E | E | 0.118 | 3.00 | Clear | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.78 | 756.4 | 56.5 | 13.6 | 46 | NNW | | | 4 | | 5 | | | 0.236 | 6.0 | | |
| Umea | | | 29.80 | 756.9 | 57.9 | 14.4 | 51 | ENE | | | 4 | | 6 | | | 0 | 0 | | |
| Hernosand | | | 29.82 | 757.3 | 54.0 | 12.2 | 54 | N | | | 4 | | 9 | | | 0.047 | 1.2 | Raining | |
| Stockholm | | | 29.78 | 756.5 | 56.8 | 13.8 | 34 | N | | | 6 | | 3 | | | 0 | 0 | | |
| Wisby | | | 29.77 | 756.2 | 50.0 | 10.0 | 89 | NE | | | 6 | | 7 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.80 | 756.9 | 58.6 | 14.8 | 32 | N | 12.3 | 5.5 | | | 0 | | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.54 | 725.0 | 29.88 | 759.0 | 85.8 | 29.9 | 42 | SSW | | | 4 | | 2 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.31 | 719.0 | 29.81 | 757.8 | 88.7 | 31.5 | 46 | W | | | 1 | | 2 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —1.4 mm; Thermometer, +0.4 cent.; Relative Humidity, —14 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.96 | 760.9 | 77.5 | 25.3 | 62 | NE | 7 | 3.5 | | | 0 | | | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 29.99 | 761.8 | 95.0 | 35.0 | | NW | | | 1 | | 0 | | | | | | |
| Salonica | | | 30.02 | 762.6 | 82.9 | 28.3 | | S | | | 1 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.13 | 765.2 | 88.2 | 31.2 | | SW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.92 | 760.0 | 81.0 | 27.2 | 63 | NW | | | 2 | | 1k,s | | NW | 0 | 0 | D. clouds | Pro.. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 30.06 | 763.5 | 60.2 | 15.7 | 76 | SW | 9 | 4.0 | | | 8 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.15 | 765.8 | 69 | 20.6 | | SW | 3 | 1.3 | | 0 | 0 | | | 0.14 | 3.6 | Clear. | W. R. Bigg. |
| *Chatham, N. B. | | | 30.12 | 765.0 | 52 | 11.1 | 93 | W | 6 | 2.7 | | | 10ks | | W | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.18 | 766.6 | 61 | 16.1 | 95 | S | 5 | 2.2 | | | 10ks | | | 0.065 | 1.65 | Light rain | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.09 | 764.3 | 66.8 | 19.3 | 75 | SW | | | 4 | 0 | 0 | | | 0.321 | 8.16 | Bright | James Smith, M. A. |
| Dalhousie, N. B. | | | 30.11 | 764.8 | 52.0 | 11.1 | 86 | E | | | 1 | | | | | 0 | 0 | Threatening | H. A. Johnson. |
| Equimault, B. C. | | | 29.99 | 761.7 | 49.8 | 9.9 | 96 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.02 | 762.5 | 50 | 10.0 | 93 | SW | 9 | 4.0 | | 0 | 2s | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 30.20 | 767.1 | 59.0 | 15.0 | 80 | S | 3 | 1.3 | | | 10s | | | Inap. | Inap. | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.00 | 762.0 | 44 | 6.7 | 76 | NW | 10 | 4.5 | | 2k | 5ks | NW | NW | 0.34 | 8.6 | Clearing | James Stewart. |
| Goderich, Ontario | | | 30.02 | 762.5 | 60.7 | 15.9 | | SW | | | 3 | 6k | 4n | SW | | 0.038 | 0.97 | Unsettled | H. J. Strang, M. A |
| Granton, Ontario | 28.96 | 735.6 | 30.03 | 762.7 | 60 | 15.6 | 88 | S | | | 2 | 2cs | 0 | SE | | 0 | 0 | Clear. | James Grant. |
| *Halifax, N. S. | | | 30.20 | 767.1 | 58 | 14.4 | 97 | W | 5 | 2.2 | | | 8n | | | 0.234 | 5.94 | Light rain | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.12 | 765.0 | 65.2 | 18.4 | 68 | S | | | 2 | 0 | 0 | | | 0 | 0 | Clear. | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 30.30 | 769.6 | 45 | 7.2 | 92 | S | | | 2 | | 10 | | | 0.61 | 15.5 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.19 | 766.8 | 60 | 15.6 | 88 | S | 12 | 5.4 | | 0 | 0 | | | 0.28 | 7.1 | Clear. | S. Woods, M. A |
| *Montreal, Quebec | | | 30.13 | 765.3 | 64 | 17.8 | 73 | S | 8 | 3.6 | | 0 | 0 | | | 0.23 | 5 8 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.05 | 763.3 | 54 | 12.2 | 95 | E | 4 | 1.8 | | | 10n | | S | 0.08 | 2.0 | Light rain. | Rev. R. Mosley |
| Peterboro, Ontario | | | 30.08 | 764.0 | 63.1 | 17.3 | 84 | E | | | 1 | 0 | 0 | | | 0.10 | 2.5 | Bright | J. F. Joffers, B. A. |
| Port Dover, Ontario | | | 30.11 | 764.8 | 59 | 15.0 | 88 | S | 7 | 3 1 | | 0 | 0 | | | 0.04 | 1.0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 30.19 | 766 8 | 50.5 | 10.3 | | S | 2 | 0.9 | | | | | | 0.40 | 10.2 | Raining | Peter Grant |
| Port Stanley, Ontario | | | 30.09 | 764 3 | 62 | 16.7 | 77 | SW | 1 | 0.4 | | 2k | 0 | W | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.12 | 765.0 | 62 | 16.7 | 94 | NE | 13 | 5.8 | | 0 | 2n | | NE | 0 | 0 | Fair | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.06 | 763.5 | 62 | 16.7 | 72 | NE | 4 | 1.8 | | 8cs | 0 | W | | 0.07 | 1.8 | Fair. | W. H. McIntyre. |
| St. John, N. B. | | | 30.23 | 767.8 | 51 | 10.6 | 93 | SE | 2 | 0.9 | | | 10n | | | 0.07 | 1.8 | Cloudy | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.98 | 761.5 | 59 | 15.0 | 82 | Calm | 0 | 0 | | | 10ks | | | 0.08 | 2.0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 30.11 | 764.8 | 63 | 17.2 | 83 | E | 4 | 1.8 | | | 10ks | | W | Inap | Inap. | Cloudy | R. J. Cole. |
| Stratford, Ontario | | | 30.03 | 762.7 | 61.5 | 16.4 | 75 | SW | 9 | 4.0 | | 2c | 6s | W | | 0.019 | 0.48 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B. | 28.78 | 731.0 | 30.19 | 766.8 | 59 | 15.0 | 90 | S | 4 | 1.8 | | | 10n | | | 0.37 | 9.4 | Light rain | T. C. Hill. |
| *Toronto, Ontario | | | 30.12 | 765.0 | 57 | 13.9 | 84 | E | 6 | 2.7 | | 0 | 0 | | | 0.08 | 2.0 | Clear | Magnetic Observatory |
| Windsor, N. S. | | | 30.13 | 765.3 | 60.0 | 15.6 | 97 | NE | 3 | 1.3 | | | 10n | | | 0.26 | 6.6 | Raining | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.06 | 763.5 | 64.2 | 17.9 | 75 | S | 19 | 8.5 | | 6k | 0 | | | 0.10 | 2.5 | Fair | J. Montgomery |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.42 | 772.7 | 45.0 | 7.2 | 76 | SE | | | | | 10n | | | 0.26 | 6.6 | Raining | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Toronto is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.21 | 767.3 | 63 | 17.2 | 83 | S | 4 | 1.8 | | 8cs | 0 | S | | 0 | 0 | Fair. | |
| Alpena, Mich. | | | 29.92 | 760.0 | 52 | 11.1 | 100 | SE | 8 | 3.6 | | | 10n | | SW | 0.39 | 9.9 | Light rain | |
| Atlantic City, N. J. | | | 30.30 | 769.6 | 61 | 16.1 | 94 | Calm | 0 | 0 | | 0 | 5s,fg | | W | 0.02 | 0.5 | Clearing | |
| Augusta, Ga. | | | 30.20 | 767.1 | 69 | 20.6 | 100 | NE | 3 | 1.3 | | | 10n | | NE | 0.54 | 13.7 | Heavy rain | |
| Baltimore, Md. | | | 30.28 | 769.1 | 67 | 19.4 | 79 | SE | 7 | 3.1 | | | 10s | | | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 30.29 | 769.4 | 63 | 17.2 | 91 | Calm | 0 | 0 | | 8ck | 2s | SW | NW | 0.01 | 0.3 | Fair | |
| Bismarck, Dakota | 28.22 | 716.8 | 29.84 | 757.9 | 49 | 9.4 | 93 | N | 8 | 3.6 | | | 10s | | NW | 0.42 | 10.7 | Cloudy | |
| Boston, Mass. | | | 30.25 | 768.3 | 63 | 17.2 | 83 | W | 5 | 2.2 | | 10cs | Haze | SW | | 0.03 | 0.8 | Cloudy | |
| Breckenridge, Minn. | | | 29.86 | 758.4 | 49 | 9.4 | 100 | W | 6 | 2.7 | | | Fog | | | 0.11 | 2.8 | Foggy | |
| Buffalo, N. Y. | | | 30.09 | 764.3 | 65 | 18.3 | 68 | SW | 8 | 3.6 | | 0 | 0 | | | 0.25 | 6.3 | Clear | |
| Burlington, Vt. | | | 30.18 | 766.6 | 69 | 20.6 | 65 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.09 | 764.3 | 70 | 21.1 | 70 | S | 4 | 1.8 | | 1cs | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.33 | 694.2 | 29.91 | 759.7 | 59 | 15.0 | 48 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 70 | 21.1 | | Calm | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.20 | 767.1 | 74 | 23.3 | 85 | E | 3 | 1.3 | | | 10n | | E | 2.41 | 61.2 | Light rain | |
| Cape Henry, Va. | | | 30.28 | 769.1 | 67 | 19.4 | 94 | NW | 6 | 2.7 | | 0 | 8s | | SW | 0.37 | 9.4 | Fair | |
| Cape Lookout, N. C. | | | 30.27 | 768.8 | 71 | 21.7 | 95 | S | 10 | 4.5 | | | 10n | | | 2.87 | 72.9 | Light rain | |
| Cape May, N. J. | | | 30.28 | 769.1 | 66 | 18.9 | 90 | S | 5 | 2.2 | | 8c | 0 | NW | | Inap. | Inap. | Fair | |
| Charleston, S. C. | | | 30.22 | 767.6 | 76 | 24.4 | 95 | E | 13 | 5.8 | | | 10s | | SE | 1.56 | 39.6 | Threatening | |
| Cheyenne, Wyoming | 24.08 | 611.6 | 30.02 | 762.5 | 44 | 6.7 | 100 | SE | 12 | 5.4 | | | Fog | | | 0 | 0 | Foggy | |
| Chicago, Ill. | | | 29.88 | 758.9 | 66 | 18.9 | 64 | SW | 16 | 7.2 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Cincinnati, Ohio | | | 30.06 | 763.5 | 65 | 18.3 | 73 | SE | 4 | 1.8 | | Haze | Haze | | | 0.05 | 1.3 | Clear | |
| Cleveland, Ohio | | | 30.10 | 764.5 | 65 | 18.3 | 63 | SE | 9 | 4.0 | | 0 | 2s | | | 0.02 | 0.5 | Clear | |
| Corsicana, Tex. | | | 30.04 | 763.0 | 65 | 18.3 | 83 | S | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.94 | 760.5 | 60 | 15.6 | 76 | NW | 10 | 4.5 | | 8k | 0 | W | | 0.04 | 1.0 | Cloudy | |
| Denison, Texas | | | 30.03 | 762.7 | 66 | 18.9 | 78 | S | 8 | 3.6 | | 5c | 2s | S | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.83 | 630.7 | 30.05 | 763.3 | 52 | 11.1 | 79 | N | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 30.00 | 762.0 | 62 | 16.7 | 77 | SW | 10 | 4.5 | | | 10s | | SW | 0.07 | 1.8 | Cloudy | |
| Dodge City, Kan. | 27.32 | 693.9 | 29.55 | 750.6 | 57 | 13.9 | 81 | NE | 14 | 6.3 | | 0 | 2s | | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.93 | 760.2 | 56 | 13.3 | 80 | N | 6 | 2.7 | | | 10s | | N | 1.05 | 26.7 | Cloudy | |
| Duluth, Minn. | | | 29.84 | 757.9 | 53 | 11.7 | 79 | SW | 1 | 0.4 | | 5k | 0 | W | | 0.02 | 0.5 | Fair | |
| Eagle Pass, Tex. | | | 30.01 | 762.2 | 63 | 17.2 | 59 | NE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Eastport, Me. | | | 30.20 | 767.1 | 58 | 14.4 | 100 | Calm | 0 | 0 | | | Fog | | | 0 | 0 | Foggy | |
| Erie, Pa. | | | 30.08 | 764.0 | 66 | 18.9 | 68 | S | 10 | 4.5 | | 0 | 0 | | | 0.15 | 3.8 | Clear | |
| Escanaba, Mich. | | | 29.88 | 758.9 | 52 | 11.1 | 73 | N | 6 | 2.7 | | 5k | 2s | N | N | 0.03 | 0.8 | Fair | |
| Florence, Arizona | 28.19 | 716.0 | 29.79 | 756.7 | 83 | 28.5 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.97 | 761.2 | 70 | 21.1 | 75 | S | 9 | 4.0 | | 2c | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.74 | 730.0 | 29.98 | 761.5 | 65 | 18.3 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 30.29 | 769.4 | 47 | 8.3 | 92 | SW | | | 6 | | 10s | | SW | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.77 | 730.7 | 29.85 | 758.2 | 65 | 18.3 | 68 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.30 | 718.8 | 29.95 | 760.7 | 50 | 10.0 | 86 | NW | 8 | 3.6 | | 2ck | 0 | NW | | 0.18 | 4.6 | Fair | |
| Galveston, Tex. | | | 30.05 | 763.3 | 74 | 23.3 | 85 | NE | 4 | 1.8 | | 5cs | 5s | | | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.87 | 758.7 | 59 | 15.0 | 76 | SW | 29 | 13.0 | | | 10s | | SW | 0.09 | 2.3 | Cloudy | |
| Indianapolis, Ind. | | | 30.03 | 762.7 | 66 | 18.9 | 64 | S | 6 | 2.7 | | 8cs | 0 | | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 30.04 | 763.0 | 73 | 22.8 | 76 | N | 6 | 2.7 | | | 10ks | | | 0 | 0 | Cloudy | |
| Jacksonville, Fla. | | | 30.10 | 764.5 | 75 | 23.9 | 90 | E | 12 | 5.4 | | | 10n | | E | 2.25 | 57.1 | Heavy rain | |
| Keokuk, Iowa | | | 29.87 | 758.7 | 64 | 17.8 | 83 | NW | 8 | 3.6 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 30.00 | 762.0 | 80.0 | 26.7 | 82 | SE | 11 | 4.9 | | 5cs | 2ks | SE | SE | 0.01 | 0.3 | Cloudy | |
| Kittyhawk, N. C. | | | 30.31 | 769.9 | 66 | 18.9 | 100 | N | 8 | 3.6 | | | 10n | | W | 2.80 | 71.1 | Light rain | |
| Knoxville, Tenn. | | | 30.22 | 767.6 | 65 | 18.3 | 83 | N | 4 | 1.8 | | 6cs | 0 | SW | | 0 | 0 | Cloudy | |
| LaCrosse, Wis. | | | 29.92 | 760.0 | 53 | 11.7 | 79 | Calm | 0 | 0 | | 5k | 0 | | | 0.14 | 3.6 | Fair | |
| Leavenworth, Kan. | | | 29.94 | 760.5 | 62 | 16.7 | 83 | E | 2 | 0.9 | | Haze | 5k | | | 0.11 | 2.8 | Fair | |
| Louisville, Ky. | | | 30.09 | 764.3 | 67 | 19.4 | 68 | S | 3 | 1.3 | | Haze | Haze | | | 0 | 0 | Hazy | |
| Lynchburg, Va. | | | 30.27 | 768.8 | 68 | 20.0 | 84 | S | 4 | 1.8 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Maricopa Wells, Arizona | | | | | 78 | 25.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | | | | | | | | | | | | | | | | | |
| Mason, Tex. | 28.41 | 721.6 | 30.16 | 766.1 | 57 | 13.9 | 75 | Calm | 0 | 0 | | | 8s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.11 | 764.8 | 70 | 21.1 | 75 | SE | 1 | 0.4 | | 8cs | 0 | | | 0 | 0 | Cloudy | |
| Milwaukee, Wis. | | | 29.88 | 758.9 | 58 | 14.4 | 81 | NW | 7 | 3.1 | | | 9ks | | | 0.70 | 17.8 | Cloudy | |
| Mobile, Ala. | | | 30.07 | 763.8 | 77 | 25.0 | 82 | N | 6 | 2.7 | | 5k | 2s | E | | 0 | 0 | Cloudy | |
| Montgomery, Ala. | | | 30.13 | 765.3 | 72.5 | 22.5 | 85 | E | 9 | 4.0 | | | 10s | | E | 0 | 0 | Threatening | |
| Morgantown, W. Va. | 29.15 | 740.4 | 30.17 | 766.3 | 68 | 20.0 | 69 | Calm | 0 | 0 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 24.04 | 610.6 | 30.40 | 772.1 | 43 | 6.1 | 83 | NW | 20 | 8.9 | | 10s | 5s | NW | NW | 0 | 0 | Cloudy | |
| Nashville, Tenn. | | | 30.14 | 765.5 | 68 | 20.0 | 79 | NE | 3 | 1.3 | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 30.27 | 768.8 | 65 | 18.3 | 78 | W | 5 | 2.2 | | | 10s,fg | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 30.28 | 769.1 | 62 | 16.7 | 88 | W | 1 | 0.4 | | 2cs | 8s,fg | W | W,S | 0.08 | 2.0 | Cloudy | |
| New Orleans, La. | | | 30.02 | 762.5 | 76 | 24.4 | 74 | E | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Newport, R. I. | | | 30.28 | 769.1 | 62 | 16.7 | 88 | SW | 3 | 1.3 | | | 10ks | | SW | 0.08 | 2.0 | Threatening | |
| New York, N. Y. | | | 30.29 | 769.4 | 63 | 17.2 | 88 | SW | 4 | 1.8 | | 0 | 8ks,fg | | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.30 | 769.6 | 70 | 21.1 | 84 | N | 2 | 0.9 | | | 10s | | | 0.36 | 9.1 | Cloudy | |
| North Platte, Neb. | 27.12 | 688.8 | 29.65 | 753.1 | 55 | 12.8 | 87 | NE | 2 | 0.9 | | 5k | 5s | NE | N | 0.04 | 1.0 | Cloudy | |
| Omaha, Neb. | 28.90 | 734.0 | 29.96 | 761.0 | 56 | 13.3 | 87 | S | 3 | 1.3 | | | 10s | | S | 0.73 | 18.5 | Cloudy | |
| Oswego, N. Y. | | | 30.16 | 766.1 | 65 | 18.3 | 80 | S | 5 | 2.2 | | 0 | 0 | | | 0.16 | 4.1 | Clear | |
| Pembina, Dakota | | | 29.97 | 761.2 | 41 | 5.0 | 91 | NW | 13 | 5.8 | | 8k | 0 | NW | | 0.08 | 2.0 | Fair | |
| Philadelphia, Pa. | | | 30.29 | 769.4 | 66 | 18.9 | 84 | NW | 4 | 1.8 | | | 10ks,sn | | W | 0 | 0 | Cloudy | |
| Phœnix, Arizona | | | | | 73 | 22.8 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.88 | 454.1 | 30.09 | 764.3 | 27 | — 2.8 | 64 | W | 30 | 13.4 | | 0 | 2ks | | | 0 | 0 | Clear | |
| Pittsburgh, Pa. | | | 30.16 | 766.1 | 62 | 16.7 | 88 | E | 4 | 1.8 | | 2k | Sm'e | W | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 30.00 | 762.0 | 60 | 15.6 | 76 | S | 11 | 4.9 | | | 10s | | SW | Inap. | Inap. | Cloudy | |
| Portland, Me. | | | 30.21 | 767.3 | 61 | 16.1 | 82 | SW | 2 | 0.9 | | 8k | Fog | | | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.09 | 764.3 | 52 | 11.1 | 86 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.78 | 629.4 | 30.14 | 765.5 | 55 | 12.8 | 38 | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | | | | | | | | | | | | | | | | | |
| Rochester, N. Y. | | | 30.12 | 765.0 | 66 | 18.9 | 63 | SW | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.58 | 649.7 | 29.91 | 759.7 | 64 | 17.8 | 29 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.30 | 769.6 | 62 | 17.2 | 94 | NW | 9 | 4.0 | | | 10s | | NW | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.90 | 759.4 | 68 | 20.0 | 74 | Calm | 0 | 0 | | 10ck | 0 | | | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 29.88 | 758.9 | 67 | 19.4 | 84 | S | 2 | 0.9 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.77 | 756.1 | 57 | 13.9 | 93 | W | 20 | 8.9 | | | Fog | | W | 0 | 0 | Foggy | |
| Santa Fé, New Mexico | 23.28 | 591.3 | 29.82 | 757.4 | 62 | 16.7 | 13 | NE | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.18 | 766.6 | 75 | 23.9 | 95 | SE | 10 | 4.5 | | | 10n | | SE | 3.14 | 79.8 | Light rain | |
| Shreveport, La. | | | 30.15 | 765.8 | 71 | 21.7 | 85 | NE | 3 | 1.3 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.26 | 768.6 | 71 | 21.7 | 95 | E | 12 | 5.4 | | | 10s | | E | 2.19 | 55.6 | Cloudy | |
| Springfield, Mass. | | | 30.26 | 768.6 | 63.5 | 17.5 | 78 | S | 3 | 1.3 | | 5c | 2s | | S | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.01 | 762.2 | 69 | 20.6 | 61 | S | 8 | 3.6 | | 5cs | Sm'e | | | 0 | 0 | Fair | |
| St. Marks, Fla. | | | 30.05 | 763.3 | 77 | 25.0 | 90 | E | 10 | 4.5 | | | 10s | | E | 0 | 0 | Cloudy | |
| St. Paul, Minn. | | | 29.88 | 758.9 | 50 | 10.0 | 93 | Calm | 0 | 0 | | 1c | Fog | | | 0 | 0 | Fair | |
| St. Paul's Island, Alaska | | | | | | | | | | | | | | | | | | | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stanwix, Arizona | | | | | 73 | 22.8 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.94 | 684.3 | 29.94 | 760.5 | 59 | 15.0 | 64 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear. | |
| Thatcher's Island, Mass | | | 30.25 | 768.3 | 59 | 15.0 | 94 | SW | 8 | 3.6 | | 8cs,k | 2s | SW | SW | 0.04 | 1.0 | Cloudy | |
| Toledo, Ohio | | | 30.02 | 762.5 | 66 | 18.9 | 64 | S | 9 | 4.0 | | 5ck | 2ks | SW | SW | 0 | 0 | Fair | |
| Tucson, Arizona | 27.47 | 697.7 | 30.01 | 762.2 | 71 | 21.7 | | S | | | | 0 | 0. | | | 0 | 0 | Clear. | |
| Tybee Island, Ga | | | 30.16 | 766.1 | 75 | 23.9 | 95 | E | 14 | 6.3 | | | 10n | | | 3.09 | 78.5 | Light rain | |
| Vicksburg, Miss | | | 30.11 | 764.8 | 71 | 21.7 | 62 | E | 8 | 3.6 | | 8ck | 0 | W | | 0 | 0 | Fair | |
| Virginia City, Montana | 24.25 | 615.9 | 29.73 | 755.1 | 42 | 5.6 | 74 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.27 | 768.8 | 70 | 21.1 | 82 | SW | 4 | 1.8 | | 2ck | 5ks | S | S | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 79 | 26.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.25 | 768.3 | 72 | 22.2 | 95 | E | 6 | 2.7 | | | 10n | | E | 0.77 | 19.6 | Light rain | |
| Wood's Holl, Mass | | | 30.32 | 770.1 | 61 | 16.1 | 94 | SW | 5 | 2.2 | | | 10s | | SW | 0.17 | 4.3 | Cloudy | |
| Yankton, Dakota | 28.69 | 728 7 | 29.96 | 761.0 | 54 | 12.2 | 83 | SW | 7 | 3.1 | | | 10s | | SW | Inap. | Inap. | Cloudy | |
| Yuma, Arizona | | | 29.72 | 754.9 | 78 | 25.6 | 15 | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.16 | 766.1 | 79 | 26.1 | 86 | Calm | 0 | 0 | | 8c | 2n | | SE | 0.16 | 4.1 | | James Gall. |
| Navassa, W. I | | | 29.98 | 761.5 | 81 | 27.2 | | E | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.02 | 762.5 | 82 | 27.8 | 83 | E | | | 2 | 4c | 5k | E | | 0.040 | 1.02 | Clear | C. J. Hering. |
| Batavia, Dutch Guiana, S. A. | | | | | | | | | | | | | | | | | | Fair | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.24 | 641.1 | | | 69.0 | 20.6 | 76 | Calm | | | 0 | 3c,cs | 2ks | | | 0 | 0 | Clear | Thomas Herran. |
| York Factory, B. A | | | 29.87 | 758.7 | 42 | 5.6 | 96 | N | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.06 | 763.5 | 71 | 21.7 | | NE | | | 3 | | | | | 0 | 0 | | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.09 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.33 | 770.4 | 72 | 22 2 | 68 | 20.0 | 90 | S | | | 2 | | 5 | | SW | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.86 | 758.4 | 64 | 17.8 | 63.5 | 17.6 | | SW | | | 3 | | 0 | | | 0 | 0 | | | Fair | |
| Navy Yard, Pensacola, Fla. | 30.20 | 767.1 | | | 78 | 25.6 | 82 | NE | 15 | 6.7 | | | 6 | | W | 0.05 | 1.3 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.26 | 768.6 | 69 | 20.6 | 64 | 17.8 | 48 | W | | | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.82 | 757.4 | 70.5 | 21.4 | 69 | 20.6 | 75 | SW | | | 5 | | Haze | | | 0 | 0 | | | Clear | |
| Alert, N. 6° 47′ 29″, E. 137° 16′ 12″ | 29.92† | 760.0† | 84 | 28.9 | 83 | 28.3 | 100 | S | | | 1–2 | | 5 | | | | | Long | N | D. clouds | |
| Alliance, Beirut, Syria | 30.06 | 763.5 | 77 | 25.0 | 79 | 26.1 | 91 | NNW | | | 0–1 | | 1 | | | | | Smooth | | Clear | |
| Ashuelot, Amoy, China | 29.85 | 758.2 | 83 | 28.3 | 82 | 27.8 | 91 | SW | | | 5 | | 9 | | SW | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.01 | 763.0 | 54 | 12.2 | 80 | 26.7 | 66 | E | | | 1 | | 10 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.38 | 771.6 | 60 | 15.6 | 64 | 17.8 | 80 | SSW | 6 | 2.7 | | | 8 | | SW | | | | | Hazy | |
| Despatch, The Dardanelles | 30.12 | 765.0 | 72 | 22.2 | 73 | 22.8 | 63 | NE | | | 4 | | 1 | | | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 30.32 | 770.1 | 70 | 21.1 | 70 | 21.1 | 85 | Calm | 0 | 0 | | | 7 | | | 0.3 | 8. | | | D. clouds | |
| Frolic, S. 23° 10′, W. 43° 11′ | 30.11 | 764.8 | 74 | 23.3 | 74 | 23.3 | 90 | S | | | 2 | | 6ck | | | 0 | 0 | Ground | S | D. clouds | |
| ‡Gettysburg, Spezia, Italy | 29.90 | 759.4 | | | 77 | 25.0 | 95 | ESE | | | 2 | | 2 | | | 0 | 0 | | | D. clouds | |
| Hartford, Hampton Roads, Va | 30.40 | 772.1 | 70 | 21.1 | 67 | 19.4 | 100 | NE | 2.4 | 1.1 | | | 5 | | | 0 | 0 | | | Pleasant | |
| Huron, Cartagena, N. G., S. A. | 30.10 | 764.5 | 84 | 28.9 | 86 | 30.0 | 80 | S&E | | | 0–1 | | 4 | | SE | 0 | 0 | Smooth | | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.99 | 761.7 | 73 | 22.8 | 72 | 22.2 | 90 | Calm | | | 0 | | 6 | | | 0 | 0 | | | Hazy | |
| Lackawanna, N 31° 16′, W. 126° 24′ | 30.05 | 763.3 | | | 63 | 17.2 | 78 | NNW | | | 3–4 | | 10 | | N&W | | | Moderate. | NNW | Squally | |
| Marion, N. 39° 56′, E. 23° 24′ | 30.01 | 762.2 | 78 | 25.6 | 78 | 25.6 | 78 | SE | | | 2 | | 2 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.64 | 752.8 | 68 | 20.0 | 68 | 20.0 | 65 | S | | | 2 | | 0 | | | | | | | Clear | |
| Monocacy, Tientsin, China | 29.65 | 753.1 | 73 | 22.8 | 70 | 21.1 | 80 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Blue sky | |
| Monongahela, New London, Conn | 30.34 | 770.6 | 64 | 17.8 | 64 | 17.8 | 83 | Calm | | | 0 | | 8kn | | | Light | Light | | | Misty. | |
| New Hampshire, Port Royal, S. C | 30.42 | 772.7 | | | 75 | 23.9 | 95 | E | 4 | 1.8 | | | 10 | | SE | 1.42 | 36.1 | | | Raining | |
| Omaha, S. 10° 5′, W. 78° 30′ | 30.12 | 765.0 | 71 | 21.7 | 70 | 21.1 | 82 | ESE | 8 | 3.6 | | | 2 | | ESE | 0 | 0 | Moderate. | S&E | Bright | |
| Ossipee, Norfolk, Va | 30.33 | 770.4 | 70 | 21.1 | 70 | 21.1 | 90 | ENE | | | 0–1 | | 10 | | | | | | | D. clouds | |
| Palos, Shanghai, China | 29.87 | 758.7 | 74 | 23.3 | 74 | 23.3 | 90 | SE | | | 2 | | 0 | | | 0 | 0 | | | Clear. | |
| Pensacola, N. 17° 23′, W. 120° 09′ | 30.05 | 763.3 | | | 74 | 23.3 | 72 | WNW | | | 1 | | 8 | | | 0 | 0 | Long | N&W | Pleasant. | |
| Plymouth, N. 19° 13′, W. 94° 38′ | 30.05 | 763.3 | 81 | 27.2 | 78 | 25.6 | 95 | W | | | 4 | | 10 | | N | 0.2 | 5. | Moderate. | S&W | Cloudy | |
| Ranger, Kantara, Egypt | 30.10 | 764 5 | | | 80 | 26.7 | 87 | NNE | | | 2 | | 1 | | | | | | | Clear. | |
| Richmond, Rio de Janeiro, Brazil | 30.18 | 766.6 | 74.0 | 23.3 | 71.0 | 21.7 | 95 | N | | | 1 | | 6 | | N | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.95 | 760.7 | | | 64 | 17.8 | 100 | NW | | | 2 | | 10 | | | | | | | Drizzling | |
| Santee, Annapolis, Md | 30.36 | 771.1 | 72 | 22.2 | 69 | 20.6 | 85 | SW | | | 0–1 | | 8 | | | 0 | 0 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.58 | 776 7 | | | 64 | 17.8 | | SW | | | 0–1 | | 10 | | | Blank | Blank | | | Overcast | |
| St. Louis, League Island, Pa | 30.21 | 767 3 | 69 | 20.6 | 67 | 19.4 | 89 | NW | 2 | 0 9 | | | 10 | | SW | 0 | 0 | | | Overcast | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 80 | 26.7 | 78 | 25.6 | 91 | SSE | | | 1 | | 3k | | S | | | Moderate. | NE | Fair | |
| Tennessee, Yokohama, Japan | 29.88 | 758.9 | 74 | 23.3 | 74 | 23.3 | 81 | SW | | | 4 | | 0 | | | | | Smooth | | Blue sky | |
| Trenton, Gulf of Salonica, Turkey | 30.10† | 764.5† | 77 | 25.0 | 80 | 26.7 | 78 | SE | 3 | 1.3 | | | 3 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.00 | 762 0 | 72 | 22.2 | 75 | 23.9 | 72 | NNE | | | 1 | | 1 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.30 | 769.6 | 63 | 17.2 | 66 | 18.9 | 84 | WSW | 3 | 1.3 | | | 10 | | | 0.01 | 0.3 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.45† | 773.4† | 65 | 18.3 | 71 | 21.7 | | SW | | | 1–2 | | 5 | | SW | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | |
|---|---|
| S. S. Alaska | Capt. Seabury. |
| S. S. China | Capt. Berry. |
| S. S. City of New York | Capt. Cobb. |
| S. S. City of Panama | Capt. Howard. |
| S. S. City of Peking | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | Capt. Dearborn. |
| S. S. City of Tokio | Capt. Maury. |
| S. S. Colima | Capt. Searle. |
| S. S. Costa Rica | Capt. Whitebury. |
| S. S. Dakota | Capt. Morse. |
| S. S. Georgia | Capt. Cavarly. |
| S. S. Grenada | Capt. Connolly. |
| S. S. Wilmington | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | |
|---|---|
| S. S. Britannic | Capt. W. H. Thompson |
| S. S. Germanic | Capt. C. W. Kennedy. |
| S. S. Celtic | Capt. B. Gleadell. |
| S. S. Adriatic | Capt. H. H. Perry. |
| S. S. Baltic | Capt. J. W. Jenning. |
| S. S. Republic | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 30° 58′, W. 140° 46′ | W¾N | | 30.06 | 763.5 | 64 | 17.8 | 83 | E | | | 3 | | Haze | | | Smooth | | Overcast | | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schummacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 48° 54′, W. 20° 25′ | E by N | 10 | 30.01 | 762.2 | 57.9 | 14.4 | | NE | | | 3 | | c | | | Tranq'l | | Blue sky | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 49° 55′, W. 29° 16′ | W ¼ S | 11.5 | 30.11 | 764.8 | 50.0 | 10.0 | | N | | | 6 | | | | | Moderate | | Overcast | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—CONTINUED.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, off Cape Page, Mass | ESE | 2 | 30.21 | 767.3 | 63 | 17.2 | 89 | SW | 6 | 2.7 | | | 10s | | | Smooth | | Overcast | Capt. James Jorgensen. |

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 14, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:40 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:30 P. M. CONSTANTINOPLE mean time
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:40 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.14 | 765.5 | 79.5 | 26.4 | 66 | N | | | 1 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.10 | 764.6 | 85.6 | 29.8 | 46 | SW | | | 1 | | 10 | | | 0.020 | 0.5 | Hidden | Peter. |
| La Calle | | | 29.91 | 759.7 | 77.0 | 25.0 | 83 | NE | | | 3 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 29.97 | 761.1 | 95.0 | 35.0 | | SE | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 29.99 | 761.7 | 84.2 | 29.0 | | E | | | 2 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.97 | 761.3 | 93.2 | 34.0 | | SW | | | 5 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.03 | 762.7 | 83.7 | 28.7 | | N | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.02 | 762.4 | 87.1 | 30.6 | | SSW | | | 5 | | 4 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.05 | 763.2 | 87.8 | 31.0 | 20 | W | | | 7 | | 6 | | | 0 | 0 | Fair | Guyot. |
| Biskra | | | 29.96 | 761.0 | 95.0 | 35.0 | | SE | | | 1 | | 10 | | | 0 | 0 | Hidden | Kunts. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.97 | 761.1 | 69.6 | 20.9 | 65 | NE | | | 5 | | 10 | | | 0.004 | 0.1 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.00 | 762.1 | 59.0 | 15.0 | 54 | WNW | | | 3 | | 8 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.90 | 759.4 | 63.3 | 17.4 | 56 | NW | | | 4 | | 7k,s | | SE | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.79 | 731.3 | 30.02 | 762.4 | 64.2 | 17.9 | 86 | SE | | | 2 | | 10 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.38 | 720.8 | 29.73 | 755.1 | 73.2 | 22.9 | 60 | NW | | | 5 | | 9 | | | 0.150 | 3.80 | | Prof. Reissenberger. |
| Kremsmünster | 28.72 | 729.4 | 30.03 | 762.8 | 63.0 | 17.2 | 55 | E | | | 2 | | 3 | | | 0.236 | 6.0 | | Prof. C. Wagner |
| Lemberg | | | 29.83 | 757.7 | 59.4 | 15.2 | 69 | N | | | 4 | | 9 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 29.60 | 759.4 | 81.0 | 27.2 | 63 | S | | | 1 | | 7nks | | | 0.135 | 3.43 | | I.R.Hydrographic Of ce |
| Szegedin | | | 29.86 | 758.5 | 68.9 | 20.5 | 74 | NW | | | 3 | | 5 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.92 | 760.0 | 81.1 | 27.3 | 65 | W | | | 1 | | 3 | | | 0.543 | 13.8 | | P. Busin. |
| Vienna | | | 30.01 | 762.2 | 68.2 | 20.1 | 42 | NNW | | | 2 | | 4 | | | 0.421 | 10.7 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.00 | 726.4 | 30.07 | 763.7 | 67.6 | 19.8 | 56 | NE | | | 2 | | 1 | | | 0 | 0 | | |
| Brussels | | | 30.07 | 763.8 | 67.3 | 19.6 | 42 | E | | | 3 | 1c | | WSW | | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.07 | 763.8 | 70.9 | 21.6 | 53 | E | | | 2 | | 4 | | | 0 | 0 | | |
| Maeseyck | | | 30.12 | 765.0 | 66.2 | 19.0 | 44 | E | | | 4 | | 0 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. Ed. Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er. 0—10. | Low'r. 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.20 | 767.1 | 57.0 | 13.9 | | SSE | 11 | 4.9 | | | 3 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 30.13 | 765.3 | 65 | 18.3 | | NW | | | 1 | | 5 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.12 | 765.0 | 63.9 | 17.7 | | E | 8 | 3.6 | | | 6 | | | | | Hazy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.13 | 765.3 | 64.0 | 17.8 | | ESE | 14 | 6.3 | | | 9 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.06 | 763.5 | 68.0 | 20.0 | | SE | | | 1 | | 10 | | | | | Overcast | J. Dreyer. |
| Bradford, Yorkshire | | | 30.18 | 766.6 | 61.0 | 16.1 | | NE | | | 2 | | 2 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 82.5 | 28.1 | | NE | | | 1 | | 6 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.13 | 765.3 | 67.9 | 19.9 | | ENE | | | 1 | | 0 | | | | | Blue sky | H. Todd. |
| Cardington | | | 30.14 | 765.5 | 70.4 | 21.3 | | | | | 1 | | 0 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.15 | 765.8 | 61.2 | 16.2 | | E | | | 3 | | 0 | | | | | Blue sky | Capt. Fellowes, R. E. |
| Dartmoor | 28.60 | 726.4 | 30.04 | 763.0 | 64.0 | 17.8 | | E | | | 4 | | 5 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.14 | 765.5 | 62 | 16.7 | | ESE | | | 2 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 30.10 | 764.5 | 60 | 15.6 | | ENE | | | 4 | | 2 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.12 | 765.0 | 68.8 | 20.4 | | S | 3.7 | 1.7 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.03 | 762.7 | 61.7 | 16.5 | | ESE | | | 3 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.97 | 710.4 | 30.20 | 767.1 | 60.3 | 15.7 | | E | | | 2 | | 2 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.00 | 762.0 | 75 | 23.0 | | SW | | | 1 | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.99 | 761.7 | 73 | 22.8 | | E | | | 2 | | 6 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.86 | 758.4 | 80.2 | 26.8 | | SW | | | 6 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 30.12 | 765.0 | 66.8 | 19.3 | | E | | | 2 | | 9 | | | | | Threatening | William Wallace. |
| Great Yarmouth | | | 30.19 | 766.8 | 58 | 14.4 | | E | | | 3 | | 1 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.11 | 764.8 | 66.0 | 18.9 | | E | | | 2 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 29.96 | 761.0 | 61.5 | 16.4 | | ESE | | | 2 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.03 | 762.7 | 66 | 18.9 | | E | | | 6 | | 1ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.08 | 764 0 | 62 | 16.7 | | NNW | | | 2 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.10 | 764.5 | 65.6 | 18.7 | | E | 24 | 10.7 | | | 0 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.12 | 765.0 | 64 | 17.8 | | E | | | 2 | | 10 | | | | | Hazy | George Mitchell. |
| Leicester, Museum | | | 30.13 | 765.3 | 65.0 | 18.3 | | SE | | | 1 | | 1 | | | | | Blue sky | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29 93 | 760.2 | 83.2 | 28.4 | | SE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.14 | 765.5 | 69 | 20.6 | | E | | | 1 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.05 | 763.3 | 79.8 | 26.6 | | NE | | | 1 | | 6 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.15 | 765.8 | 68.8 | 20.4 | | SE | | | 3 | | 1ck | | ESE | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.11 | 764.8 | 64.8 | 18.2 | | E | | | 4 | | 6 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.08 | 764.0 | 68 | 20.0 | | ENE | | | 1 | | 4 | | | | | D. clouds | F. Lucas. |
| Plymouth | | | 30.00 | 762.0 | 67.8 | 19.9 | | E | | | 5 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.04 | 763.0 | 66 | 18.9 | | ESE | | | 4 | | 10 | | | | | Overcast | W. Kennedy. |
| Saint Ann's Head | | | 30.04 | 763.0 | 65 | 18.3 | | ESE | | | 2 | | 2 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.95 | 760 7 | 69.8 | 21.0 | | NE | | | 5 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.19 | 766.8 | 58.4 | 14.7 | | Var. | 10 | 4.5 | | | 4 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.78 | 756.4 | 75 4 | 24.1 | | S | | | 1 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 30.16 | 766.1 | 64.9 | 18.3 | | SE | | | 2 | | 3 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.14 | 765.5 | 74.0 | 23.3 | 56 | Calm | | | 0 | | 1 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.14 | 765.5 | 65.2 | 18.4 | | E | | | 1 | | 5 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.14 | 765.5 | 60 | 15.6 | | Calm | | | 0 | | 10 | | | | | Overcast | John Smith. |
| Stratfield Turgiss | | | 30.08 | 764.0 | 70.5 | 21.4 | | E | | | 2 | | 0 | | | | | Blue sky | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 30.15 | 765.8 | 60 | 15.6 | | Calm | | | 0 | | 4 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.02 | 762.5 | 71 | 21.7 | | E | | | 4 | | 2 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.99 | 761.7 | 65.5 | 18.6 | | ESE | 24 | 10.7 | | | 10 | | | | | Hazy | The Staff. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 61 | 16.1 | | E | | | 3 | | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.88 | 758.9 | 70.3 | 21.3 | 57 | NW | 4 | 1.8 | | 9 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.54 | 750.3 | 50.0 | 10.0 | 86 | S | | | 2 | | 6k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.18 | 766.6 | 60.0 | 15.6 | | E | | | 2 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.01 | 762.2 | 75.8 | 24.3 | 70 | WSW | 9.0 | 4.0 | | 0 | 2 | | W | 0.01 | 0.3 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.17 | 766.3 | 44.0 | 6.7 | 77 | NW | 14 | 6.3 | | | 2 | | | 0.10 | 2.5 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.12 | 765.0 | 60 | 15.6 | | S | | | 3 | 5 | 0 | S | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.17 | 766.3 | 56 | 13.3 | | W | | | 1 | 4 | 7 | S | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | Barometer corrected. Inches | Millimeters | Reduced. Inches | Millimeters | Fahrenheit | Centigrade | Per cent | Wind From— | Miles per hour | Meters per second | Force | Clouds Upper | Lower | Direction Upper | Lower | Sea or swell. Height scale 0–9 | Direction from— | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 47° 35′, W. 38° 5′ | | | 30.00 | 762.0 | 54.0 | 12.2 | | SSW | | | 3 | | 10 | W | S | 10* | NNW | Overcast | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 43° 50′, W. 45° 10′ | | | 30.16 | 766.1 | 58.0 | 14.4 | | W | | | 4 | | 10 | | | 3 | W | Showery | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 15′ | | | 29.99 | 761.7 | 59.9 | 15.5 | | ESE | | | 4 | | 10 | | | 4 | WNW | Hazy | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 39′ 50°, W. 71° 20′ | | | 30.25 | 768.3 | 60.8 | 16.0 | | SSW | | | 3 | | 8 | | | 3 | S | Foggy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 51° 53′, W. 11° 18′ | | | 29.99 | 761.7 | 57 | 13.9 | | SE | | | 6 | | 4 | | | 2 | W | | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.22 | 666.0 | | | 69.8 | 21.0 | 95 | NE | | | 1 | | 1cs | | SW | 0.6 | 15. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.10 | 764.6 | 64.6 | 18.1 | 47 | NNW | | | 4 | | 0 | | | | | | |
| Fanöe | | | 30.12 | 765.0 | 59.5 | 15.3 | 72 | WNW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 29.74 | 755.5 | 38.8 | 3.8 | 77 | NNE | | | 4 | | 0 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.54 | 750.3 | 46.9 | 8.3 | 98 | S | | | 7 | | 10 | | | | | Raining | |
| Thorshavn, (Faröe) | | | 30.15 | 765.7 | 56.7 | 13.7 | 59 | SSW | | | 2 | | 8 | | | | | | |
| Vestervig | | | 30.12 | 765.0 | 57.2 | 14.0 | 80 | W | | | 4 | | 8 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.06 | 763.4 | 75.2 | 24 | 82 | NE | | | 4 | | 8kn | | NE | 0.20 | 5. | Very cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 29.97 | 761.2 | 76.3 | 24.6 | 61 | E | | | 3 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 29.91 | 759.6 | 90.5 | 32.4 | 27 | WSW | | | 1 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.94 | 760.5 | 78.3 | 25.7 | 64 | S | | | 1 | | 10 | | | 0.004 | 0.1 | Covered | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.00 | 762.0 | 74.3 | 23.5 | 62 | E | | | 3 | | 10 | | E | 0 | 0 | Covered | Normal School. |
| Besançon | | | 29.96 | 761.0 | 81.7 | 27.6 | 55 | NW | | | 2 | | 2 | | NW | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg-en-Bresse | | | 30.06 | 763.5 | 85.3 | 29.6 | 51 | W | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 29.91 | 759.8 | 73.4 | 23 | 74 | E | | | 6 | | 2 | | N | 0.16 | 4. | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.84 | 758.0 | 76.1 | 24.5 | 70 | NE | | | 1 | | 1 | | | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 29.87 | 758.6 | 87.8 | 31 | 59 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 29.97 | 761.3 | 71.6 | 22 | 75 | NNE | | | 4 | | 1 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 29.92 | 759.9 | 71.6 | 22 | 83 | N | | | 2 | | 10 | | E | 0.071 | 1.8 | Covered | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.97 | 761.3 | 75.6 | 24.2 | 63 | E | | | 3 | | 8ck | | S | 0 | 0 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.87 | 758.8 | 78.1 | 25.6 | 60 | N | | | 1 | | 8 | | | 0 | 0 | Very cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.00 | 762.0 | 70.5 | 21.4 | 70 | E | | | 2 | | 5 | | E | 0.030 | 0.75 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.00 | 762.0 | 87.6 | 30.9 | 26 | W | | | 2 | | 2 | | W | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.94 | 760.4 | 83.3 | 28.5 | 47 | NW | | | 2 | | 2k | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.88 | 759.0 | 84.6 | 29.2 | 55 | NNE | | | 4 | | 0 | | | 0 | 0 | Clear | Mouillet, Director. |
| Le Mans, Normal School | | | 29.89 | 759.2 | 76.8 | 24.9 | 65 | SE | | | 2 | | 5 | | S | 0.522 | 13.25 | Cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 29.93 | 760.3 | 80.2 | 26.8 | 54 | NW | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 29.93 | 760.3 | 79.9 | 26.6 | 48 | SSE | | | 3 | | 0 | | | 0 | 0 | Clear | T. Carré, Director. |
| Mâcon, Normal School | | | 29.94 | 760.4 | 70.9 | 21.6 | 92 | N | | | 2 | | 5 | | SW | 0 | 0 | Cloudy | M. A. Schuster, Dir. |
| Metz | | | 30.11 | 764.7 | 71.8 | 22.1 | 50 | NE | | | 2 | | 6k | | | 0.020 | 0.5 | | Normal School. |
| Mirecourt | | | 29.99 | 761.7 | 72.1 | 22.3 | 72 | N | | | 2 | | 2 | | SSW | 0.51 | 13. | Slightly cl'dy | Normal School |
| Mismes, Normal School | | | 29.93 | 760.2 | 96.8 | 36 | 44 | S | | | 1 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.90 | 759.4 | 75.6 | 24.2 | 70 | N | | | 6 | | 8 | | NW | 1.18 | 30. | Very cloudy | Normal School. |
| Paris, Observatory | | | 29.97 | 761.3 | 68.0 | 20.0 | 86 | NE | | | 2 | | 10 | | | | | Raining | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.87 | 758.7 | 84.2 | 29.0 | 53 | NE | | | 2 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.99 | 761.8 | 72.3 | 22.4 | 72 | E | | | 2 | | 10 | | | 0 | 0 | Covered | F. Lucard, Director. |
| Tarbes, Normal School | 29.14 | 740.2 | 30.17 | 766.2 | 84.2 | 29 | 58 | NW | | | 1 | | 2 | | W | 0 | 0 | Slightly cl'dy | T. Hugues, Director. |
| Villefranche | | | 29.91 | 759.6 | 85.1 | 29.5 | 74 | ESE | | | 4 | | 5 | | NE | 0 | 0 | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.8 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseille, Observatory | | | 29.90 | 759.5 | 85.8 | 29.9 | 38 | WSW | | | 1–2 | | 1 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Mont-Louis | 24.04 | 633.4 | 30.25 | 768.4 | 71.6 | 22.0 | 45 | SSW | 33.6 | 15.00 | | | 8 | | S | 0.035 | 0.9 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.97 | 761.2 | 67.6 | 19.8 | 90 | NE | | | 2 | | 10 | | | 0.012 | 0.3 | Sprinkling | Marié Davy, Director. |
| Perpignan | | | 29.92 | 759.9 | 78.1 | 25.6 | 60 | SE | 9.3 | 4.17 | | | 5 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.40 | 543.5 | | | 48.2 | 9.0 | | SW | | | 6 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.63 | 574.8 | | | 51.8 | 11.0 | | SW | | | 6–8 | | 10 | | | 0.039 | 1.0 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.97 | 761.3 | 70.0 | 21.1 | 81 | NE | | | 1 | | 10 | | | 0.031 | 0.8 | | E. Renou. |
| Toulouse, Observatory | | | 29.91 | 759.7 | 85.1 | 29.5 | 45 | SSE | | | 3 | | 3 | | | 0 | 0 | | The Staff |
| Tours | | | 29.91 | 759.7 | 81.0 | 27.2 | 62 | ENE | | | 4 | | 5 | | SSW | 0.150 | 3.8 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.00 | 761.9 | 66.6 | 19.2 | 98 | N | | | 2 | | 10 | | | 0.753 | 19.13 | Covered | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.83 | 757.7 | 69.8 | 21.0 | 87 | E | 11.2 | 5.0 | | | 8k | | | 0 | 0 | Cloudy | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.8 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.14 | 765.6 | 66.2 | 19.0 | 48 | NE | | | 5 | | 1 | E | | 0 | 0 | | Prof. T. Hoh |
| Berlin | | | 30.14 | 765.6 | 66.2 | 19.0 | 48 | NE | | | 1 | | 8 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.11 | 764.7 | 63.1 | 17.3 | 37 | N | | | 3 | | 7 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.02 | 762.4 | 70.3 | 21.3 | 61 | NE | | | 1 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.22 | 767.5 | 66.7 | 19.3 | 49 | NE | | | 3 | | 2 | NNE | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.10 | 764.5 | 68.5 | 20.3 | 45 | E | | | 4 | | 2 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.13 | 765.2 | 66.7 | 19.3 | 72 | NE | | | 6 | | 2 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.14 | 765.6 | 70.9 | 21.6 | 33 | NE | | | 2 | | 2 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.60 | 726.5 | 29.98 | 761.5 | 73.4 | 23.0 | 60 | NE | | | 6 | | 2 | NE | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.16 | 766.0 | 66.2 | 19.0 | 54 | E | | | 3 | | 4k | | | 0 | 0 | Fine | Captain F. Hegemann. |
| Kiel | | | 30.14 | 765.5 | 66.0 | 18.9 | 57 | NE | | | 3 | | 3 | | | 0.024 | 0.6 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.98 | 761.4 | 56.8 | 13.8 | 65 | N | | | 5 | | 2 | | | 0.197 | 5.0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.17 | 766.4 | 64.2 | 17.9 | 53 | NNE | | | 1 | | 7 | N | | 0.232 | 5.9 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.93 | 760.3 | 53.8 | 12.1 | 73 | NW | | | 6 | | 1k | | | | | Squally | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.06 | 763.4 | 54.1 | 12.3 | 80 | NNE | | | 4 | | 3 | | | 0.260 | 6.6 | | A. Lothes. |
| Posen | | | 30.07 | 763.8 | 65.3 | 18.5 | 42 | NNW | | | 8 | | 6 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.01 | 762.2 | 72.7 | 22.6 | 65 | NE | | | 1 | | 5 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.00 | 762.0 | 70.7 | 21.3 | 59 | NE | | | 1 | | 6 | E | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.91 | 759.6 | 73.9 | 23.3 | 43 | SE | | | 5 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.56 | 725.4 | 30.02 | 762.6 | 63.7 | 19.6 | 44 | NE | | | 2 | | | | | 0.232 | 5.9 | Raining | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.21 | 767.2 | 63.3 | 17.4 | 70 | W | | | 2 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.87 | 758.8 | 85.3 | 29.6 | | S | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.63 | 752.7 | 29.68 | 753.9 | 87.5 | 30.8 | 67 | SW | 26.0? | 11.6? | | | 1 | | SW | 0 | 0 | D. clouds | |
| Deesa | 29.11 | 739.4 | 29.56 | 750.8 | 105.0 | 40.6 | 29 | W | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.70 | 754.3 | 29.73 | 755.2 | 87.1 | 30.6 | 81 | NW | 23.0 | 10.2 | | | 10 | | N | 0 | 0 | Dust-haze. | |
| Poona | 27.68 | 703.2 | 29.65 | 753.2 | 84.4 | 29.1 | 69 | | | | | | | | | 0.02 | 0.5 | Thunder-storm. | |
| Lahore | 28.86 | 732.9 | | | | | | W | 0.6 | 0.2 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.15 | 689.7 | 29.66 | 753.4 | 78.7 | 25.9 | 80 | SW | 8.0 | 3.5 | | | 4 | | SW | 0 | 0 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.70 | 729.0 | 29.55 | 750.7 | 101.9 | 38.8 | | NW | 3.4 | 1.5 | | | | | | 0 | 0 | Strong wind | |
| Agra | 29.00 | 736.6 | 29.53 | 750.1 | 108.7 | 42.6 | 16 | NW | 3.0 | 1.3 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.62 | 726.9 | 29.61 | 752.1 | 102.7 | 39.3 | 23 | S | 3.8 | 1.6 | | | | | | 0 | 0 | Blue sky | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.21 | 741.8 | 29.56 | 750.8 | 104.7 | 40.4 | 23 | E | 2.9 | 1.2 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.25 | 743.0 | 29.55 | 750.5 | 100.1 | 37.8 | 38 | N | 1.6 | 0.6 | | | | | | 0 | 0 | Blue sky | |
| Patna | 29.43 | 747.5 | 29.60 | 751.9 | 99.0 | 37.2 | 41 | E | 1.9 | 0.8 | | | 2 | | | 0 | 0 | | |
| Hazaribagh | 27.68 | 703.0 | 29.62 | 752.3 | 94.8 | 34.9 | 22 | NW | 7.0 | 3.1 | | | | | | 0 | 0 | Dust-haze | |
| Cuttack | 29.60 | 751.9 | 29.68 | 753.9 | 91.9 | 33.3 | 63 | S | 3.0 | 1.3 | | | 4 | | | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.67 | 753.6 | 29.69 | 754.1 | 89.3 | 31.8 | 68 | SSE | 10.0 | 4.4 | | | 6 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.30 | 744.3 | 29.69 | 754.1 | 82.7 | 28.2 | 70 | | 0.7 | 0.3 | | | 1 | | | 0.19 | 4.8 | D. clouds | |
| Chittagong | 29.67 | 753.7 | 29.76 | 756.0 | 85.1 | 29.5 | 83 | WSW | 5.4 | 2.4 | | | 8 | | | 0 | 0 | | |
| Sibsagar | 29.39 | 746.6 | 29.73 | 755.0 | 83.8 | 28.8 | 83 | WNW | 3.8 | 1.6 | | | 8 | SW | SW | 0.04 | 1.0 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.29 | 718.4 | 29.60 | 751.8 | 98.0 | 36.7 | 15 | W | 6.4 | 2.8 | | | 9 | | | 0 | 0 | Overcast | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.35 | 567.7 | 29.08? | 761.5? | 53.2 | 11.8 | 68 | W | | | 2 | | 4 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22 30 | 566.4 | 29.90 | 759.4 | 50.2 | 10.1 | | W | | | 2 | | 9 | NNW | | 0.406 | 10.3 | | Signora Ernesta Manfredi. |
| Udine | | | 29.87 | 758.7 | 81.7 | 27.6 | 53 | SW | 2.5 | 1.1 | | | 7 | | | 0.122 | 3.1 | | Ab. Dom. Morgini. |
| Padua | | | 29.86 | 758.4 | 81.0 | 27.2 | 57 | SE | 9.8 | 4.4 | | | 7 | SSW | | 0.020 | 0.5 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.86 | 758.5 | 86.0 | 30.0 | 49 | E | 2.5 | 1.1 | | | 6 | E | | 0 | 0 | | Conte Alm. Da Schio |
| Verona | | | 29.86 | 758.5 | 75.0 | 23.9 | 55 | E | | | 2 | | 4 | | | 0.339 | 8.6 | | Dott. B. Bertoncelli. |
| Bergamo | 28.02 | 726.0 | 29.88 | 758.9 | 86.0 | 30.0 | 48 | NE | | | 4 | | 3 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.83 | 757.6 | 82.2 | 27.9 | 48 | S | | | 6 | | 2 | | | 0 | 0 | | Prof. Giuseppe Calza |
| Milan | | | 29.85 | 758.3 | 91.2 | 32.9 | 74 | N | | | 2 | | 1 | WNW | | 0.098 | 2.5 | | Ab. Gio. Capelli. |
| Pavia | | | 29.86 | 758.5 | 87.1 | 30.6 | 43 | W | | | 4 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.87 | 758.7 | 83.5 | 28.6 | 46 | SSE | 1.8 | 0.8 | | | 1 | S | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.04 | 712.3 | 29.87 | 758.6 | 83.5 | 28.6 | 47 | E | | | 4 | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.07? | 761.3? | 76.6 | 24.8 | 70 | ESE | | | 4 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.04 | 760.5 | 78.6 | 25.9 | 69 | SW | 5.6 | 2.5 | | | 1 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.87 | 758.7 | 83.3 | 28.5 | 52 | N | 4.3 | 1.9 | | | 0 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.85 | 758.1 | 89.1 | 31.7 | 46 | NNE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.94 | 760.4 | 85.1 | 29.5 | 40 | NW | | | 2 | | 1 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.94 | 760.4 | 81.5 | 27.5 | 61 | WSW | 6.9 | 3.1 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.75 | 730.3 | 29.91 | 759.7 | 85.8 | 29.9 | 35 | NW | 5.6 | 2.5 | | | 3 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.43 | 722.2 | 29.93 | 760.3 | 80.4 | 26.9 | 57 | SW | | | 4 | | 3 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.91 | 759.7 | 79.3 | 26.3 | 68 | E | 36.0 | 16.1 | | | 1 | W | | 0.126 | 3.2 | | Prof. Luigi Guidi. |
| Ancona | | | 29.88 | 758.9 | 81.3 | 27.4 | 63 | SE | | | 4 | | 5 | W | | 0.016 | 0.4 | | Prof. F. DeBosis. |
| Grosseto | | | 29.97 | 761.1 | 82.8 | 28.2 | 51 | SSW | | | 2 | | 3 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.96 | 760.9 | 84.9 | 29.4 | 33 | SW | 6.3 | 2.8 | | | 2 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 29.97 | 761.1 | 83.5 | 28.6 | 46 | W | | | 4 | | 6 | N | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.92 | 759.9 | 81.3 | 27.4 | 50 | ESE | 3.8 | 1.7 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.93 | 760.2 | 88.9 | 31.6 | 47 | WNW | 8.7 | 3.9 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.92 | 759.9 | 81.3 | 27.4 | 60 | SE | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Rinosto, (Sicily) | | | 29.92 | 761.8? | 80.1 | 26.7 | 60 | S | | | 2 | | 8 | S | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.93 | 760.3 | 79.3 | 26.3 | 68 | NE | 6.3 | 2.8 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.02 | 711.7 | 29.88 | 758.9 | 82.6 | 28.1 | 26 | SW | | | 4 | | 5 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.88 | 758.9 | 84.2 | 29.0 | 52 | SE | | | 4 | | 4 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.01 | 762.2 | 81.9 | 27.7 | 49 | NE | 0 | 0 | | | 5 | W | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.93 | 760.2 | 64.5 | 18.1 | 97 | Calm | 0 | 0 | | | 10n | | | | | | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.07 | 586.0 | 30.04 | 762.9 | 58.5 | 14.7 | 75 | Calm | 0 | 0 | | 3k | 1s | SE | | 0.008 | 0.2 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.13 | 765.2 | 66.9 | 19.4 | | E | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 30.12 | 765.0 | 63.1 | 17.3 | | NNE | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.17 | 766.4 | 60.6 | 15.9 | | NE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.10 | 764.6 | 66.0 | 18.9 | 43 | E | | | 4 | | 2 | | | 0 | 0 | Light cloudy. | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.13 | 765.3 | 54.4 | 15.2 | 56 | NNW | 13.4 | 6.0 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.19 | 766.7 | 50.4 | 10.2 | 62 | NNE | 9 | 4 | | | 3 | | | 0 | 0 | | |
| Christiania | | | 30.05 | 763.2 | 64.8 | 18.2 | 58 | E | 4 | 2 | | | 10 | | | 0 | 0 | | |
| Tromsö | | | 30.12 | 765.0 | 46.0 | 7.8 | 71 | NE | 4 | 2 | | | 5 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 29.92 | 760.0 | 63.5 | 17.5 | 65 | N | 9.4 | 4.2 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.83 | 757.7 | 78.3 | 25.7 | 37 | SW | 9.2 | 4.11 | | | 6 | SE | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 29.80 | 757.0 | 67.3 | 19.6 | 64 | SW | 9.8 | 4.4 | | | 10 | | | 0.906 | 23.0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.85 | 758.1 | 71.1 | 21.7 | 61 | SSW | 16.1 | 7.2 | | | 9 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.22 | 767.5 | 63.9 | 17.7 | 62 | N | 7.4 | 3.3 | | | 4 | | | 0.028 | 0.7 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.96 | 761.0 | 56.7 | 13.7 | 53 | NW | 20 | 9 | | | 9 | | | | | | Astronomical Obs. |
| Wilna | | | 29.77 | 756.2 | 58.6 | 14.8 | 63 | NNE | 9 | 4 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.82 | 757.4 | 57.6 | 14.2 | 46 | NNE | 9 | 4 | | | 9 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.79 | 756.7 | 54.3 | 12.4 | 46 | NNE | 13 | 6 | | | 1 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.84 | 757.9 | 55.4 | 13.0 | 55 | N | 13 | 6 | | | 8 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 29.52 | 749.9 | 67.5 | 19.7 | 46 | NW | 22 | 10 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.67 | 753.5 | 82.0 | 27.8 | 58 | SSW | 49 | 22 | | | 0 | | | | | | Kurdakof. |
| Kertch | | | 29.78 | 756.5 | 76.6 | 24.8 | 72 | SSE | 11 | 5 | | | 3 | | | | | | Lagorio. |
| Moscow | | | 29.51 | 749.6 | 60.1 | 15.6 | 52 | NNW | 11 | 5 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 29.54 | 750.3 | 82.8 | 28.2 | 30 | WSW | 18 | 8 | | | 0 | | | | | | Meteorological Obs. |
| Archangel | | | 29.69 | 754.2 | 44.1 | 6.7 | 64 | NNW | 34 | 15 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.53 | 724.7 | 29.87 | 758.6 | 84.7 | 29.3 | 30 | SE | 4 | 2 | | | 10 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.80 | 756.9 | 84.7 | 29.3 | 46 | S | 11 | 5 | | | 0 | | | | | | Sebastianof. |
| Kasan | | | 29.43 | 747.6 | 65.7 | 18.7 | 56 | SSW | 11 | 5 | | | 10 | | | | | Light rain | Physical Cabinet. |
| Orenburg | | | 29.67 | 753.5 | 70.7 | 21.5 | 85 | NE | 13 | 6 | | | 2 | | | | | | Tschernischei. |
| Ekaterinburg | 28.63 | 727.2 | 29.53 | 750.1 | 69.8 | 21.0 | 33 | W | 9 | 4 | | | 8 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.93 | 760.3 | 80.6 | 27.0 | 42 | NNW | 7 | 3 | | | 6 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.35 | 720.1 | 29.97 | 761.3 | 79.7 | 26.5 | 62 | Calm | 0 | 0 | | | 3 | | | | | | Michelson. |
| Barnaul | | | 29.72 | 754.9 | 76.6 | 24.8 | 51 | Calm | 0 | 0 | | | 1 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.57 | 751.0 | 67.6 | 19.8 | 78 | SW | 4 | 2 | | | 9 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 57.0 | 13.9 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.70 | 754.4 | 83.8 | 28.8 | 46 | Calm | 0 | 0 | | | 8 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.80 | 756.8 | 61.9 | 16.6 | 65 | Calm | 0 | 0 | | | 0 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.71 | 754.7 | 88.0 | 31.1 | 29 | NE | 6.0 | 2.67 | | 0 | 1 | | | 0 | 0 | Clouds | The Staff. |
| San Fernando, Naval Obs'y. | | | 29.95 | 760.7 | 74.5 | 23.6 | 59 | SW | 10.1 | 4.5 | | 0 | 5 | | SW | 0 | 0 | | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.01 | 762.2 | 79.2 | 26.2 | 82 | ESE | 13.2 | 5.9 | | 3c | 0 | | | 0.583 | 14.8 | | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.94 | 760.5 | 74.8 | 23.8 | 95 | SE | 0 | 0 | | 8n | 2n | | | 0.118 | 3.00 | Raining | Leonardo de Tejoda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.01 | 762.3 | 54.0 | 12.2 | 45 | N | | | 4 | | 2 | | | 0 | 0 | | |
| Umea | | | 30.06 | 763.4 | 53.6 | 12.0 | 43 | S | | | 2 | | 5 | | | 0 | 0 | | |
| Hernosand | | | 30.06 | 763.4 | 50.5 | 10.4 | 76 | E | | | 2 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 30.00 | 761.9 | 61.3 | 16.3 | 54 | NE | | | 2 | | 8 | | | 0 | 0 | | |
| Wisby | | | 30.01 | 762.3 | 54.3 | 12.4 | 70 | NW | | | 4 | | 3 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.98 | 761.4 | 61.5 | 16.4 | 44 | N | 5.4 | 2.4 | | | 10 | | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.55 | 725.2 | 29.01 | 759.8 | 77.4 | 25.2 | 46 | N | | | 2 | | 6c | | | 0 | 0 | Solar halo | The Observatory. |
| Zurich | 28.39 | 721.2 | 29.05 | 760.8 | 78.1 | 25.6 | 62 | NW | | | 1 | | 4 | | | 0 | 0 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —1.3 mm; Thermometer, +4.6 cent.; Relative Humidity, —10 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.85 | 758.2 | 77.7 | 25.4 | 50 | SE | 2 | 1.0 | | | 0 | | | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 30.04 | 762.9 | 86.0 | 30.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.90 | 759.4 | 92.5 | 33.6 | | SE | | | 2 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.05 | 763.2 | 86.7 | 30.4 | | SW | | | 1 | | 0 | | | 0 | 0 | Clear | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.93 | 760.1 | 81.5 | 27.5 | 64 | WNW | | | 1 | | 1k,ks | | NW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.88 | 758.9 | 62.9 | 17.2 | 82 | SW | 20 | 8.9 | | | 10 | | | | | | Hon. J. Ferguson |
| Brockville, Ontario | | | 30.00 | 763.5 | 68 | 20.0 | | Calm | 0 | 0 | | 0 | 2s | | SW | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B | | | 29.94 | 760.5 | 62 | 16.7 | 85 | SW | 7 | 3.1 | | 2k | 8ks | W | W | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.08 | 764.0 | 64 | 17.8 | 81 | SW | 10 | 4.5 | | 0 | 0 | | | 0.065 | 1.65 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.03 | 762.7 | 63.5 | 17.5 | 70 | SW | | | 3 | 0 | 2s | | | 0.065 | 1.65 | Bright | James Smith, M. A. |
| Dalhousie, N. B | | | 29.81 | 757.2 | 60.6 | 15.9 | 82 | W | | | 1 | | | | | 0 | 0 | Overcast | H. A. Johnson. |
| Esquimault, B. C | | | 30.08 | 764.0 | 46.3 | 7.9 | 92 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.83 | 757.7 | 53 | 11.7 | 97 | SW | 4 | 1.8 | | 2c | 2s | W | W | Inap. | Inap. | Fair | J. McWilliams. |
| Fredericton, N. B | | | 30.04 | 763.0 | 64.8 | 18.2 | 74 | SE | 4 | 1.8 | | 9ck | 0 | W | | Inap. | Inap. | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.94 | 760.5 | 44 | 6.7 | 92 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | James Stewart. |
| Goderich, Ontario | | | 30.12 | 765.0 | 61.7 | 16.5 | | Calm | | | 0 | 2c | 1s | W | | 0 | 0 | Fair | H. J. Strang, M. A. |
| Granton, Ontario | 29.02 | 737.1 | 30.09 | 764.3 | 62 | 16.7 | 88 | W | | | 1 | 1ck | 0 | E | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S | | | 30.11 | 764.8 | 58 | 14.4 | 96 | W | 7 | 3.1 | | | 8n | | | 0.163 | 4.14 | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.13 | 765.3 | 63.2 | 17.3 | 75 | SW | | | 1 | 6ck | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 30.08 | 764.0 | 50 | 10.0 | 85 | S | | | 2 | | 10 | | | 0.20 | 6.6 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.14 | 765.5 | 64 | 17.8 | 73 | NW | 5 | 2.2 | | 10k | 0 | SW | | 0.09 | 2.3 | Cloudy | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.02 | 762.5 | 64 | 17.8 | 71 | W | 9 | 4.0 | | 0 | Haze | | W | 0.03 | 0.8 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.13 | 765.3 | 52 | 11.1 | 100 | E | 2 | 0.9 | | 0 | 0 | | | 0.08 | 2.0 | Clear | Rev. R. Mosley |
| Peterboro, Ontario | | | 30.32 | 770.1 | 65.1 | 18.4 | 60 | E | | | 1 | 0 | 0 | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.11 | 764.8 | 59 | 15.0 | 100 | S | 5 | 2.2 | | | Fog | | S | 0.45 | 11.4 | Foggy | H. Morgan. |
| Port Hastings, N. S | | | 30.03 | 762.7 | 67.5 | 19.7 | | Calm | 0 | 0 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.11 | 764.8 | 61 | 16.1 | 94 | W | 1 | 0.4 | | | 10 | | W | 0.23 | 5.8 | Threatening | M. Payne. |
| *Quebec, Quebec | | | 29.92 | 760.0 | 59 | 20.6 | 95 | SW | 16 | 7.2 | | 2ks | 2n | SW | SW | 0.02 | 0.5 | Fair | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.11 | 764.8 | 57 | 13.9 | 82 | NW | 6 | 2.7 | | 0 | 5s | | W | 0.15 | 3.8 | Fair | W. H. McIntyre. |
| St. John, N. B | | | 30.13 | 765.3 | 50 | 10.0 | 96 | S | 7 | 3.1 | | | Fog | | | 0.01 | 0.3 | Cloudy | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 30.09 | 764.3 | 57 | 13.9 | 84 | Calm | 0 | 0 | | 2cs | 0 | | | 0.04 | 1.0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 30.08 | 764.0 | 61 | 16.1 | 79 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | R. J. Cole. |
| Stratford, Ontario | | | 30.07 | 763.8 | 61.2 | 16.2 | 89 | W | 3 | 1.3 | | 2cs | 3s | W | | 0.089 | 2.26 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B | 28 85 | 732.0 | 30.06 | 763.5 | 71 | 21.7 | 76 | SW | 9 | 4.0 | | 0 | 0 | | | 0.36 | 9.1 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.13 | 765 3 | 63 | 17.2 | 71 | E | 2 | 0.9 | | 2cs | 0 | SW | | 0.03 | 0.8 | Clear | Magnetic Observatory |
| Windsor, N. S | | | 30.03 | 762.7 | 65.0 | 18.3 | 84 | SW | 15 | 6.7 | | 0 | 2k | | | 1.24 | 31.5 | Clear | Prof. John E. Orani. |
| Woodstock, Ontario | | | 30.10 | 764.5 | 64.8 | 18.2 | 89 | S | 2 | 0.9 | | 9ck | 0 | | | 0 | 0 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.12 | 765.0 | 62.0 | 16.7 | 72 | W | | | | 0 | 0 | | | 0.10 | 2.5 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 10; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the SECRETARY OF WAR.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.10 | 764.5 | 73 | 22.8 | 71 | S | 4 | 1.8 | | 1c | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich. | | | 30.09 | 764.3 | 56 | 13.3 | 74 | S | 8 | 3.6 | | 0 | 0 | | | 0.10 | 2.5 | Clear | |
| Atlantic City, N. J. | | | 30.23 | 767.8 | 65 | 18.3 | 94 | SW | 4 | 1.8 | | | 10s | | W | 0 | 0 | Cloudy | |
| Augusta, Ga. | | | 30.22 | 767.6 | 73 | 22.8 | 95 | SE | 3 | 1.3 | | | 10s | | SE | 0.93 | 23.6 | Threatening | |
| Baltimore, Md. | | | 30.21 | 767.3 | 72 | 22.2 | 85 | SW | 12 | 5.4 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 30.21 | 767.3 | 71 | 21.7 | 90 | SW | 9 | 4.0 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Bismarck, Dakota | 28.16 | 715.3 | 29.79 | 756.7 | 50 | 10.0 | 100 | E | 4 | 1.8 | | | 10n | | | 0.17 | 4.3 | Light rain | |
| Boston, Mass. | | | 30.11 | 764.8 | 72 | 22.2 | 75 | SW | 15 | 6.7 | | 1k | 0 | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 29.92 | 760.0 | 49 | 9.4 | 93 | SE | 12 | 5.4 | | | 10n | | SW | 0.01 | 0.3 | Light rain | |
| Brownsville, Texas | | | 29.94 | 760.5 | 67 | 19.4 | 94 | Calm | 0 | 0 | | | 10s | | N | 0.25 | 6.3 | Cloudy | |
| Buffalo, N. Y. | | | 30.07 | 763.8 | 63 | 17.2 | 83 | W | 2 | 0.9 | | 2c | 5k | W | W | 0.97 | 24.6 | Fair | |
| Burlington, Vt. | | | 30.05 | 763.3 | 66 | 18.9 | 94 | W | 6 | 2.7 | | | 10n | | W | 0.35 | 8.9 | Heavy rain | |
| Cairo, Ill. | | | 30.08 | 764.0 | 72 | 22.2 | 80 | E | 1 | 0.4 | | 5cs | 5s | | | 0 | 0 | Cloudy | |
| Campo, Cal. | 27.28 | 692.9 | 29.85 | 758.2 | 54 | 12.2 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 70 | 21.1 | | Calm | | | | Haze | Haze | | | 0 | 0 | Hazy | |
| Cape Hatteras, N. C. | | | 30.21 | 767.3 | 76 | 24.4 | 81 | SE | 6 | 2.7 | | 10k | 0 | SW | | 0.04 | 1.0 | Cloudy | |
| Cape Henry, Va. | | | 30.25 | 768.3 | 73 | 22.8 | 85 | SW | 6 | 2.7 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Cape Lookout, N. C. | | | 30.27 | 768.8 | 75 | 23.9 | 90 | Calm | 0 | 0 | | 5ck | 2s | | | 0.04 | 1.0 | Fair | |
| Cape May, N. J. | | | 30.23 | 767.8 | 67 | 19.4 | 84 | S | 8 | 3.6 | | | 8s | | SW | 0 | 0 | Cloudy | |
| Charleston, S. C. | | | 30.22 | 767.6 | 77 | 25.0 | 82 | E | 8 | 3.6 | | | 10s | | SE | Inap. | Inap. | Cloudy | |
| Cheyenne, Wyoming | 23.88 | 606.5 | 29.82 | 757.4 | 48 | 8.9 | 77 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 30.03 | 762.7 | 60 | 15.6 | 82 | N | 4 | 1.8 | | | 10s | | | 0.07 | 1.8 | Cloudy | |
| Cincinnati, Ohio | | | 30.08 | 764.0 | 69 | 20.6 | 70 | SE | 3 | 1.3 | | 0 | 5ks,fg | | W,SE | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 30.13 | 765.3 | 67 | 19.4 | 84 | S | 2 | 0.9 | | | 10s | | SW | 0.08 | 2.0 | Cloudy | |
| Corsicana, Tex. | | | 29.95 | 760.7 | 71 | 21.7 | 85 | NE | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.06 | 763.5 | 61 | 16.1 | 82 | NE | 6 | 2.7 | | 1c | 0 | W | | 0.41 | 10.4 | Clear | |
| Denison, Texas | | | 29.98 | 761.5 | 70 | 21.1 | 84 | SE | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.65 | 626.1 | 29.87 | 758.7 | 53 | 11.7 | 79 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.09 | 764.3 | 58 | 14.4 | 87 | N | 1 | 0.4 | | | 10n | | | 0.43 | 10.9 | Light rain | |
| Dodge City, Kan. | 27.32 | 693.9 | 29.52 | 749.8 | 65 | 18.3 | 58 | SE | 9 | 4.0 | | 2k | 0 | SW | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 30.04 | 763.0 | 60 | 15.6 | 88 | SW | 3 | 1.3 | | 5cs | 0 | S | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.03 | 762.7 | 51 | 10.6 | 65 | S | 4 | 1.8 | | 0 | 0 | | | 0.13 | 3.3 | Clear | |
| Eagle Pass, Tex. | | | 29.92 | 760.0 | 65 | 18.3 | 73 | NE | 12 | 5.4 | | 10ck | 5ks | | | 0 | 0 | Cloudy | |
| Eastport, Me. | | | 30.05 | 763.3 | 54 | 12.2 | 100 | SW | 12 | 5.4 | | | Fog | | S | 0 | 0 | Foggy | |
| Erie, Pa. | | | 30.08 | 764.0 | 69 | 20.6 | 84 | SW | 7 | 3.1 | | | 10n | | SW | 0.12 | 3.0 | Light rain | |
| Escanaba, Mich. | | | 30.01 | 762.2 | 58 | 14.4 | 76 | S | 3 | 1.3 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Florence, Arizona | 28.18 | 715.8 | 29.78 | 756.4 | 83 | 28.3 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.95 | 760.7 | 71 | 21.7 | 80 | SE | 5 | 2.2 | | 5cs | 0 | SW | | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.71 | 729.2 | 29.95 | 760.7 | 63 | 17.2 | 83 | Calm | 0 | 0 | | 10c | 0 | S | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 30.19 | 765.8 | 42 | 5.6 | 100 | W | | | 4 | | Fog | | W | 0 | 0 | Foggy | |
| Fort Sill, Indian Ter. | 28.76 | 730.5 | 29.83 | 757.7 | 70 | 21.1 | 60 | SW | 4 | 1.8 | | 5c | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.04 | 712.2 | 29.64 | 752.8 | 58 | 14.4 | 81 | SE | 13 | 5.8 | | 0 | 10s | | SE | 0 | 0 | Fair | |
| Galveston, Tex. | | | 29.93 | 760.2 | 77 | 25.0 | 86 | NE | 8 | 3.6 | | 10ck | 0 | SW | | 0.01 | 0.3 | Cloudy | |
| Grand Haven, Mich. | | | 30.00 | 764.3 | 61 | 16.1 | 82 | Calm | 0 | 0 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.07 | 763.8 | 72 | 22.2 | 75 | S | 3 | 1.3 | | 8cs | 0 | W | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 29.92 | 760.0 | 72 | 22.2 | 90 | N | 12 | 5.4 | | 5ck | 5ks | W | SE | 0.17 | 4.3 | Cloudy | |
| Jacksonville, Fla. | | | 30.16 | 766.1 | 78 | 25.6 | 82 | E | 6 | 2.7 | | 5cs | 0 | | | 1.02 | 25.9 | Fair | |
| Keokuk, Iowa | | | 29.92 | 760.0 | 67 | 19.4 | 74 | NE | 3 | 1.3 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Key West, Fla. | | | 30.01 | 762.2 | 80.0 | 26.7 | 72 | E | 16 | 7.2 | | 8cs | 2ks | E | E | 0.04 | 1.0 | Cloudy | |
| Kittyhawk, N. C. | | | 30.27 | 768.8 | 71 | 21.7 | 100 | SE | 6 | 2.7 | | 10cs | 0 | W | | Inap. | Inap. | Cloudy | |
| Knoxville, Tenn. | | | 30.16 | 766.1 | 69 | 20.6 | 79 | NW | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| LaCrosse, Wis. | | | 30.00 | 762.0 | 60 | 15.6 | 82 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.92 | 760.0 | 69 | 20.6 | 79 | SE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Louisville, Ky. | | | 30.10 | 764.5 | 74 | 23.3 | 71 | SW | 1 | 0.4 | | 8c | Sm'e | SW | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.22 | 767.6 | 73 | 22.8 | 76 | SW | 2 | 0.9 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 80 | 26.7 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | | | | | | | | | | | | | | | | | |
| Mason, Tex. | 28.35 | 720.1 | 30.07 | 763.8 | 65 | 18.3 | 78 | SE | 4 | 1.8 | | | 10n | | | Inap. | Inap. | Rainy | |
| Memphis, Tenn. | | | 30.06 | 763.5 | 75 | 23.9 | 76 | E | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Milwaukee, Wis. | | | 30.08 | 764.0 | 62 | 16.7 | 77 | SW | 3 | 1.3 | | 2ck | 0 | W | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 29.98 | 761.5 | 77 | 25.0 | 95 | SE | 4 | 1.8 | | | 10n | | | 1.98 | 50.3 | Light rain | |
| Montgomery, Ala. | | | 30.07 | 763.8 | 75 | 23.9 | 90 | E | 7 | 3.1 | | | 10s | | E | 0.11 | 2.8 | Threatening | |
| Morgantown, W. Va. | 29.13 | 739.9 | 30.15 | 765.8 | 71 | 21.7 | 75 | Calm | 0 | 0 | | 10c | 0 | SW | | 0 | 0 | Cloudy | |
| Mt. Washington, N. H. | 23.89 | 606.8 | 30.25 | 768.3 | 47 | 8.3 | 100 | NW | 50 | 22.4 | | | Fog | | | 0.09 | 2.3 | Foggy | |
| Nashville, Tenn. | | | 30.11 | 764.8 | 74 | 23.3 | 76 | E | 5 | 2.2 | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 30.19 | 766.8 | 67 | 19.4 | 84 | SW | 8 | 3.6 | | | 10s,fg | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 30.20 | 767.1 | 69 | 20.6 | 84 | SW | 11 | 4.9 | | 4c,k | 0 | NE,SW | | 0 | 0 | Fair | |
| New Orleans, La. | | | 29.90 | 759.4 | 77 | 25.0 | 93 | NE | 4 | 1.8 | | | 10s | | | 0.07 | 1.8 | Threatening | |
| Newport, R. I. | | | 30.19 | 766.8 | 60 | 15.6 | 100 | S | 5 | 2.2 | | | Fog | | SW | 0 | 0 | Foggy | |
| New York, N. Y. | | | 30.20 | 767.1 | 68 | 20.0 | 84 | SW | 7 | 3.1 | | | 10ks | | | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 30.26 | 768.6 | 73 | 22.8 | 95 | SW | 3 | 1.3 | | | 10n | | S | 0.08 | 2.0 | Light rain | |
| North Platte, Neb. | 26.90 | 683.2 | 29.37 | 746.0 | 58 | 14.4 | 90 | SE | 12 | 5.4 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.80 | 731.5 | 29.84 | 757.9 | 62 | 16.7 | 77 | SE | 8 | 3.6 | | 2c | 0 | W | | 0.03 | 0.8 | Clear | |
| Oswego, N. Y. | | | 30.13 | 765.3 | 60 | 15.6 | 85 | W | 5 | 2.2 | | | 10s | | W | 0.04 | 10.3 | Cloudy | |
| Pembina, Dakota | | | 29.94 | 760.5 | 46 | 7.8 | 85 | S | 6 | 2.7 | | 5c | 0 | | | 0 | 0 | Fair | |
| Philadelphia, Pa. | | | 30.21 | 767.3 | 71 | 21.7 | 85 | W | 11 | 4.9 | | 2k | 5ks | W | W | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 73 | 22.8 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.85 | 453.4 | 30.06 | 763.5 | 30 | — 1.1 | 48 | W | 37 | 16.5 | | 1k | 0 | SW | | 0 | 0 | Clear | |
| Pittsburgh, Pa. | | | 30.11 | 764.8 | 71 | 21.7 | 66 | SW | 5 | 2.2 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 30.12 | 765.0 | 60 | 15.6 | 82 | SW | 4 | 1.8 | | | 10n | | SW | 0.04 | 1.0 | Light rain | |
| Portland, Me. | | | 30.05 | 763.3 | 71 | 21.7 | 75 | SW | 11 | 4.9 | | 2k | Haze | W | | 0 | 0 | Fair | |
| Portland, Oregon | | | 30.11 | 764.8 | 49 | 9.4 | 85 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.73 | 628.1 | 30.09 | 764.3 | 58 | 14.4 | 23 | Calm | | | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | | | | | | | | | | | | | | | | | |
| Rochester, N. Y. | | | 30.09 | 764.3 | 66 | 18.9 | 84 | N | 6 | 2.7 | | 8k | 0 | W | | 0.36 | 9.1 | Fair | |
| Salt Lake City, Utah | 26.42 | 645.7 | 29.75 | 755.6 | 66 | 18.9 | 27 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.22 | 767.6 | 70 | 21.1 | 84 | SW | 12 | 5.4 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.83 | 757.7 | 64 | 17.8 | 100 | N | 4 | 1.8 | | | 10n | | | 0.98 | 24.9 | Light rain | |
| San Diego, Cal. | | | 29.90 | 759.4 | 63 | 17.2 | 83 | N | 4 | 1.8 | | | 10s | | N | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.80 | 756.9 | 56 | 13.3 | 87 | W | 4 | 1.8 | | 0 | 2s | | W | 0 | 0 | Clear | |
| Santa Fé, New Mexico | 23.23 | 590.0 | 29.77 | 756.1 | 62.5 | 16.9 | 16 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.20 | 767.1 | 76 | 24.4 | 86 | SE | 6 | 2.7 | | | 10s | | S | 0.01 | 0.3 | Cloudy | |
| Shreveport, La. | | | 30.05 | 763.3 | 74 | 23.3 | 81 | NE | 3 | 1.3 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.27 | 768.8 | 76 | 24.4 | 81 | E | 4 | 1.8 | | | 10s | | E | 0.30 | 7.6 | Cloudy | |
| Springfield, Mass. | | | 30.15 | 765.8 | 71 | 21.7 | 75 | S | 7 | 3.1 | | 8k | 0 | S | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.05 | 763.3 | 72 | 22.2 | 71 | S | 6 | 2.7 | | 1c | 2s | | | 0 | 0 | Fair | |
| St. Marks, Fla. | | | 30.09 | 764.3 | 75 | 23.9 | 90 | SE | 12 | 5.4 | | | 10s | | SE | 2.07 | 52.6 | Cloudy | |
| St. Paul, Minn. | | | 29.97 | 761.2 | 56 | 13.3 | 62 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stanwix, Arizona | | | 29.84 | 757.9 | 72 | 22.2 | | S | 10 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.84 | 681.7 | 30.13 | 765.3 | 61 | 16.1 | 82 | SW | 12 | 5.4 | | 2c | 0 | W | | 0 | 0 | Hazy | |
| Thatcher's Island, Mass | | | 30.11 | 764.8 | 59 | 15.0 | 94 | E | 6 | 2.7 | | 0 | 8ks | | W | 0.04 | 1.0 | Clearing | |
| Toledo, Ohio | | | 30.11 | 764.8 | 64 | 17.8 | 83 | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.46 | 697.5 | 30.06 | 762.0 | 69 | 20.6 | | E | 16 | 7.2 | | | 10s | | SE | 0.10 | 2.5 | Cloudy | |
| Tybee Island, Ga | | | 30.10 | 766.8 | 76 | 24.4 | 90 | E | 5 | 2.2 | | | 10s | | E | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 30.00 | 762.0 | 74 | 23.3 | 85 | E | 12 | 5.4 | | 8c,k | 0 | SW | | 0 | 0 | Fair | |
| Virginia City, Montana | 24.16 | 613.6 | 29.64 | 752.8 | 39 | 3.9 | 81 | SW | 12 | 5.4 | | | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.22 | 767.6 | 74 | 23.3 | 85 | SW | 12 | 5.4 | | | 10s | | | 0.18 | 4.6 | Cloudy | |
| Wickenburg, Arizona | | | | | 80 | 26.7 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.26 | 768.6 | 75 | 23.9 | 85 | SE | 3 | 1.3 | | | 10s | | SW | 0 | 0 | Foggy | |
| Wood's Holl, Mass | | | 30.22 | 767.6 | 62 | 16.7 | 94 | SW | 11 | 4.9 | | | Fog | | | 0 | 0 | Fair | |
| Yankton, Dakota | 28.60 | 726.4 | 29.85 | 758.2 | 57 | 13.9 | 69 | E | 9 | 4.0 | | 5ck | 0 | SW | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.67 | 753.6 | 76 | 24.4 | 19 | SW | | | | 0 | 0 | | | 0 | 0 | | |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.13 | 765.3 | 78 | 25.6 | 82 | Calm | 0 | 0 | | 5c | 5s | | | 0 | 0 | | James Gall. |
| Nayassa, W. I | | | 29.95 | 760.7 | 81 | 27.2 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A. | | | 30.01 | 762.2 | 81 | 27.2 | 83 | E | | | 2 | | 8ks | | | 0.016 | 0.38 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A. | 25.26 | 641.6 | | | 65.7 | 18.6 | 84 | Calm | | | 0 | | 8s,ks | | | 0.34 | 8.6 | Cloudy | Thomas Herran. |
| York Factory, B. A. | | | 29.66 | 753.4 | 44 | 6.7 | 96 | W | 10 | 4.5 | | 4k | 3s | N | N | 0.90 | 22.9 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I. | | | 30.06 | 763.5 | 72 | 22.2 | | SE | | | 2 | | | | | 0 | 0 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I. | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Binnarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.30 | 769.6 | 74 | 23.3 | 73 | 22.8 | 85 | SSW | | | 1 | | 3 | | SSW | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.89 | 759.2 | 64 | 17.8 | 59 | 15.0 | | WNW | | | 2 | | 10 | | N | 0 | 0 | | | Cloudy | |
| Navy Yard, Pensacola, Fla. | 30.12 | 765.0 | | | 76 | 24.4 | 95 | E | 19 | 8 5 | | | 10 | | | | | | | Raining | |
| Navy Yard, Portsmouth, N.H. | 30.26 | 768.6 | 72 | 22.2 | 79 | 26.1 | 54 | W | 4 | 1.8 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.85 | 758.2 | 67.5 | 19.7 | 64 | 17.8 | 97 | NW | | | 1 | | 10n | | NNE | 2.15 | 54.6 | | | Rainy | |
| Alert, N. 4° 34′, E. 136° 12′ 48″ | 29.90† | 759 4† | 81 | 27.2 | 81 | 27.2 | 96 | WNW | | | 4–6 | | 10 | | NW | | | Cross | | Squally | |
| Alliance, Beirut, Syria | 30.05 | 763.3 | 80 | 26.7 | 78 | 25.6 | 91 | NW | | | 0–1 | | 2 | | | | | Smooth | | Clear | |
| Ashuelot, N. 24° 20′, E. 118° 15′ | 29.83 | 757.7 | 80 | 26.7 | 79 | 26.1 | 95 | SW | | | 4 | | 6 | | SW | | | Light | S&W | Hazy | |
| Canonicus, New Orleans, La | 29.93 | 760.2 | 55 | 12.8 | 77 | 25.0 | 91 | SE | | | 1 | | 10 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.27 | 768.8 | 64 | 17.8 | 70 | 71.1 | 85 | SSW | 4 | 1.8 | | | 5 | | SSW | 0 | 0 | | | D. clouds | |
| Despatch, Constantinople, Turkey | 30.06 | 763.5 | 74 | 23.3 | 76 | 24.4 | 73 | E | | | 1 | | 1 | | | | | Smooth | | Clear | |
| Franklin, Norfolk, Va. | 30.29 | 769.4 | 71 | 21.7 | 73 | 22.8 | 95 | W | 5 | 2.2 | | | 10 | | W | 0.1 | 3. | | | Overcast | |
| Frolic, S. 25° 28′, W. 44° 15′ | 30.09 | 764.3 | 69 | 20.6 | 70 | 21.1 | 90 | WSW | | | 5–6 | | 4kn | | | Blank | Blank | Heavy | WSW | Squally | |
| ‡ Gettysburg, Spezia, Italy | 29.88 | 758.9 | | | 79 | 26.1 | 91 | SSE | | | 2 | | 2 | | S | 0 | 0 | Calm | None | D clouds | |
| Hartford, Hampton Roads, Va | 30.45 | 773.4 | 70 | 21.1 | 71 | 21.7 | 95 | SW | 2.4 | 1.1 | | | 10 | | | 0.062 | 1.57 | | | Pleasant | |
| Huron, N. 10° 03′, W. 77° 20′ 25″ | 30.07 | 763.8 | 84 | 28.9 | 82 | 27.8 | 100 | SW | | | 1 | | 4 | | | 0 | 0 | Long | ENE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.00 | 762.0 | 78 | 25.6 | 75 | 23 9 | 90 | Calm | | | 0 | | 0 | | | 0 | 0 | | | Clear | |
| Lackawana, N 33° 24′, W. 126° 19′ | 29.93 | 760.2 | | | 60 | 15.6 | 76 | NW | | | 3 | | 10 | | SE | | | Moderate. | NNW | D. clouds | |
| Marion, Smyrna, Turkey | 29.90 | 759.4 | 80 | 26 7 | 85 | 29.4 | 90 | W | | | 3 | | 4 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.66 | 753.4 | 74 | 23.3 | 68 | 20.0 | 84 | SW | | | 2 | | 10 | | W | | | | | Thunder-storm | |
| Monocacy, Tientsin, China | 29.68 | 753.9 | 75 | 23.9 | 75 | 23.9 | 86 | SE | | | 3 | | 3 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.27 | 768.8 | 65 | 18.3 | 64 | 17.8 | 94 | SW | | | 2 | | 5ck | | | | | | | Foggy | |
| New Hampshire, Port Royal, S. C | 30.44 | 773.2 | | | 76 | 24.4 | 86 | E | 6 | 2.7 | | | 10 | | SE | 0.05 | 1.3 | | | Showery | |
| Omaha, Callao, Peru | 30.08 | 764.0 | 70 | 21.1 | 70 | 21.1 | 78 | SE | 4 | 1.8 | | | 9 | | SE | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, Hampton Roads, Va | 30.32 | 770.1 | 72 | 22.2 | 72 | 22.2 | 95 | S | | | 1 | | 10 | | S | | | | | Raining | |
| Palos, Shanghai, China | 29.90 | 759.4 | 78 | 25.6 | 73 | 22.8 | 90 | ESE | | | 3–4 | | 9 | | E | Blank | Blank | | | Cloudy | |
| Pensacola, N. 18° 35′, W. 122° 05′ | 30.08 | 764.0 | | | 73 | 22.8 | 72 | NNW | | | 1 | | 10 | | | 0 | 0 | Moderate | N&W | Threatening | |
| Plymouth, Off Alvarado, Mexico | 30.00 | 762.0 | 80 | 26.7 | 76 | 24 4 | 91 | WNW | | | 3 | | 9 | | S&E | 0 | 0 | Light | NW | Cloudy | |
| Ranger, Suez, Egypt | 30.12 | 765.0 | | | 88 | 31.1 | 73 | N | | | 1–2 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.23 | 767.8 | 70.0 | 21.1 | 68.0 | 20.0 | 67 | SW | | | 2–4 | | 10 | | | Light | Light | | | Squally | |
| Rio Bravo, Matamoras, Mexico | 29.85 | 758.2 | | | 64 | 17.8 | 94 | NW | | | 1 | | 10 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.34 | 770.6 | 74 | 23.3 | 73 | 22.8 | 85 | SW | | | 2 | | 6 | | | 0 | 0 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.44 | 773.2 | | | 72 | 22.2 | | SW | | | 3 | | 2 | | SW | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 30.16 | 766.1 | 73 | 22.8 | 72 | 22.2 | 85 | SW | 8 | 3.6 | | | 8 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, Aspinwall, Panama | 30.00 | 762.0 | 82 | 27.8 | 82 | 27.8 | 87 | SSE | | | 1 | | 4c | | S | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.84 | 757.9 | 71 | 21.7 | 71 | 21.7 | 85 | NNW | | | 2 | | 10 | | S&E | | | Smooth | | Heavy rain | |
| Trenton, Smyrna, Turkey | 30.03† | 762.7† | 88 | 31.1 | 89 | 31.7 | 66 | NW | 14 | 6.3 | | | 1 | | NW | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.90 | 759.4 | 70 | 21.1 | 69 | 20.6 | 80 | S | | | 1 | | 1 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.20 | 767.1 | 70 | 21.1 | 73 | 22.8 | 76 | SW | 10 | 4.5 | | | 4 | | S&W | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.36† | 771.1† | 72 | 22.2 | 73 | 22.8 | | S | | | 2 | | 5 | | S | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 40° 40′, W. 145° 58′ | W½N | | 30.04 | 763.0 | 60 | 15.6 | 94 | E | | | 2 | | Fog | | | Smooth | | Foggy | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 49° 26′, W. 14° 21′ | E¾N | 10 | 29.94 | 760.5 | 60.1 | 15.6 | | ESE | | | 4 | | k | | SE | Tranq'l | | Clearing | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 47° 30′, W. 35° 30′ | SW by W | 12 | 30.09 | 764.3 | 53.4 | 11.9 | | Calm | | | 0 | | 10 | | | Long, high | NW | Overcast | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, off Race Point, Mass. | WNW | 4 | 30.09 | 764.3 | 62 | 16.7 | 83 | SW | 11 | 4.9 | ..... | 0 | 0 | ..... | ..... | Smooth | ..... | Clear | Capt. James Jorgensen. |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 15, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:30 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.08 | 764.0 | 80.6 | 27.0 | 57 | N | | | 1 | | 1 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.03 | 762.8 | 84.9 | 29.4 | 96 | W | | | 3 | | 1 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.96 | 760.9 | 77.7 | 25.3 | 83 | NNW | | | 2 | | 7 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 29.98 | 761.6 | 87.8 | 31.0 | | SE | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.01 | 762.3 | 80.6 | 30.0 | | ENE | | | 2 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.11 | 764.9 | 82.0 | 27.8 | | N | | | 2 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.06 | 763.4 | 89.6 | 32.0 | | WSW | | | 2 | | 0 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | 30.14 | 765.5 | 88.3 | 31.3 | | WNW | | | 2 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.08 | 764.1 | 94.1 | 34.5 | 22 | W | | | 2 | | 0 | | | 0 | 0 | Clear. | Guyot. |
| Biskra | | | 29.99 | 761 8 | 103.6 | 39.8 | | SE | | | 3 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2.919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.01 | 762.2 | 68.4 | 20.2 | 50 | NE | | | 2 | | 10 | | | 0.012 | 0.3 | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.07 | 763.8 | 62.6 | 17.0 | 46 | W | | | 2 | | 7 | | | 0.130 | 3.3 | | Dr. Wierzbiski. |
| Eperies | | | 29.99 | 761.8 | 65.1 | 18.4 | 41 | N | | | 3 | | 9k | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.82 | 732 1 | 30.05 | 763.2 | 66.2 | 19.0 | 76 | SW | | | 2 | | 7 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.56 | 725.3 | 29.94 | 760.4 | 66.0 | 18.9 | 42 | WNW | | | 3 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.73 | 729 8 | 30.05 | 763.2 | 64.0 | 17.8 | 48 | ENE | | | 3 | | 7 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 29.96 | 761.0 | 53.6 | 12.0 | 89 | NE | | | 1 | | 8 | | | 0.720 | 18.3 | | Dr. T. Stanecki. |
| Pola | | | 29.92 | 760.0 | 77.0 | 25.0 | 63 | Calm | | | 0 | | 10s | | | 0.014 | 0.36 | | I.R.Hydrographic Office |
| Szegedin | | | 30.01 | 762.2 | 62.6 | 17.0 | 77 | E | | | 1 | | 10 | | | 0.059 | 1.50 | Lightning | Karl Stancel. |
| Trieste | | | 29.98 | 761.6 | 64.6 | 18.1 | 87 | E | | | 1 | | 10 | | | 0.827 | 21.0 | Rainy | P. Busin. |
| Vienna | | | 30.07 | 763.8 | 63.0 | 17.2 | 54 | N | | | 2 | | 7 | | | 0.008 | 0.2 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 348.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.65 | 727.6 | 30.11 | 764.9 | 68.2 | 20.1 | 39 | N | | | 3 | | 1 | | | 0 | 0 | | |
| Brussels | | | 30.12 | 765.0 | 71.6 | 22.0 | 42 | E | | | 4 | | 1ck | | E | 0 | 0 | | Royal Observatory. |
| Furnes | | | 30.12 | 765.0 | 72.3 | 22.4 | 70 | E | | | 4 | | 3 | | | 0 | 0 | | |
| Maeseyck | | | 30.15 | 765.7 | 71.1 | 21.7 | 40 | NE | | | 4 | | 2 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.28 | 769.1 | 60.6 | 15.9 | | S | 16 | 7.2 | | | 0 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | 30.19 | 766.8 | 68 | 20.0 | | ENE | | | 2 | | 0 | | | | | Blue sky | William McNeil. |
| Armagh, Observatory | | | 30.18 | 766.6 | 65.7 | 18.7 | | ENE | 9 | 4.0 | | | 1 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.18 | 766.6 | 67.8 | 19.9 | | ESE | 19 | 8.5 | | | 0 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.10 | 764.5 | 73.1 | 22.8 | | SE | | | 1 | | 2 | | | | | Blue sky | J. Dreyer. |
| Bradford, Yorkshire | | | 30.24 | 768.1 | 62.6 | 17.0 | | S | | | 2 | | 0 | | | 0 | 0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 84.0 | 28.9 | | NE | | | 2 | | 5 | | | | | D. clouds | Pvt. G. W. Roberts, A. H.C. |
| Cambridge, Observatory | | | 30.20 | 767.1 | 71.2 | 21.8 | | E | | | 1 | | 1 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.20 | 767.1 | 75.0 | 23.9 | | | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.22 | 767.6 | 65.2 | 18.4 | | E | | | 2 | | 6 | | | | | Fine | Capt. Fellowes, R. E. |
| Dartmoor | 28.66 | 728.0 | 30.10 | 764.5 | 65.0 | 18.3 | | SE | | | 5 | | 2 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.21 | 767.3 | 62 | 16.7 | | ESE | | | 3 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 30.16 | 766.1 | 65 | 18.3 | | ENE | | | 4 | | 0 | | | | | Clear | J. Costello. |
| Eccles, (near Manchester) | | | 30.19 | 766.8 | 70.8 | 21.6 | | SE | 3.6 | 1.6 | | | | | | | | Hazy | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.07 | 763.8 | 63.0 | 17.2 | | E | | | 5 | | 3 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.83 | 706.9 | 30.07 | 763.8 | 69.9 | 21.1 | | NE | | | 1 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.06 | 763.5 | 74 | 23.3 | | Calm? | | | 1? | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.99 | 761.7 | 77 | 25.0 | | E | | | 2 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.98 | 761.5 | 81.2 | 27.3 | | SW | | | 4 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.18 | 766.6 | 68.3 | 20.2 | | E | | | 3 | | | | | | | Hazy | William Wallace. |
| Great Yarmouth | | | 30.24 | 768.1 | 59 | 15.0 | | ENE | | | 3 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.18 | 766.6 | 72.0 | 22.2 | | E | | | 3 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 30.03 | 762.7 | 62.5 | 16.9 | | ENE | | | 3 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.08 | 764.0 | 66 | 18.9 | | E | | | 6 | | 1c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.15 | 765.8 | 65 | 18.3 | | NW | | | 2 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.16 | 766.1 | 69.1 | 20.6 | | E | 27 | 12.1 | | | 0 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.16 | 766.1 | 61 | 16.1 | | ESE | | | 3 | | 1 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.20 | 767.1 | 67.3 | 19.6 | | E | | | 3 | | 3 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.95 | 760.7 | 79.2 | 26.2 | | NE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.17 | 766.3 | 69 | 20.6 | | E | | | 1 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.07 | 763.8 | 80.8 | 27.1 | | N | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.22 | 767.6 | 72.0 | 22.2 | | ESE | | | 4 | | 1k | | ENE | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.17 | 766.3 | 68.8 | 20.4 | | E | | | 3-4 | | 1 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.15 | 765.8 | 72 | 22.2 | | E | | | 2 | | 3 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 30.09 | 764.3 | 69.5 | 20.8 | | E | | | 5 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.08 | 764.0 | 62 | 16.7 | | ESE | | | 5 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.09 | 764.3 | 63 | 17.2 | | ESE | | | 5 | | 1 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.02 | 762.5 | 71.8 | 22.1 | | ENE | | | 4 | | 2 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.27 | 768.8 | 61.5 | 16.4 | | SE | 17 | 7.6 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.91 | 759.7 | 70.5 | 21.4 | | NE | | | 2 | | 9 | | | Blank | Blank | Misty | Sergt. W. H. Lyne. |
| Sheffield | | | 30.22 | 767.6 | 66.3 | 19.1 | | E | | | 2 | | 6 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.19 | 766.8 | 73.2 | 22.9 | 38 | SE | | | 2 | | 0 | | | 0 | 0 | Blue sky | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.20 | 767.1 | 66.2 | 19.0 | | E | | | 2 | | | | | | | Blue sky | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.17 | 766.3 | 66 | 18.9 | | SSE | | | 1 | | 0 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.14 | 765.5 | 72.8 | 22.7 | | E | | | 1 | | 0 | | | | | Blue sky | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 30.22 | 767.6 | 69 | 20.6 | | ESE | | | 1 | | 0 | | | | | Blue sky | John Trotter. |
| Truro, Royal Institution | | | 30.09 | 764.3 | 73 | 22.8 | | E | | | 7 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 29.99 | 761.7 | 73.4 | 23.0 | | E | 13 | 5.8 | | | 5 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 60 | 15.6 | | E | | | 4 | | | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.81 | 757.2 | 63.8 | 17.7 | 63 | NW | 8 | 3.6 | | 9 | 8 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.72 | 754.9 | 49.0 | 9.4 | 93 | W | | | 5 | | 6n | | | 0.62 | 15.7 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.26 | 768.6 | 59.5 | 15.3 | | NE | | | 2 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.11 | 764.8 | 71.8 | 22.1 | 67 | SSE | 20.1 | 9.0 | | 8 | 1 | NW | SSE | 0.02 | 0.5 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 30.28 | 769.1 | 49.3 | 9.6 | 81 | NW | 10 | 4.5 | | | 7 | | | 0.03 | 0.8 | Showery | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.19 | 766.8 | 62 | 16.7 | | SE | | | 3 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.29 | 769.4 | 55 | 12.8 | | NW | | | 2 | | 7 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,555.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 45° 30′, W. 44° 20′ | | | 29.91 | 759.7 | 56.0 | 13.3 | | SW | | | 2 | | | | 0 | Smooth | Foggy | Capt. W. Watson |
| S. S. Batavia | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 44° 40′, W. 41° 40′ | | | 30.05 | 763.3 | 58.0 | 14.4 | | W | | | 3 | | 10 | | 3 | WNW | Overcast | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 15′ | | | 29.97 | 761.2 | 59.6 | 15.3 | | ESE | | | 5 | | 4 | | 7 | NW | Hazy | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 39° 30°, W. 68° 35′ | | | 30.25 | 768.3 | 69.8 | 21.0 | | WNW | | | 4 | | 10 | | 3 | W | Foggy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Queenstown, Ireland | | | 30.10 | 764.5 | 61 | 16.1 | | E | | | 5 | | 6 | | 0 | | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 68.0 | 20.0 | 98 | NE | | | 1 | | 8cs | | N | 0.2 | 5. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.17 | 766.2 | 66.9 | 19.4 | 52 | SE | | | 2 | | 3 | | | | | | |
| Fanöe | | | 30.14 | 765.6 | 60.1 | 15.6 | 79 | W | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 29.80 | 757.0 | 45.1 | 7.3 | 57 | NE | | | 2 | | 1 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.81 | 757.1 | 49.5 | 9.7 | 98 | S | | | 6 | | 8 | | | | | Raining | |
| Thorshavn, (Faröe) | | | 30.25 | 768.3 | 53.6 | 12.0 | 89 | Calm | | | 0 | | 7 | | | | | Foggy | |
| Vestervig | | | 30.18 | 766.6 | 68.7 | 20.4 | 71 | NE | | | 2 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.12 | 765.0 | 75.2 | 24 | 50 | E | | | 3 | 2c | | E | | 0 | 0 | Slightly cl'dy | Collignon, Director. |
| Amiens, Naval Observatory | | | 29.99 | 761.7 | 78.1 | 25.6 | 58 | E | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 29.94 | 760.4 | 91.0 | 32.8 | 26 | SW | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.98 | 761.6 | 77.0 | 25.0 | 51 | NE | | | 2 | | 2 | | NE | Inap. | Inap. | Slightly cl'dy | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ't'ry. |
| Beauvais | | | 30.07 | 763.8 | 72.1 | 22.3 | 44 | ENE | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Besançon | | | 29.96 | 761.0 | 80.6 | 20.7 | 56 | NE | | | 6 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg-en-Bresse | | | 30.06 | 763.5 | 86.4 | 30.2 | 55 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 29.96 | 760.9 | 77.4 | 25.2 | 60 | NE | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.89 | 759.2 | 79.3 | 26.3 | 63 | NE | | | 3 | | 1k | | ENE | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 29.88 | 759.0 | 88.5 | 31.4 | 46 | E | | | 4 | | 1 | | E | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.05 | 763.3 | 77.4 | 25.2 | 47 | E | | | 2 | | 0 | | | 0.291 | 7.4 | Clear | Normal School. |
| Chartres, Normal School | | | 29.98 | 761.5 | 76.6 | 24.8 | 73 | NE | | | 2 | | 2 | | E | 2.256 | 57.3 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.01 | 762.2 | 79.9 | 26.6 | 43 | WNW | | | 3 | | 0 | | | 0 | 0 | Clear | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.86 | 758.4 | 86.0 | 30.0 | 46 | N | | | 2 | | 1 | | | 0.374 | 9.5 | Almost clear | Alluard, Director. |
| Commercy, Normal School | | | 30.08 | 762.7 | 72.5 | 22.5 | 54 | E | | | 4 | | 5 | | E | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.04 | 763.1 | 87.6 | 30.9 | 23 | SW | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.97 | 761.2 | 85.3 | 29.6 | 52 | WNW | | | 6 | | 2k | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.95 | 760.6 | 87.1 | 30.6 | 53 | NE | | | 4 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Mouillet, Director. |
| Le Mans, Normal School | | | 30.00 | 762.1 | 76.8 | 24.9 | 47 | E | | | 4 | | 0 | | | 0 | 0 | Clear | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 29.92 | 760.0 | 79.9 | 26.6 | 53 | N | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 29.95 | 760.8 | 82.4 | 28.0 | 51 | E | | | 3 | | 0 | | | 0 | 0 | Clear | T. Carré, Director. |
| Mâcon, Normal School | | | 29.93 | 760.3 | 80.4 | 26.9 | 72 | NE | | | 2 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.13 | 765.4 | 71.6 | 22.0 | 44 | NE | | | 2 | | 1k | | | 0 | 0 | | Normal School. |
| Mirecourt | | | 30.00 | 761.9 | 72.1 | 22.3 | 55 | NE | | | 2 | | 2 | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 29.93 | 760.2 | 95.4 | 35.2 | 40 | E | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.95 | 760.8 | 75.9 | 24.4 | 53 | E | | | 6 | | 2 | | E | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 30.04 | 763.0 | 72.5 | 22.5 | 45 | E | | | 3 | 2c | | N | | 0.109 | 2.77 | Slightly cl'dy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.94 | 760.4 | 86.7 | 30.4 | 49 | ENE | | | 3 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.07 | 763.6 | 78.1 | 25.6 | 28 | NE | | | 3 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 29.02 | 737.1 | 30.03 | 762.7 | 89.6 | 32 | 42 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 29.89 | 759.2 | 87.3 | 30.7 | 70 | N | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.8 | 80.6 | 27 | | | | | | | | | | | | | L'Abbé Marchésl. |
| Marseilles, Observatory | | | 29.94 | 760.4 | 83.8 | 28.8 | 35 | W | | | 1 | | 0 | | | Inap. | Inap. | | The Staff. |
| Mont-Louis | 24.95 | 633.8 | 30.27 | 768.8 | 73.8 | 23.2 | 47 | SE | 18.6 | 8.33 | | | 4 | | S | 0.016 | 0.4 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.04 | 762.9 | 73.1 | 23.1 | 45 | NE | | | 2–3 | | 4 | | | 0.051 | 1.3 | | Marié Davy, Director. |
| Perpignan | | | 29.92 | 759.9 | 77.4 | 25.2 | 92 | SE | 9.3 | 4.17 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.44 | 544.5 | | | 54.3 | 12.4 | | S | | | 2 | | 2 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.67 | 575.8 | | | 60.4 | 15.8 | | S | | | 3 | | 10 | | | 0.154 | 3.9 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.04 | 763.0 | 74.7 | 23.7 | 40 | NE | | | 3 | | 1 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 29.94 | 760.5 | 85.6 | 29.8 | 39 | SSE | | | 2 | | 0 | | | 0 | 0 | | The Staff |
| Tours | | | 29.97 | 761.1 | 81.3 | 27.4 | 53 | E | | | 3 | | 1 | | W | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.06 | 763.4 | 74.1 | 23.4 | 49 | NE | | | 3 | | 4 | | | 0.136 | 3.45 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.82 | 757.3 | 71.6 | 22.0 | 80 | ENE | 6.5 | 2.9 | | | 10kn | | | 0.004 | 0.1 | Covered | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7: no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day: the weather in general terms as published. The elevation of Clermont-Ferrand is 848 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bou[illegible] du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.11 | 764.8 | 68.9 | 20.5 | 39 | E | | | 4 | | 3 | E | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.16 | 766.1 | 69.6 | 20.9 | 43 | SE | | | 1 | | 7 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.16 | 766.1 | 66.4 | 19.1 | 35 | NE | | | 2 | | 7 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.03 | 762.7 | 73.6 | 23.1 | 45 | E | | | 1 | | 1 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.22 | 767.5 | 70.5 | 21.4 | 44 | E | | | 2 | | 3 | ENE | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.13 | 765.2 | 73.9 | 23.3 | 33 | NE | | | 4 | | 3 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.19 | 766.9 | 63.5 | 17.5 | 85 | NNE | | | 4 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.16 | 766.0 | 74.3 | 23.5 | 26 | ENE | | | 3 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.63 | 727.1 | 30.61 | 762.3 | 70.9 | 21.6 | 55 | NE | | | 6 | | 3 | NE | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.19 | 766.8 | 65.8 | 18.8 | 55 | NW | | | 5 | | 2ck | | | 0 | 0 | Very fine | Captain F. Hegemann. |
| Kiel | | | 30.19 | 766.7 | 62.2 | 16.8 | 61 | NE | | | 2 | | 3 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.15 | 765.7 | 61.3 | 16.3 | 55 | N | | | 2 | | 2 | | | Inap. | Inap. | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic | | | 30.18 | 766.6 | 68.2 | 20.1 | 45 | NNE | | | 2 | | 9 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.11 | 764.8 | 62.5 | 11.4 | 72 | NNW | | | 3 | | 1ks | | | | | Squally | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.20 | 767.0 | 57.2 | 14.0 | 73 | NNE | | | 2 | | 5 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.16 | 766.1 | 66.4 | 19.1 | 35 | NW | | | 4 | | 4 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.03 | 762.7 | 73.9 | 23.3 | 45 | NE | | | 3 | | 2 | W | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.00 | 762.1 | 73.4 | 23.0 | 39 | NE | | | 1 | | 4 | E | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.95 | 760.7 | 74.3 | 23.5 | 40 | E | | | 6 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.60 | 726.4 | 30.07 | 763.6 | 68.4 | 20.2 | 36 | E | | | 2 | | 3 | E | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.25 | 768.3 | 63.3 | 17.4 | 78 | NNW | | | 1 | | 2 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.89 | 759.2 | 87.1 | 30.6 | | SW | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.68 | 753.8 | 29.72 | 755.0 | 87.3 | 30.7 | 71 | WSW | 33.0? | 14.7? | | | 0 | | | 0 | 0 | Blue sky | |
| Deesa | 29.26 | 743.6 | 29.73 | 755.1 | 105.0 | 40.6 | 28 | SW | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.77 | 756.1 | 29.81 | 757.1 | 86.6 | 30.3 | 78 | SSW | 22.0 | 9.8 | | | 10 | WSW | | 0.76 | 19.3 | Overcast | |
| Poona | 27.69 | 703.3 | 29.65 | 753.0 | 87.2 | 30.7 | 62 | | | | | | | | NW | 0 | 0 | D. clouds | |
| Lahore | 28.73 | 729.8 | | | | | | SW | 0.2 | 0.1 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | 27.22 | 691.5 | 29.74 | 755.4 | 78.8 | 26.0 | 72 | SW | 22.0 | 9.8 | | | 3 | E | SW | 0 | 0 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.69 | 728.6 | 29.54 | 750.2 | 104.5 | 40.3 | | NW | 3.2 | 1.4 | | | | | | 0 | 0 | Strong wind | |
| Agra | 29.04 | 737.5 | 29.56 | 750.9 | 109.7 | 43.2 | 19 | N | 0.6 | 0.2 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.62 | 727.0 | 29.61 | 752.1 | 106.4 | 41.3 | 19 | Calm | 5.7 | 2.5 | | | 5 | | | 0 | 0 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.24 | 742.7 | 29.59 | 751.6 | 105.0 | 40.6 | 24 | NNW | 3.3 | 1.4 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.28 | 743.7 | 29.58 | 751.2 | 102.9 | 39.4 | 33 | NE | 2.1 | 0.9 | | | | | | 0 | 0 | Blue sky | |
| Patna | 29.43 | 747.5 | 29.60 | 751.9 | 98.0 | 36.7 | 40 | E | 1.8 | 0.8 | | | 5 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.66 | 702.6 | 29.59 | 751.6 | 98.3 | 36.8 | 24 | NW | 5.4 | 2.4 | | | 2 | | | 0 | 0 | Dust-haze | |
| Cuttack | 29.61 | 752.2 | 29.69 | 754.2 | 92.1 | 33.4 | 65 | S | 3.2 | 1.4 | | | 5 | | | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.68 | 753.8 | 29.70 | 754.3 | 89.8 | 32.1 | 64 | S | 6.0 | 2.6 | | | 1 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.31 | 744.5 | 29.70 | 754.3 | 82.7 | 28.2 | 83 | Calm | 1.3 | 0.5 | | | 1 | W | | 0 | 0 | D. clouds | |
| Chittagong | 29.67 | 753.6 | 29.76 | 755.9 | 85.9 | 29.9 | 81 | WSW | 11.3 | 5.0 | | | | | | 0 | 0 | Blue sky | |
| Sibsagar | 29.39 | 746.4 | 29.72 | 754.8 | 85.4 | 29.7 | 83 | NW | 2.1 | 0.9 | | | 7 | | | 0 | 0 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.28 | 718.4 | 29.58 | 751.3 | 105.0 | 40.6 | 25 | NW | 0.6 | 0.2 | | | | | | 0 | 0 | Blue sky | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.32 | 567.0 | 29.95 | 760.8 | 53.4 | 11.9 | 65 | NW | | | 4 | | 6 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.29 | 566.2 | 29.89 | 759.2 | 48.2 | 9.0 | | SSW | | | 1 | | 10 | | | 0.067 | 1.7 | | Signora Ernesta Manfredi. |
| Udine | | | 29.93 | 760.3 | 67.8 | 19.9 | 76 | S | 6.7 | 0.3 | | | 10 | | | 0.543 | 13.8 | | Ab. Dom. Morgini. |
| Padua | | | 29.92 | 760.0 | 72.3 | 22.4 | 54 | NNE | 6.3 | 2.8 | | | 10 | SE | | 0.004 | 0.1 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.93 | 760.1 | 72.7 | 22.6 | 56 | E | 1.8 | 0.8 | | | 9 | W | | 0.165 | 4.2 | | Conte Alm. Da Schio |
| Verona | | | 29.93 | 760.3 | 76.6 | 24.8 | 60 | E | | | 2 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.62 | 727 0 | 29.88 | 759.0 | 77.4 | 25.2 | 61 | SSW | | | 1 | | 9 | | | 0.059 | 1.5 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.84 | 757.9 | 78.3 | 25.7 | 61 | SW | | | 6 | | 6 | | | 0 | 0 | | Prof. Giuseppe Calza |
| Milan | | | 29.92 | 760 0 | 89.2 | 31.8 | 64 | N | | | 2 | | 8 | WNW | | 0.008 | 0.2 | | Ab. Gio. Capelli. |
| Pavia | | | 29.90 | 759.4 | 79.2 | 26.2 | 62 | S | | | 2 | | 6 | SW | | 0.276 | 7.0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.87 | 758.6 | 79.9 | 26.6 | 58 | ESE | 3.8 | 1.7 | | | 8 | S | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.05 | 712.5 | 29.87 | 758.7 | 79.2 | 26.2 | 58 | W | | | 4 | | 2 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.97? | 761.3? | 79.5 | 26.4 | 77 | SSE | | | 2 | | 3 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.94 | 760.5 | 78.4 | 25.8 | 67 | SW | 5.6 | 2.5 | | | 2 | S | | 0.004 | 0.1 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.92 | 760.0 | 77.4 | 25.2 | 68 | W | 1.3 | 0.6 | | | 7 | W | | 0.130 | 3.3 | | Dott. G Manzi. |
| Parma | | | 29.91 | 759.8 | 76.6 | 24.8 | 67 | ENE | | | 4 | | 4 | | | 0.705 | 17.9 | | Prof. P. Pigorini. |
| Florence | | | 29.95 | 760.8 | 82.4 | 28.0 | 48 | NW | | | 4 | | 5 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.93 | 760.1 | 82.0 | 28.1 | 64 | W | 3.1 | 1.4 | | | 5 | NW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.75 | 730.3 | 29.91 | 759.7 | 76.8 | 24.9 | 50 | NW | 1.3 | 0.6 | | | 8 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.45 | 722.7 | 29.95 | 760.8 | 74.3 | 23.5 | 74 | NE | | | 4 | | 9 | | | 0.906 | 23.0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.94 | 760.4 | 75.7 | 24.3 | 68 | ENE | 13.0 | 5.8 | | | 10 | W | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.92 | 760.0 | 76.3 | 24.6 | 66 | SE | | | 4 | | 10 | | | 0.354 | 9.0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.93 | 760.3 | 87.1 | 30.6 | 37 | WSW | | | 4 | | 4 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.94 | 760.4 | 85.1 | 29.5 | 42 | SW | 6.9 | 3.1 | | | 1 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 29.98 | 761.4 | 84.2 | 29.0 | 58 | SW | | | 4 | | 5 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.93 | 760.2 | 80.1 | 26.7 | 56 | SSE | 12.5 | 5.6 | | | 6 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.92 | 759.9 | 89.1 | 31.7 | 48 | NW | 3.1 | 1.4 | | | 3 | SE | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.91 | 759.8 | 82.8 | 28.2 | 51 | SE | | | 2 | | 1 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.99? | 761.8? | 80.6 | 27.0 | 46 | ENE | | | 2 | | 7 | SE | | 0 | 0 | | Prof. F. Caflero. |
| Palermo | | | 29.93 | 760.1 | 79.5 | 26.4 | 68 | ENE | 3.1 | 1.4 | | | 4 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.04 | 712.1 | 29.89 | 759.3 | 83.3 | 28.5 | 23 | SW | | | 1 | | 6 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.89 | 759.2 | 84.9 | 29.4 | 56 | SW | | | 6 | | 3 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.99 | 761.8 | 80.6 | 27.0 | 53 | WSW | 4.9 | 2.2 | | | 3 | W | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.89 | 759.2 | 68.5 | 20.3 | 95 | SE | 1 | 0.4 | | | 10s | | | 1.73 | 43.9 | Cloudy | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.08 | 586.2 | 30.04 | 763.1 | 58.1 | 14.5 | 81 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.17 | 766.3 | 70.9 | 21.6 | | ENE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | | | 63.5 | 17.5 | | N | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.22 | 767.6 | 60.3 | 15.7 | | NNE | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 30.14 | 765.5 | 70.7 | 21.5 | 54 | NNE | | | 4 | | 2 | | | 0 | 0 | Light cloudy | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.20 | 767.1 | 64.4 | 18.0 | 62 | NNW | 7.4 | 3.3 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.29 | 769.3 | 57.2 | 14.0 | 57 | WSW | 9 | 4 | | | 5 | | | 0 | 0 | | |
| Christiania | | | 30.19 | 766.8 | 70.8 | 21.3 | 60 | WSW | 7 | 3 | | | 1 | | | 0 | 0 | | |
| Tromsö | | | 30.14 | 765.5 | 45.3 | 7.4 | 83 | SW | 9 | 4 | | | 10 | | | 0 | 0 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.00 | 762.1 | 63.0 | 17.2 | 67 | N | 7.4 | 3.3 | | | 6 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.95 | 760.8 | 78.8 | 26.0 | 41 | SSW | 13.8 | 6.17 | | | 9 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 29.97 | 761.3 | 70.2 | 21.2 | 65 | SW | 9.4 | 4.2 | | | 0 | | | 0.039 | 1.0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.96 | 761.0 | 66.9 | 19.4 | 86 | SSW | 21.0 | 9.4 | | | 10 | | | 0.016 | 0.4 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.22 | 767.6 | 67.1 | 19.5 | 68 | WNW | 6.3 | 2.8 | | | 4 | NE | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Velocity Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper From— | Lower From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.06 | 763.5 | 64.2 | 17.9 | 38 | NNW | 11 | 5 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 30.03 | 762.8 | 60.3 | 15.7 | 38 | NNW | 13 | 6 | | | 8 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.04 | 763.1 | 59.7 | 15.4 | 31 | N | 7 | 3 | | | 7 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.00 | 761.9 | 55.4 | 13.0 | 48 | N | 4 | 2 | | | 9 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.00 | 762.1 | 59.2 | 15.1 | 51 | N | 18 | 8 | | | 0 | | | | | | Ch. Forsten. |
| Kieff | | | 29.85 | 758.1 | 59.4 | 15.2 | 47 | NNW | 9 | 4 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.94 | 760.5 | 66.4 | 19.1 | 47 | N | 18 | 8 | | | 4 | | | | | | Kurdakof. |
| Kertch | | | 29.92 | 760.0 | 65.3 | 18.5 | 71 | NW | 11 | 5 | | | 10 | | | | | | Lagorio. |
| Moscow | | | 29.82 | 757.5 | 51.4 | 10.8 | 68 | N | 9 | 4 | | | 10 | | | | | | Meteorological Obs. |
| Lugan | | | 29.66 | 753.4 | 64.8 | 18.2 | 49 | WNW | 22 | 10 | | | 6 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.91 | 759.6 | 42.3 | 5.7 | 60 | NW | 29 | 13 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.49 | 723.7 | 29.83 | 757.6 | 81.5 | 27.5 | 38 | NW | 45 | 20 | | | 6 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.74 | 755.3 | 78.3 | 25.7 | 58 | SSE | 7 | 3 | | | 7 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.58 | 751.3 | 62.6 | 17.0 | 60 | Calm | 0 | 0 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.71 | 754.5 | 69.6 | 20.9 | 86 | NNE | 13 | 6 | | | 3 | | | | | | Tschernischef. |
| Ekaterinburg | 28.64 | 727.4 | 29.55 | 750.5 | 64.2 | 17.9 | 89 | SW | 9 | 4 | | | 9 | | | | | Raining | Meteorological Obs. |
| Nukuss | | | 29.97 | 761.1 | 86.5 | 30.3 | 48 | NNE | 4 | 2 | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.48 | 723.5 | 30.07 | 763.8 | 84.9 | 29.4 | 39 | Calm | 0 | 0 | | | 1 | | | | | | Michelson. |
| Barnaul | | | 29.75 | 755.6 | 71.1 | 21.7 | 75 | NW | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.70 | 754.4 | 78.6 | 25.9 | 59 | S | 2 | 1 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 67.8 | 19.9 | | | | | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.98 | 761.5 | 67.1 | 19.5 | 91 | Calm | 0 | 0 | | | 3 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.85 | 758.2 | 63.5 | 17.5 | 73 | NW | 2 | 1 | | | 1 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 46.8 | 8.2 | 91 | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, Don Cecilio Pujazon, Captain R. N., Director of the Naval Observatory at San Fernando, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Velocity Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper From— | Lower From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Madrid, Royal Observatory | | | 29.88 | 758.9 | 85.8 | 29.9 | 33 | SW | 12.7 | 5.67 | | 2 | 1 | SW | | 0 | 0 | Light clouds | The Staff. |
| San Fernando, Naval Obs'y | | | 30.06 | 763.4 | 75.2 | 24.0 | 56 | W | 8.1 | 3.6 | | 2 | 2 | SE | W | 0 | 0 | | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.04 | 762.9 | 81.0 | 27.2 | 80 | E | 1.8 | 0.8 | | 0 | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Juan de Porto Rico, W.I. | | | 29.96 | 760.9 | 76.6 | 24.8 | 88 | SE | 0 | 0 | | | | | | 0.953 | 24.20 | Overcast | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Velocity Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper From— | Lower From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.15 | 765.9 | 60.1 | 15.6 | 37 | N | | | 4 | | 2 | | | 0 | 0 | | |
| Umea | | | 30.19 | 766.8 | 56.5 | 13.6 | 36 | S | | | 2 | | 7 | | | 0 | 0 | | |
| Hernosand | | | 30.20 | 767.0 | 60.4 | 15.8 | 60 | SSW | | | 2 | | 5 | | | 0 | 0 | | |
| Stockholm | | | 30.17 | 766.2 | 61.9 | 16.6 | 37 | NE | | | 4 | | 2 | | | 0.004 | 0.1 | | |
| Wisby | | | 30.16 | 766.1 | 53.2 | 11.8 | 63 | NNE | | | 4 | | 0 | | | 0.209 | 5.3 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.18 | 766.6 | 63.3 | 17.4 | 34 | NNE | 11.0 | 4.9 | | | 4 | N | N | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.53 | 724.7 | 29.87 | 758.8 | 84.6 | 29.2 | 43 | WSW | | | 3 | | 1 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.42 | 721.9 | 30.00 | 762.1 | 71.1 | 21.7 | 71 | E | | | 2 | | 9 | | | 0.118 | 3.0 | Covered | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —1.8 mm; Thermometer, +8.5 cent.; Relative Humidity, —13 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.95 | 760.7 | 65.8 | 18.8 | 75 | N | 18 | 8.0 | | | 10 | | N | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | | | | | | | | | | | | | | | | | |
| Salonica | | | 29.97 | 761.3 | 82.0 | 27.8 | | N | | | 3 | | 2 | | | | | | B. Stéfanidès. |
| Valona | | | 30.04 | 763.1 | 79.2 | 26.2 | | SW | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.96 | 761.0 | 83.5 | 28.6 | 57 | W | | | 2 | | 1c,k | | SW | 0 | 0 | D. clouds | Pro. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the cooperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 30.00 | 762.0 | 69.9 | 21.1 | 44 | NW | 3 | 1.8 | | | 0 | | | | | | Hon. J. Ferguson |
| Brockville, Ontario | | | 30.10 | 764.5 | 75 | 23.9 | | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B | | | 30.02 | 762.5 | 66 | 18.9 | 58 | NW | 11 | 4.9 | | 0 | 0 | | | 0.09 | 2.3 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.01 | 762.2 | 65 | 18.3 | 51 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.05 | 763.3 | 68.8 | 20.4 | 77 | SW | | | 2 | 0 | 0 | | | 0 | 0 | Bright | James Smith, M. A. |
| Dalhousie, N. B | | | 30.03 | 762.7 | 67.8 | 19.9 | 59 | W | | | 2 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C | | | 29.94 | 760.5 | 49.8 | 9.9 | 85 | W | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.05 | 763.3 | 54 | 12.2 | 93 | W | 4 | 1.8 | | 2c | 2s | W | W | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B | | | 30.12 | 765.0 | 66.4 | 19.1 | 53 | W | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.10 | 764.5 | 45 | 7.2 | 96 | NE | 2 | 0.9 | | 0 | 2s | | | 0.08 | 2.0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.02 | 762.5 | 73.7 | 23.2 | | SE | | | 4 | 0 | 2s | | | 0 | 0 | Fair | H. J. Strang, M. A |
| Granton, Ontario | 28.96 | 735.6 | 30.01 | 762.2 | 72 | 22.2 | 80 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S | | | 30.03 | 762.7 | 66 | 18.9 | 60 | NW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.10 | 764.5 | 63.7 | 17.6 | 83 | W | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.73 | 755.1 | 52 | 11.1 | 86 | S | | | 3 | | 10 | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.14 | 765.5 | 66 | 18.9 | 83 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A |
| *Montreal, Quebec | | | 30.09 | 764.3 | 66 | 18.9 | 74 | SW | 3 | 1.3 | | 0 | Sm'c | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.98 | 761.5 | 66 | 18.9 | 68 | S | 16 | 7.2 | | 2cs | 2ks | W | W | 0 | 0 | Fair | Rev. R. Mosley |
| Peterboro, Ontario | | | 30.28 | 769.1 | 69.7 | 20.9 | 79 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.08 | 764.0 | 62 | 16.7 | 94 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S | | | 30.06 | 763.5 | 64.0 | 17.8 | | NW | 12 | 5.4 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.07 | 763.8 | 67 | 19.4 | 87 | E | 3 | 1.3 | | 2k | 0 | W | | 0.68 | 2.0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 30.11 | 764.8 | 68 | 20.0 | 90 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.06 | 763.5 | 55 | 12.8 | 81 | E | 4 | 1.8 | | 8cs | 0 | NW | | 0 | 0 | Cloudy | W. H. McIntyre. |
| *St. John, N. B | | | 30.11 | 764.8 | 64 | 17.8 | 57 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.94 | 760.5 | 70 | 21.1 | 84 | Calm | 0 | 0 | | 10cs | 0 | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.97 | 761.2 | 70 | 21.1 | 80 | SE | 8 | 3.6 | | 2k | Haze | W | | 0 | 0 | Hazy | R. J. Cole. |
| Stratford, Ontario | 28.78 | 731 0 | 30.00 | 762.0 | 69.8 | 21.0 | 81 | SW | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.90 | 759.4 | 64 | 17.8 | 63 | NW | 13 | 5.8 | | 2k | 0 | NW | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.08 | 764.0 | 64 | 17.8 | 84 | E | 5 | 2.2 | | 5ck | Haze | W | | 0 | 0 | Fair | Magnetic Observatory |
| Windsor, N. S | | | 30.00 | 762.0 | 64.0 | 17.8 | 53 | NW | 8 | 3.6 | | 5c | 0 | NW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.04 | 763.0 | 71.2 | 21.8 | 71 | S | 18 | 8.0 | | 2k | 0 | | | 0.44 | 11.2 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.78 | 756.4 | 65.0 | 18.3 | 73 | W | | | | 5k | 10s | | | 0 | 0 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.16 | 766.1 | 73 | 22.8 | 75 | NW | 2 | 0.9 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Alpena, Mich. | | | 29.90 | 759.4 | 63 | 17.2 | 88 | SE | 4 | 1.8 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 30.21 | 767.3 | 66 | 18.9 | 94 | SW | 5 | 2.2 | | 5cs | Haze | W | | 0 | 0 | Fair | |
| Augusta, Ga. | | | 30.21 | 767.3 | 74 | 23.3 | 90 | SE | 3 | 1.3 | | | 10s | | SE | 0.15 | 3.8 | Cloudy | |
| Baltimore, Md. | | | 30.19 | 766.8 | 72 | 22.2 | 85 | SW | 7 | 3.1 | | 5ck,k | Sm'e | SW | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 30.19 | 766.8 | 74 | 23.3 | 90 | SW | 7 | 3.1 | | 8c | 2s | W | SW | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.29 | 718.6 | 29.92 | 760.0 | 52 | 11.1 | 72 | Calm | 0 | 0 | | 0 | 1s | | | 0.88 | 22.4 | Clear | |
| Boston, Mass. | | | 30.19 | 766.8 | 73 | 22.8 | 63 | E | 5 | 2.2 | | 8ck | Haze | SW | | 0 | 0 | Fair | |
| Breckenridge, Minn. | | | 29.99 | 761.7 | 49 | 9.4 | 85 | N | 12 | 5.4 | | 5ck | 2ks | NW | N | 0.24 | 6.1 | Clearing | |
| Brownsville, Texas | | | 29.88 | 758.9 | 80 | 26.7 | 82 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 30.04 | 763.0 | 73 | 22.8 | 71 | SW | 5 | 2.2 | | 2c | 0 | | | 0.02 | 0.5 | Fair | |
| Burlington, Vt. | | | 30.14 | 765.5 | 70 | 21.1 | 56 | S | 6 | 2.7 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Cairo, Ill. | | | 30.04 | 763.0 | 70 | 21.1 | 90 | S | 7 | 3.1 | | | 10n | | SE | 0.14 | 3.6 | Light rain | |
| Campo, Cal. | 27.32 | 693.9 | 29.89 | 759.2 | 55 | 12.8 | 79 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 65 | 18.3 | | Calm | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.21 | 767.3 | 78 | 25.6 | 78 | S | 5 | 2.2 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Cape Henry, Va. | | | 30.24 | 768.1 | 73 | 22.8 | 90 | SW | 8 | 3.6 | | | 10s | | N | 0.01 | 0.3 | Cloudy | |
| Cape Lookout, N. C. | | | 30.26 | 768.6 | 77 | 25.0 | 86 | SE | 1 | 0.4 | | 2ck | 5s | SE | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.22 | 767.6 | 68 | 20.0 | 90 | S | 6 | 2.7 | | 5c | Fog | NW | S | 0 | 0 | Foggy | |
| Charleston, S. C. | | | 30.22 | 767.6 | 79 | 26.1 | 82 | SE | 7 | 3.1 | | 2cs | 0 | | | 0.06 | 1.5 | Fair | |
| Cheyenne, Wyoming | 24.13 | 612.9 | 30.07 | 763.8 | 44 | 6.7 | 83 | N | 4 | 1.8 | | 8ck | 2s | SW | | 0 | 0 | Cloudy | |
| Chicago, Ill. | | | 29.92 | 760.0 | 69 | 20.6 | 79 | SW | 16 | 7.2 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Cincinnati, Ohio | | | 30.03 | 762.7 | 74 | 23.3 | 76 | SE | 4 | 1.8 | | | 10ks | | | 0.01 | 0.3 | Cloudy | |
| Cleveland, Ohio | | | 30.06 | 763.5 | 77 | 25.0 | 82 | S | 10 | 4.5 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| Corsicana, Tex. | | | 29.89 | 759.2 | 71 | 21.7 | 90 | Calm | 0 | 0 | | 5cs | 0 | | | 0.03 | 0.8 | Fair | |
| Davenport, Iowa | | | 29.91 | 759.7 | 72 | 22.2 | 80 | SW | 13 | 5.8 | | 1ck | 0 | SW | | 0 | 0 | Clear | |
| Denison, Texas | | | 29.91 | 759.7 | 73 | 22.8 | 85 | Calm | 0 | 0 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Denver, Col. | 24.90 | 632.4 | 30.12 | 765.0 | 50 | 10.0 | 78 | NE | 5 | 2.2 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Detroit, Mich. | | | 30.00 | 762.0 | 70 | 21.1 | 79 | SW | 10 | 4.5 | | 5cs | 0 | SW | | 0.27 | 6.9 | Fair | |
| Dodge City, Kan. | 27.32 | 693.9 | 29.52 | 749.8 | 64 | 17.8 | 83 | S | 4 | 1.8 | | 0 | 2s | | S | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.85 | 758.2 | 73 | 22.8 | 76 | SW | 7 | 3.1 | | 0 | Haze | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.93 | 760.2 | 50 | 10.0 | 86 | Calm | 0 | 0 | | | 10s | | W | 0.14 | 3.6 | Cloudy | |
| Eagle Pass, Tex. | | | | | | | | | | | | | | | | | | | |
| Eastport, Me. | | | 30.11 | 764.8 | 65 | 18.3 | 84 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Erie, Pa. | | | 30.03 | 762.7 | 75 | 23.9 | 72 | S | 11 | 4.9 | | 5c | Haze | SW | | 0.10 | 2.5 | Fair | |
| Escanaba, Mich. | | | 29.80 | 756.9 | 60 | 15.6 | 94 | S | 5 | 2.2 | | 0 | 8s | | S | 1.14 | 29.0 | Cloudy | |
| Florence, Arizona | 28.26 | 717.8 | 29.86 | 758.4 | 79 | 26.1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.90 | 759.4 | 72 | 22.2 | 90 | NW | 1 | 0.4 | | 2cs | 5ks | | SW | Inap. | Inap. | Fair | |
| Fort Griffin, Tex. | 28.56 | 725.4 | 29.80 | 756.9 | 61 | 16.1 | 82 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.99 | 761.7 | 42 | 5.6 | 100 | NW | | | 4 | 0 | 5s | | N | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.72 | 729.5 | 29.78 | 756.4 | 69 | 20.6 | 75 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.37 | 720.6 | 30.02 | 762.5 | 50 | 10.0 | 93 | N | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Galveston, Tex. | | | 29.9[illegible] | 760.0 | 80 | 26.7 | 82 | S | 5 | 2.2 | | 2ck | 2ks | SW | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.93 | 760.2 | 69 | 20.6 | 84 | S | 22 | 9.8 | | 0 | 5s | | SW | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.02 | 762.5 | 71 | 21.7 | 80 | S | 5 | 2.2 | | | 10n | | | Inap. | Inap. | Light rain | |
| Indianola, Tex. | | | 29.90 | 759.4 | 77 | 25.0 | 90 | Calm | 0 | 0 | | | 10ks | | E | 0.28 | 7.1 | Cloudy | |
| Jacksonville, Fla. | | | 30.16 | 766.1 | 80 | 26.7 | 78 | E | 10 | 4.5 | | 5k | 0 | SE | | 0.01 | 0.3 | Fair | |
| Keokuk, Iowa | | | 29.82 | 757.4 | 77 | 25.0 | 73 | SW | 5 | 2.2 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.03 | 762.7 | 81.0 | 27.2 | 70 | E | 12 | 5.4 | | 2k | 1ks | E | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 30.27 | 768.8 | 76 | 24.4 | 86 | SW | 10 | 4.5 | | 8cs | 2ks | | | 0 | 0 | Cloudy | |
| Knoxville, Tenn. | | | 30.14 | 765.5 | 66 | 18.9 | 78 | NE | 7 | 3.1 | | | 10s | | SW | 0.04 | 1.0 | Threatening | |
| LaCrosse, Wis. | | | 29.76 | 755.9 | 74 | 23.3 | 51 | SW | 12 | 5.4 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Leavenworth, Kan. | | | 29.81 | 757.4 | 71 | 21.7 | 80 | SE | 1 | 0.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 30.06 | 763.5 | 69 | 20.6 | 90 | S | 4 | 1.8 | | | 10n | | S | 0.15 | 3.8 | Light rain | |
| Lynchburg, Va. | | | 30.21 | 767.3 | 74 | 23.3 | 81 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 85 | 29.4 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | | | | | | | | | | | | | | | | | |
| Mason, Tex. | 28.30 | 718.8 | 29.99 | 761.7 | 70 | 21.1 | 84 | SE | 3 | 1.3 | | | 10s | | S | 0.2 | 5 | Cloudy | |
| Memphis, Tenn. | | | 29.97 | 761.2 | 70 | 21.1 | 90 | SE | 4 | 1.8 | | | 10s | | SE | 0.84 | 21.3 | Cloudy | |
| Milwaukee, Wis. | | | 29.90 | 759.4 | 72 | 22.2 | 85 | W | 14 | 6.3 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Mobile, Ala. | | | 30.07 | 763.8 | 77 | 25.0 | 90 | SE | 9 | 4.0 | | | 10s | | SE | 3.04 | 77.2 | Cloudy | |
| Montgomery, Ala. | | | 30.12 | 765.0 | 74.5 | 23.6 | 83 | SE | 8 | 3.6 | | 10cs | Haze | | | 0.10 | 2.5 | Cloudy | |
| Morgantown, W. Va. | 29.12 | 739.6 | 30.13 | 765.3 | 72 | 22.2 | 74 | Calm | 0 | 0 | | 8c | 2s | W | S | 0 | 0 | Cloudy | |
| Mt. Washington, N. H. | 24.06 | 611.1 | 29.42 | 772.7 | 45 | 7.2 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Nashville, Tenn. | | | 30.07 | 763.8 | 68 | 20.0 | 94 | E | 5 | 2.2 | | | 10n | | E | 0.48 | 12.2 | Heavy rain | |
| New Haven, Conn. | | | 30.17 | 766.3 | 77 | 25.0 | 69 | E | 5 | 2.2 | | Haze | hz,fg | | | 0.55 | 14.0 | Fair | |
| New London, Conn. | | | 30.19 | 766.8 | 75 | 23.9 | 72 | Calm | 0 | 0 | | 4c,cs | Haze | W | | 0.26 | 6.6 | Fair | |
| New Orleans, La. | | | 29.98 | 761.5 | 79 | 26.1 | 86 | SE | 12 | 5.4 | | | 10s | | S | 0.55 | 14.0 | Cloudy | |
| Newport, R. I. | | | 30.19 | 766.8 | 70 | 21.1 | 79 | SW | 1 | 0.4 | | 4c | 0 | W | | 0.14 | 3.6 | Fair | |
| New York, N. Y. | | | 30.21 | 767.3 | 67 | 19.4 | 94 | W | 3 | 1.3 | | | Fog | | | 0.05 | 1.3 | Foggy | |
| Norfolk, Va. | | | 30.26 | 768.6 | 76 | 24.4 | 81 | S | 3 | 1.3 | | | 10s | | | Inap. | Inap. | Cloudy | |
| North Platte, Neb. | 27.10 | 688.3 | 29.63 | 752.6 | 55 | 12.8 | 80 | N | 16 | 7.2 | | | 10s | | N | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.74 | 730.0 | 29.77 | 756.1 | 67 | 19.4 | 84 | S | 6 | 2.7 | | 5ck | 5s | SW | S | Inap. | Inap. | Cloudy | |
| Oswego, N. Y. | | | 30.11 | 764.8 | 70 | 21.1 | 79 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 30.08 | 764.0 | 42 | 5.6 | 74 | Calm | 0 | 0 | | 0 | 0 | | | 0.07 | 1.8 | Clear | |
| Philadelphia, Pa. | | | 30.20 | 767.1 | 72 | 22.2 | 90 | W | 12 | 5.4 | | 2k | 8ks | W | W | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 72 | 22.2 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.89 | 454.4 | 30.10 | 764.3 | 27 | — 2.8 | 77 | SW | 30 | 13.4 | | 0 | 2k | | | 0 | 0 | Clear | |
| Pittsburgh, Pa. | | | 30.10 | 764.5 | 70 | 21.1 | 84 | S | 2 | 0.9 | | 10c | Sm'e | NW | | 0 | 0 | Cloudy | |
| Port Huron, Mich. | | | 29.99 | 761.7 | 70 | 21.1 | 79 | S | 9 | 4.0 | | 0 | 1s | | | 0.06 | 1.5 | Clear | |
| Portland, Me. | | | 30.16 | 766.1 | 69 | 20.6 | 56 | W | 4 | 1.8 | | 1k | Haze | | | 0 | 0 | Clear | |
| Portland, Oregon | | | 30.03 | 762.7 | 51 | 10.6 | 86 | SE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.79 | 629.6 | 30.15 | 765.8 | 55 | 12.8 | 14 | S | | | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | | | | | | | | | | | | | | | | | |
| Rochester, N. Y. | | | 30.07 | 763.8 | 71 | 21.7 | 57 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.62 | 650.7 | 29.96 | 761.0 | 60 | 15.6 | 29 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.20 | 767.1 | 71 | 21.7 | 100 | Calm | 0 | 0 | | | Fog | | | 0.03 | 0.8 | Dense fog | |
| San Antonio, Tex. | | | 29.76 | 755.9 | 70 | 21.1 | 100 | Calm | 0 | 0 | | | 10s | | | 0.25 | 6.3 | Cloudy | |
| San Diego, Cal. | | | 29.91 | 759.7 | 63 | 17.2 | 73 | SW | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.82 | 757.4 | 56 | 13.3 | 80 | SW | 8 | 3.6 | | Haze | 2s | | SW | 0 | 0 | Hazy | |
| Santa Fé, New Mexico | 23.27 | 591.0 | 29.81 | 757.2 | 60 | 15.6 | 6 | E | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Savannah, Ga. | | | 30.21 | 767.3 | 80 | 26.7 | 78 | SE | 8 | 3.6 | | 5ck | 5ks | SW | SE | Inap. | Inap. | Threatening | |
| Shreveport, La. | | | 30.01 | 762.2 | 77 | 25.0 | 91 | SE | 2 | 0.9 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Smithville, N. C. | | | 30.24 | 768.1 | 76 | 24.4 | 81 | S | 8 | 3.6 | | | 10s | | S | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 30.19 | 766.8 | 75 | 23.9 | 68 | W | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| St. Louis, Mo. | | | 29.99 | 761.7 | 72 | 22.2 | 80 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| St. Marks, Fla. | | | 30.12 | 765.0 | 74 | 23.3 | 90 | SE | 7 | 3.1 | | | 10s | | SE | 0.05 | 1.3 | Cloudy | |
| St. Paul, Minn. | | | 29.82 | 757.4 | 49 | 9.4 | 93 | N | 13 | 5.8 | | | 10n | | | 2.10 | 53.3 | Light rain | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 70 | 21.1 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.79 | 680.4 | 29.79 | 756.7 | 67 | 19.4 | 84 | SE | 15 | 6.7 | | 2cs | 0 | SE | | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 30.20 | 767.1 | 66 | 18.9 | 78 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear. | |
| Toledo, Ohio | | | 30.01 | 762.2 | 75 | 23.9 | 72 | S | 9 | 4.0 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Tucson, Arizona | 27.45 | 697.2 | 30.03 | 762.7 | 65 | 18.3 | | S | | | | 0 | 0 | | | 0 | 0 | Clear. | |
| Tybee Island, Ga | | | 30.17 | 766.3 | 78 | 25.6 | 86 | SE | 6 | 2.7 | | 5ck | Haze | SW | | 0.10 | 2.5 | Fair | |
| Vicksburg, Miss | | | 30.00 | 762.0 | 78 | 25.6 | 86 | S | 5 | 2.2 | | 2ck | 5s | | S | Inap. | Inap. | Fair | |
| Virginia City, Montana | 24.26 | 616.2 | 29.74 | 755.4 | 41 | 5.0 | 73 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Washington, D. C | | | 30.20 | 767.1 | 77.5 | 25.3 | 80 | S | 9 | 4.0 | | 5c,ck | 1s,d | W | SW | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 65 | 18.3 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.24 | 768.1 | 76 | 24.4 | 86 | SE | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 30.21 | 767.3 | 68 | 20.0 | 84 | Calm | 0 | 0 | | 2c | 0 | NW | | 0 | 0 | Fair | |
| Yankton, Dakota | 28.67 | 728 2 | 29.93 | 760.2 | 57 | 13.9 | 94 | N | 12 | 5.4 | | | 10n | | | 0.36 | 9.1 | Light rain | |
| Yuma, Arizona | | | 29.74 | 755.4 | 78 | 25.6 | 17 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear. | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.14 | 765.5 | 80 | 26.7 | 86 | Calm | 0 | 0 | | 2k | 2s | SE | | 0 23 | 5.8 | | James Gall. |
| Navassa, W. I | | | 29.95 | 760.7 | 81 | 27.2 | | ESE | | | 3 | | | | | 0.05 | 1.3 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A. | | | 30.04 | 763.0 | 82 | 27.8 | 83 | SE | | | 2 | 0 | 5k | | | 0.150 | 3.81 | Clear | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.26 | 641.6 | | | 65.0 | 18.3 | 83 | Calm | | | 0 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.71 | 754.6 | 36 | 2.2 | 95 | W | 20 | 8.9 | | | 9s | | N | 0.40 | 10.2 | Cloudy | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.06 | 763.5 | 72 | 22.2 | | SE | | | 2 | | | | | 0.15 | 3.8 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672 1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775 7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.28 | 769.1 | 76 | 24 4 | 75 | 23.9 | 81 | SW | | | 2 | | 3 | | SW | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 29.90 | 759.4 | 60 | 15.6 | 58 | 14.4 | | SSW | | | 4 | | 6 | | NE | 0 | 0 | | | Cloudy | |
| Navy Yard, Pensacola, Fla. | 30.20 | 767.1 | | | 77 | 25.0 | 91 | E | 17 | 7.6 | | | 9 | | W | 6.42 | 163.1 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.26 | 768.6 | 82 | 27.8 | 75 | 23.9 | 52 | Calm | 0 | 0 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.83 | 757.7 | 70 | 21.1 | 68 | 20.0 | 95 | SW | | | 4 | | 8ks | | SW | 0.06 | 1.5 | | | Cloudy | |
| Alert, N. 3° 00′, E. 136° 07′ 15″ | 29.94† | 760.5† | 83 | 28.3 | 83 | 28.3 | 96 | WNW | | | 6 | | 10 | | NW | | | Cross | | Squally | |
| Alliance, Beirut, Syria | 30.10 | 764.5 | 80 | 26.7 | 78 | 25.6 | 91 | NW | | | 0–1 | | 3 | | | | | Smooth | | Clear | |
| Ashuelot, Mouth of Min, China | 29.89 | 759.2 | 80 | 26.7 | 80 | 26.7 | 91 | SW | | | 1 | | 5 | | | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.01 | 762.2 | 55 | 12.8 | 78 | 25.6 | 91 | SE | | | 3 | | 10 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.25 | 768.3 | 65 | 18.3 | 68 | 20.0 | 95 | S | 4 | 1.8 | | | 10 | | | 0.03 | 0.8 | | | Foggy | |
| Despatch, Constantinople, Turkey | 30.16 | 766.1 | 70 | 21.1 | 70 | 21.1 | 80 | NE | | | 4 | | 9 | | NE | | | Smooth | | Cloudy | |
| Franklin, Norfolk, Va. | 30.27 | 768.8 | 72 | 22.2 | 74 | 23.3 | 90 | WSW | 2 | 0.9 | | | 9 | | WSW | 0 | 0 | | | D. clouds | |
| Frolic, S. 26° 03′, W. 44° 42′ | 30.17 | 766.3 | 69 | 20.6 | 69 | 20.6 | 95 | SW | | | 4–5 | | 7k | | | Blank | Blank | Moderate. | SW | D. clouds | |
| ‡Gettysburg, Off Viareggio, Italy | 29.88 | 758.9 | | | 77 | 25.0 | 95 | W | | | 1 | | 7 | | | Blank | Blank | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.45 | 773.4 | 70 | 21.1 | 74 | 23.3 | 95 | SW | 1.2 | 0.5 | | | 8 | | | 0 | 0 | | | Pleasant | |
| Huron, N. 9° 54′ 57″, W. 79° 32′ | 30.09 | 764 3 | 85 | 29.4 | 84 | 28.9 | 83 | SW | | | 1 | | 8 | | NE | 0 | 0 | Smooth | ENE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.95 | 760.7 | 78 | 25.6 | 76 | 24.4 | 91 | W | | | 2 | | 2 | | | 0 | 0 | | | Clear | |
| Lackawana, N 34° 34′, W. 124° 34′ | 29.87 | 758.7 | | | 58 | 14.4 | 76 | N | | | 2 | | 10 | | S&E | | | Long | NNW | D. clouds | |
| Marion, Smyrna, Turkey | 29.93 | 760.2 | 82 | 27.8 | 83 | 28.3 | 53 | WNW | | | 3 | | 2 | | WNW | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.63 | 752.6 | 75 | 23.9 | 75 | 23.9 | 77 | S | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Tientsin, China | 29.85 | 758.2 | 70 | 21.1 | 66 | 18.9 | 89 | E | | | 2 | | 10 | | E | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.29 | 769.4 | 69 | 20.6 | 68 | 20.0 | 90 | Calm | | | 0 | | 4ck | | | Light | Light | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.44 | 773.2 | | | 78 | 25.6 | 86 | E | 7 | 3.1 | | | 10 | | S | | | | | D. clouds | |
| Omaha, Callao, Peru | 30.08 | 764 0 | 69.5 | 20.9 | 69 | 20.6 | 85 | SSE | 4 | 1.8 | | | 10 | | SE | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, N. 36° 17′, W. 75° 33′ | 30.32 | 770.1 | 71 | 21.7 | 71 | 21.7 | 100 | S | | | 1 | | 10 | | S | | | Long | SSE | D. clouds | |
| Palos, Shanghai, China | 29.89 | 759.2 | 75 | 23.9 | 75 | 23.9 | 95 | NE | | | 2 | | 10 | | NE | Blank | Blank | | | Overcast | |
| Pensacola, N. 20° 05′, W. 124° 04′ | 30.04 | 763.0 | | | 70 | 21.1 | 90 | N | | | 2 | | 9 | | S&W | 0 | 0 | Long | N&W | Overcast | |
| Plymouth, Off Vera Cruz, Mexico | 30.04 | 763.0 | 81 | 27.2 | 77 | 25.0 | | SW | | | 2 | | 6 | | | 0 | 0 | Smooth | | Clear | |
| Ranger, Suez, Egypt | 30.15 | 765 8 | | | 86 | 30.0 | 42 | N | | | 1–2 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.27 | 768.8 | 66.0 | 18.9 | 65.0 | 18.3 | 81 | N | | | 3 | | 1 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.78 | 756.4 | | | 71 | 21.7 | 95 | Calm | | | 0 | | 2 | | | | | | | Hazy | |
| Santee, Annapolis, Md | 30.28 | 769.1 | 77 | 25.0 | 77 | 25.0 | 77 | SW | | | 2 | | 6 | | | 0 | 0 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.46 | 773 7 | | | 70 | 21.1 | | Calm | | | 0 | | 2 | | | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 30.15 | 765 8 | 74 | 23.3 | 72 | 22.2 | 90 | SW | 12 | 5 4 | | | 8 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, N. 10° 07′, W. 79° 37′ | 29.98 | 761.5 | 83 | 28.3 | 83 | 28.3 | 87 | ENE | | | 2 | | 4k | | NE | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.80 | 756.9 | 73 | 22.8 | 72 | 22.2 | 85 | SSE | | | 2 | | 8 | | N&W | Heavy | Heavy | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.04† | 763.0† | 84 | 28.9 | 85 | 29.4 | 79 | NW | 5 | 2.2 | | | 1 | | N&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.04 | 763 0 | 72 | 22.2 | 68 | 20.0 | 79 | NE | | | 2–3 | | 10 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.26 | 769.1 | 71 | 21.7 | 72 | 22.2 | 67 | W | 2 | 0.9 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Wyoming, Washington, D.C | 30.30† | 769.6† | 67.5 | 19.7 | 76 | 24 4 | | SW | | | 2 | | 3 | | SW | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

# UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

## PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 01′, W. 150° 19′ | W½N | | 30.05 | 763.3 | 57 | 13.9 | 94 | W | | | 3 | | 8 | | W | Smooth | | D. clouds | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 49° 33′, W. 8° 38′ | E | 9 | 29.96 | 761.0 | 61.2 | 16.2 | | E | | | 5 | | s,hz | | E | Tranq'l | | Hazy | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N. 48° 4′, W. 41° 0′ | SW by W | 11.5 | 29.97 | 761.2 | 59.0 | 15.0 | | WNW | | | 5 | | k | | NW | Moderate | S | D. clouds | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgensen. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 16, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.16 | 766.1 | 82.0 | 27.8 | 53 | Calm | | | 0 | | 1 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.07 | 763.6 | 84.9 | 29.4 | 87 | W | | | 4 | | 6 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.02 | 762.4 | 82.6 | 28.1 | 71 | N | | | 1 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.02 | 762.5 | 89.6 | 32.0 | | E | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.03 | 762.8 | 84.2 | 29.0 | | E | | | 3 | | 6 | | | 0.079 | 2.0 | Fair | Husson. |
| Saida | | | 30.15 | 765.8 | 81.7 | 27.6 | | N | | | 2 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.09 | 764.2 | 86.0 | 30.0 | | NNW | | | 1 | | 2 | | | Inap. | Inap. | Clear | Bourgeois. |
| Geriville | | | 30.15 | 765.9 | 86.4 | 30.2 | | WNW | | | 3 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.12 | 765.1 | 93.2 | 34.0 | 23 | E | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.04 | 762.0 | 102.7 | 39.3 | | NW | | | 1 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.11 | 764.8 | 69.3 | 20.7 | 37 | NE | | | 5 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.17 | 766.2 | 63.7 | 17.6 | 42 | NE | | | 2 | | 2 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.08 | 764.0 | 66.6 | 19.2 | 32 | N | | | 4 | | 4cks | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.92 | 734.6 | 30.15 | 765.7 | 66.2 | 19.0 | 63 | E | | | 2 | | 8 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.63 | 727.2 | 30.03 | 762.7 | 60.6 | 15.9 | 57 | SE | | | 3 | | 8 | | | 0.167 | 4.25 | | Prof. Reissenberger. |
| Kremsmünster | 28.82 | 732.1 | 30.14 | 765.5 | 64.4 | 18.0 | 45 | ENE | | | 3 | | 2 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.09 | 764.3 | 62.2 | 16.8 | 55 | NE | | | 2 | | 6 | | | 0.047 | 1.2 | | Dr. T. Stanecki. |
| Pola | | | 30.10 | 764.4 | 71.4 | 21.9 | 38 | ESE | | | 3 | | 0 | | | 0.030 | 0.77 | | I.R. Hydrographic Office |
| Szegedin | | | 30.04 | 763.0 | 67.5 | 19.7 | 62 | NE | | | 3 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.13 | 765.3 | 72.7 | 22.6 | 40 | ENE | | | 2 | | 1 | | | 0 | 0 | Almost clear | P. Busin. |
| Vienna | | | 30.15 | 765.7 | 67.3 | 19.6 | 42 | NE | | | 1 | | 3 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 848.5 meters or 1,123.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.67 | 728.1 | 30.13 | 765.4 | 69.4 | 20.8 | 36 | ESE | | | 3 | | 0 | | | 0 | 0 | | |
| Brussels | | | 30.11 | 764.9 | 77.1 | 25.1 | 37 | ESE | | | 3 | | 1ck | | SE | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.11 | 764.8 | 76.6 | 24.8 | 49 | ENE | | | 2 | | 0 | | | 0 | 0 | | |
| Maeseyck | | | 30.13 | 765.3 | 73.6 | 23.1 | 37 | ESE | | | 4 | | 3 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'r 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.29 | 769.4 | 58.5 | 14.7 | | S | 11 | 4.9 | | | 1 | | | 0 | 0 | Foggy | William Boswell. |
| Ardrossan | | | 30.21 | 767.3 | 68 | 20.0 | | NW | | | 1 | | 5 | | | | | D. clouds | William McNell. |
| Armagh, Observatory | | | 30.17 | 766.3 | 66.9 | 19.4 | | E | 9 | 4.0 | | | 2 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.17 | 766.3 | 71.2 | 21.8 | | ESE | 14 | 6.3 | | | 0 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.08 | 764.0 | 74.7 | 23.7 | | SE | | | 2 | | 1 | | | | | Blue sky | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.26 | 768.6 | 65.0 | 18.3 | | E | | | 1 | | 0 | | | 0 | 0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.98 | 761.5 | 83 | 28.3 | | NE | | | 1 | | 5 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.16 | 766.1 | 76.0 | 24.4 | | E | | | 1 | | 0 | | | | | Blue sky | H. Todd. |
| Cardington | | | 30.17 | 766.3 | 75.0 | 23.9 | | E | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.22 | 767.6 | 61.2 | 16.2 | | NE | | | 2 | | 6 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.62 | 726.9 | 30.05 | 763.3 | 68.0 | 20.0 | | SE | | | 5 | | 3 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.18 | 766.6 | 62 | 16.7 | | ESE | | | 2 | | 3 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.13 | 765.3 | 65 | 18.3 | | NE | | | 3 | | 0 | | | | | Clear | J. Costello. |
| Eccles, (near Manchester) | | | 30.17 | 766.3 | 74.8 | 23.8 | | SE | 1.8 | 0.8 | | | | | | | | Blue sky | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.03 | 762.7 | 62.0 | 16.7 | | E | | | 5 | | 1 | | | | | Squally | The Staff. |
| Fort Napier, (Natal) | 27.56 | 700.0 | 29.79 | 756.7 | 70.9 | 21.6 | | W | | | 4 | | 2 | | | | | D. clouds | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.02 | 762.5 | 83 | 28.3 | | E | | | 6 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.01 | 762.2 | 70 | 21.1 | | E | | | 2 | | 6 | | | | | D. clouds | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.12 | 765.0 | 80.0 | 26.7 | | SW | | | 3 | | 2 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.19 | 766.8 | 68.1 | 20.1 | | NE | | | 4 | | 1 | | | | | Blue sky | D. G. Maclean. |
| Great Yarmouth | | | 30.24 | 768.1 | 59 | 15.0 | | ENE | | | 3 | | 1 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.13 | 765.3 | 74.2 | 23.5 | | E | | | 3 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 29.99 | 761.7 | 62 | 16.7 | | ENE | | | 2 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.04 | 763.0 | 67 | 19.4 | | E | | | 6 | | 2ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.13 | 765.3 | 69 | 20.6 | | ENE | | | 3 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.12 | 765.0 | 72.8 | 22.7 | | E | 24 | 10.7 | | | | | | | | D. clouds | The Staff. |
| Kingstown | | | 30.18 | 766.6 | 60 | 15.6 | | NE | | | 1 | | 1 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.17 | 766.3 | 70.9 | 21.6 | | E | | | 2 | | | | | | | Blue sky | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 29.92 | 760.0 | 82 | 27.8 | | NE | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 30.20 | 767.1 | 63 | 17.2 | | E | | | 1 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.08 | 764.0 | 75.6 | 24.2 | | NE | | | 2 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.20 | 767.1 | 73.2 | 22.9 | | NE | | | 3 | | 0 | | | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.15 | 765.8 | 72.0 | 22.2 | | ENE | | | 4 | | 0 | | | | | Blue sky | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.12 | 765.0 | 73 | 22.8 | | ENE | | | 2 | | 1 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 30.05 | 763.3 | 71.4 | 21.9 | | E | | | 4 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.05 | 763.3 | 65 | 18.3 | | ESE | | | 4 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.06 | 763.5 | 67 | 19.4 | | ESE | | | 4 | | 0 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.98 | 761.5 | 74.0 | 23.3 | | ENE | | | 5 | | 0 | | | | | Clear | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.24 | 768.1 | 61 | 16.1 | | SE | 27 | 12.1 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.84 | 757.9 | 77.0 | 25.0 | | NE | | | 2 | | 3 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.22 | 767.6 | 68.8 | 20.4 | | ENE | | | 2 | | 0 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Stilloth, Rectory | | | 30.19 | 766.8 | 75.8 | 24.3 | 44 | SE | | | 1 | | 0 | | | 0 | 0 | Blue sky | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.19 | 766.8 | 69.8 | 21.0 | | E | | | 1 | | | | | | | Blue sky | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.17 | 766.3 | 68 | 20.0 | | Calm | | | 0 | | 0 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.12 | 765.0 | 74.8 | 23.8 | | E | | | 2 | | 0 | | | | | Blue sky | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 30.19 | 766.8 | 71 | 21.7 | | SSE | | | 2 | | 0 | | | | | Blue sky | John Trotter. |
| Truro, Royal Institution | | | 30.06 | 763.5 | 74 | 23.3 | | E | | | 7 | | 2 | | | | | Blue sky | W. Newcombe. |
| Valencia, Observatory | | | 30.01 | 762.2 | 68.6 | 20.3 | | E | 13 | 5.8 | | | 5 | | | | | D. clouds | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | | | | | | | | | | | | | | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.04 | 763.0 | 55.2 | 12.9 | 56 | W | 21 | 9.4 | | 2 | 6 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.04 | 763.0 | 49.0 | 9.4 | 93 | | | | 2 | | 10kn | | | 0.30 | 7.6 | | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.27 | 768.8 | 58.0 | 14.4 | | E | | | 2 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.24 | 768.1 | 69.2 | 20.7 | 68 | SE | 16.0 | 7.2 | | | | | | 0 | 0 | | C. Meldrum. |
| Melbourne, Observatory | | | 30.49 | 774.4 | 48.4 | 9.1 | 88 | W | 8 | 3.6 | | | 9 | | | 0.01 | 0.3 | Fine, dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides | | | 30.19 | 766.8 | 62 | 16.7 | | Calm | | | 0 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.29 | 769.4 | 54 | 12.2 | | S | | | 1 | 0 | 0 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | Barometer. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature. Fahrenheit. | Centigrade. | Relative Humidity. | Wind. Direction. From— | Velocity. | Force. | Clouds. Amount. Up'r 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Sea or swell. Height scale 0-9 | Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 43° 15′, W. 50° 45′ | | | 30.10 | 764.5 | 49.0 | 9.4 | | WNW | | 2 | | 9 | | | 5* | WNW | Overcast | Capt. W. Watson. |
| S. S. Batavia, N. 51° 20′, W. 16° 30′ | | | | | 60.0 | 15.6 | | SW | | 2 | | 5 | | | 3 | WNW | Foggy | Capt. J. E. Mouland. |
| Ship Camperdown, N. 44° 55′, W. 37° 20′ | | | 29.84 | 757.9 | 60.0 | 15.6 | | SSW | | 4 | | 10 | | | 3 | SSW | Drizzling | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 15′ | | | 29.98 | 761.5 | 63.3 | 17.4 | | E | | 5 | | 7 | | | 4 | Confused. | Hazy | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 39′ 20°, W. 66° 25′ | | | 30.19 | 766.8 | 68.0 | 20.0 | | WSW | | 3 | | 7 | | | 3 | W | D. clouds | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Queenstown, Ireland | | | 30.05 | 763.3 | 62 | 16.7 | | ENE | | 4 | | | | | | | | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.23 | 666.2 | | | 65.8 | 18.8 | 92 | NE | | | 2 | | 2cs | | NE | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.34 | 770.7 | 67.8 | 19.9 | 44 | W | | | 2 | | 2 | | | | | | |
| Fanöe | | | 30.26 | 768.5 | 69.3 | 20.7 | 51 | SSE | | | 4 | | 8 | | | | | | |
| Godthaab, (Greenland) | | | 29.93 | 760.3 | 45.3 | 7.4 | 66 | S | | | 2 | | 6 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.08 | 764.0 | 47.5 | 8.6 | 98 | SW | | | 2 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 30.19 | 766.9 | 64.9 | 18.3 | 63 | Calm | | | 0 | | 2 | | | | | | |
| Vestervig | | | 30.30 | 769.7 | 63.3 | 17.4 | 76 | SW | | | 2 | | 8 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.08 | 763.9 | 75.2 | 24 | 65 | E | | | 3 | | 5k | | SW | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Naval Observatory | | | 30.10 | 764.6 | 80.6 | 27.0 | 55 | E | | | 3 | | 5 | | E | 0 | 0 | Cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 29.92 | 760.0 | 87.8 | 31 | 42 | SSW | | | 3 | | 0 | | | 0 | 0 | Clear | Mr. Giraud. |
| Bar-sur-Seine | | | 29.98 | 761.6 | 77.0 | 25.0 | 35 | E | | | 2 | | 0 | | | 0 | 0 | Clear | C. Saillard. |
| Beaumette, (near Angers) | | | | | | | | | | | | | | | | | | | Beaumette Observ'tory. |
| Beauvais | | | 30.01 | 762.2 | 74.5 | 23.6 | 36 | ENE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Beaugon | | | 29.96 | 761 0 | 80.6 | 27 | 42 | NE | | | 6 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.05 | 763.2 | 84.2 | 29 | 59 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 29.91 | 759.6 | 78.8 | 26 | 84 | NE | | | 6 | | 0 | | | 0 | 0 | Clear | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.86 | 758.5 | 83.3 | 28.5 | 62 | SW | | | 1 | | 8 | | SW | 0 | 0 | Stormy | The Staff. |
| Carcassonne, Normal School | | | 29.85 | 758.2 | 82.0 | 27.8 | 65 | W | | | 1 | | 1 | | E | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 29.99 | 761.7 | 77.5 | 25.3 | 53 | E | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 29.95 | 760.7 | 76.3 | 24.6 | 84 | E | | | 4 | | 0 | | | 0 | 0 | Clear | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.02 | 762 5 | 78.8 | 26.0 | 31 | SW | | | 3 | | 0 | | | 0 | 0 | Clear. | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.85 | 758.3 | 85.3 | 29.6 | 60 | N | | | 2 | | 8 | | | 0 | 0 | Very cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.04 | 763.0 | 71.6 | 22 | 43 | E | | | 4 | | 0 | | | 0 | 0 | Clear | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.02 | 762.5 | 82.4 | 28.0 | 50 | SE | | | 4 | | 8 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.97 | 761.2 | 83.5 | 28.6 | 55 | ENE | | | 2 | | 2ks | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.91 | 759.8 | 88.5 | 31.4 | 54 | NNE | | | 2 | | 8 | | NNE | 0 | 0 | Very cloudy | Mouillet, Director. |
| Le Mans, Normal School | | | 29.97 | 761.2 | 79.7 | 26.5 | 47 | ESE | | | 4 | | 0 | | | 0 | 0 | Clear | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 29.89 | 759.1 | 79.3 | 26.3 | 60 | NW | | | 2 | | 0 | | | 0 | 0 | Clear. | Pin, Director. |
| Lorient, Naval Observatory | | | 29.92 | 759.9 | 85.3 | 29.6 | 55 | WSW | | | 1 | | 8 | | E | 0.768 | 19.5 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.93 | 760.2 | 76.3 | 24.6 | 77 | N | | | 2 | | 0 | | | 0 | 0 | Clear | M. A. Schuster, Dir. |
| Metz | | | 30.10 | 766.8 | 71.8 | 22.1 | 32 | NE | | | 2 | | 1k | | | 0 | 0 | | Normal School. |
| Mirecourt | | | 30.01 | 762.3 | 70.3 | 21.3 | 50 | E | | | 1 | | 0 | | | 0 | 0 | Clear. | Normal School. |
| Nismes, Normal School | | | 29.97 | 761.1 | 89.6 | 32 | 52 | E | | | 4 | | cn | | | 0 | 0 | | Boyer, Director. |
| Orleans | | | 29.93 | 760.3 | 79.5 | 26.4 | 36 | E | | | 6 | | 1 | | E | 0 | 0 | Clear. | Normal School. |
| Paris, Observatory | | | 30.00 | 762.0 | 77.2 | 25.1 | 30 | E | | | 3 | | 0 | | | 0 | 0 | Clear | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.92 | 759.9 | 86.0 | 30.0 | 55 | WSW | | | 2 | | 8 | | SW | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.04 | 763.1 | 82.0 | 27.8 | 36 | NE | | | 3 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 28.96 | 735.6 | 29.97 | 761.2 | 89.6 | 32 | 43 | W | | | 2 | | 1 | | W | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 29.89 | 759.2 | 86.2 | 30.1 | 67 | N | | | 3 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 81.3 | 27.4 | | | | | | | | | | | | | L'Abbé Marchès. |
| Marseilles, Observatory | | | | | 84.2 | 29.0 | 48 | S | | | 3–4 | | 4 | | | 0 | 0 | Partly cl'dy. | The Staff. |
| Mont-Louis | 24.95 | 633.6 | 30.26 | 768.6 | 59.2 | 15.1 | 72 | SSW | 5.6 | 2.50 | | | 10 | | S | 0.102 | 2.6 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.00 | 762.0 | 79.0 | 26.1 | 29 | ENE | | | 3 | | 0 | | | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 29.95 | 760.7 | 79.7 | 26.5 | 93 | SE | 13.0 | 5.83 | | | 1 | | SE | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.37 | 542.8 | | | 42.8 | 6.0 | | N | | | 1 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.63 | 574.7 | | | 48.2 | 9.0 | | N | | | 3 | | 10 | | | 0.311 | 7.9 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.01 | 762.2 | 78.8 | 26.0 | 36 | NE | | | 3 | | 0 | | | 0 | 0 | | F. Renou. |
| Toulouse, Observatory | | | 30.03 | 762.7 | 75.7 | 24.3 | 67 | W | | | 1 | | 7 | | | 0 | 0 | | The Staff |
| Tours | | | 29.93 | 760.1 | 82.4 | 28.0 | 48 | ENE | | | 3 | | 0 | | | 0 | 0 | Clear | C. Marquet. |
| Versailles, (near Paris) | | | 30.02 | 762.4 | 79.2 | 26.2 | 34 | E | | | 3 | | 0 | | | 0 | 0 | Clear | Dr. A Rérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.83 | 757.6 | 69.6 | 20.9 | 85 | N | 3.4 | 1.5 | | | 10k | | | 0.138 | 3.5 | Raining | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.17 | 766.3 | 69.8 | 21.0 | 35 | E | | | 5 | | 6 | E | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.30 | 769.7 | 67.1 | 19.5 | 59 | E | | | 1 | | 0 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.27 | 768.8 | 63.5 | 17.5 | 35 | NNE | | | 3 | | 3 | | | 0.016 | 0.4 | | Royal University Obs'y. |
| Carlsruhe | | | 29.87 | 758.7 | 73.8 | 23.2 | 34 | E | | | 3 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.31 | 769.8 | 71.2 | 21.8 | 39 | ENE | | | 5 | | 3 | NE | | 0 | 0 | | Dr. H. Möhl. |
| Crêfeld | | | 30.15 | 765.7 | 77.5 | 25.3 | 37 | E | | | 1 | | 4 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.21 | 767.2 | 74.1 | 23.4 | 46 | E | | | 5 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.22 | 767.5 | 76.3 | 24.6 | 25 | E | | | 1 | | 3 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.64 | 727.4 | 30.02 | 762.4 | 72.7 | 22.6 | 36 | NE | | | 6 | | 0 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.29 | 769.4 | 68.5 | 20.3 | 47 | ESE | | | 4 | | 5k | E | | 0 | 0 | Very clear | Captain F. Hegemann. |
| Kiel | | | 30.32 | 770.0 | 66.4 | 19.1 | 51 | ENE | | | 3 | | 3 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.27 | 768.9 | 64.0 | 17.8 | 40 | N | | | 5 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.26 | 768.7 | 69.6 | 20.9 | 41 | NE | | | 2 | | 4 | NE | | 0.004 | 0.1 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.29 | 769.4 | 57.7 | 14.3 | 49 | NNW | | | 4 | | 28 | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.34 | 770.5 | 56.5 | 13.6 | 76 | NNE | | | 3 | | 0 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.28 | 769.2 | 63.3 | 17.4 | 37 | N | | | 7 | | 1 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.05 | 763.3 | 76.3 | 24.6 | 26 | NE | | | 2 | | 0 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.07 | 763.6 | 73.4 | 23.0 | 31 | E | | | 5 | | 0 | | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.99 | 761.7 | 75.2 | 24.0 | 35 | SE | | | 6 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.65 | 727.6 | 30.11 | 764.7 | 68.5 | 20.3 | 32 | E | | | 4 | | 2 | E | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.42 | 772.7 | 67.8 | 19.9 | 40 | E | | | 2 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.91 | 759.8 | 75.4 | 24.1 | | SW | | | | | | | | | | Very cl'dy, th'der | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.64 | 752.9 | 29.69 | 754.2 | 87.3 | 30.7 | 72 | SW | 39.0? | 17.4? | | | 0 | | | 0 | 0 | Blue sky | |
| Deesa | 29.24 | 742.7 | 29.69 | 754.2 | 101.8 | 38.8 | 40 | Calm | | | | | 10 | S | | 0 | 0 | Overcast | |
| Bombay | 29.74 | 755.3 | 29.77 | 756.2 | 86.3 | 30.2 | 79 | S | 22.0 | 9.8 | | | 0 | | | 0.29 | 7.4 | | |
| Poona | 27.68 | 703.1 | 29.65 | 753.0 | 85.4 | 29.7 | 69 | | | | | | | | SE | | | Thunder-storm | |
| Lahore | 28.84 | 732.6 | | | | | | W | 1.1 | 0.4 | | | 3 | | SE | 0 | 0 | Blue sky | |
| Belgaum | 27.20 | 690.8 | 29.71 | 754.7 | 78.8 | 26.0 | 75 | WSW | 25.0 | 11.1 | | | 4 | E | W | 0 | 0 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.64 | 727.3 | 29.48 | 748.9 | 105.3 | 40.7 | | NW | 7.0 | 3.1 | | | 4 | | | 0 | 0 | Strong wind | |
| Agra | 28.97 | 735.9 | 29.59 | 749.4 | 108.7 | 42.6 | 18 | NW | 1.2 | 0.5 | | | 6 | | W | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.56 | 725.4 | 29.56 | 750.7 | 100.4 | 38.0 | 27 | W | 8.2 | 3.6 | | | 8 | | | 0 | 0 | Threatening | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.16 | 740.6 | 29.51 | 749.4 | 105.5 | 40.8 | 20 | NW | 3.2 | 1.4 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.20 | 741.7 | 29.50 | 749.2 | 103.7 | 39.8 | 30 | NW | 1.9 | 0.8 | | | | | | 0 | 0 | Blue sky | |
| Patna | 29.36 | 745.6 | 29.53 | 750.0 | 99.0 | 37.2 | 45 | E | 1.6 | 0.7 | | | 5 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.60 | 701.0 | 29.54 | 750.2 | 93.8 | 34.3 | 40 | E | 6.4 | 2.8 | | | 10 | | E | 0 | 0 | Dust-haze | |
| Cuttack | 29.51 | 749.5 | 29.53 | 751.6 | 90.1 | 32.3 | 68 | S | 7.0 | 3.1 | | | 5 | | | 0 | 0 | D. clouds | |
| Calcutta, (Alipore) | 29.61 | 752.1 | 29.63 | 752.6 | 89.0 | 31.7 | 66 | SE | 9.0 | 4.0 | | | 1 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.23 | 742.5 | 29.62 | 752.2 | 86.7 | 30.4 | 78 | Calm | 1.0 | 0.4 | | | 1 | W | | 0 | 0 | D. clouds | |
| Chittagong | 29.62 | 752.2 | 29.71 | 754.6 | 84.9 | 29.4 | 83 | SSW | 9.0 | 4.0 | | | 8 | | | 0 | 0 | Gloomy | |
| Sibsagar | 29.30 | 744.3 | 29.63 | 752.6 | 87.2 | 30.7 | 74 | W | 2.4 | 1.0 | | | 10 | | | 0 | 0 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.25 | 717.6 | 29.54 | 750.4 | 105.0 | 40.6 | 25 | N | 3.7 | 1.6 | | | 6 | | | 0 | 0 | D. clouds | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.35 | 567.8 | 29.98 | 761.6 | 47.7 | 8.7 | 94 | N | | | 1 | | 10 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.30 | 566.4 | 29.90? | 759.4? | 48.2 | 9.0 | | W | | | 1 | | 4 | S | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.08 | 764.1 | 74.1 | 23.4 | 38 | SE | 1.3 | 0.6 | | | 2 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.09 | 764.3 | 71.8 | 22.1 | 33 | SE | 14.3 | 6.4 | | | 0 | | | 0.008 | 0.2 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.05 | 763.3 | 75.0 | 23.9 | 34 | E | 2.5 | 1.1 | | | 2 | E | | 0.016 | 0.4 | | Conte Alm. Da Schio. |
| Verona | | | 30.10 | 764.6 | 77.5 | 25.3 | 38 | E | | | 2 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.80 | 731.6 | 30.07 | 763.6 | 72.3 | 22.4 | 34 | SE | | | 2 | | 8 | | | 0.031 | 0.8 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.07 | 763.8 | 71.6 | 22.0 | 48 | N | | | 2 | | 10 | | | 0 | 0 | | Prof. Giuseppe Calza |
| Milan | | | 30.09 | 764.3 | 88.9 | 31.6 | 52 | E | | | 4 | | 6 | SE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.08 | 764.0 | 73.4 | 23.0 | 39 | NE | | | 6 | | 3 | NE | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.06 | 763.5 | 69.1 | 20.6 | 59 | NNE | 2.5 | 1.1 | | | 9 | SE | | 0.087 | 2.2 | | Prof. P. F. Denza. |
| Mondovi | 28.24 | 717.3 | 30.07 | 763.6 | 57.9* | 14.4* | 95 | NNW | | | 4 | | 10 | | | 0.181 | 4.6 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.02 | 762.4 | 76.3 | 24.6 | 67 | E | | | 8 | | 2 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.98 | 761.4 | 78.3 | 25.7 | 49 | N | 7.4 | 3.3 | | | 6 | N | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.08 | 764.1 | 73.2 | 22.9 | 33 | E | 16.8 | 7.5 | | | 1 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 30.08 | 764.1 | 75.2 | 24.0 | 44 | E | | | 6 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.04 | 763.1 | 77.0 | 25.0 | 39 | NE | | | 6 | | 3 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.99 | 761.7 | 79.7 | 26.5 | 28 | ENE | 18.6 | 8.3 | | | 2 | | | 0.055 | 1.4 | | Prof. P. Monte. |
| Siena | 28.82 | 731.9 | 29.97 | 761.3 | 73.4 | 23.0 | 29 | NE | 9.8 | 4.4 | | | 0 | | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.58 | 725.8 | 30.08 | 763.9 | 64.8 | 18.2 | 62 | NNE | | | 4 | | 3 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.10 | 764.4 | 69.1 | 20.6 | 60 | N | 16.1 | 7.2 | | | 2 | | | 0.299 | 7.6 | | Prof. Luigi Guidi. |
| Ancona | | | 30.09 | 764.2 | 73.8 | 23.2 | 42 | ESE | | | 4 | | 2 | | | 0.535 | 13.6 | | Prof. F. DeBosis. |
| Grosseto | | | 29.98 | 761.5 | 80.6 | 27.0 | 31 | ENE | | | 6 | | 2 | E | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.92 | 759.9 | 82.6 | 28.1 | 39 | NNE | 7.4 | 3.3 | | | 3 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 29.98 | 761.5 | 80.6 | 27.0 | 37 | E | | | 6 | | 6 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.98 | 761.5 | 72.9 | 22.7 | 53 | NNE | 13.7 | 6.1 | | | 7 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.93 | 760.2 | 88.2 | 31.2 | 40 | NE | 7.4 | 3.3 | | | 3 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.88 | 758.9 | 86.0 | 30.0 | 39 | SE | | | 2 | | 1 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 29.97? | 761.3? | 78.3 | 25.7 | 58 | E | | | 2 | | 3 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.89 | 759.2 | 82.2 | 27.9 | 57 | E | 6.9 | 3.1 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.04 | 712.3 | 29.90 | 759.5 | 86.5 | 30.3 | 18 | W | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.86 | 758.4 | 81.1 | 27.3 | 48 | SE | | | 4 | | 9 | S | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.00 | 762.1 | 75.7 | 24.3 | 43 | ENE | 4.3 | 1.9 | | | 6 | NE | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Probably 75.9 Fah. and 24.4 Cent.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.71 | 754.6 | 68.5 | 20.3 | 95 | Calm | 0 | 0 | | | 9n | | | | | Raining | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.11 | 587.0 | 30.10 | 764.4 | 53.6 | 12.0 | 70 | Calm | 0 | 0 | | 9k | 4k | SE | | 0 | 0 | Smoky | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.17 | 766.2 | 74.1 | 23.4 | | ESE | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 30.16 | 766.0 | 72.1 | 22.3 | | E | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.21 | 767.3 | 64.2 | 17.9 | | NE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.14 | 765.6 | 75.7 | 24.3 | 48 | SE | | | 4 | | 2 | | | 0 | 0 | Light cloudy. | H. vd Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds It is assumed that the barometer readings have been reduced to sea-level

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.26 | 768.7 | 61.2 | 16.2 | 77 | NW | 3.6 | 1.6 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.26 | 768.7 | 55.4 | 13.0 | 66 | N | 9 | 4 | | | 4 | | | 0 | 0 | | |
| Christiania | | | 30.23 | 767.7 | 73 8 | 23.2 | 59 | SSW | 7 | 3 | | | 1 | | | 0 | 0 | | |
| Tromsö | | | 30.13 | 765.2 | 52.0 | 11.1 | 62 | SW | 4 | 2 | | | 9 | | | 0.094 | 2.4 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.14 | 765.5 | 63.3 | 17.4 | 92 | S | 3.1 | 1.4 | | | 9 | | | 0.142 | 3.6 | | Dr. J. A. Sampaio. |
| Campo Major | | | 30.06 | 763.4 | 73.4 | 23.0 | 41 | SSW | 9.4 | 4.2 | | | 8 | SSW | | 0.169 | 4.3 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.21 | 767.4 | 71.6 | 22.0 | 55 | SW | 10.5 | 4.7 | | | 2 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.09 | 764.2 | 67.5 | 19.7 | 74 | WSW | 19.9 | 8.9 | | | 4 | | | 0.031 | 0.8 | | The Staff. |
| Ponta Delgada, (Azores) | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.20 | 767.1 | 61.7 | 16.5 | 45 | N | 9 | 4 | | | 2 | | | | | | Astronomical Obs. |
| Wilna | | | 30.19 | 766.8 | 62.4 | 16.9 | 43 | NNW | 4 | 2 | | | 6 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.19 | 766.8 | 62.4 | 16.9 | 33 | NNE | 9 | 4 | | | 0 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.15 | 765.9 | 58.8 | 14.9 | 44 | NNE | 11 | 5 | | | 2 | | | | | | Central Physical Obs. |
| Kuopio | | | 30.09 | 764.2 | 64.9 | 18.3 | 45 | NW | 18 | 8 | | | 5 | | | | | | Ch. Forsten. |
| Kieff | | | 30.07 | 763.8 | 51.8 | 11.0 | 77 | NNW | 9 | 4 | | | 9 | | | | | Raining | Physical Cabinet. |
| Nikolaiev | | | 30.10 | 764.6 | 70.5 | 21.4 | 42 | N | 9 | 4 | | | 10 | | | | | | Kurdakof. |
| Kertch | | | 30.06 | 763.5 | 70.9 | 21.6 | 62 | NE | 11 | 5 | | | 4 | | | | | | Lagorio. |
| Moscow | | | 30.05 | 763.2 | 53.2 | 11.8 | 63 | NE | 9 | 4 | | | 7 | | | | | | Meteorological Obs. |
| Lugan | | | 30.00 | 762.0 | 64.4 | 18.0 | 47 | N | 9 | 4 | | | 5 | | | | | | Meteorological Obs. |
| Archangel | | | 30.04 | 763.0 | 46.9 | 8.3 | 67 | W | 29 | 13 | | | 1 | | | | | | Ogorodnikof. |
| Tiflis | 28.54 | 725.0 | 29.92 | 759.9 | 69.4 | 20.8 | 85 | Calm | 0 | 0 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.99 | 761.7 | 78.1 | 25.6 | 48 | NE | 7 | 3 | | | 4 | | | | | | Sebastianof. |
| Kasan | | | 29.79 | 756.6 | 53.2 | 11.8 | 76 | WNW | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.78 | 756.3 | 70.3 | 21.3 | 87 | N | 9 | 4 | | | 2 | | | | | | Tschernischef. |
| Ekaterinburg | 28.74 | 730.0 | 29.63 | 752.6 | 79.0 | 26.1 | 45 | SW | 27 | 12 | | | 7 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.89 | 759.1 | 92.5 | 33.6 | 30 | NE | 4 | 2 | | | 1 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.38 | 720.9 | 29.98 | 761.5 | 85.3 | 29.6 | 46 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 30.04 | 763.0 | 77.4 | 25.2 | 41 | SW | 2 | 1 | | | 1 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.64 | 752.9 | 75.9 | 24.4 | 62 | SW | 9 | 4 | | | 4 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 72.5 | 22.5 | | Calm | 0 | 0 | | | 4 | | | | | | Mossin. |
| Peking, (China) | | | 29.79 | 756.7 | 84.0 | 28.9 | 28 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.73 | 755.1 | 58.6 | 14.8 | 85 | Calm | 0 | 0 | | | 8 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 47.3 | 8.5 | 83 | Calm | 0 | 0 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 29.98 | 761.6 | 74.7 | 23.7 | 48 | SW | 24.6 | 11.00 | | 0 | 7 | | | Inap. | Inap. | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.05 | 763.2 | 81.7 | 27.6 | 80 | ENE | 1.1 | 0.5 | | 0 | 1k | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y | | | 30.18 | 766.5 | 68.9 | 20.5 | 90 | WNW | 4.9 | 2.2 | | 0 | 9 | | W | 0.106 | 2.7 | | Capt. C. Pajazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 29.95 | 761.4 | 82.0 | 27.8 | 84 | NE | 0 | 0 | | 6cs | 1n | | | 0.010 | 0.25 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 30.16 | 766.1 | 63.3 | 17.4 | 40 | N | | | 4 | | 5 | | | 0 | 0 | | |
| Umea | | | 30.21 | 767.4 | 61.9 | 16.6 | 38 | S | | | 4 | | 6 | | | 0 | 0 | | |
| Hernosand | | | 30.21 | 767.4 | 66.9 | 19.4 | 49 | SSW | | | 2 | | 2 | | | 0 | 0 | | |
| Stockholm | | | 30.25 | 768.3 | 69.4 | 20.8 | 34 | SSW | | | 2 | | 2 | | | 0 | 0 | | |
| Wisby | | | 30.25 | 768.4 | 57.2 | 14.0 | 51 | W | | | 4 | | 0 | | | 0 | 0 | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.25 | 768.3 | 71.2 | 21.8 | 32 | S | 8.3 | 3.7 | | | 2 | NNW | | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low'r 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.60 | 726.4 | 29.98 | 761.4 | 70.3 | 21.3 | 65 | NNE | | | 2 | | 0 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.43 | 722.1 | 30.00 | 761.9 | 75.4 | 24.1 | 37 | NE | | | 2 | | 0 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, —0.1 mm; Thermometer, +0.5 cent.; Relative Humidity, +10 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.90 | 759.5 | 69.4 | 20.8 | 67 | ENE | 16 | 7.0 | | | 6 | | E | 1.181 | 30.0 | | The Observatory |
| Fao, (Persian Gulf) | | | 29.99 | 761.8 | 96.8 | 36.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.97 | 761.2 | 74.7 | 23.7 | | N | | | 4 | | 10 | | | | | | B. Stéfanidés. |
| Valona | | | 30.03 | 762.8 | 73.0 | 22.8 | | NW | | | 2 | | 2 | | | 0.47 | 12. | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 30.01 | 762.2 | 82.4 | 28.0 | 64 | NW | | | 2 | | 1k | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.80 | 756.9 | 58.9 | 14.9 | 94 | SW | 13 | 5.8 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.79 | 756.7 | 66 | 18.9 | | SW | 8 | 3.6 | | | 10n | | SW | 0.18 | 4.6 | Light rain | W. R. Bigg. |
| *Chatham, N. B | | | 29.84 | 757.9 | 63 | 17.2 | 72 | W | 13 | 5.8 | | 2ks | 8ks | SW | SW | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.95 | 760.7 | 63 | 17.2 | 83 | S | 8 | 3.6 | | 5c | 0 | | | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.73 | 755.1 | 67.5 | 19.7 | 93 | SW | | | 3 | | 10n | | | | | Raining | James Smith, M. A. |
| Dalhousie, N. B | | | 29.62 | 752.3 | 55.1 | 12.8 | 98 | SE | | | 1 | | | | | | | Raining | H. A. Johnson. |
| Esquimault, B. C | | | | | | | | | | | | | | | | | | | W. H. Bevis. |
| *Father Point, Quebec | | | 29.65 | 753.1 | 54 | 12.2 | 100 | S | 1 | 0.4 | | 5k | 5n | W | | 0.27 | 6.9 | Threatening | J. McWilliams. |
| Fredericton, N. B | | | 29.90 | 759.4 | 63.2 | 17.2 | 83 | SW | 7 | 3.1 | | | 10s | | | Inap. | Inap | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.82 | 757.4 | 53 | 11.7 | 96 | SE | 3 | 1.3 | | 5k | 5ks | S | S | 0.43 | 10.9 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.96 | 761.0 | 56.7 | 13.7 | | NW | | | 2 | | 10n | | | 0 | 0 | Misty | H. J. Strang, M. A. |
| Granton, Ontario | 28.82 | 732.0 | 29.88 | 758.9 | 63 | 17.2 | 94 | W | | | 1 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| *Halifax, N. S | | | 30.05 | 763.3 | 65 | 18.3 | 55 | SW | 12 | 5.4 | | 2cs | 0 | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.87 | 758.7 | 71.5 | 21.9 | 77 | W | | | 2 | 6ck | 0 | | | 0 | 0 | | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 30.02 | 762.5 | 48 | 8.9 | 74 | N | | | 3 | 0 | 1s | | | 0.15 | 3.8 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.87 | 758.7 | 61 | 16.1 | 98 | SW | 11 | 4.9 | | | Fog | | SW | 0.15 | 3.8 | Foggy | S. Woods, M. A |
| *Montreal, Quebec | | | 29.74 | 755.4 | 68 | 20.0 | 94 | SW | 9 | 4.0 | | Haze | 8s | | W | 0.34 | 8.6 | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.83 | 757.7 | 56 | 13.3 | 99 | S | 7 | 3.1 | | | 10n | | S | 0.07 | 1.8 | Light rain | Rev. R. Mosley |
| Peterboro, Ontario | | | 29.80 | 756.9 | 68.7 | 20.4 | 85 | SE | | | 1 | | 8n | | | 0 | 0 | Threatening | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.89 | 759.2 | 62 | 16.7 | 100 | SW | 4 | 1.8 | | 10k | 0 | W | | 0.21 | 5.3 | Cloudy | H. Morgan. |
| Port Hastings, N. S | | | 29.99 | 761.7 | 65.3 | 18.5 | | SW | | | | | | | | Inap | Inap. | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.92 | 760.0 | 62 | 16.7 | 96 | W | 3 | 1.3 | | | 10n | | W | 0.26 | 6.6 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.72 | 754.9 | 68 | 20.0 | 95 | Calm | 0 | 0 | | | 10n | | | 0.22 | 5.6 | Cloudy | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.75 | 755.6 | 64 | 17.8 | 88 | NW | 8 | 3.6 | | | 8s | | NW | 0.38 | 9.7 | Cloudy | W. H. McIntyre. |
| St. John, N. B | | | 29.97 | 761.2 | 53 | 11.7 | 89 | S | 6 | 2.7 | | | Fog | | | 0.15 | 3.8 | Foggy | G. Murdock, C. E |
| *Saugeen, Ontario | | | 29.88 | 758.9 | 49 | 9.4 | 95 | Calm | 0 | 0 | | | Fog | | | 0.09 | 2.3 | Foggy | K. Stewart. |
| Stayner, Ontario | | | 29.79 | 756.7 | 68 | 20.0 | 86 | NW | 13 | 5.8 | | | 8n | | W | 0.31 | 7.9 | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.61 | 726.7 | 29.84 | 757.9 | 63.1 | 17.3 | 92 | NW | 12 | 5.4 | | | 10s | | | 0.083 | 2.11 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 30.05 | 763.3 | 64 | 17.8 | 74 | SW | 6 | 2.7 | | 8ck | 0 | NW | | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.85 | 758.2 | 66 | 18.9 | 92 | SW | 5 | 2.2 | | 2c | 2s | W | W | 0.05 | 1.3 | Fair | Magnetic Observatory |
| Windsor, N. S | | | 29.93 | 760.2 | 67.5 | 19.7 | 57 | SW | 12 | 5.4 | | 3cs | 0 | SW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.87 | 758.7 | 67.4 | 19.7 | 86 | W | 10 | 4.5 | | 8c | 0 | W | | 0.10 | 2.5 | Cloudy | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.09 | 764.3 | 59.0 | 15.0 | 43 | NW | | | | 0 | 0 | | | 0.01 | 0.3 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.87 | 758.7 | 70 | 21.1 | 90 | S | 4 | 1.8 | | | 10s | | | 0.20 | 5.1 | Cloudy | |
| Alpena, Mich. | | | 29.93 | 760.2 | 58 | 14.4 | 81 | NW | 8 | 3.6 | | | 10s | | NW | Inap. | Inap. | Cloudy | |
| Atlantic City, N. J. | | | 30.02 | 762.5 | 63 | 17.2 | 100 | SW | 8 | 3.6 | | | 10n | | W | 0.31 | 7.9 | Light rain | |
| Augusta, Ga. | | | 30.16 | 766.1 | 76 | 24.4 | 86 | S | 3 | 1.3 | | | 10ks | | S | 0.03 | 0.8 | Cloudy | |
| Baltimore, Md. | | | 30.00 | 762.0 | 75 | 23.9 | 85 | SW | 15 | 6.7 | | | 10s | | SW | 0.01 | 0.3 | Threatening | |
| Barnegat, N. J. | | | 30.00 | 762.0 | 62 | 16.7 | 94 | S | 14 | 6.3 | | | Fog | | SW | 0.09 | 2.3 | Dense fog | |
| Bismarck, Dakota | 28.16 | 715.3 | 29.75 | 755.6 | 58 | 14.4 | 69 | N | 10 | 4.5 | | 1c | 0 | | | 0 | 0 | Clear | |
| Boston, Mass. | | | 29.93 | 760.2 | 68 | 20.0 | 94 | SW | 14 | 6.3 | | | 10n | | SW | 0.05 | 1.3 | Light rain | |
| Breckenridge, Minn. | | | 29.56 | 758.4 | 57 | 13.9 | 81 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Brownsville, Texas | | | 29.96 | 761.0 | 75 | 23.9 | 100 | Calm | 0 | 0 | | | Fog | | | 0.11 | 2.8 | Foggy | |
| Buffalo, N. Y. | | | 29.85 | 758.2 | 62 | 16.7 | 100 | W | 10 | 4.5 | | | Fog | | W | 1.32 | 33.5 | Foggy | |
| Burlington, Vt. | | | 29.81 | 757.2 | 67 | 19.4 | 94 | S | 9 | 4.0 | | | 10s | | S | 0.38 | 9.7 | Cloudy | |
| Cairo, Ill. | | | 30.04 | 763.0 | 73 | 22.8 | 95 | SW | 3 | 1.3 | | | 10s | | SW | 0.03 | 0.8 | Cloudy | |
| Campo, Cal. | 27.39 | 695.7 | 29.96 | 761.0 | 37 | 2.8 | 63 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 68 | 20.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.12 | 765.0 | 77 | 25.0 | 82 | SW | 14 | 6.3 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.09 | 764.3 | 75 | 23.9 | 85 | S | 14 | 6.3 | | | 10s | | SE | 0.09 | 2.3 | Cloudy | |
| Cape Lookout, N. C. | | | 30.18 | 766.6 | 79 | 26.1 | 78 | S | 12 | 5.4 | | 2k | 0 | | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.03 | 762.7 | 69 | 20.6 | 90 | S | 16 | 7.2 | | | 10s | | SW | 0.26 | 6.6 | Cloudy | |
| Charleston, S. C. | | | 30.18 | 766.6 | 81 | 27.2 | 74 | S | 7 | 3.1 | | 0 | 5ks | | S | 0.02 | 0.5 | Fair | |
| Cheyenne, Wyoming | 24.10 | 612.1 | 30.04 | 763.0 | 50 | 10.0 | 68 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.96 | 761.0 | 55 | 12.8 | 87 | NE | 11 | 4.9 | | | 10s | | | 0.48 | 12.2 | Cloudy | |
| Cincinnati, Ohio | | | 29.96 | 761.0 | 72 | 22.2 | 85 | W | 4 | 1.8 | | | 10ks | | W | 0.59 | 15.0 | Cloudy | |
| Cleveland, Ohio | | | 29.95 | 760.7 | 67 | 19.4 | 87 | W | 10 | 4.5 | | | 10s | | W | 0.23 | 5.8 | Cloudy | |
| Corsicana, Tex. | | | 30.02 | 762.5 | 74 | 23.3 | 90 | SE | 3 | 1.3 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.98 | 761.5 | 65 | 18.3 | 83 | NE | 8 | 3.6 | | 8k | 0 | NE | | Inap. | Inap. | Cloudy | |
| Denison, Texas | | | 30.02 | 762.5 | 80 | 26.7 | 78 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.86 | 631.4 | 30.08 | 764.0 | 52 | 11.1 | 79 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.91 | 759.7 | 64 | 17.8 | 94 | W | 3 | 1.3 | | | 10s | | W | 0.01 | 0.3 | Cloudy | |
| Dodge City, Kan. | 27.47 | 697.7 | 29.70 | 754.4 | 64 | 17.8 | 89 | E | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| Dubuque, Iowa | | | 29.99 | 761.7 | 65 | 18.3 | 73 | N | 3 | 1.3 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.96 | 761.0 | 54 | 12.2 | 79 | E | 2 | 0.9 | | 1ck | 0 | W | | 0 | 0 | Clear | |
| Eagle Pass, Tex. | | | 29.93 | 760.2 | 79 | 26.1 | 78 | E | 6 | 2.7 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Eastport, Me. | | | 29.92 | 760.0 | 52 | 11.1 | 86 | S | 4 | 1.8 | | | Fog | | | 0 | 0 | Foggy | |
| Erie, Pa. | | | 29.89 | 759.2 | 68 | 20.0 | 90 | SW | 12 | 5.4 | | | 10ks | | SW | 1.51 | 38.4 | Cloudy | |
| Escanaba, Mich. | | | 29.98 | 761.5 | 52 | 11.1 | 73 | N | 12 | 5.4 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Florence, Arizona | 28.27 | 718.0 | 29.87 | 758.7 | 78 | 25.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.99 | 761.7 | 74 | 23.3 | 85 | SE | 2 | 0.9 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.77 | 730.7 | 30.00 | 762.0 | 71 | 21.7 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.85 | 758.2 | 50 | 10.0 | 65 | NW | | | 4 | 2ck | 1ks | NE | E | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.81 | 731.8 | 29.87 | 758.7 | 75 | 23.9 | 76 | Calm | 0 | 0 | | 2k | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.23 | 717.0 | 29.84 | 757.9 | 57 | 13.9 | 87 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.00 | 762.0 | 81 | 27.2 | 87 | SE | 15 | 6.7 | | 0 | 8ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 29.93 | 760.2 | 60 | 15.6 | 91 | N | 6 | 2.7 | | 1k | 5s | W | NE | 0.60 | 15.2 | Fair | |
| Indianapolis, Ind. | | | 29.97 | 761.2 | 70 | 21.1 | 95 | SW | 3 | 1.3 | | | 10s | | SW | 1.09 | 27.7 | Threatening | |
| Indianola, Tex. | | | 29.99 | 761.7 | 82 | 27.8 | 83 | SE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.16 | 766.1 | 80 | 26.7 | 70 | E | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Keokuk, Iowa | | | 29.89 | 759.2 | 67 | 19.4 | 79 | N | 7 | 3.1 | | | 10s | | N | 0 | 0 | Cloudy | |
| Key West, Fla. | | | 30.04 | 763.0 | 81.5 | 27.5 | 74 | E | 8 | 3.6 | | Haze | 5ks | | E | 0.01 | 0.3 | Fair | |
| Kittyhawk, N. C. | | | 30.15 | 765.8 | 76 | 24.4 | 81 | SW | 16 | 7.2 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.08 | 764.0 | 69 | 20.6 | 95 | SW | 5 | 2.2 | | | 10ks | | SW | 0.46 | 11.7 | Cloudy | |
| LaCrosse, Wis. | | | 29.98 | 761.5 | 55 | 12.8 | 93 | N | 3 | 1.3 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Leavenworth, Kan. | | | 29.99 | 762.7 | 69 | 20.6 | 75 | N | 3 | 1.3 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Louisville, Ky. | | | 30.01 | 762.2 | 72 | 22.2 | 90 | W | 6 | 2.7 | | | 10ks | | SW | 0.35 | 8.9 | Cloudy | |
| Lynchburg, Va. | | | 30.03 | 762.7 | 75 | 23.9 | 76 | S | 4 | 1.8 | | | 10s | | NW | 0.01 | 0.3 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 76 | 24.4 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | | | | | | | | | | | | | | 0 | | | |
| Mason, Tex. | 28.42 | 721.9 | 30.11 | 764.8 | 74 | 23.3 | 81 | Calm | 0 | 0 | | 2s | 2ck | | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.08 | 764.0 | 73 | 22.8 | 90 | S | 5 | 2.2 | | | 10s | | S | 0.71 | 18.0 | Cloudy | |
| Milwaukee, Wis. | | | 30.00 | 762.0 | 58 | 14.4 | 76 | NE | 5 | 2.2 | | | 8ks | | NW | 0.54 | 13.7 | Cloudy | |
| Mobile, Ala. | | | 30.12 | 765.0 | 80 | 26.7 | 82 | SE | 4 | 1.8 | | 5c | 5ks | W | SE | Inap. | Inap. | Cloudy | |
| Montgomery, Ala. | | | 30.14 | 765.5 | 76.5 | 24.7 | 84 | S | 3 | 1.3 | | 10cs | 0 | | | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 28.95 | 735.3 | 29.96 | 761.0 | 69 | 20.6 | 90 | SW | 5 | 2.2 | | | 10s | | S | 0.18 | 4.6 | Threatening | |
| Mt. Washington, N. H. | 23.76 | 603.5 | 30.13 | 765.3 | 49 | 9.4 | 100 | W | 40 | 17.9 | | | 10n | | W | 0.26 | 6.6 | Light rain | |
| Nashville, Tenn. | | | 30.07 | 763.8 | 72 | 22.2 | 95 | Calm | 0 | 0 | | | 10s | | SW | 2.08 | 52.8 | Cloudy | |
| New Haven, Conn. | | | 29.94 | 760.5 | 73 | 22.8 | 80 | SW | 12 | 5.4 | | | 10s | | SW | 0.15 | 3.8 | Threatening | |
| New London, Conn. | | | 29.98 | 761.5 | 66 | 18.9 | 94 | S | 10 | 4.5 | | | 10n | | SW | 0.10 | 2.5 | Light rain | |
| New Orleans, La. | | | 30.06 | 763.5 | 78.5 | 25.8 | 84 | SE | 5 | 2.2 | | 2c | 7s | | SE | 0.05 | 1.3 | Cloudy | |
| Newport, R. I. | | | 29.98 | 761.5 | 64 | 17.8 | 94 | S | 11 | 4.9 | | | 10n | | SW | 0.10 | 2.5 | Light rain | |
| New York, N. Y. | | | 29.95 | 760.7 | 71 | 21.7 | 90 | S | 10 | 4.5 | | | 10ks | | W | 0.13 | 3.3 | Cloudy | |
| Norfolk, Va. | | | 30.11 | 764.8 | 76 | 24.4 | 86 | SW | 12 | 5.4 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| North Platte, Neb. | 27.15 | 689.6 | 29.67 | 753.6 | 58 | 14.4 | 93 | S | 12 | 5.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.93 | 734.8 | 29.98 | 761.5 | 64 | 17.8 | 83 | Calm | 0 | 0 | | 2ck | 0 | W | | Inap. | Inap. | Clear | |
| Oswego, N. Y. | | | 29.84 | 757.9 | 69 | 20.6 | 90 | SW | 6 | 2.7 | | | 10n | | | 0.05 | 1.3 | Light rain | |
| Pembina, Dakota | | | 29.79 | 756.7 | 55 | 12.8 | 86 | SW | 7 | 3.1 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| Philadelphia, Pa. | | | 29.98 | 761.5 | 74 | 23.3 | 85 | W | 14 | 6.3 | | | 10ks | | W | 0.14 | 3.6 | Cloudy | |
| Phœnix, Arizona | | | | | 86 | 30.0 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 18.02 | 457.7 | 30.23 | 767.8 | 34 | 1.1 | 90 | W | 11 | 4.9 | | 0 | 2k | | | 0 | 0 | Clear | |
| Pittsburgh, Pa. | | | 29.92 | 760.0 | 70 | 21.1 | 90 | W | 8 | 3.6 | | | 10s | | W | 0.26 | 6.6 | Cloudy | |
| Port Huron, Mich. | | | 29.88 | 758.9 | 66 | 18.9 | 84 | W | 8 | 3.6 | | | 10ks | | W | 0.03 | 0.8 | Cloudy | |
| Portland, Me. | | | 29.87 | 758.7 | 66 | 18.9 | 90 | SW | 5 | 2.2 | | | 10n | | | Inap. | Inap. | Light rain | |
| Portland, Oregon | | | 30.00 | 762.0 | 51 | 10.6 | 86 | NE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.84 | 630.9 | 30.20 | 767.1 | 54 | 12.2 | 19 | Calm | 0 | 0 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.09 | 764.3 | 80 | 26.7 | 58 | E | 12 | 5.4 | | 0 | 2ks | | | 0.06 | 1.5 | Clear | |
| Rochester, N. Y. | | | 29.83 | 757.7 | 67 | 19.4 | 90 | W | 12 | 5.4 | | | 10n | | W | 0.36 | 9.1 | Light rain | |
| Salt Lake City, Utah | 25.58 | 649.7 | 29.91 | 759.7 | 63 | 17.2 | 42 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.96 | 761.0 | 73 | 22.8 | 90 | SW | 18 | 8.0 | | | 10ks | | SW | 0.26 | 6.6 | Cloudy | |
| San Antonio, Tex. | | | 29.88 | 758.9 | 74 | 23.3 | 90 | Calm | 0 | 0 | | | 10ks | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.00 | 762.0 | 62 | 16.7 | 70 | N | 4 | 1.8 | | | 10s | | N | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.93 | 760.2 | 59 | 15.0 | 81 | SW | 8 | 3.6 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Santa Fe, New Mexico | 23.19 | 589.0 | 29.73 | 755.1 | 64.5 | 18.1 | 48 | E | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.18 | 766.6 | 85 | 29.4 | 68 | S | 5 | 2.2 | | 5k | Haze | S | | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.13 | 765.3 | 76 | 24.4 | 95 | Calm | 0 | 0 | | | 10s | | S | 0.11 | 2.8 | Cloudy | |
| Smithville, N. C. | | | 30.20 | 767.1 | 76 | 24.4 | 81 | S | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.90 | 759.4 | 70 | 21.1 | 87 | S | 6 | 2.7 | | | 10ks | | S | 0.24 | 6.1 | Cloudy | |
| St. Louis, Mo. | | | 29.97 | 761.2 | 75 | 23.9 | 77 | SW | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| St. Marks, Fla. | | | 30.13 | 765.3 | 78 | 25.6 | 82 | SE | 10 | 4.5 | | 2c | 5s | | SE | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.96 | 761.0 | 58 | 14.4 | 81 | NE | 1 | 0.4 | | 0 | 0 | | | 0.10 | 2.5 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stanwix, Arizona | | | | | 62 | 16.7 | | Calm | 0 | 0 | | 0 | 5s | | SE | 0 | 0 | Fair | |
| Stockton, Tex | 26.98 | 685.3 | 29.98 | 761.5 | 70 | 21.1 | 79 | S | 12 | 5.4 | | | 10n | | SW | 0.08 | 2.0 | Light rain | |
| Thatcher's Island, Mass | | | 29.91 | 759.7 | 62 | 16.7 | 94 | S W | 1 | 0.4 | | 8k | 0 | SW | | 0.05 | 1.3 | Fair | |
| Toledo, Ohio | | | 29.93 | 760.2 | 70 | 21.1 | 84 | S E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.56 | 700.0 | 30.10 | 764.5 | 66 | 18.9 | | S E | 8 | 3.6 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Tybee Island, Ga | | | 30.16 | 766.1 | 79 | 26.1 | 82 | S E | 4 | 1.8 | | 0 | 8s | | | 1.14 | 29.0 | Fair | |
| Vicksburg, Miss | | | 30.12 | 765.0 | 75 | 23.9 | 95 | S E | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, Montana | 24.23 | 615.4 | 29.71 | 754.6 | 48 | 8.9 | 49 | Calm | 0 | 0 | | 0 | 10n | | SW | 0.04 | 1 0 | Light rain | |
| Washington, D. C | | | 30.01 | 762.2 | 74 | 23.3 | 95 | S | 15 | 6.7 | | | 0 | | | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 76 | 24.4 | | S | | | | 0 | 5ks | | SW | 0.07 | 1.8 | Fair | |
| Wilmington, N. C | | | 30.17 | 766.3 | 77 | 25.0 | 77 | S | 12 | 5.4 | | 0 | 10n | | SW | 0.09 | 2.3 | Light rain | |
| Wood's Holl, Mass | | | 30.04 | 763 0 | 65 | 18 3 | 100 | SW | 12 | 5.4 | | | 0 | | | 0.01 | 0.3 | Clear | |
| Yankton, Dakota | 28.76 | 730 5 | 30.02 | 762.5 | 58 | 14.4 | 82 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.79 | 756.7 | 71 | 21.7 | 49 | Calm | 0 | 0 | | 0 | 0 | | | | | | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.16 | 766.1 | 79 | 26.1 | 82 | Calm | 0 | 0 | | 10c | 8n | | | 0.12 | 3.0 | | James Gall. |
| Nayassa, W. I | | | 29.97 | 761.2 | 79 | 26.1 | | ENE | | | 2 | | | | | 0.03 | 0.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | | | | | | | | | 2 | | 8ks | | | 0.440 | 11.18 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | | | 30.05 | 763.3 | 82 | 27.8 | 79 | E | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.24 | 641.1 | | | 68.0 | 20.0 | 76 | Calm | | | 0 | 1cs | 9 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 29.84 | 757.9 | 36 | 2.2 | 95 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.06 | 763.5 | 73 | 22.8 | | SE | | | 2 | | | | | 0.20 | 5.1 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.13 | 765.3 | 78 | 25.6 | 74 | 23.3 | 90 | SW | | | 3 | | 9 | | SW | 0.02 | 0.5 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.00 | 762.0 | 65 | 18.3 | 61 | 16.1 | | SW | | | 4 | | 8 | | | 0 | 0 | | | Pleasant | |
| Navy Yard, Pensacola, Fla. | 30.25 | 768.3 | | | 78 | 25.6 | 86 | E | 17 | 7.6 | | | 9 | | ESE | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.98 | 761.5 | 74 | 23.3 | 69 | 20.6 | 75 | SW | 7 | 3.1 | | | 10 | | | 0.25 | 6.3 | | | Rainy | |
| Naval Hospital, Yokohama, Japan | 29.65 | 753.1 | 70.5 | 21.4 | 68 | 20.0 | 97 | Calm | | | 0 | | 0s, sm'c | | | 0.74 | 18.8 | | | Clearing | |
| Alert, N. 1° 24′ 45″, E. 135° 38′ 30″ | 29.91† | 759 7† | 84 | 28.9 | 83 | 28.3 | 100 | SSW | | | 2 | | 4 | | SW | | | Long | SE | Lightning | |
| Alliance, Beirut, Syria | 30.13 | 765.3 | 80 | 26.7 | 79 | 26.1 | 70 | WNW | | | 0–1 | | 1 | | | | | Light | N&W | Clear | |
| Ashuelot, Pagoda Anchorage, River Min, China | 29.84 | 757.9 | 82 | 27.8 | 79 | 26.1 | 91 | Calm | | | 0 | | 10 | | | | | | | Drizzling | |
| Canonicus, New Orleans, La | 30.07 | 763.8 | 55 | 12.8 | 77 | 25.0 | 91 | SE | | | 2 | | 9 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.02 | 762.5 | 67 | 19.4 | 72 | 22.2 | 90 | SSW | 12 | 5.4 | | | 10 | | SW | 0.2 | 5. | | | Overcast | |
| Despatch, Constantinople, Turkey | 30.10 | 764.5 | 65 | 18.3 | 64 | 17.8 | 94 | NE | | | 2 | | 2 | | NE | | | | | Clear. | |
| Franklin, Norfolk, Va | 30.14 | 765.5 | 67 | 19.4 | 74 | 23.3 | 90 | SSW | 14 | 6.3 | | | 10 | | SSW | 0 | 0 | | | D. clouds | |
| Frolic, S. 25° 37′, W. 44° 36′ | 30.14 | 765.5 | 66 | 18.9 | 68 | 20.0 | 84 | W | | | 3 | | 4k | | | 0 | 0 | Long | W | D clouds | |
| ‡ Gettysburg, Leghorn, Italy | 29.90 | 759.4 | | | 78 | 25.6 | 95 | NNE | | | 6 | | 1 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.40 | 772.1 | 74 | 23.3 | 76 | 24.4 | 100 | SW | 3.6 | 1.6 | | | 2 | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.08 | 764.0 | 81 | 27.2 | 81 | 27.2 | 87 | S | | | 0–1 | | 9 | | | 0 | 0 | Light ground. | NE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.82 | 757.4 | 78 | 25.6 | 78 | 25 6 | 86 | N&E | | | 2 | | 5 | | | 0 | 0 | Smooth | | Cloudy | |
| Marion, Smyrna, Turkey | 29.96 | 761.0 | 82 | 27.8 | 86 | 30.0 | 42 | SSE | | | 3 | | 1 | | E | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.44 | 747.8 | 70 | 21.1 | 70 | 21.1 | 75 | WSW | | | 2 | | 10 | | W | | | | | Cloudy | |
| Monocacy, Tientsin, China | 29.80 | 756.9 | 80 | 26.7 | 80 | 26.7 | 61 | NW | | | 2 | | 1 | | NW | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.06 | 763.5 | 68 | 20.0 | 67 | 19.4 | 89 | SSW | | | 3 | | 10n | | | | | | | Light rain | |
| New Hampshire, Port Royal, S. C | 30.42 | 772.7 | | | 77 | 25.0 | 82 | SSE | 5 | 2.2 | | | 7 | | S | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.08 | 764.0 | 69 | 20.6 | 68 | 20.0 | 84 | SE | 5 | 2.2 | | | 10 | | | 0 | 0 | Slight | S | Cloudy | |
| Ossipee, N. 34° 43′, W. 75° 57′ 30″ | 30.26 | 768.6 | 78 | 25.6 | 78 | 25.6 | 82 | SW | | | 2 | | 1 | | | | | Long | SSE | D. clouds | |
| Palos, Shanghai, China | 29.88 | 758.9 | 73 | 22.8 | 73 | 22.8 | 90 | NE | | | 1–2 | | 10 | | N&E | Blank | Blank | | | Cloudy | |
| Pensacola, N. 21° 00′, W. 125° 22′ | 30.12 | 765.0 | | | 71 | 21.7 | 75 | NNE | | | 2 | | 9 | | | 0 | 0 | Moderate | N&W | Cloudy | |
| Plymouth, Off Vera Cruz, Mexico | 29.99 | 761.7 | 82 | 27.8 | 80 | 26.7 | 87 | NW | | | 2 | | 10 | | | 0 | 0 | Smooth | | Cloudy | |
| Ranger, Suez, Egypt | 30.15 | 765.8 | | | 86 | 30.0 | 42 | NNW | | | 2–3 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.29 | 769.4 | 62.0 | 16.7 | 60.0 | 15.6 | 88 | NNE | | | 2 | | 5 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.84 | 757.9 | | | 70 | 71.1 | 100 | Calm | | | 0 | | 0 | | | | | | | Blue sky | |
| Santee, Annapolis, Md | 30.11 | 764.8 | 74 | 23.3 | 74 | 23.3 | 86 | SW | | | 2 | | 10 | | | 0.01 | 0.3 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.29 | 769.4 | | | 68 | 20.0 | | S | | | 1 | | 10 | | | Blank | Blank | | | Overcast | |
| St. Louis, League Island, Pa | 29.93 | 760.2 | 76 | 24.4 | 74 | 23.3 | 90 | SW | 16 | 7.2 | | | 10 | | SW | 0.05 | 1.3 | | | Overcast | |
| Swatara, N. 11° 12′, W. 80° 00′ | 30.01 | 762.2 | 86 | 30.0 | 84 | 28.9 | 79 | Calm | | | 0 | | 3k | | | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.67 | 753.6 | 71 | 21.7 | 74 | 23.3 | 81 | S&W | | | 0–1 | | 10 | | | | | Smooth | | Heavy rain | |
| Trenton, Smyrna, Turkey | 30.03† | 762.7† | 78 | 25.6 | 78 | 25.6 | 73 | SE | 6.8 | 3.0 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.95 | 760.7 | 71 | 21.7 | 70 | 21.1 | 70 | NE | | | 2–3 | | 2 | | SSW | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.04 | 763.0 | 69 | 20.6 | 69 | 20.6 | 90 | S | 11 | 4.9 | | | 10 | | S | 0.05 | 1.3 | | | Drizzling | |
| Wyoming, Washington, D.C | 30.14† | 765.5† | 76 | 24.4 | 76 | 24.4 | | SSW | | | | | 10 | | | | | | | Drizzling | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | CHARACTER. | DIRECTION FROM— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 18′, W. 155° 53′ | W½N | | 29.97 | 761.2 | 54 | 12.2 | 100 | NE | | | 4 | | d | | | Smooth | | Gloomy | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 37° 44′, W. 70° 0′ | N80E | 11¼ | 30.24 | 768.1 | 71.8 | 22.1 | 87 | SW | | | 3 | | 8k | | W | Tranq'l | | D. clouds | Capt. H. Andressen. |
| S. S. Nürnberg, N. 42° 48′, W. 46° 15′ | SW by W | 11 | 29.97 | 761.2 | 55.6 | 13.1 | | W | | | 6 | | k | | WNW | Short | | D. clouds | Capt. C. Pohle. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr. | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgensen. |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the CHIEF SIGNAL OFFICER OF THE ARMY, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 17, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:48 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.05 | 763.3 | 81.0 | 27.2 | 55 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.10 | 764.4 | 80.6 | 27.0 | 34 | WNW | | | 3 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.05 | 763.2 | 81.9 | 27.7 | 55 | E | | | 2 | | 1 | | | 0 | 0 | Clear | Fleury. |
| Tunis | | | 30.10 | 764.6 | 86.0 | 30.0 | | E | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.09 | 764.3 | 84.2 | 29.0 | | S | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.15 | 765.9 | 82.8 | 28.2 | | N | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.15 | 765.7 | 84.0 | 28.9 | | SW | | | 1 | | 2 | | | Inap. | Inap. | Clear | Bourgeois. |
| Geriville | | | 30.16 | 766.0 | 84.9 | 29.4 | | N | | | 2 | | 1 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.15 | 765.7 | 89.6 | 32.0 | 22 | E | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.05 | 763.3 | 99.9 | 37.7 | | S | | | 2 | | 8 | | | Inap. | Inap. | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.0? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.12 | 765.1 | 73.0 | 22.8 | 41 | NE | | | 4 | | 7 | | | 0 | 0 | | Prof. Ivan Stozir |
| Cracow, I. R. Observatory | | | 30.25 | 768.3 | 65.8 | 18.8 | 47 | NE | | | 3 | | 2 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.19 | 766.7 | 66.4 | 19.1 | 42 | N | | | 3 | | 8k,s | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.94 | 735.1 | 30.16 | 766.1 | 67.3 | 19.6 | 61 | NE | | | 3 | | 3 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.73 | 729.7 | 30.15 | 765.9 | 56.1 | 13.4 | 65 | E | | | 1 | | 10 | | | 0.11 | 3.00 | | Prof. Reissenberger. |
| Kremsmünster | 28.76 | 730.5 | 30.07 | 763.7 | 66.2 | 19.0 | 46 | E | | | 5 | | 0 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.18 | 766.6 | 63.7 | 17.6 | 53 | NE | | | 1 | | 2 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.12 | 765.0 | 75.6 | 24.2 | 32 | ESE | | | 2 | | 1ks | | | 0 | 0 | | I.R. Hydrographic Office |
| Szegedin | | | 30.11 | 764.7 | 68.7 | 20.4 | 51 | E | | | 1 | | 8 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.15 | 765.8 | 78.4 | 25.8 | 48 | SW | | | 1 | | 6 | | | 0 | 0 | Cloudy | P. Busin. |
| Vienna | | | 30.17 | 766.3 | 70.2 | 21.2 | 39 | SE | | | 1 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.58 | 725.7 | 30.03 | 762.7 | 70.7 | 21.5 | 36 | SSE | | | 3 | | 0 | | | 0 | 0 | | |
| Brussels | | | 30.02 | 762.6 | 75.9 | 24.4 | 36 | ESE | | | 4 | | | | | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.11 | 764.8 | 79.2 | 26.2 | 40 | ESE | | | 4 | | 0 | | | 0 | 0 | | |
| Maeseyck | | | 30.10 | 764.5 | 73.2 | 22.9 | 35 | ESE | | | 4 | | 0 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to this date the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.22 | 767.6 | 57.2 | 14.0 | | SSE | 18 | 8.0 | | | 0 | | | 0 | 0 | Blue sky | William Boswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 30.15 | 765.8 | 69.6 | 20.9 | | E | 7 | 3.1 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.09 | 764.3 | 73.3 | 22.9 | | SSE | 4 | 1.8 | | | 6 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.07 | 763.8 | 74.5 | 23.6 | | SE | | | 1 | | 0 | | | | | Blue sky | T. S. Mitchell. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0 | 0 | | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.98 | 761.5 | 83 | 28.3 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 30.05 | 763.3 | 80.0 | 26.7 | | E | | | 2 | | 0 | | | | | Blue sky | H. Todd. |
| Cardington | | | 30.07 | 763.8 | 79.0 | 26.1 | | E | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.07 | 763.8 | 70.2 | 21.2 | | ENE | | | 2 | | 10 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.58 | 725.9 | 30.01 | 762 2 | 70.0 | 21.1 | | SE | | | 4 | | 2 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.15 | 765.8 | 62 | 16.7 | | N | | | 3 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 30.02 | 762.5 | 69 | 20.6 | | ENE | | | 3 | | 0 | | | | | Clear | J. Costello. |
| Eccles, (near Manchester) | | | 30.10 | 764.5 | 73.0 | 22.8 | | E | 4.0 | 1.8 | | | 3 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.00 | 762.0 | 64.8 | 18.2 | | E | | | 4 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.77 | 705.4 | 30.00 | 762.0 | 64.9 | 18.3 | | SW | | | 3 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.01 | 762.2 | 84 | 28.9 | | E | | | 1 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.02 | 762.5 | 71 | 21.7 | | SE | | | 1 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.16 | 766.1 | 80.6 | 27.6 | | W | | | 2 | | 2 | | | | | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 30.19 | 766.8 | 66.4 | 19.1 | | NE | | | 2 | | | | | | | Blue sky | D. G. Maclean. |
| Great Yarmouth | | | 30.12 | 765.0 | 62 | 16.7 | | E | | | 2 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.03 | 762.7 | 78.0 | 25.6 | | ENE | | | 3 | | 0 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 29.96 | 761.0 | 64 | 17.8 | | NNE | | | 1 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.05 | 763.3 | 72 | 22.2 | | NW | | | 0 | | 1c | | | 0 | 0 | Very fine | M. P. Moyle. |
| Holyhead | | | 30.08 | 764.0 | 67 | 19.4 | | NE | | | 4 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.02 | 762.5 | 74.3 | 23.5 | | E | 25 | 11.2 | | | 5chz. | | | | | D. clouds | The Staff. |
| Kingstown | | | 30.13 | 765.3 | 59 | 15.0 | | NE | | | 1 | | 1 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.09 | 764.3 | 71.9 | 22.2 | | NE | | | 1 | | 1 | | | | | Blue sky | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.05 | 763.3 | 76.2 | 24.6 | | NE | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.17 | 766.3 | 67 | 19.4 | | E | | | 1 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.08 | 764.0 | 84.0 | 28.9 | | NE | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.11 | 764.8 | 74.0 | 23.3 | | ENE | | | 4 | | 1k | | SSE | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.07 | 763.8 | 71.5 | 21.9 | | ENE | | | 3 | | 0 | | | | | Blue sky | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.05 | 763.3 | 72 | 22.2 | | NE | | | 2 | | 0 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 29.99 | 761.7 | 73.0 | 22.8 | | E | | | 3 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.04 | 763.0 | 68 | 20.0 | | ESE | | | 4 | | 5 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.94 | 760.5 | 74.5 | 23.6 | | N | | | 1 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.22 | 767.6 | 61.5 | 16.4 | | W | 10 | 4.5 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.94 | 760.5 | 61.6 | 16.4 | | N | | | 2 | | 10 | | | Blank | Blank | Misty | Sergt. W. H. Lyne. |
| Sheffield | | | 30.13 | 765.3 | 70.4 | 21.3 | | ENE | | | 1 | | 0 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.12 | 765.0 | 77.2 | 25.1 | 36 | SE | | | 1 | | 0 | | | 0 | 0 | Blue sky | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.12 | 765.0 | 72.3 | 22.4 | | E | | | 2 | | | | | | | Blue sky | Rev. S. J. Perry. |
| Stornoway, Lewis C., (Hebr.) | | | 30.15 | 765.8 | 65 | 18.3 | | Calm | | | 0 | | | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.03 | 762.7 | 75.7 | 24.3 | | NE | | | 1 | | 0 | | | | | Blue sky | Rev. C. H. Griffitt, F.M.S. |
| Thurso | | | 30.17 | 766.3 | 63 | 17.2 | | Calm | | | 0 | | 0 | | | | | Blue sky | John Trotter. |
| Truro, Royal Institution | | | 30.00 | 762.0 | 74 | 23.3 | | SE | | | 4 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.01 | 762.2 | 70.5 | 21.4 | | SW | 14 | 6.3 | | | 5 | | | | | Hazy | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 68 | 20.0 | | E | | | 3 | | 0 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.37 | 771.4 | 58.6 | 14.8 | 79 | N | 11 | 4.9 | | 0 | 4 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.22 | 767.6 | 54.0 | 12.2 | 86 | NW | | | 3 | | 8k | | | 0 | 0 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.22 | 767 6 | 57.0 | 13.9 | | NE | | | 3 | | | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.27 | 768.8 | 69.9 | 21.1 | 65 | ESE | 19.5 | 8.7 | | 0 | 3 | | E | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.66 | 778.7 | 49.0 | 9.4 | 92 | W | 4 | 1.8 | | | 8 | | | 0.01 | 0.3 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.18 | 766.6 | 62 | 16.7 | | Calm | | | 0 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.22 | 767.6 | 54 | 12.2 | | SW | | | 2 | 0 | 2 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington. Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 43° 0′, W. 57° 40′ | | | 29.74 | 755.4 | 59.0 | 15.0 | | SSW | | | 3 | | 10 | | | 0 | Smooth | Raining | Capt. W. Watson |
| S. S. Batavia, N. 50° 45′, W. 24° 10′ | | | | | 55.0 | 12.8 | | SW | | | 1 | | 7 | | | 1 | W | D. clouds | Capt. J. E. Monland. |
| Ship Camperdown, N. 45° 25′, W. 34° 15′ | | | 29.98 | 761.5 | 55.0 | 12.8 | | WSW | | | 3 | | 7 | | | 2 | W | Showery | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 40′ | | | 30.02 | 762.5 | 64.5 | 18.1 | | ENE | | | 1 | | 5 | | | 3 | | Hazy | Capt. W. R. Cato |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 40′ 5°, W. 62° 25′ | | | 29.90 | 759.4 | 68.8 | 20.4 | | W | | | 5 | | 10 | | | 5 | W | Drizzling | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. Bristowe. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Queenstown, Ireland | | | 30.05 | 763.3 | 68 | 20.0 | | E | | | 5 | | 2 | | | | | | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 69.8 | 21.0 | 91 | NE | | | 1 | | 1cs | | N | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.29 | 769.4 | 66.7 | 19.3 | 63 | N | | | 2 | | 1 | | | | | | |
| Fanöe | | | 30.22 | 767.5 | 70.7 | 21.5 | 52 | SSE | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 30.09 | 764.3 | 40.1 | 4.5 | 86 | Calm | | | 0 | | 9 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.29 | 769.4 | 49.1 | 9.5 | 95 | NW | | | 2 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 30.24 | 768.2 | 55.2 | 12.9 | 82 | E | | | 2 | | 7 | | | | | | |
| Vestervig | | | 30.25 | 768.3 | 69.1 | 20.6 | 54 | NW | | | 2 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.04 | 762.9 | 75.2 | 24 | 63 | NE | | | 2 | | 5kn | | S | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 29.95 | 760.6 | 80.2 | 26.8 | 52 | E | | | 2 | | 0 | | | 0 | 0 | Clear | Bonvarne, Director. |
| Avignon, Normal School | | | 29.99 | 761.7 | 83.7 | 28.7 | 32 | E | | | 2 | | 2 | | ESE | 0.16 | 4. | Partly cl'dy. | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 29.93 | 760.1 | 79.9 | 26.6 | 53 | NNE | | | 1 | | 2k | | S | | | Slightly cl'dy | C. Saillard. |
| Beaumette, Obs'y (Angers) | | | 29.95 | 760.6 | 75.0 | 23.9 | 70 | SW | 8.1 | 3.6 | | | 10 | | W | 0.264 | 6.7 | Thunder-storm | Albert Cheux. |
| Beauvais | | | 29.98 | 761.5 | 75.0 | 23.9 | 47 | ENE | | | 3 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Besançon | | | 29.96 | 761.0 | 81.1 | 27.3 | 56 | S | | | 2 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg-en-Bresse | | | 30.08 | 764.1 | 84.7 | 29.3 | 57 | S | | | 2 | | 2ks | | W | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges, Normal School | | | 29.94 | 760.4 | 75.2 | 24 | 71 | SW | | | 2 | | 5 | | N | 0 | 0 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.93 | 760.1 | 70.0 | 21.1 | 78 | NW | | | 2 | | 10 | | NW | 1.280 | 32.50 | Misty. | The Staff. |
| Carcassonne, Normal School | | | 29.98 | 761.5 | 61.2 | 16.2 | 87 | E | | | 2 | | 2 | | E | 0.20 | 5. | Slightly cl'dy | Vateau, Director. |
| Caen | | | 29.94 | 760.5 | 75.4 | 24.1 | 55 | NNE | | | 2 | | 1 | | SSW | 0 | 0 | Very clear | Normal School. |
| Chartres, Normal School | | | 29.91 | 759.8 | 80.2 | 26.8 | 78 | SW | | | 1 | | 5 | | N | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.95 | 760.8 | 82.4 | 28.0 | 40 | S | | | 3 | | 0 | | | 0 | 0 | Clear. | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.95 | 760.7 | 79.5 | 26.4 | 30 | E | | | 2 | | 8 | | | 0 | 0 | Very cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.00 | 762.0 | 73.4 | 23 | 50 | E | | | 4 | | 0 | | | 0 | 0 | Clear | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.09 | 764.3 | 78.4 | 25.8 | 26 | SE | | | 6 | | 5 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.09 | 764.2 | 72.7 | 22.6 | 67 | NNW | | | 4 | | 5kn | | SW | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon, N. School | | | 29.94 | 760.5 | 65.8 | 18.8 | 88 | W | | | 2 | | 10 | | | 0.698 | 2.5 | Covered | Mouillet, Director. |
| Le Mans, Normal School | | | 29.93 | 760.3 | 76.6 | 24.8 | 67 | SW | | | 2 | | 5 | | SW | 0 | 0 | Cloudy | Poirrier, Director. |
| Lons-l. | | | 29.95 | 760.7 | 79.7 | 26.5 | 52 | NW | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.00 | 762.0 | 72.7 | 22.6 | 74 | WNW | | | 2 | | 8 | | W | 0 | 0 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.95 | 760.8 | 79.9 | 26.6 | 73 | N | | | 2 | | 10 | | | 0 | 0 | Covered | M. Marchal, Director. |
| Metz | | | 30.09 | 764.2 | 74.3 | 23.5 | 33 | ESE | | | 4 | | 0 | | | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 29.97 | 761.2 | 73.8 | 23.2 | 71 | SE | | | 1 | | 8 | | E | 0 | 0 | Almost cov'd | Normal School. |
| Nismes, Normal School | | | 29.97 | 761.1 | 84.2 | 29 | 55 | SW | | | 4 | | n | | NE | 0.246 | 6.25 | | Boyer, Director. |
| Orleans | | | 29.90 | 759.5 | 80.6 | 27 | 44 | SW | | | 6 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Paris, Observatory | | | 29.94 | 760.5 | 80.4 | 26.9 | 45 | SE | | | 2 | | 0 | | | 0 | 0 | Fair | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.99 | 761.8 | 68.7 | 20.4 | 81 | WSW | | | 2 | | 10 | | | 0.24 | 6. | Raining | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.96 | 760.9 | 82.0 | 27.8 | 41 | SSE | | | 1 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 29.03 | 737.4 | 30.05 | 763.3 | 86.0 | 30 | 55 | WNW | | | 2 | | 5 | | W | 0 | 6 | Cloudy | T. Hugues, Director. |
| Villefranche | | | 29.95 | 760.8 | 79.0 | 26.1 | 76 | WSW | | | 3 | | 8 | | | 0 | 0 | Very cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.8 | 81.0 | 27.2 | | | | | | | | | | | | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 82.4 | 28.0 | 52 | S | | | 3 | | 2 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 24.91 | 632.7 | 30.23 | 767.7 | 55.9 | 13.3 | 72 | SW | 5.6 | 2.50 | | | 10 | | SW | 0.161 | 4.1 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.95 | 760.7 | 81.3 | 27.4 | 41 | ENE | | | 2 | | 0 | | | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 29.98 | 761.5 | 68.7 | 20.4 | 98 | W | 1.9 | 0.83 | | | 10 | | E | 0.205 | 5.2 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.32 | 541.4 | | | 32.5 | 0.3 | | NW | | | 2 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.57 | 573.3 | | | 38.3 | 3.5 | | NW | | | 2 | | 10 | | | 0.555 | 14.1 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.95 | 760.8 | 81.5 | 27.5 | 43 | SE | | | 1 | | 0 | | | 0 | 0 | | F. Renou. |
| Toulouse, Observatory | | | 30.13 | 765.4 | 64.0 | 17.8 | 100 | N | | | 1 | | 9 | | | 4.043 | 102.7 | Raining | The Staff |
| Tours | | | | | | | | | | | | | | | | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.97 | 761.3 | 79.9 | 26.6 | 43 | SE | | | 1 | | 0 | | | 0 | 0 | Very clear | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.82 | 757.4 | 68.0 | 20.0 | 84 | E | 5.1 | 2.3 | | 5ks | | | | 0 | 0 | Cloudy | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4, the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.16 | 766.1 | 69.8 | 21.0 | 27 | E | | | 6 | | 3 | E | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.27 | 768.9 | 70.7 | 21.5 | 30 | E | | | 1 | | 0 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.30 | 769.6 | 70.5 | 21.4 | 32 | SSE | | | 2 | | 3 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.01 | 762.3 | 75.2 | 24.0 | 37 | NE | | | 5 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.26 | 768.5 | 71.2 | 21.8 | 36 | E | | | 3 | | 0 | | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.09 | 764.3 | 79.3 | 26.3 | 28 | E | | | 4 | | 1 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.23 | 767.8 | 73.0 | 22.8 | 34 | E | | | 5 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.16 | 766.1 | 75.4 | 24.1 | 25 | ESE | | | 1 | | 1 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.62 | 726.9 | 30.02 | 762.6 | 69.8 | 21.0 | 59 | W | | | 5 | | 1 | NE | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.26 | 768.6 | 71.6 | 22.0 | 42 | E | | | 3 | | 0 | | | 0 | 0 | Clear | Captain F. Hegemann. |
| Kiel | | | 30.27 | 768.8 | 72.1 | 22.3 | 44 | ESE | | | 3 | | 0 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.28 | 769.2 | 66.4 | 19.1 | 35 | N | | | 2 | | 0 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.25 | 768.3 | 71.6 | 22.0 | 32 | ESE | | | 3 | | 1 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.32 | 770.1 | 58.6 | 14.8 | 63 | WNW | | | 1 | | 0 | | | 0 | 0 | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.32 | 770.0 | 64.8 | 18.2 | 55 | ENE | | | 2 | | 0 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.30 | 769.6 | 70.3 | 21.3 | 33 | SE | | | 4 | | 1 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.01 | 762.2 | 76.3 | 24.6 | 38 | NE | | | 2 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.02 | 762.4 | 74.3 | 23.5 | 35 | E | | | 2 | | 0 | | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.91 | 759.7 | 76.6 | 24.8 | 33 | SE | | | 7 | | 0 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.60 | 726.3 | 30.06 | 763.5 | 70.0 | 21.1 | 30 | E | | | 6 | | 1 | ENE | | 0 | 0 | | T. V. Dickmether. |
| Wustrow, Naval School | | | 30.38 | 771.7 | 70.9 | 21.6 | 33 | ENE | | | 3 | | 0 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2.5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2.0, instead of 1.51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.00 | 761.9 | 73.0 | 22.8 | | NE | | | | | | | | | | Cloudy | Dr. J. F. J. Schmidt. |

NOTE.—*The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published.* They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.62 | 752.4 | 29.67 | 753.6 | 88.5 | 31.4 | 66 | SW | 29.0? | 17.4? | | | 8 | | SW | 0 | 0 | D. clouds | |
| Deesa | 29.20 | 741.6 | 29.66 | 753.4 | 92.4 | 33.6 | 57 | SSE | | | | | 8 | | S | 0.31 | 7.9 | Thunder-storm | |
| Bombay | 29.74 | 755.4 | 29.78 | 756.3 | 86.6 | 30.3 | 75 | SSW | 21.0 | 9.3 | | | 4 | | SSW | 0.01 | 0.3 | | |
| Poona | 27.67 | 702.8 | 29.64 | 752.8 | 84.0 | 28.9 | 68 | | | | | | | | E | 0.33 | 8.4 | Thunder-storm | |
| Lahore | 28.80 | 731.4 | | | | | | NE | 1.0 | 0.4 | | | | | | 0 | 0 | Blue sky | |
| Belgaum | | | | | 79.9 | 26.6 | 66 | W | 11.0 | 4.9 | | | 3 | E | W | 0 | 0 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.62 | 726.9 | 29.48 | 748.6 | 104.9 | 40.5 | | NW | 3.2 | 1.4 | | | | | | 0 | 0 | Strong wind | |
| Agra | 29.00 | 736.5 | 29.53 | 750.0 | 105.7 | 40.9 | 19 | W | 2.4 | 1.0 | | | 9 | | W | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.56 | 728.0 | 29.58 | 751.2 | 91.5 | 33.1 | 43 | W | 11.8 | 5.2 | | | 8 | | | 0 | 0 | Gloomy | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.13 | 739.9 | 29.48 | 748.8 | 104.2 | 40.1 | 19 | NNW | 3.1 | 1.3 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.17 | 741.0 | 29.46 | 748.4 | 103.7 | 39.8 | 17 | N | 1.7 | 0.7 | | | 10 | | | 0 | 0 | Overcast | |
| Patna | 29.33 | 745.0 | 29.50 | 749.4 | 98.0 | 36.7 | 48 | E | 2.7 | 1.2 | | | 5 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.58 | 700.6 | 29.56 | 750.9 | 82.3 | 27.9 | 65 | SE | 5.6 | 3.8 | | | 10 | | | 0.03 | 0.8 | Raining | |
| Cuttack | 29.56 | 750.8 | 29.64 | 752.9 | 79.0 | 26.1 | 84 | E | 13.6 | 6.0 | | | 9 | | | 0.80 | 20.3 | Thunder-storm | |
| Calcutta, (Alipore) | 29.59 | 751.5 | 29.61 | 752.0 | 87.2 | 30.7 | 72 | S | 8.0 | 3.5 | | | 7 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.20 | 741.8 | 29.59 | 751.5 | 84.0 | 28.9 | 76 | Calm | 1.6 | 0.7 | | | 4 | W | | 0.01 | 0.3 | D. clouds | |
| Chittagong | 29.60 | 751.9 | 29.70 | 754.3 | 82.9 | 28.3 | 87 | SSW | 3.7 | 1.6 | | | 2 | | | 0 | 0 | Overcast | |
| Sibsagar | 29.31 | 744.5 | 29.64 | 752.9 | 82.0 | 27.8 | 86 | Calm | 2.6 | 1.1 | | | 6 | W | W | 0.13 | 3.3 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.22 | 716.9 | 29.54 | 750.2 | 95.5 | 35.3 | 46 | W | 5.0 | 2.2 | | | 9 | | | 0 | 0 | Overcast | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.: Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.37 | 568.2 | 30.00 | 762.0 | 46.8 | 8.2 | 97 | WNW | | | 1 | | 10 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.33 | 567.2 | 29.93? | 760.2? | 46.9 | 8.3 | | W | | | 1 | | 10 | | | 0.020 | 0.5 | | Signora Ernesta Manfredi. |
| Udine | | | 30.11 | 764.7 | 73.0 | 22.8 | 37 | E | 1.3 | 0.6 | | | 0 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.11 | 764.9 | 74.1 | 23.4 | 41 | SE | 7.4 | 3.3 | | | 6 | NNW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.11 | 764.8 | 78.4 | 25.8 | 34 | S | 3.1 | 1.4 | | | 3 | S | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.12 | 765.0 | 77.7 | 25.4 | 39 | E | | | 4 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.82 | 732.1 | 30.08 | 764.1 | 70.9 | 21.6 | 39 | NE | | | 2 | | 9 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.08 | 763.9 | 70.5 | 21.4 | 44 | W | | | 2 | | 10 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.12 | 765.0 | 86.0 | 30.0 | 66 | E | | | 2 | | 8 | E | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.11 | 764.7 | 76.5 | 24.7 | 33 | E | | | 2 | | 7 | NE | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.09 | 764.3 | 75.7 | 24.3 | 38 | SSE | 0.7 | 0.3 | | | 6 | N | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.24 | 717.3 | 30.07 | 763.6 | 76.2 | 21.2 | 37 | NNW | | | 4 | | 4 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.13? | 765.3? | 72.1 | 22.3 | 59 | E | | | 8 | | 2 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.10 | 764.5 | 76.1 | 24.5 | 46 | SW | 6.9 | 3.1 | | | 6 | N | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.12 | 765.1 | 74.5 | 23.6 | 35 | ESE | 9.4 | 4.2 | | | 8 | NE | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.10 | 764.4 | 75.7 | 24.3 | 52 | ESE | | | 6 | | 3 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.10 | 764.6 | 77.9 | 25.5 | 34 | NE | | | 4 | | 2 | E | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.07 | 763.7 | 79.5 | 26.4 | 27 | ENE | 8.7 | 3.9 | | | 2 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.60 | 733.8 | 30.05 | 763.2 | 73.6 | 23.1 | 30 | NE | 8.7 | 3.9 | | | 4 | NE | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.62 | 727.0 | 30.12 | 765.1 | 67.3 | 19.7 | 51 | ESE | | | 2 | | 5 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.14 | 765.6 | 71.1 | 21.7 | 46 | NE | 19.2 | 8.6 | | | 5 | NE | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.13 | 765.2 | 73.8 | 23.2 | 38 | ESE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.08 | 763.9 | 79.9 | 26.6 | 44 | SSW | | | 4 | | 4 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.08 | 763.9 | 77.9 | 25.5 | 44 | SW | 6.3 | 2.8 | | | 6 | NE | | 0.220 | 5.6 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.07 | 763.8 | 80.2 | 26.8 | 36 | S | | | 4 | | 6 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.09 | 764.2 | 71.8 | 22.1 | 39 | ENE | 9.8 | 4.4 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.04 | 762.9 | 80.6 | 27.0 | 59 | NNE | 6.9 | 3.1 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.98 | 761.5 | 81.5 | 27.5 | 67 | SW | | | 2 | | 3 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.08? | 763.9? | 75.9 | 24.4 | 57 | SE | | | 2 | | 9 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.97 | 761.2 | 77.9 | 25.5 | 65 | E | 6.3 | 2.8 | | | 9 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.08 | 713.3 | 29.94 | 760.5 | 75.4 | 24.1 | 53 | S | | | 4 | | 10 | SE | | 0.217 | 5.5 | | Prof. A. Pagani. |
| Syracuse | | | 29.98 | 761.6 | 78.8 | 26.0 | 60 | E | | | 4 | | 7 | NW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.10 | 764.5 | 77.9 | 25.5 | 35 | NE | 0 | 0 | | | 4 | NE | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Probably 75.9 Fah. and 24.4 Cent.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.72 | 754.9 | 69 | 20.6 | 92 | ESE | 1 | 0.4 | | | 8ks | | | 0.713 | 18.11 | Cloudy | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.14 | 587.6 | 30.14 | 765.5 | 61.2 | 16.2 | 78 | NW | 0.4 | 0.18 | | 8ck | 7k | | | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.07 | 763.8 | 74.8 | 23.8 | | ESE | | | 5 | | | | | 0 | 0 | | |
| Groningen | | | 30.12 | 765.1 | 73.9 | 23.3 | | E | | | 4 | | | | | 0 | 0 | | |
| Helder | | | 30.14 | 765.5 | 71.1 | 21.7 | | ENE | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 30.08 | 763.9 | 75.4 | 24.1 | 44 | SE | | | 4 | | 0 | | | 0 | 0 | Clear | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.23 | 767.8 | 65.1 | 18.4 | 52 | NW | 5.4 | 2.4 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.10 | 764.5 | 48.2 | 9.0 | 93 | SW | 18 | 8 | | | 10 | | | | | Raining | |
| Christiania | | | 30.04 | 763.1 | 79.2 | 26.2 | 41 | S | 9 | 4 | | | 2 | | | 0 | 0 | | |
| Tromsö | | | 29.90 | 759.4 | 47.8 | 8.8 | 84 | SW | 4 | 2 | | | 10 | | | 0.228 | 5.8 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.20 | 767.0 | 66.9 | 19.4 | 83 | W | 9.4 | 4.2 | | | 7 | | | 0.118 | 3.0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.13 | 765.3 | 70.9 | 21.6 | 45 | WNW | 9.8 | 4.4 | | | 5 | WNW | | 0.189 | 4.8 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.31 | 769.8 | 69.4 | 20.8 | 64 | SW | 3.1 | 1.4 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.21 | 767.4 | 66.9 | 19.4 | 60 | W | 9.8 | 4.4 | | | 9 | | | 0.016 | 0.4 | | The Staff. |
| Ponta Delgada, (Azores) | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Direction. Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.26 | 768.6 | 69.3 | 20.7 | 33 | NNW | 7 | 3 | | | 8 | | | | | | Astronomical Obs. |
| Wilna | | | 30.23 | 767.9 | 66.4 | 19.1 | 42 | NE | 4 | 2 | | | 7 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.14 | 765.5 | 71.6 | 22.0 | 33 | WNW | 9 | 4 | | | 5 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.05 | 763.3 | 63.1 | 17.3 | 62 | WNW | 20 | 9 | | | 6 | | | | | | Central Physical Obs |
| Kuopio | | | 29.94 | 760.5 | 70.0 | 21.1 | 57 | W | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 30.08 | 764.1 | 61.0 | 16.1 | 36 | NNE | 7 | 3 | | | 8 | | | | | | Physical Cabinet. |
| Nikolaiev | | | | | | | | | | | | | | | | | | | Kurdakof. |
| Kertch | | | 29.77 | 756.2 | 68.0 | 20.0 | 87 | NE | 16 | 7 | | | 5 | | | | | | Lagorio. |
| Moscow | | | 30.15 | 765.8 | 52.9 | 11.6 | 61 | N | 11 | 5 | | | 8 | | | | | | Meteorological Obs. |
| Lugan | | | 30.00 | 762.0 | 54.9 | 12.7 | 77 | E | 4 | 2 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.97 | 761.1 | 55.6 | 13.1 | 44 | Calm | 0 | 0 | | | 4 | | | | | | Ogorodnikof. |
| Tiflis | 28.45 | 722.5 | 29.77 | 756.1 | 88.7 | 31.5 | 35 | S | 13 | 6 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.91 | 759.6 | 80.8 | 27.1 | 44 | ESE | 7 | 3 | | | 0 | | | | | | Sebastianof. |
| Kasan | | | 29.98 | 761.6 | 60.4 | 15.8 | 43 | SW | 7 | 3 | | | 4 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.88 | 758.9 | 73.9 | 23.3 | 86 | N | 13 | 6 | | | 0 | | | | | | Tschernischef. |
| Ekaterinburg | 28.91 | 734.4 | 29.84 | 758.0 | 57.9 | 14.4 | 45 | W | 22 | 10 | | | 7 | | | | | | Meteorogical Obs |
| Nukuss | | | 29.79 | 756.6 | 95.7 | 35.4 | 35 | NNE | 2 | 1 | | | 5 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.24 | 717.3 | 29.84 | 757.8 | 84.2 | 29.0 | 52 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.82 | 757.4 | 78.6 | 25.9 | 56 | Calm | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.63 | 752.6 | 76.8 | 24.9 | 59 | NW | 2 | 1 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 55.9 | 13.3 | | N | 13 | 6 | | | 7 | | | | | | Mossin. |
| Peking, (China) | | | 29.64 | 752.8 | 75.4 | 24.1 | 60 | Calm | 0 | 0 | | | 1 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.73 | 755.2 | 57.2 | 14.0 | 94 | SE | 7 | 3 | | | 9 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 54.5 | 12.5 | 89 | Calm | 0 | 0 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Direction. Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 30.02 | 762.6 | 71.2 | 21.8 | 51 | SW | 9.7 | 4.34 | | 0 | 8 | | | 0.067 | 1.7 | Stormy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.05 | 763.2 | 80.2 | 26.8 | 83 | E | 2.9 | 1.3 | | 0 | 0 | | | 0.638 | 16.2 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.23 | 767.8 | 71.2 | 21.8 | 67 | NW | 12.3 | 5.5 | | 0 | 3 | | NW | 0 | 0 | | Capt. C. Pajazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.01 | 762.2 | 83.7 | 28.7 | 83 | E | 2.2 | 1.00 | | 3cs | 1k | | E | 0 | 0 | Clear | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, or omitted wind-velocity for Madrid in meters per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Direction. Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.93 | 760.3 | 59.0 | 15.0 | 70 | SW | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.99 | 761.7 | 74.1 | 23.4 | 55 | WNW | | | 4 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 30.01 | 762.2 | 75.6 | 24.2 | 24 | NW | | | 6 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 30.09 | 764.3 | 78.4 | 25.8 | 36 | WSW | | | 4 | | 3 | | | 0 | 0 | | |
| Wisby | | | 30.21 | 767.3 | 65.8 | 18.8 | 47 | W | | | 4 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.06 | 763.5 | 82.4 | 28.0 | 34 | W | 9.4 | 4.2 | | | 7 | NW | W | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.58 | 726.0 | 29.96 | 761.0 | 71.6 | 22.0 | 69 | N | | | 3 | | 3 | | | 0 | 0 | Stormy | The Observatory. |
| Zurich | 28.42 | 721.9 | 29.99 | 761.7 | 75.7 | 24.3 | 52 | NW | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —0.6 mm; Thermometer, +1.1 cent.; Relative Humidity, +14 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.98 | 761.5 | 62.1 | 16.7 | 84 | NNW | 15 | 6.5 | | | 10 | | NNW | 1.016 | 25.8 | | The Observatory |
| Fao, (Persian Gulf) | | | 29.91 | 759.8 | 91.4 | 33.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.05 | 763.2 | 77.7 | 25.4 | | NE | | | 2 | | 5 | | | | | | B. Stéfanidès. |
| Valona | | | 30.12 | 765.1 | 73.6 | 23.1 | | NW | | | 2 | | 0 | | | 0.12 | 3. | Clear | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.97 | 761.2 | 81.9 | 27.7 | 66 | NNE | | | 1 | | 0 | | | 0 | 0 | Blue sky | Pro.. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.03 | 762.7 | 70 | 21.1 | | NW | 1 | 0.4 | | 0 | 0 | | | 0.22 | 5.6 | Clear | W. R. Bigg. |
| *Chatham, N. B. | | | 29.62 | 752.3 | 60 | 15.6 | 82 | NW | 13 | 5.8 | | | 10ks | | NW | 0.45 | 11.4 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.58 | 751.3 | 54 | 12.2 | 90 | NW | 11 | 4.9 | | | 10n | | | 0.230 | 5.84 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.98 | 761.5 | 65.0 | 18.3 | 63 | SW | | | 1 | 0 | 0 | | | 0.812 | 20.62 | Bright | James Smith, M. A. |
| Dalhousie, N. B. | | | | | | | | W | | | 2 | | | | | 0.38 | 9.7 | Overcast | H. A. Johnson. |
| Esquimault, B. C. | | | 30.04 | 763.0 | 52.3 | 11.3 | 90 | W | | | | 7cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.76 | 755.9 | 52 | 11.1 | 93 | SW | 2 | 0.9 | | 2ck | 5s | W | | 0.07 | 1.8 | Fair | J. McWilliams. |
| Fredericton, N. B. | | | 30.71 | 754.6 | 63.0 | 17.2 | 64 | N | 11 | 4.9 | | 3k | 0 | NW | | 0.14 | 3.6 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.78 | 756.4 | 56 | 13.3 | 93 | E | 15 | 6.7 | | 5k | 5n | SW | E | 0.05 | 1.3 | Threatening | James Stewart. |
| Goderich, Ontario | | | 30.18 | 766.6 | 59.3 | 15.2 | | NW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | | | | | | | | | | | | | | | | | | | |
| *Halifax, N. S. | 29.04 | 737.6 | 30.12 | 765.0 | 59 | 15.0 | 88 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| Hamilton, Ontario | | | 29.57 | 751.1 | 60 | 15.6 | 99 | W | 7 | 3.1 | | | 8n | | SW | 0.278 | 7.06 | Cloudy | F. Allison, M. A. |
| Heart's Content, N. F. | | | 30.14 | 765.5 | 71.1 | 21.7 | 64 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| *Kingston, Ontario | | | 29.64 | 752.8 | 55 | 12.8 | 87 | S | | | 4 | | 10 | | | 0.16 | 4.1 | Raining | E. Weedon. |
| *Montreal, Quebec | | | 30.10 | 764.5 | 67 | 19.4 | 69 | NW | 5 | 2.2 | | 0 | 0 | | | Inap | Inap. | Clear | S. Woods, M. A. |
| *Parry Sound, Ontario | | | 29.95 | 760.7 | 65 | 18.3 | 58 | NW | 12 | 5.4 | | 0 | 0 | | | 0.52 | 13.2 | Clear | C. H. McLeod, C. E. |
| Peterboro, Ontario | | | 30.11 | 764.8 | 60 | 15.6 | 82 | S | 1 | 0.4 | | 0 | 0 | | | 0.01 | 0.3 | Clear. | Rev. R. Moslev. |
| Port Dover, Ontario | | | 30.18 | 766.6 | 64.2 | 17.9 | 70 | SW | | | 1 | 0 | 0 | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Hastings, N. S. | | | 30.14 | 765.5 | 57 | 13.9 | 81 | N | 7 | 3.1 | | 0 | 0 | | | 0.07 | 1.8 | Clear | H. Morgan. |
| Port Stanley, Ontario | | | | | | | | | | | | | | | | | | | Peter Grant |
| *Quebec, Quebec | | | 30.12 | 765.0 | 61 | 16.1 | 77 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Rockliffe, Ontario | | | 29.81 | 757.2 | 66 | 18.9 | 95 | W | 4 | 1.8 | | 0 | 2n | | SW | 0.52 | 13.2 | Clear | Capt. Ashe, R. N |
| St. John, N. B. | | | 30.09 | 764.3 | 58 | 14.4 | 78 | W | 6 | 2.7 | | 0 | 0 | | | Inap. | Inap. | Clear | W. H. McIntyre. |
| *Saugeen, Ontario | | | 29.71 | 754.6 | 63 | 17.2 | 62 | NW | 10 | 4.5 | | 5k | 0 | | | 0.07 | 1.8 | Fair | G. Murdock, C. E. |
| Stayner, Ontario | | | 30.12 | 765.0 | 55 | 12.8 | 87 | Calm | 0 | 0 | | 2cs | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stratford, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| *Sydney, C. B. | 28.85 | 732.8 | 30.13 | 765.3 | 52.0 | 11.1 | 74 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Toronto, Ontario | | | 29.49 | 749.0 | 67 | 19.4 | 91 | SW | 6 | 2.7 | | 8k | 8ks | W | W | 0.13 | 3.3 | Cloudy | T. C. Hill. |
| Windsor, N. S. | | | 30.13 | 765.3 | 64 | 17.8 | 61 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear. | Magnetic Observatory |
| Woodstock, Ontario | | | 29.57 | 751.1 | 58 | 14.4 | 97 | N | 2 | 0.9 | | | 10n | | | | | Raining | Prof. John E. Oram. |
| SUB-SERIES. | | | 30.13 | 765.3 | 61.0 | 16.1 | 79 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear. | J. Montgomery. |
| St. Johns, Newfoundland | | | 29.79 | 756.7 | 52.0 | 11.1 | 93 | SE | | | | | 10n | | | 0.12 | 3.0 | Raining | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.96 | 761 0 | 67 | 19.4 | 68 | NW | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Alpena, Mich. | | | 30.14 | 765.5 | 61 | 16.1 | 60 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.02 | 762.5 | 73 | 22.8 | 71 | N | 12 | 5.4 | | 2c | 0 | W | | 0.08 | 2.0 | Clear | |
| Augusta, Ga. | | | 30.11 | 764.8 | 78 | 25.6 | 82 | S | 3 | 1.3 | | 5ck | Haze | S | | 0.55 | 14.0 | Fair | |
| Baltimore, Md. | | | 30.04 | 763.0 | 77 | 25 0 | 69 | NW | 8 | 3.6 | | 2c | 2s | SW | | 0.10 | 2.5 | Fair | |
| Barnegat, N. J. | | | 30.00 | 762.0 | 72 | 22.2 | 71 | NW | 10 | 4.5 | | 5c | 0 | NW | | 0.16 | 4.1 | Fair | |
| Bismarck, Dakota | 27.86 | 707.6 | 29.39 | 746.5 | 69 | 20.6 | 56 | SE | 1 | 0.4 | | Haze | 5s | | SW | 0 | 0 | Fair | |
| Boston, Mass. | | | 29.88 | 758.9 | 70 | 21.1 | 57 | NW | 20 | 8.9 | | 1ck | 0 | NW | | 0.04 | 1.0 | Clear | |
| Breckenridge, Minn. | | | 29.71 | 754.6 | 67 | 19.4 | 74 | SE | 21 | 9.4 | | 5k | 2ks | S | S | 0 | 0 | Cloudy | |
| Brownsville, Texas | | | 29.94 | 760.5 | 78 | 25.6 | 95 | NW | 2 | 0.9 | | | 10s | | NW | 0.17 | 4.3 | Cloudy | |
| Buffalo, N. Y. | | | 30.09 | 764.3 | 61 | 16.1 | 77 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.96 | 761.0 | 65 | 18.3 | 62 | NW | 6 | 2.7 | | 0 | 0 | | | 0.18 | 4.3 | Clear | |
| Cairo, Ill. | | | 30.10 | 764.5 | 72 | 22.2 | 80 | N | 3 | 1.3 | | 2cs | 5s | | | 0.02 | 0.5 | Fair | |
| Campo, Cal. | 27.41 | 696.2 | 29.98 | 761.5 | 41 | 5.0 | 83 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 60 | 15.6 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.01 | 762.2 | 73 | 22.8 | 90 | SW | 8 | 3.6 | | 5k | 5s | SW | | 0.32 | 8.1 | Cloudy | |
| Cape Henry, Va. | | | 30.02 | 762.5 | 80 | 26.7 | 78 | W | 8 | 3.6 | | 5cs | Haze | | | 0.67 | 17.0 | Fair | |
| Cape Lookout, N. C. | | | 30.08 | 764.0 | 76 | 24.4 | 86 | SW | 14 | 6.3 | | | 10s | | SW | 0.12 | 3.0 | Cloudy | |
| Cape May, N. J. | | | 30.04 | 763.0 | 73 | 22.8 | 81 | N | 12 | 5.4 | | 0 | 0 | | | 0.21 | 5.3 | Clear | |
| Charleston, S. C. | | | 30.15 | 765.8 | 80 | 26.7 | 78 | SW | 6 | 2.7 | | 2ck | 5ks | | SW | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 24.02 | 610.1 | 29.96 | 761.0 | 54 | 12.2 | 38 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 30.10 | 764.5 | 64 | 17.8 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Cincinnati, Ohio | | | 30.02 | 762.5 | 72 | 22.2 | 85 | NE | 7 | 3.1 | | | 10ks | | NE | Inap. | Inap. | Cloudy | |
| Cleveland, Ohio | | | 30.13 | 765.3 | 64 | 17.8 | 73 | N | 7 | 3 1 | | 0 | 1s | | W | Inap. | Inap. | Clear | |
| Corsicana, Tex. | | | 30.07 | 763.8 | 72 | 22.2 | 90 | SE | 3 | 1.3 | | 2cs | 8s | | SE | 0.24 | 6.1 | Cloudy | |
| Davenport, Iowa | | | 30.12 | 765.0 | 67 | 19.4 | 79 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denison, Texas | | | 30.07 | 763.8 | 78 | 25.6 | 77 | SE | 3 | 1.3 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Denver, Col. | 24.78 | 629.4 | 30.00 | 762.0 | 61 | 16.1 | 40 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.12 | 765.0 | 61 | 16.1 | 70 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.40 | 696.0 | 29.60 | 751.8 | 67 | 19.4 | 79 | S | 3 | 1.3 | | 2k | 0 | SW | | 0.08 | 2 0 | Clear | |
| Dubuque, Iowa | | | 30.09 | 764.3 | 62 | 16.7 | 88 | N | 1 | 0.4 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.96 | 761.0 | 56 | 13.3 | 80 | NE | 3 | 1.3 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Eagle Pass, Tex. | | | 29.97 | 761.2 | 76 | 24.4 | 95 | NE | 1 | 0.4 | | | 10n | | | 0.03 | 0.8 | Light rain | |
| Eastport, Me. | | | 29.70 | 754 4 | 60 | 15.6 | 76 | NW | 8 | 3.6 | | c | 0 | W | | 0.06 | 1.5 | Fair | |
| Erie, Pa. | | | 30.09 | 764.3 | 61 | 16.1 | 82 | NW | 3 | 1.3 | | 2k | 0 | NE | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.06 | 763.5 | 60 | 15.6 | 76 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Florence, Arizona | 28.27 | 718.0 | 29.87 | 758.7 | 89 | 26.7 | | W | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.06 | 763.5 | 78 | 25.6 | 77 | SE | 5 | 2.2 | | 2c | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.82 | 732.0 | 30.05 | 763.3 | 71 | 21.7 | 85 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.86 | 758.4 | 52 | 11.1 | 86 | NE | | | 1 | 0 | 2ks | | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.87 | 733.3 | 29.94 | 760 5 | 74 | 23.3 | 72 | SE | 4 | 1.8 | | 1k | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 27.98 | 710.7 | 29.52 | 749.8 | 71 | 21.7 | 80 | SE | 12 | 5.4 | | 2c | 0 | | | 0 | 0 | Fair | |
| Galveston, Tex. | | | 30.04 | 763.0 | 78 | 25.6 | 90 | SE | 8 | 3.6 | | | 10ks | | | 0.03 | 0.8 | Cloudy | |
| Grand Haven, Mich. | | | 30.12 | 765.0 | 65 | 18.3 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.10 | 764.5 | 64 | 17 8 | 78 | N | 3 | 1.3 | | 2k | 5s | | | Inap. | Inap. | Fair | |
| Indianola, Tex. | | | 29.99 | 761.7 | 76 | 24.4 | 95 | SE | 18 | 8.0 | | | 10n | | | 0.86 | 21.8 | Heavy rain | |
| Jacksonville, Fla. | | | 30.14 | 765.5 | 80 | 26.7 | 70 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.99 | 761.7 | 68 | 20.0 | 84 | E | 8 | 3.6 | | 0 | Haze | | | 0.10 | 2.5 | Clear | |
| Key West, Fla. | | | 30.04 | 763.0 | 83.0 | 28.3 | 70 | E | 9 | 4.0 | | 2k | 1ks | SE | | 0.03 | 0.8 | Fair | |
| Kittyhawk, N. C. | | | 30.05 | 763.3 | 75 | 23.9 | 90 | SW | 11 | 4.9 | | 2cs | 8s | SW | SW | 0.08 | 2.0 | Cloudy | |
| Knoxville, Tenn. | | | 30.11 | 764.8 | 70 | 21.1 | 95 | NW | 3 | 1.3 | | | Fog | | | 0.07 | 1.8 | Foggy | |
| La Crosse, Wis. | | | 30.06 | 763.5 | 63 | 17.2 | 83 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 29.98 | 761.5 | 74 | 23.3 | 68 | SE | 6 | 2.7 | | 2ck | 0 | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 30.05 | 763.3 | 75 | 23.9 | 81 | NE | 4 | 1.8 | | 5c | 0 | SE | | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.07 | 763.8 | 79 | 26 1 | 69 | NW | 4 | 1.8 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Maricopa Wells, Arizona | | | | | 88 | 31.1 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | | | | | | | | | | | | | | | | | |
| Mason, Tex. | 28.43 | 722.1 | 30.15 | 765.8 | 72 | 22.2 | 90 | Calm | 0 | 0 | | 5ck | 2s | | | 0.55 | 14.0 | Cloudy | |
| Memphis, Tenn. | | | 30.07 | 763.8 | 80 | 26.7 | 82 | SW | 4 | 1.8 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 30.14 | 765.5 | 63 | 17.2 | 78 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.14 | 765.5 | 81 | 27.2 | 82 | S | 1 | 0.4 | | 5ck | 2s | SW | NE | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.13 | 765.3 | 80.5 | 26.9 | 76 | S | 3 | 1.3 | | 8ck | 2ks | | SW | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 29.05 | 737.9 | 30.06 | 763.5 | 72 | 22.2 | 80 | Calm | 0 | 0 | | | 10s | | SW | Inap. | Inap. | Threatening | |
| Mt. Washington, N. H. | 23.66 | 601.0 | 30.02 | 762.5 | 40 | 4.4 | 100 | NW | 42 | 18.8 | | | Fog | | | 1.06 | 26.9 | Foggy | |
| Nashville, Tenn. | | | 30.08 | 764.0 | 74 | 23.3 | 85 | S | 2 | 0.9 | | 5cs | 5s | E | S | 0.02 | 0.5 | Cloudy | |
| New Haven, Conn. | | | 29.96 | 761.0 | 72 | 22.2 | 58 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| New London, Conn. | | | 29.94 | 760.5 | 72 | 22.2 | 62 | NW | 9 | 4.0 | | 0 | 0 | | | 0.06 | 1.5 | Clear | |
| New Orleans, La. | | | 30.10 | 764.5 | 79 | 26.1 | 86 | SE | 6 | 2 7 | | 5ck | 4s | | | 0.08 | 2.0 | Cloudy | |
| Newport, R. I. | | | 29.92 | 760.0 | 69 | 20.6 | 71 | NW | 13 | 5.8 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| New York, N. Y. | | | 30.01 | 762.2 | 70 | 21.1 | 61 | NW | 12 | 5.4 | | 2c | 0 | | | 0.04 | 1.0 | Fair | |
| Norfolk, Va. | | | 30.06 | 763.5 | 77 | 25.0 | 82 | W | 5 | 2 2 | | 5k | 0 | NW | | 0.30 | 7.6 | Fair | |
| North Platte, Neb. | 26.98 | 685.3 | 29.42 | 747.3 | 69 | 20.6 | 62 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.90 | 734.0 | 29.94 | 760.5 | 66 | 18.9 | 84 | S | 4 | 1.8 | | | 10n | | S | 0.02 | 0.5 | Light rain | |
| Oswego, N. Y. | | | 30.09 | 764.3 | 57 | 13.9 | 84 | W | 10 | 4.5 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Pembina, Dakota | | | 29.75 | 755.6 | 57 | 13.9 | 100 | SE | 10 | 4.5 | | | 10n | | | 0.24 | 6.1 | Hailing | |
| Philadelphia, Pa. | | | 30.04 | 763.0 | 72 | 22.2 | 67 | NE | 10 | 4.5 | | 2ck | 0 | | | 0.07 | 1.8 | Fair | |
| Phœnix, Arizona | | | | | 70 | 21 1 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 18.01 | 457.4 | 30.22 | 767.6 | 30 | − 1.1 | 89 | SW | 28 | 12.5 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Pittsburg, Pa. | | | 30.06 | 763.5 | 69 | 20.6 | 79 | NE | 6 | 2.7 | | 5k | 0 | | | 0.26 | 6.6 | Fair | |
| Port Huron, Mich. | | | 30.12 | 765.0 | 58 | 14.4 | 81 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Portland, Me. | | | 29.82 | 757.4 | 71 | 21.7 | 49 | NW | 16 | 7 2 | | 1k | 0 | NW | | Inap. | Inap. | Clear | |
| Portland, Oregon | | | 30.12 | 765.0 | 59 | 15.0 | 76 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.85 | 631.2 | 30.21 | 767.3 | 51 | 10.6 | 19 | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.07 | 763.8 | 81 | 27.2 | 74 | E | 12 | 5.4 | | 0 | 8ks | | | 0 | 0 | Cloudy | |
| Rochester, N. Y. | | | 30.07 | 763.8 | 64 | 17.8 | 67 | W | 4 | 1.8 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Salt Lake City, Utah | 25.54 | 648.7 | 30.88 | 758.9 | 70 | 21.1 | 16 | E | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.01 | 762.2 | 69 | 20.6 | 70 | NW | 18 | 8.0 | | 2c | Haze | W | | 0.14 | 3.6 | Fair | |
| San Antonio, Tex. | | | 29.90 | 759.4 | 75 | 23.9 | 95 | NE | 8 | 3.6 | | | 10s | | NE | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.03 | 762.7 | 64 | 17.8 | 78 | SW | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.00 | 762.0 | 54 | 12 2 | 90 | W | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fe, New Mexico | 23.40 | 594.4 | 29.94 | 760.5 | 63.5 | 17.5 | 45 | E | 8 | 3.6 | | 0 | 2s | | | 0 | 0 | Hazy | |
| Savannah, Ga. | | | 30.15 | 765.8 | 83 | 28.3 | 67 | SW | 5 | 2.2 | | 1c | 1ck | W | S | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.17 | 766.3 | 75 | 23.9 | 90 | Calm | 0 | 0 | | | 10s | | N | 0.03 | 0.8 | Cloudy | |
| Smithville, N. C. | | | 30.11 | 764.8 | 77 | 25.0 | 90 | SW | 6 | 2.7 | | 8cs | 2s | W | | 0 | 0 | Cloudy | |
| Springfield, Mass. | | | 29.96 | 761.0 | 72 | 22.2 | 51 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 30.08 | 764.0 | 72 | 22.2 | 80 | E | 11 | 4.9 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| St. Marks, Fla. | | | 30.13 | 765.3 | 76 | 24.4 | 86 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.91 | 759.7 | 68 | 20.0 | 69 | SE | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 62 | 16.7 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 29.99 | 685.5 | 29.99 | 761.7 | 70 | 21.1 | 75 | SE | 4 | 1.8 | | 0 | 2s | | | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 29.87 | 758.7 | 67 | 19.4 | 69 | NW | 20 | 8.9 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Toledo, Ohio | | | 30.12 | 765.0 | 66 | 18.9 | 78 | NE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.55 | 699.8 | 30.10 | 764.5 | 64 | 17.8 | | S | | | | 2c | 0 | SW | | 0 | 0 | Clear. | |
| Tybee Island, Ga | | | 30.12 | 765.0 | 80 | 26.7 | 74 | SW | 8 | 3.6 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.14 | 765.5 | 77 | 25.0 | 65 | SE | 3 | 1.3 | | 0 | 8s | | | 0.01 | 0.3 | Fair | |
| Virginia City, Montana | 24.21 | 614.9 | 29.69 | 754.1 | 56 | 13.3 | 45 | NE | 4 | 1.8 | | 5c | 0 | W | | 0.01 | 0.3 | Fair | |
| Washington, D. C | | | 30.06 | 763.5 | 74 | 23.3 | 85 | W | 3 | 1.3 | | 1c | 0 | W | | 0.11 | 2.8 | Clear | |
| Wickenburg, Arizona | | | | | 70 | 21.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.11 | 764.8 | 77 | 25.0 | 76 | W | 8 | 3.6 | | 10cs | 0 | W | | Inap. | Inap. | Cloudy | |
| Wood's Holl, Mass | | | 29.92 | 760.0 | 70 | 21.1 | 75 | NW | 10 | 4.5 | | 0 | 0 | | | 0.08 | 2.0 | Clear. | |
| Yankton, Dakota | 28.63 | 727.2 | 29.86 | 758.4 | 68 | 20.0 | 74 | SE | 18 | 8.0 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Yuma, Arizona | | | 29.84 | 757.9 | 71 | 21.7 | 82 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.18 | 766.6 | 75 | 25.6 | 82 | Calm | 0 | 0 | | 2c | 2s | | SE | 0.03 | 0.8 | | James Gall. |
| Navassa, W. I | | | 30.00 | 762.0 | 81 | 27.2 | | ENE | | | 3 | | | | | 0.01 | 0.3 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A. | | | 30.07 | 763.8 | 82 | 27.8 | 88 | E | | | 2 | 5k | 6ks | E | | 0 | 0 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.22 | 640.6 | | | 67.5 | 19.7 | 75 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | Thomas Herran. |
| York Factory, B. A. | | | 29.95 | 760.7 | 40 | 4.4 | 96 | W | 10 | 4.5 | | 3c | 0 | NE | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.12 | 765.0 | 73 | 22.8 | | NE | | | 3 | | | | | 0.35 | 8.9 | Cloudy | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,185 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.15 | 765.8 | 77 | 25.0 | 74 | 23.3 | 81 | WSW | | | 1 | | 2 | | WSW | 0.03 | 0.8 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 30.09 | 764.3 | 61 | 16.1 | 57 | 13.9 | | SW | | | 1 | | 8 | | | 0 | 0 | | | Pleasant | |
| Navy Yard, Pensacola, Fla. | 30.23 | 769.1 | | | 78 | 25.6 | 86 | NNE | 7 | 3.1 | | | 5 | | ENE | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.92 | 760.0 | 80 | 26.7 | 70 | 21.1 | 61 | NW | 11 | 4.9 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.60 | 751.8 | 71 | 21.7 | 69.5 | 20.8 | 95 | Calm | | | 0 | | 10k,s | | WNW | 0.75 | 19.1 | | | Cloudy | |
| Alert, N. 0° 23′ 03″, E. 133° 55′ 30″ | 29.97† | 761.2† | 80 | 26.7 | 80 | 26.7 | 100 | WSW | | | 3–4 | | 7 | | SW | | | Smooth | | Lightning | |
| Alliance, Beirut, Syria | 30.07 | 763.8 | 80 | 26.7 | 79 | 26.1 | 74 | N | | | 0–1 | | 0 | | | | | Smooth | None | Pleasant | |
| Ashuelot, Pagoda Anchorage, River Min, China | 29.80 | 756.9 | 76 | 24.4 | 73 | 22.8 | 85 | NE | | | 4 | | 10 | | | | | | | Raining | |
| Canonicus, New Orleans, La | 30.11 | 764.8 | 55 | 12.8 | 78 | 25.6 | 91 | ESE | | | 1 | | 8 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.07 | 763.8 | 63 | 17.2 | 70 | 21.1 | 61 | NW | 14 | 6.3 | | | 1 | | | 0.2 | 5. | | | Squally | |
| Despatch, Constantinople, Turkey | 30.04 | 763.0 | 64 | 17.8 | 63 | 17.2 | 83 | NE | | | 3 | | 10 | | NE | | | | | Raining | |
| Franklin, Norfolk, Va. | 30.09 | 764.3 | 74 | 23.3 | 75 | 23.9 | 90 | NNW | 5 | 2.2 | | | 7 | | NNW | 0.6 | 15. | | | D. clouds | |
| Frolic, S. 25° 52′, W. 45° 13′ | 30.33 | 770.4 | 65 | 18.3 | 66 | 18.9 | 94 | SW | | | 4–5 | | 7kn | | | | | Long | S&W | Showery | |
| ‡Gettysburg, Leghorn, Italy | 29.94 | 760.5 | | | 79 | 26.1 | 91 | ENE | | | 3 | | 2 | | ENE | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.37 | 771.4 | 75 | 23.9 | 81 | 27.2 | 91 | SW | 3.6 | 1.6 | | | 4 | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.04 | 763.0 | 84 | 28.9 | 84 | 28.9 | 87 | Calm | | | 0 | | 3 | | | 0 | 0 | Light ground. | N&W | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.90 | 759.4 | 75 | 23.9 | 73 | 22.8 | 95 | Calm | | | 0 | | 10 | | | 0 | 0 | Smooth | | Hazy | |
| Marion, Smyrna, Turkey | 29.97 | 761.2 | 76 | 24.4 | 74 | 23.3 | 72 | NW | | | 3 | | 4 | | NW | Light | Light | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.64 | 752.8 | 70 | 21.1 | 70 | 21.1 | 75 | ENE | | | 1 | | 2 | | ENE | | | | | Partly cl'dy | |
| Monocacy, Tientsin, China | 29.55 | 750.6 | 75 | 23.9 | 75 | 23.9 | 100 | SE | | | 2 | | 6 | | SE | | | | | Thunder-storm | |
| Monongahela, New London, Conn | 29.99 | 761.7 | 68 | 20.0 | 68 | 20.0 | 70 | NW | | | 3 | | 1cs | | | Light | Light | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.40 | 772.1 | | | 77 | 25.0 | 82 | SSW | 6 | 2.7 | | | 5 | | N | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.05 | 763.3 | 68 | 20.0 | 67 | 19.4 | 79 | SE | 2 | 0.9 | | | 10 | | | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, N. 33° 36′, W. 77° 43′ | 30.19 | 766.8 | 77 | 25.0 | 77 | 25.0 | 86 | WSW | | | 2 | | 3 | | WSW | | | Long | SSE | D. clouds | |
| Palos, Shanghai, China | 29.88 | 758.9 | 74 | 23.3 | 74 | 23.3 | 90 | S | | | 1 | | 5 | | S | 0 | 0 | | | Light dew | |
| Pensacola, N. 22° 05′, W. 127° 10′ | 30.18 | 766.6 | | | 70 | 21.1 | 75 | NNE | | | 3–4 | | 10 | | | 0 | 0 | Moderate. | N&W | Cloudy | |
| Plymouth, N 20° 1′, W. 94° 50′ | 30.01 | 762.2 | 83 | 28.3 | 80 | 26.7 | 87 | NE | | | 1 | | 10 | | N&W | 0 | 0 | Light | N&E | Cloudy | |
| Ranger, Suez, Egypt | 30.20 | 767.1 | | | 85 | 29.4 | 72 | S | | | 2 | | 1 | | N | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.38 | 771.6 | 67.5 | 19.7 | 65.8 | 18.8 | 81 | NNW | | | 1 | | 10 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.83 | 757.7 | | | 74 | 23.3 | 95 | NW | | | 1 | | 6 | | NW | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.14 | 765.5 | 75 | 23.9 | 74 | 23.3 | 86 | N | | | 1 | | 3 | | | 0.02 | 0.5 | | | Clear | |
| Saratoga, Boston, Mass | 30.20 | 767.1 | | | 70 | 21.1 | | WNW | | | 3 | | 6 | | SSE | Light | Light | | | Fair | |
| St. Louis, League Island, Pa | 30.00 | 762.0 | 75 | 23.9 | 74 | 23.3 | 80 | NNW | 6 | 2.6 | | | 5 | | W | 0.14 | 3.6 | | | Fair | |
| Swatara, N. 13° 03′, W. 81° 14′ | 30.03 | 762.7 | 84 | 28.9 | 84 | 28.9 | 83 | NNE | | | 4 | | 6k | | NE | Blank | Blank | | | Overcast | |
| Tennessee, Yokohama, Japan | 29.70 | 754.4 | 71 | 21.7 | 74 | 23.3 | 86 | S&W | | | 0–1 | | 10 | | | Blank | Blank | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.18† | 766.6† | 76 | 24.4 | 83 | 28.3 | 83 | NW | 6 | 2.7 | | | 2 | | N&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.04 | 763.0 | 68 | 20.0 | 64 | 17.8 | 83 | NNW | | | 1–2 | | 10 | | W | | | | | Drizzling | |
| Wabash, Boston, Mass | 29.97 | 761.2 | 71 | 21.7 | 70 | 21.1 | 70 | NW | 12 | 5.4 | | | 1 | | NW | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.18† | 766.6† | 76 | 24.4 | 72 | 22.2 | | Calm | | | 0 | | | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | Character. | Direction from— | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | | | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |
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| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 29′, W. 161° 06′ | W | | 29.97 | 761.2 | 56 | 13.3 | 87 | SE | | | 3 | | Haze | | | Tranq'l | | Moist | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |
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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 38° 27′, W. 64° 15′ | N75E | 11¾ | 29.99 | 761.7 | 71.0 | 21.1 | 92 | WSW | | | 5 | | | | | Moderate. | | Raining | Capt. H. Andressen. |
| S. S. Nürnberg, N. 42° 41′, W. 52° 45′ | W | 13.5 | 30.02 | 762.5 | 55.6 | 13.1 | | S | | | 6 | | 10 | | WSW | Moderate | | Hazy | Capt. C. Pohle. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgens |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the CHIEF SIGNAL OFFICER OF THE ARMY, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz., cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 18, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.10 | 764.6 | 78.4 | 25.8 | 49 | NNW | | | 1 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.12 | 765.0 | 81.3 | 27.4 | 82 | W | | | 2 | | 3 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.08 | 763.9 | 73.4 | 23.0 | 79 | NNW | | | 2 | | 9 | | | 0.472 | 12.0 | Hidden | Fleury. |
| Tunis | | | 30.14 | 765.5 | 84.3 | 29.0 | | E | | | 4 | | 2 | | | 0.039 | 1.0 | Clear | Jacques. |
| Sfax | | | 30.13 | 765.2 | 82.4 | 28.0 | | W | | | 3 | | 6 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.13 | 765.2 | 75.7 | 24.3 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.15 | 765.7 | 77.4 | 25.2 | | NW | | | 1 | | 2 | | | 0.315 | 8.0 | Clear | Bourgeois. |
| Geriville | | | 30.14 | 765.6 | 86.0 | 30.0 | 21 | N | | | 1 | | 3 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.14 | 765.6 | 87.8 | 31.0 | 23 | NE | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.06 | 763.5 | 93.6 | 34.4 | 23 | SW | | | 1 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.14 | 765.5 | 78.3 | 25.7 | 35 | NE | | | 5 | | 6 | | | 0 | 0 | | Prof. Ivan Stozir |
| Cracow, I. R. Observatory | | | 30.19 | 766.8 | 71.6 | 22.0 | 43 | NE | | | 1 | | 0 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.14 | 765.5 | 70.9 | 21.6 | 34 | N | | | 3 | | 6cks | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.94 | 735.1 | 30.15 | 765.9 | 72.0 | 22.2 | 57 | S | | | 3 | | 3 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.74 | 729.9 | 30.13 | 765.4 | 65.1 | 18.4 | 35 | NNW | | | 3 | | 4 | | | 0.020 | 0.50 | | Prof. Reissenberger. |
| Kremsmünster | 28.74 | 729.9 | 30.03 | 762.8 | 71.2 | 21.8 | 41 | E | | | 5 | | 0 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.11 | 764.9 | 65.8 | 18.8 | 54 | NW | | | 1 | | 7 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.13 | 765.4 | 75.6 | 24.2 | 31 | ESE | | | 3 | | 1ks | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.14 | 765.6 | 68.9 | 20.5 | 72 | E | | | 3 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.16 | 766.0 | 75.4 | 24.1 | 46 | NW | | | 1 | | 4 | | | 0 | 0 | Fair | P. Busin. |
| Vienna | | | 30.15 | 765.9 | 72.7 | 22.6 | 39 | SE | | | 2 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.61 | 726.8 | 30.07 | 763.8 | 71.4 | 21.9 | 63 | SSW | | | 2 | | 7 | | | 0 | 0 | | |
| Brussels | | | 30.03 | 762.8 | 77.9 | 25.5 | 43 | ESE | | | 2 | | | | | 0 | 0 | Clear | Royal Observatory |
| Furnes | | | 30.05 | 763.2 | 76.1 | 24.5 | 64 | NNW | | | 4 | | 3 | | | 0 | 0 | | |
| Maeseyck | | | 30.08 | 764.0 | 76.6 | 24.8 | 42 | ESE | | | 2 | | 0 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.26 | 768.6 | 51.2 | 10.7 | | E | 10 | 4.5 | | | | | | 0 | 0 | Foggy | William Boswell. |
| Ardrossan | | | 30.11 | 764.8 | 76 | 24.4 | | SSW | | | 1 | | 0 | | | | | Blue sky | William McNeil. |
| Armagh, Observatory | | | 30.12 | 765.0 | 72.7 | 22.6 | | ESE | 8 | 3.6 | | | 0 | | | | | Blue sky | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.07 | 763.8 | 77.4 | 25.2 | | ESE | 13 | 5.8 | | | 4 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.05 | 763.5 | 77.8 | 25.4 | | E | | | 1 | | 8 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.14 | 765.5 | 72.4 | 22.4 | | E | | | 1 | | 0 | | | 0 | 0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.99 | 761.7 | 84.8 | 29.3 | | NE | | | 1 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.07 | 763.8 | 81.0 | 27.2 | | E | | | 1 | | 1 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.08 | 764 0 | 83.0 | 28.3 | | E | | | 1 | | 0 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.11 | 764.8 | 72.2 | 22.3 | | NE | | | 2 | | 5 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.62 | 726.9 | 30.04 | 763.0 | 73.6 | 23.1 | | E | | | 1 | | 2 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.13 | 765.3 | 65 | 18.3 | | N | | | 3 | | 0 | | | | | Blue sky | J. Mac Gowan. |
| Dover | | | 30.06 | 763.5 | 72 | 22.2 | | NE | | | 2 | | 1 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.08 | 764.0 | 79.9 | 26.6 | | SE | 3.6 | 1.6 | | | | | | | | Blue sky | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.05 | 763.3 | 68.0 | 20.0 | | SSE | | | 1 | | 1 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.96 | 710.2 | 30.20 | 767.1 | 64.4 | 18.0 | | NE | | | 3 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 29.90 | 759.4 | 84 | 28.9 | | N | | | 3 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.03 | 762.7 | 72 | 22.2 | | SE | | | 1 | | 4 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.09 | 764.3 | 77.5 | 25.3 | | W | | | 2 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.14 | 765.5 | 70.2 | 21.2 | | NE | | | 5 | | | | | | | Blue sky | D. G. Maclean. |
| Great Yarmouth | | | 30.12 | 765.0 | 63 | 17.2 | | NE | | | 1 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.06 | 763.5 | 81.2 | 27.3 | | ESE | | | 2 | | 1 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 30.03 | 762.7 | 69 | 20.6 | | ESE | | | 1 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.13 | 765.3 | 68 | 20.0 | | SW | | | 2 | | 2ck | | | 0 | 0 | Very fine | M. P. Moyle. |
| Holyhead | | | 30.07 | 763.8 | 69 | 20.6 | | ENE | | | 3 | | 0 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.05 | 763.3 | 78.0 | 25.6 | | ESE | 17 | 7.6 | | | 1cH'z | | | | | Hazy | The Staff. |
| Kingstown | | | 30.12 | 765.0 | 62 | 16.7 | | ENE | | | 1 | | 5 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.07 | 763.8 | 76.8 | 24.9 | | NE | | | 1 | | | | | | | Blue sky | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | | | 77.2 | 25.1 | | NE | | | 1 | | 8k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 30.22 | 767.6 | 56 | 13.3 | | Calm | | | 0 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.13 | 765.3 | 87.8 | 31.0 | | E | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.10 | 764.5 | 79.7 | 26.5 | | NNE | | | 4 | | 1c | | WNW | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.06 | 763.5 | 76.0 | 24.4 | | ENE | | | 3 | | 1 | | | | | Blue sky | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.06 | 763.5 | 78 | 25.6 | | ENE | | | 1 | | 1 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 30.04 | 763.0 | 73.0 | 22.8 | | S | | | 2 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.03 | 762.7 | 69 | 20.6 | | ESE | | | 4 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 30.04 | 763.0 | 68 | 20.0 | | Calm | | | 0 | | 0 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.04 | 763.0 | 67.5 | 19.7 | | W | | | 3 | | 5 | | | | | ¼ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.30 | 769.6 | 52.8 | 11.6 | | E | 21 | 9.4 | | | 10 | | | | | Misty | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 30.14 | 765.5 | 71.7 | 22.1 | | NE | | | 2 | | 2 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.11 | 764.8 | 74.0 | 23.3 | | ENE | | | 2 | | 2 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Stilloth, Rectory | | | 30.12 | 765.0 | 76.2 | 24.6 | 49 | SE | | | 1 | | 4 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.10 | 764.5 | 74.0 | 23.3 | | E | | | 2 | | | | | | | Blue sky | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.18 | 766 6 | 59 | 15.0 | | NNE | | | 4 | | 0 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.04 | 763.0 | 79.0 | 26.1 | | E | | | 1 | | 5 | | | | | D. clouds | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 30.25 | 768.3 | 54 | 12.2 | | E | | | 2 | | 10 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 30.05 | 763.3 | 79 | 26.1 | | NW | | | 2 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.03 | 762.7 | 73.4 | 23.0 | | SSE | 12 | 5.4 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 63 | 17.2 | | E | | | 3 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.24 | 768.1 | 57.0 | 13.9 | 75 | W | 18 | 8.0 | | 10 | 9 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.40 | 772.1 | 55.0 | 12.8 | 88 | NW | | | 2 | | 10k | | | 0.01 | 0.3 | Heavy rain. | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.22 | 767.6 | 55.1 | 12.8 | | E | | | 2 | | 10s | | | 0 | 0 | Foggy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.33 | 770.4 | 70.9 | 21.6 | 69 | E | 24.0 | 10.7 | | 0 | 5 | | E | 0.12 | 3.0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.70 | 779.8 | 50.0 | 10.0 | 85 | N | 3 | 1.3 | | | 10 | | W | 0 | 0 | Dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.17 | 766.3 | 63 | 17.2 | | E | | | 3 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.31 | 769.9 | 54 | 12.2 | | NE | | | 4 | 1 | 3 | NE | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|
| S. S. Algeria, N. 41° 55′, W. 64° 0′ | 0 | Smooth | Blue sky | Capt. W. Watson. |
| S. S. Batavia, N. 49° 31′, W. 31° 25′ | 2 | W | Foggy | Capt. J. E. Mouland. |
| Ship Camperdown, N. 46° 25′, W. 30° 5′ | 3 | W | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 40′ | 2 | | Hazy | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 40′ 50°, W. 59° 5′ | 4 | W | Blue sky | Capt. C. C. Prehn. |
| S. S. Othello | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | Capt. G. H. Jones. |
| S. S. Seine, Queenstown, Ireland | | | | Capt. H. Manning. |
| Barque Sorata | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.24 | 666.5 | | | 70.7 | 21.5 | 86 | NE | | | 3 | | 9s | | NE | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.15 | 765.9 | 73.2 | 22.9 | 50 | WNW | | | 2 | | 0 | | | | | | |
| Fanöe | | | 30.13 | 765.4 | 71.8 | 22.1 | 55 | WNW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 30.11 | 764.9 | 48.4 | 9.1 | 76 | ENE | | | 2 | | 9 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.33 | 770.3 | 49.1 | 9.5 | 95 | Calm | | | 0 | | 0 | | | | | | |
| Thorshavn, (Faröe) | | | 30.43 | 772.8 | 50.9 | 10.5 | 84 | NE | | | 2 | | 5 | | | | | | |
| Vestervig | | | 30.15 | 765.8 | 66.2 | 19.0 | 77 | WNW | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.13 | 765.3 | 75.2 | 24 | 58 | NE | | | 2 | | 5kn | | SW | 0.16 | 4. | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 29.99 | 761.8 | 83.5 | 28.6 | 48 | E | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.07 | 763.7 | 75.7 | 24.3 | 53 | NW | | | 2 | | 5 | | N | 0.130 | 3.3 | Cloudy | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.06 | 763.4 | 75.6 | 24.2 | 61 | W | | | 2 | | 8kn | | S | 0 | 0 | Very cloudy | C. Saillard. |
| Beaumette, Obs'y (Angers) | | | 30.02 | 762.5 | 70.9 | 21.6 | 78 | SW | 10.1 | 4.5 | | | | | S | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.04 | 763.0 | 78.4 | 25.8 | 45 | E | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Besançon | | | 30.04 | 763.1 | 77.4 | 25.2 | 61 | SE | | | 2 | | 0 | | | 1.110 | 28.2 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.17 | 766.4 | 76.0 | 24.8 | 77 | NW | | | 2 | | 8n | | W | 0 | 0 | Very cloudy | Normal School. |
| Bourges, Normal School | | | 30.07 | 763.8 | 73.4 | 23 | 83 | S | | | 6 | | 5 | | N | 0.059 | 1.5 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.01 | 762.3 | 67.5 | 19.7 | 73 | WNW | | | 2 | | 10 | | WNW | 0 | 0 | Misty | The Staff. |
| Carcassonne, Normal School | | | 30.10 | 764.5 | 69.8 | 21 | 83 | E | | | 2 | | 1 | | E | 0.04 | 1. | Clear | Vateau, Director. |
| Caen | | | 30.02 | 762.6 | 76.3 | 24.6 | 72 | NNW | | | 2 | | 8 | | SSE | 0.094 | 2.4 | Very cloudy | Normal School. |
| Chartres, Normal School | | | 29.96 | 760.9 | 75.9 | 24.4 | 93 | SSW | | | 2 | | 9 | | NE | 3.248 | 82.5 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.03 | 762.7 | 80.6 | 27.0 | 58 | SSW | | | 3 | | 5k | | SSW | 0 | 0 | Cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.06 | 763.4 | 72.9 | 22.7 | 66 | NE | | | 2 | | 10 | | SW | 0.185 | 4.7 | Covered | Alluard, Director. |
| Commercy, Normal School | | | 30.05 | 763.3 | 73.8 | 23.2 | 65 | E | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.13 | 765.4 | 70.5 | 21.4 | 48 | SE | | | 2 | | 10 | | SE | 0.165 | 4.2 | | M. Kina. |
| Grenoble | | | 30.13 | 765.3 | 74.3 | 23.5 | 55 | NW | | | 4 | | 5kn | | SW | 0.266 | 6.75 | Cloudy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 30.10 | 764.6 | 63.3 | 17.4 | 86 | SW | | | 2 | | 10 | | | 0 | 0 | Covered | Mouillot, Director. |
| Le Mans, Normal School | | | 30.03 | 762.8 | 83.7 | 28.7 | 64 | S | | | 4 | | 5 | | S | 0 | 0 | Cloudy | Poirrier, Director. |
| Lons-L | | | 30.05 | 763.2 | 76.1 | 24.5 | 53 | NW | | | 4 | | 2 | | W | 0.134 | 3.4 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.09 | 764.3 | 70.5 | 21.4 | 62 | WSW | | | 2 | | 8 | | W | 0.016 | 0.4 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.05 | 763.3 | 68.7 | 20.4 | 85 | Calm | | | 0 | | 10 | | | 0 | 0 | Covered | M. Marchal, Director. |
| Metz | | | 30.15 | 765.9 | 73.4 | 23.0 | 55 | NE | | | 2 | | 3? | | | 0 | 0 | Covered ? | M. A. Schuster, Dir. |
| Mirecourt | | | 30.02 | 762.5 | 73.8 | 23.2 | 65 | SW | | | 2 | | 10 | | E | 0 | 0 | Covered | Normal School. |
| Nîmes, Normal School | | | 30.04 | 763.1 | 75.2 | 24 | 63 | NE | | | 2 | | n | | N | 0.089 | 2.25 | | Boyer, Director. |
| Orleans | | | 30.01 | 762.2 | 78.4 | 25.8 | 62 | NE | | | 2 | | 5 | | NNW | 0 | 0 | Cloudy | Normal School. |
| Paris, Observatory | | | 30.01 | 762.3 | 79.7 | 26.5 | 58 | SSW | | | 2 | | 6k | | N | 0 | 0 | Hazy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.97 | 761.3 | 68.0 | 20.0 | 81 | WSW | | | 2 | | 10 | | SW | 0 | 0 | Covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.02 | 762.5 | 84.2 | 29.0 | 36 | SE | | | 1 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 29.09 | 736.6 | 30.03 | 762.7 | 80.6 | 27 | 49 | SW | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.07 | 763.7 | 76.0 | 24.8 | 79 | N | | | 2 | | 8 | | E | 0 | 0 | Very cloudy | Viljot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.8 | 80.6 | 27 | | | | | | | | | | 0.12 | 3. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 74.1 | 23.4 | 57 | E | | | 0-1 | | 10 | | | Inap. | Inap. | Light rain | The Staff. |
| Mont-Louis | 24.98 | 634.6 | 30.30 | 769.6 | 51.8 | 11.0 | 72 | NNE | 9.3 | 4.17 | | | 10 | | N | 0.183 | 2.1 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.02 | 762.4 | 80.1 | 26.7 | 63 | SSW | | | 1 | | 8 | | | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.13 | 765.2 | 65.7 | 18.7 | 86 | NW | 7.4 | 3.33 | | | 9 | | NE | 0.031 | 0.8 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.38 | 543.0 | | | 41.2 | 5.1 | | NE | | | 1 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.65 | 575.3 | | | 40.1 | 4.5 | | NE? | | | 2 | | 10 | | | 1.142 | 29.0 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.02 | 762.6 | 82.8 | 28.2 | 54 | S | | | 1 | | 6 | | | 0.079 | 2.0 | Thunder-storm | E. Renou. |
| Toulouse, Observatory | | | 30.18 | 766.6 | 68.4 | 20.2 | 65 | NNW | | | 1 | | 9 | | | 0.240 | 6.1 | | The Staff |
| Tours | | | | | | | | | | | | | | | | 0.437 | 11.1 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.04 | 763.1 | 81.7 | 27.6 | 58 | SW | | | 2 | | 7 | | | 0 | 0 | Threatening | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.70 | 754.4 | 68.0 | 20.0 | 91 | ESE | 7.4 | 3.3 | | 3k8 | | | | 0 | 0 | | Marc Dechevrens, S. I. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4, the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 848 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 185. millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.09 | 764.3 | 73.4 | 23.0 | 34 | SE | | | 5 | | 1 | | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.18 | 766.6 | 76.6 | 24.8 | 30 | S | | | 1 | | 0 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.24 | 768.0 | 73.2 | 22.9 | 32 | SSE | | | 2 | | 2 | | | 0 | 0 | | Royal University Obs'ry |
| Carlsruhe | | | 30.01 | 762.9 | 75.7 | 24.3 | 46 | N | | | 1 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.21 | 767.2 | 76.5 | 24.7 | 33 | E | | | 3 | | 0 | | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.07 | 763.6 | 82.0 | 27.8 | 33 | SE | | | 2 | | 0 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.05 | 763.2 | 77.7 | 25.4 | 36 | E | | | 4 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.13 | 765.2 | 78.8 | 26.0 | 26 | E | | | 1 | | 0 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.65 | 727.7 | 30.04 | 762.9 | 71.6 | 22.0 | 63 | SW | | | 4 | | 0 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.18 | 766.5 | 75.2 | 24.0 | 44 | ESE | | | 1 | | 0 | | | 0 | 0 | Almost clear. | Captain F. Hegemann. |
| Kiel | | | 30.17 | 766.3 | 72.0 | 22.2 | 58 | NE | | | 4 | | 2 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 30.13 | 765.2 | 71.6 | 22.0 | 41 | NW | | | 5 | | 0 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.17 | 766.4 | 76.6 | 24.8 | 38 | ESE | | | 1 | | 1 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.13 | 765.4 | 59.5 | 15.3 | 74 | WNW | | | 4 | | 1cs | | | 0 | 0 | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.18 | 766.6 | 70.5 | 21.4 | 53 | NE | | | 3 | | 3 | W | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.21 | 767.4 | 75.2 | 24.0 | 36 | NW | | | 1 | | 2 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.04 | 763.0 | 75.6 | 24.2 | 54 | E | | | 1 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.02 | 762.4 | 77.9 | 25.5 | 35 | E | | | 1 | | 0 | | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.91 | 759.8 | 79.7 | 26.5 | 41 | E | | | 5 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.59 | 726.1 | 30.02 | 762.6 | 75.1 | 23.9 | 28 | E | | | 1 | | | | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.27 | 768.9 | 70.9 | 21.6 | 44 | NNE | | | 3 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.17 | 766.4 | 72.5 | 22.5 | | W | | | | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.57 | 751.2 | 29.62 | 752.4 | 88.3 | 31.3 | 64 | SW | 28.0? | 12.5? | | | 7 | | WSW | 0 | 0 | D. clouds | |
| Deesa | 29.18 | 741.2 | 29.64 | 752.8 | 96.8 | 36.0 | 45 | SSE | | | | | 4 | | | 0 | 0 | Blue sky | |
| Bombay | 29.72 | 754.9 | 29.76 | 755.9 | 79.5 | 26.6 | 88 | S | 31.0 | 13.8 | | | 10 | SW | SSW | 1.44 | 36.6 | Overcast | |
| Poona | 27.72 | 704.1 | 29.70 | 754.4 | 81.8 | 27.7 | 75 | | | | | | | | E | 0 | 0 | D. clouds | |
| Lahore | 28.74 | 730.0 | | | | | | W | 1.6 | 0.7 | | | | | | 0 | 0 | Gloomy | |
| Belgaum | | | | | 76.9 | 24.9 | 77 | W | 16.0 | 7.1 | | | 6 | E | W | | | Drizzling | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.57 | 725.6 | 29.42 | 747.2 | 101.3 | 38.5 | | NW | 3.9 | 1.7 | | | 9 | | | 0 | 0 | Strong wind | |
| Agra | 28.97 | 735.8 | 29.51 | 749.5 | 95.7 | 35.4 | 28 | W | 1.8 | 0.8 | | | | | | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.59 | 726.2 | 29.60 | 751.8 | 94.5 | 34.7 | 44 | W | 10.2 | 4.5 | | | 7 | | | 0.42 | 10.7 | Gloomy | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.12 | 739.6 | 29.47 | 748.5 | 105.2 | 40.7 | 17 | WNW | 3.0 | 1.3 | | | 3 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.16 | 740.6 | 29.45 | 748.1 | 103.7 | 39.8 | 26 | NNW | 2.8 | 1.2 | | | 3 | N | | 0 | 0 | D. clouds | |
| Patna | 29.36 | 745.6 | 29.53 | 750.0 | 96.0 | 35.6 | 50 | E | 1.6 | 0.7 | | | 10 | | | 0 | 0 | Overcast | |
| Hazaribagh | 27.55 | 699.8 | 29.50 | 749.3 | 90.8 | 32.7 | 53 | ESE | 7.0 | 3.1 | | | 6 | | | 0 | 0 | Thunder, lightn'g | |
| Cuttack | 29.46 | 748.2 | 29.53 | 750.2 | 90.2 | 32.3 | 72 | S | 2.6 | 1.1 | | | 8 | | | 0 | 0 | | |
| Calcutta, (Alipore) | 29.56 | 750.7 | 29.58 | 751.3 | 84.3 | 29.1 | 85 | SE | 3.0 | 1.3 | | | 5 | | | 0.04 | 1.0 | D. clouds | |
| Goalpara | 29.18 | 741.2 | 29.56 | 750.9 | 83.4 | 28.6 | 87 | Calm | 1.8 | 0.8 | | | 10 | | | 0 | 0 | Overcast | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | 29.28 | 743.7 | 29.61 | 752.4 | 82.7 | 28.2 | 87 | WNW | 1.8 | 0.8 | | | 5 | | | 0.22 | 5.6 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.26 | 717.8 | 29.58 | 751.4 | 93.0 | 33.9 | 46 | NW | 9.3 | 4.1 | | | 7 | | | 0 | 0 | D. clouds | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.: Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.39 | 568.7 | 30.02 | 762.5 | 41.5 | 5.3 | 100 | NE | | | 1 | | 10 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.34 | 567.5 | 29.94? | 760.5? | 48.2 | 9.0 | | SE | | | 1 | | 5 | SSW | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.12 | 765.1 | 75.2 | 24.0 | 41 | E | 1.5 | 0.6 | | | 4 | | | 0 | 0 | | Ab. Dom. Mongini. |
| Padua | | | 30.13 | 765.2 | 74.5 | 23.6 | 41 | E | 10.5 | 4.7 | | | 8 | NE | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.13 | 765.3 | 76.8 | 24.9 | 39 | E | 3.8 | 1.7 | | | 6 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.16 | 766.1 | 77.5 | 25.3 | 39 | E | | | 2 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.83 | 732 3 | 30.09 | 764.3 | 76.3 | 24.6 | 28 | SW | | | 4 | | 8 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.09 | 764.2 | 72.0 | 22.2 | 46 | S | | | 2 | | 7 | | | 0 | 0 | | Prof. Giuseppe Calza |
| Milan | | | 30.11 | 764.8 | 79.7 | 26.4 | 46 | E | | | 2 | | 7 | NE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.11 | 764.9 | 75.2 | 24.0 | 37 | NE | | | 4 | | 4 | NE | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.13 | 765.2 | 70.5 | 21.4 | 42 | ENE | 4.9 | 2.2 | | | 9 | SE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.25 | 717.5 | 30.07 | 763.8 | 70.3 | 21.3 | 36 | WNW | | | 4 | | 8 | NE | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.12? | 765.1? | 71.2 | 21.8 | 62 | E | | | 8 | | 9 | SE | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.08 | 763.9 | 77.4 | 25.2 | 28 | SW | 6.3 | 2.8 | | | 4 | NE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.11 | 764.9 | 74.3 | 23.5 | 35 | E | 10.5 | 4.7 | | | 6 | E | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.11 | 764.7 | 76.5 | 24.7 | 52 | ESE | | | 2 | | 5 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.08 | 763.9 | 82.4 | 28.0 | 31 | NE | | | 2 | | 10 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.06 | 763.5 | 76.1 | 24.5 | 38 | ESE | 11.9 | 5.3 | | | 10 | SW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.88 | 733.6 | 30.04 | 763.0 | 72.5 | 22.5 | 41 | SE | 3.8 | 1.7 | | | 10 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.61 | 726.8 | 30.11 | 764.9 | 68.7 | 20.4 | 60 | NE | | | 2 | | 4 | | | 0.197 | 5.0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.13 | 765.4 | 72.7 | 22.6 | 45 | NE | 19.2 | 8.6 | | | 7 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.12 | 765.0 | 74.5 | 23.6 | 37 | SE | | | 4 | | 4 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.09 | 764.2 | 76.3 | 24.6 | 48 | ESE | | | 2 | | 7 | SE | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.12 | 765.1 | 66.9 | 19.4 | 75 | S | 4.9 | 2.2 | | | 10 | | | 0.213 | 5.4 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U | | | 30.15 | 765.9 | 75.2 | 24.0 | 61 | SW | | | 4 | | 10 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.17 | 766.3 | 73.0 | 22.8 | 52 | NE | 6.9 | 3.1 | | | 8 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.13 | 765.2 | 81.9 | 27.7 | 67 | NW | 1.3 | 0.6 | | | 10 | | | 0.031 | 0.8 | | Prof. F. D. Conti. |
| Cagliari | | | 29.97 | 761.1 | 81.5 | 27.5 | 53 | S | | | 2 | | 7 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.17? | 766.2? | 73.8 | 23.2 | 73 | Calm | | | 0 | | 9 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.02 | 762.5 | 84.7 | 29.3 | 44 | WSW | 4.9 | 2.2 | | | 9 | | | 0.039 | 1.0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.21 | 716.5 | 30.07 | 763.7 | 72.1 | 22.3 | 71 | SSE | | | 1 | | 10 | W | | 0.047 | 1.2 | | Prof. A. Pagani. |
| Syracuse | | | 30.09 | 764.2 | 79.5 | 26.4 | 65 | SE | | | 6 | | 9 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.17 | 766.2 | 69.4 | 20.8 | 73 | WSW | 0.7 | 0.3 | | | 10 | NNE | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft. * Probably 75.9 Fah. and 24.4 Cent.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.94 | 760.5 | 68.5 | 20.3 | 92 | ESE | 2 | 0.9 | | | 10s | | | 0.203 | 5.16 | Cloudy | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.14 | 587.6 | 30.13 | 765.4 | 56.3 | 13.5 | 80 | W | 1.2 | 0.55 | | 0 | 3ck | | N | 0 | 0 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.07 | 763.8 | 77.5 | 25.3 | | E | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 30.07 | 763.7 | 76.8 | 24.9 | | E | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.11 | 764.8 | 69.6 | 20.9 | | ENE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.04 | 763.0 | 79.0 | 26.1 | 57 | ESE | | | 3 | | 0 | | | 0 | 0 | Clear | H. vd Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.19 | 766.9 | 61.9 | 16.6 | 73 | Calm | 0 | 0 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.15 | 765.7 | 48.6 | 9.2 | 74 | WNW | 18 | 8 | | | 4 | | | 0.362 | 9.2 | | |
| Christiania | | | 30.04 | 763.1 | 7.68 | 24.9 | 56 | SSW | 4 | 2 | | | 2 | | | 0 | 0 | | |
| Tromsö | | | 29.77 | 756.1 | 40.6 | 4.8 | 87 | W | 4 | 2 | | | 0 | | | 0.445 | 11.3 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.27 | 768.8 | 65.1 | 18.4 | 73 | W | 12.5 | 5.6 | | | 3 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.13 | 765.3 | 72.3 | 22.4 | 41 | WNW | 8.7 | 3.9 | | | 4 | WNW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.28 | 769.1 | 70.3 | 21.3 | 63 | SW | 9.8 | 4.4 | | | 5 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.21 | 767.4 | 68.4 | 20.2 | 56 | WNW | 9.8 | 4.4 | | | 8 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 6 h. 6 m., p m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd'r. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Velocity Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.15 | 765.9 | 72.5 | 22.5 | 42 | WNW | 9 | 4 | | | 7 | | | | | | Astronomical Obs. |
| Wilna | | | 30.05 | 763.3 | 72.0 | 22.2 | 44 | SSW | 4 | 2 | | | 2 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.86 | 758.4 | 68.4 | 20.2 | 51 | NW | 11 | 5 | | | 6 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.74 | 755.4 | 57.4 | 14.1 | 74 | WNW | 20 | 9 | | | 9 | | | | | Raining | Central Physical Obs. |
| Kuopio | | | 29.69 | 754.2 | 54.9 | 12.7 | 47 | NW | 34 | 15 | | | 8 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 30.04 | 763.1 | 62.8 | 17.1 | 40 | N | 4 | 2 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.03 | 762.8 | 58.6 | 14.8 | 64 | NNE | 18 | 8 | | | 10 | | | | | | Kurdakof. |
| Kertch | | | 29.88 | 758.9 | 59.9 | 15.5 | 77 | WSW | 16 | 7 | | | 9 | | | | | | Lagorio. |
| Moscow | | | 29.93 | 760.2 | 67.8 | 19.9 | 55 | SSE | 7 | 3 | | | 7 | | | | | | Meteorological Obs. |
| Lugan | | | 29.73 | 755.2 | 58.1 | 14.5 | 90 | E | 9 | 4 | | | 10 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.41 | 746.9 | 50.9 | 10.5 | 93 | NW | 13 | 6 | | | 10 | | | | | Raining | Ogorodnikof. |
| Tiflis | 28.43 | 722.2 | 29.80 | 756.8 | 71.6 | 22.0 | 65 | NW | 9 | 4 | | | 10 | | | | | Raining | Physical Observatory. |
| Astrakhan | | | 29.75 | 755.6 | 82.9 | 28.3 | 51 | Calm | 0 | 0 | | | 10 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.94 | 760.5 | 65.8 | 18.8 | 39 | WSW | 4 | 2 | | | 3 | | | | | | Physical Cabinet. |
| Orenburg | | | 29.97 | 761.2 | 77.5 | 25.3 | 86 | NNE | 11 | 5 | | | 0 | | | | | | Tschernischef. |
| Ekaterinburg | 28.97 | 735.8 | 29.90 | 759.5 | 57.7 | 14.3 | 49 | WNW | 9 | 4 | | | 9 | | | | | | Meteorogical Obs |
| Nukuss | | | 29.69 | 754.0 | 93.0 | 33.9 | 31 | N | 7 | 3 | | | 1 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Rohrof. |
| Tashkend | 28.19 | 716.1 | 29.79 | 756.6 | 84.4 | 29.1 | 54 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.56 | 750.9 | 83.5 | 28.6 | 51 | Calm | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.52 | 749.7 | 81.5 | 27.5 | 66 | SE | 2 | 1 | | | 0 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 64.6 | 18.1 | | W | 2 | 1 | | | 0 | | | | | | Mossin. |
| Peking, (China) | | | 29.53 | 750.1 | 78.1 | 25.6 | 60 | Calm | 0 | 0 | | | 3 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.82 | 757.5 | 57.6 | 14.2 | 88 | SE | 4 | 2 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 55.4 | 13.0 | 86 | E | 11 | 5 | | | 4 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Velocity Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 30.05 | 763.3 | 76.3 | 24.6 | 46 | SW | 6.7 | 3.0 | | 0 | 7 | | | 0.25 | 6.5 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.11 | 764.7 | 80.1 | 26.7 | 87 | ENE | 1.1 | 0.5 | | 8pc | 0 | | | 0.630 | 16.0 | | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.17 | 766.2 | 72.9 | 22.7 | 63 | WNW | 15.2 | 6.8 | | 3 | 4 | NW | WNW | 0 | 0 | | Capt. C. Pujazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.02 | 762.4 | 83.8 | 28.8 | 80 | E | 8.2 | 3.6 | | 3cs | 1k | E | E | 0 | 0 | Clear | Leonardo de Tejeda, Chief of Engineers |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Velocity Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.75 | 755.7 | 52.9 | 11.6 | 42 | NW | | | 4 | | 5 | | | 0 | 0 | | |
| Umea | | | 29.92 | 760.0 | 57.2 | 14.0 | 33 | NW | | | 5 | | 7 | | | 0 | 0 | | |
| Hernosand | | | 29.99 | 761.8 | 60.8 | 16.0 | 31 | NW | | | 6 | | 7 | | | 0.008 | 0.2 | Raining | |
| Stockholm | | | 30.04 | 763.1 | 71.2 | 21.8 | 39 | SE | | | 6 | | 5 | | | 0 | 0 | | |
| Wisby | | | 30.09 | 764.2 | 61.5 | 16.4 | 52 | NE | | | 4 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.03 | 762.7 | 69.6 | 20.9 | 33 | NW | 8.3 | 3.7 | | | 2 | | NW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 23.65 | 727.8 | 30.03 | 762.8 | 71.6 | 22.0 | 55 | N | | | 1 | | 3 | | | 0.378 | 9.6 | Clear | The Observatory. |
| Zurich | 23.44 | 722.1 | 30.00 | 762.1 | 77.5 | 25.3 | 56 | NW | | | 1 | | 3 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +1.2 mm; Thermometer, +1.0 cent.; Relative Humidity, 0 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.19 | 766.7 | 65.3 | 18.5 | 57 | N | 0 | 4.0 | | | 3 | | NNW | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.94 | 760.5 | 84.2 | 29.0 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 30.21 | 767.4 | 74.3 | 23.5 | | SE | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.23 | 767.8 | 74.8 | 23.8 | | NW | | | 1 | | 5 | | | 0 | 0 | Cloudy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.98 | 761.5 | 83.8 | 28.8 | 62 | N | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.91 | 759.7 | 66.9 | 19.4 | 93 | NW | 6 | 2.7 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.09 | 764.3 | 66 | 18.9 | | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B | | | 29.92 | 760.0 | 61 | 16.1 | 58 | NW | 13 | 5.8 | | 0 | 0 | | | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.90 | 759.4 | 59 | 15.0 | 73 | NW | 10 | 4.5 | | 5k | 6 | NW | | 0.040 | 1.02 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.03 | 762.7 | 65.0 | 18.3 | 69 | SW | | | 3 | 0 | 0 | | | 0 | 0 | Bright | James Smith, M. A. |
| Dalhousie, N. B | | | 29.83 | 757.7 | 60.5 | 15.8 | 57 | W | | | 2 | | | | | 0.07 | 1.8 | Bright | H. A. Johnson. |
| Esquimault, B. C | | | 30.02 | 762.5 | 52.3 | 11.3 | 86 | W | | | | 10cs | 0 | | | 0.01 | 0.3 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.00 | 762.0 | 51 | 10.6 | 100 | SW | 2 | 0.9 | | 2c | 2s | NW | | 0.13 | 3.3 | Clear | J. McWilliams. |
| Fredericton, N. B | | | 30.03 | 762.7 | 62.5 | 16.9 | 52 | NW | 11 | 4.9 | | c | 0 | | | 0.05 | 1.3 | Clear | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.77 | 756.1 | 50 | 10.0 | 89 | NW | 18 | 8.0 | | 5k | 5n | NW | NW | 0.27 | 6.9 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.98 | 761.5 | 68.7 | 20.4 | | S | | | 2 | 0 | 1s | | | 0 | 0 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | 23.91 | 734.3 | 29.97 | 761.2 | 67 | 19.4 | 79 | SE | | | 1 | 0 | 0 | | | 0 | 0 | Clear. | James Grant. |
| *Halifax, N. S | | | 29.89 | 759.2 | 61 | 16.1 | 65 | NW | 16 | 7.2 | | 2k | 0 | NW | | 0.010 | 0.25 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.06 | 763.5 | 63.7 | 17.6 | 63 | W | | | 1 | 0 | 0 | | | 0 | 0 | Clear. | Geo. Dickson, M. A. |
| Hearr's Content, N. F | | | 29.35 | 745.5 | 45 | 7.2 | 92 | N | | | 3 | | 10 | | | 0.07 | 1.8 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 30.11 | 764.8 | 63 | 17.2 | 78 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.05 | 763.3 | 65 | 18.3 | 63 | SW | 12 | 5.4 | | 2cs | Haze | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.99 | 761.7 | 66 | 18.9 | 61 | S | 7 | 3.1 | | 2cs | 0 | W | | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 30.03 | 762.7 | 68.1 | 20.1 | 75 | SE | | | 1 | 0 | 0 | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.05 | 763.3 | 57 | 13.9 | 87 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S | | | 29.81 | 757.2 | 54.5 | 12.5 | | NW | 16 | 7.2 | | | | | | 3.60 | 91.4 | Raining | Peter Grant |
| Port Stanley, Ontario | | | 30.03 | 763.7 | 62 | 16.7 | 86 | E | 6 | 2.7 | | 5k | 0 | W | | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | | | 30.02 | 762.5 | 64 | 17.8 | 94 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.01 | 762.2 | 56 | 13.3 | 81 | E | 3 | 1.3 | | 2c | 0 | NW | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.95 | 760.7 | 65 | 18.3 | 77 | S | 4 | 1.8 | | 2cs | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.74 | 730.0 | 29.98 | 761.5 | 62.0 | 16.7 | 72 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.78 | 756.4 | 54 | 12.2 | 82 | NW | 5 | 2.2 | | 2ck | 8ks | | NW | 0.22 | 5.6 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 30.05 | 763.3 | 63 | 17.2 | 76 | SE | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Hazy | Magnetic Observatory |
| Windsor, N. S | | | 29.87 | 758.7 | 60 | 15.6 | 60 | NW | 8 | 3.6 | | 0 | 1k | | | 0.23 | 5.8 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.00 | 762.0 | 63.8 | 17.7 | 82 | S | 9 | 4.0 | | 0 | 2s | | | 0 | 0 | Clear. | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.37 | 746.0 | 52.0 | 11.1 | 79 | NW | | | | 10k | 10s | | | 0.10 | 2.5 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 10; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.13 | 765.3 | 67 | 19.4 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich. | | | 29.91 | 759.7 | 68 | 20.0 | 50 | SW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.18 | 766.6 | 69 | 20.6 | 84 | W | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.12 | 765.0 | 78 | 25.6 | 82 | SE | 3 | 1.3 | | 0 | 5ks | | SE | 0 | 0 | Fair | |
| Baltimore, Md. | | | 30.15 | 765.8 | 73 | 22.8 | 85 | E | 8 | 3.6 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 30.16 | 766.1 | 71 | 21.7 | 62 | NE | 5 | 2.2 | | 2c | 0 | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 28.20 | 716.3 | 29.80 | 756.9 | 57 | 13.9 | 69 | NW | 12 | 5.4 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Boston, Mass. | | | 30.14 | 765.5 | 69 | 20.6 | 43 | NW | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 29.78 | 756.4 | 60 | 15.6 | 76 | NW | 18 | 8.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Brownsville, Texas | | | 29.95 | 760.7 | 83 | 28.3 | 83 | SE | 4 | 1.8 | | | 10s | | SE | 0.19 | 4.8 | Cloudy | |
| Buffalo, N. Y. | | | 30.02 | 762.5 | 65 | 18.3 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.12 | 765.0 | 66 | 18.9 | 48 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.02 | 762.5 | 76 | 24.4 | 86 | S | 6 | 2.7 | | 2ck | 0 | SW | | 0 | 0 | Fair | |
| Campo, Cal. | 27.37 | 695.2 | 29.94 | 760.5 | 44 | 6.7 | 67 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 59 | 15.0 | | Calm | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.07 | 763.8 | 79 | 26.1 | 82 | SE | 5 | 2.2 | | 2cs | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.15 | 765.8 | 69 | 20.6 | 95 | SE | 4 | 1.8 | | | 10s | | | 0.06 | 1.5 | Cloudy | |
| Cape Lookout, N. C. | | | 30.13 | 765.3 | 79 | 26.1 | 82 | SW | 5 | 2.2 | | 0 | 2ks | | SW | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.16 | 766.1 | 69 | 20.6 | 79 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.15 | 765.8 | 83 | 28.3 | 70 | SW | 5 | 2.2 | | 2cs | 2ks | W | SW | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 24.11 | 612.4 | 30.05 | 763.3 | 56 | 13.3 | 68 | NE | 12 | 5.4 | | 2ck | 8s | NE | NE | 0 | 0 | Cloudy | |
| Chicago, Ill. | | | 29.88 | 758.9 | 72 | 22.2 | 76 | SW | 12 | 5.4 | | 2k | 2s | W | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.96 | 761.0 | 77 | 25.0 | 77 | SE | 3 | 1.3 | | 2k | 0 | S | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.00 | 762.0 | 70 | 21.1 | 65 | S | 8 | 3.6 | | 5c | 2k | N | W | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 30.03 | 762.7 | 69 | 20.6 | 90 | S | 1 | 0.4 | | 5cs | 0 | SE | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 29.90 | 759.4 | 72 | 22.2 | 75 | SW | 5 | 2.2 | | 1cs | 0 | | | 0 | 0 | Clear | |
| Denison, Texas | | | 30.01 | 762.2 | 75 | 23.9 | 76 | SE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Denver, Col. | 24.86 | 631.4 | 30.08 | 764.0 | 59 | 15.0 | 44 | N | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.94 | 760.5 | 66 | 18.9 | 78 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 27.29 | 693.2 | 29.44 | 747.8 | 74 | 23.3 | 72 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.90 | 759.4 | 69 | 20.6 | 79 | NW | 1 | 0.4 | | | 10s | | NW | 0 | 0 | Cloudy | |
| Duluth, Minn. | | | 29.65 | 753.1 | 67 | 19.4 | 90 | SW | 8 | 3.6 | | 2k | 0 | SW | | 0.35 | 8.9 | Clear | |
| Eagle Pass, Tex. | | | 29.87 | 758.7 | 76 | 24.4 | 95 | NE | 1 | 0.4 | | | 10s | | E | Inap. | Inap. | Cloudy | |
| Eastport, Me. | | | 30.03 | 762.7 | 65 | 18.3 | 53 | NW | 6 | 2.7 | | 5c | Haze | NW | | 0.24 | 6.1 | Fair | |
| Erie, Pa. | | | 29.99 | 761.7 | 69 | 20.6 | 70 | SE | 12 | 5.4 | | 5ck | Haze | SW | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.75 | 755.6 | 59 | 15.0 | 94 | S | 12 | 5.4 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Florence, Arizona | 28.29 | 718.6 | 29.89 | 759.2 | 85 | 29.4 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.96 | 761.0 | 79 | 26.1 | 73 | S | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.72 | 729.5 | 29.94 | 760.5 | 73 | 22.8 | 85 | SE | 6 | 2.7 | | 0 | 8ks | | S | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.84 | 757.9 | 55 | 12.8 | 62 | S | | | 1 | 9c | 1ks | S | SE | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.80 | 731.5 | 29.86 | 758.4 | 74 | 23.3 | 76 | SW | 16 | 7.2 | | | 10s | | | 0 | 0* | Cloudy | |
| Fort Sully, Dakota | 28.27 | 718.0 | 29.88 | 758.9 | 60 | 15.6 | 82 | NW | 8 | 3.6 | | 0 | 0 | | | 0.45 | 11.4 | Clear | |
| Galveston, Tex. | | | 30.05 | 763.3 | 79 | 26.1 | 86 | SE | 5 | 2.2 | | | 10ks | | SE | 0.06 | 1.5 | Cloudy | |
| Grand Haven, Mich. | | | 29.88 | 758.9 | 73 | 22.8 | 67 | S | 7 | 3.1 | | 4c | 0 | W | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.96 | 761.0 | 75 | 23.9 | 76 | SW | 3 | 1.3 | | 8cs,ck | 0 | W | | 0 | 0 | Fair | |
| Indianola, Tex. | | | 30.01 | 762.2 | 79 | 26.1 | 86 | SE | 9 | 4.0 | | 5k | 5ks | S | S | 1.87 | 47.5 | Cloudy | |
| Jacksonville, Fla. | | | 30.15 | 765.8 | 78 | 25.6 | 82 | Calm | 0 | 0 | | 2k | 0 | | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 29.77 | 756.1 | 79 | 26.1 | 61 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 30.10 | 764.5 | 83.5 | 28.6 | 74 | SE | 11 | 4.9 | | 1k | 2ks | SE | SE | Inap. | Inap. | Fair | |
| Kittyhawk, N. C. | | | 30.16 | 766.1 | 68 | 20.0 | 100 | NE | 4 | 1.8 | | | 10n | | NW | 0.01 | 0.3 | Light rain | |
| Knoxville, Tenn. | | | 30.10 | 764.5 | 72 | 22.2 | 90 | Calm | 0 | 0 | | 1k | Fog | SW | | 0 | 0 | Fair | |
| La Crosse, Wis. | | | 29.76 | 755.9 | 67 | 19.4 | 100 | S | 24 | 10.7 | | | 10n | | S | 0.24 | 6.1 | Light rain | |
| Leavenworth, Kan. | | | 29.80 | 756.9 | 76 | 24.4 | 81 | S | 12 | 5.4 | | 0 | 0 | | | 0.65 | 16.5 | Clear | |
| Louisville, Ky. | | | 29.99 | 761.7 | 79 | 26.1 | 82 | S | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.10 | 764.5 | 76 | 24.4 | 72 | N | 2 | 0.9 | | 10k | 0 | NW | | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 80 | 26.7 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.62 | 752.3 | 66 | 18.9 | 73 | S | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Tex. | 28.39 | 721.1 | 30.08 | 764.0 | 73 | 22.8 | 85 | SE | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.04 | 763.0 | 80 | 26.7 | 82 | S | 4 | 1.8 | | 2ck | Haze | SW | | 1.04 | 26.4 | Fair | |
| Milwaukee, Wis. | | | 29.88 | 758.9 | 67 | 19.4 | 79 | W | 6 | 2.7 | | | 10ks | | W | 0 | 0 | Threatening | |
| Mobile, Ala. | | | 30.12 | 765.0 | 77 | 25.0 | 90 | S | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Montgomery, Ala. | | | 30.12 | 765.0 | 76 | 24.4 | 90 | Calm | 0 | 0 | | 10cs | Haze | W | NW | 0.42 | 10.7 | Cloudy | |
| Morgantown, W. Va. | 29.03 | 737.3 | 30.04 | 763.0 | 75 | 23.9 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Mt. Washington, N. H. | 24.00 | 609.6 | 30.36 | 771.1 | 43 | 6.1 | 58 | N | 15 | 6.7 | | 1c | 0 | | | 0 | 0 | Clear | |
| Nashville, Tenn. | | | 30.05 | 763.3 | 82 | 27.8 | 70 | S | 3 | 1.3 | | 2cs | 0 | SW | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.17 | 766.3 | 72 | 22.2 | 58 | N | 5 | 2.2 | | Haze | Haze | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.18 | 766.6 | 73 | 22.8 | 54 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Orleans, La. | | | 30.08 | 764.0 | 81 | 27.2 | 78 | E | 4 | 1.8 | | 5ck,h | 0 | W,E | | 0 | 0 | Fair | |
| Newport, R. I. | | | 30.17 | 766.3 | 70 | 21.1 | 52 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| New York, N. Y. | | | 30.18 | 766.6 | 72 | 22.2 | 49 | E | 5 | 2.2 | | 2c | Fog | | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.14 | 765.5 | 71 | 21.7 | 100 | E | 6 | 2.7 | | | 10n | | | 0.85 | 21.6 | Light rain | |
| North Platte, Neb. | 27.01 | 686.0 | 29.45 | 748.0 | 67 | 19.4 | 60 | E | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.66 | 728.0 | 29.67 | 753.6 | 75 | 23.9 | 81 | SW | 5 | 2.2 | | 5k | 0 | W | | 0.69 | 17.5 | Fair | |
| Oswego, N. Y. | | | 30.10 | 764.5 | 64 | 17.8 | 67 | SE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.83 | 757.7 | 51 | 10.6 | 72 | NW | 16 | 7.2 | | 8k | 0 | NW | | 0.78 | 19.8 | Fair | |
| Philadelphia, Pa. | | | 30.18 | 766.6 | 70 | 21.1 | 56 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Phœnix, Arizona | | | | | 70 | 21.1 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 18.02 | 457.7 | 30.23 | 767.8 | 31 | −0.6 | 79 | W | 14 | 6.3 | | 0 | 2s | | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 30.04 | 763.0 | 67 | 19.4 | 84 | NE | 2 | 0.9 | | 2c | Sm'e | W | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.93 | 760.2 | 64 | 17.8 | 67 | S | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Portland, Me. | | | 30.12 | 765.0 | 67 | 19.4 | 55 | W | 8 | 3.6 | | 2c | Haze | | | 0 | 0 | Clear | |
| Portland, Oregon | | | 30.13 | 765.3 | 56 | 13.3 | 69 | N | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.82 | 630.4 | 30.18 | 766.6 | 49 | 9.4 | 10 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.11 | 764.8 | 81 | 27.2 | 74 | E | 8 | 3.6 | | 0 | 0 | | | 0.20 | 5.1 | Clear | |
| Rochester, N. Y. | | | 30.04 | 763.0 | 66 | 18.9 | 63 | SW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.59 | 650.0 | 29.92 | 760.0 | 62 | 16.7 | 46 | NE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.17 | 766.3 | 71 | 21.7 | 62 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.84 | 757.9 | 73 | 22.8 | 95 | NE | 5 | 2.2 | | | 10n | | | 0.57 | 14.5 | Heavy rain | |
| San Diego, Cal. | | | 29.98 | 761.5 | 64 | 17.8 | 78 | SW | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.94 | 760.5 | 56 | 13.3 | 74 | SW | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| Santa Fe, New Mexico | 23.38 | 593.8 | 29.92 | 760.0 | 63 | 17.2 | 35 | E | 4 | 1.8 | | 0 | Haz | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.15 | 765.8 | 79 | 26.1 | 78 | SW | 4 | 1.8 | | 8ck | 0 | W | | 0 | 0 | Fair | |
| Shreveport, La. | | | 30.13 | 765.3 | 79 | 26.1 | 91 | Calm | 0 | 0 | | | 10s | | E | 0.09 | 2.3 | Cloudy | |
| Smithville, N. C. | | | 30.15 | 765.8 | 78 | 25.6 | 77 | W | 6 | 2.7 | | 5c | 2s | W | | 0 | 0 | Fair | |
| Springfield, Mass. | | | 30.17 | 766.3 | 69.5 | 20.8 | 56 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 29.93 | 760.2 | 79 | 26.1 | 66 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.12 | 765.0 | 78 | 25.6 | 86 | Calm | 0 | 0 | | 8cs | 0 | SW | | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.66 | 753.4 | 70 | 21.1 | 75 | E | 10 | 4.5 | | | 10s | | | 0 | 0 | Threatening | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 65 | 18.3 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.91 | 683.5 | 29.91 | 759.7 | 70 | 21.1 | 84 | SW | 4 | 1.8 | | 0 | 2s | | SW | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 30.15 | 765.8 | 66 | 18.9 | 59 | NW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Toledo, Ohio | | | 29.96 | 761.0 | 70 | 21.1 | 70 | SW | 5 | 2.2 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.54 | 699.5 | 30.08 | 764.0 | 65 | 18.3 | | S | | | | 1c | 0 | SW | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.13 | 765.3 | 77 | 25.0 | 86 | SW | 4 | 1.8 | | 5ck | 5s | | | 0 | 0 | Cloudy | |
| Vicksburg, Miss | | | 30.11 | 764.8 | 75 | 23.9 | 90 | SE | 4 | 1.8 | | | 10s | | S | 0 | 0 | Cloudy | |
| Virginia City, Montana | 24.31 | 617.5 | 29.79 | 756.7 | 48 | 8.9 | 42 | SE | 16 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.14 | 765.5 | 74 | 23.3 | 81 | S | 5 | 2.2 | | 1k | 2ks | W | W | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 79 | 26.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.13 | 765.3 | 81 | 27.2 | 66 | SW | 4 | 1.8 | | 1cs | 1k | | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 30.17 | 766.3 | 69 | 20.6 | 60 | NW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.56 | 725.4 | 29.78 | 756.4 | 70 | 21.1 | 61 | NE | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.81 | 757.2 | 68 | 20.0 | 52 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.21 | 767.3 | 81 | 27.2 | 78 | Calm | 0 | 0 | | 8c | 2s | | SE | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.03 | 762.7 | 82 | 27.8 | | E | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.07 | 763.8 | 81 | 27.2 | 83 | E | | | 2 | 0 | 5k | | | 0.220 | 5.59 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.24 | 641.1 | | | 68.0 | 20.0 | 78 | Calm | | | 0 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.03 | 762.7 | 32.5 | 0.3 | 95 | NE | 14 | 6.3 | | 4k | 0 | N | | Inap. | Inap. | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.15 | 765.8 | 72 | 22.2 | | NE | | | 3 | | | | | 0.20 | 5.1 | Squally | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.24 | 768.1 | 77 | 25.0 | 73 | 22.8 | 85 | SSE | | | 2 | | 7 | | NW | 0 | 0 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 30.10 | 764.5 | 60 | 15.6 | 56 | 13 3 | | SW | | | 3 | | 6 | | WSW | 0 | 0 | | | Cloudy | |
| Navy Yard, Pensacola, Fla. | 30.23 | 768.6 | | | 79 | 26.1 | 86 | SE | 10 | 4.5 | | | 7 | | E | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.20 | 767.1 | 69 | 20.6 | 68 | 20.0 | 90 | NW | 3 | 1.3 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital. Yokohama, Japan | | | 71 | 21.7 | 69 | 20.6 | 95 | Calm | | | 0 | | 10k,s | | W | 0 | 0 | | | Cloudy | |
| Alert, S. 0° 06′ 30″, E. 131° 54′ 48″ | 30.01† | 762 2† | 80 | 26.7 | 80 | 26.7 | 100 | S | | | 5–6 | | 10 | | S | | | Moderate | S | D. clouds | |
| Alliance, Beirut, Syria | 30.14 | 765.5 | 84 | 28.9 | 82 | 27.8 | 67 | Calm | | | 0 | | 1 | | | | | Smooth | None | Pleasant | |
| Ashuelot, Pagoda Anchorage, River Min, China | 29.78 | 756.4 | 76 | 24.4 | 72 | 22.2 | 90 | Calm | | | 0 | | 10 | | | | | | | Misty | |
| Canonicus, New Orleans, La | 30.12 | 765.0 | 55 | 12.8 | 78 | 25.6 | 86 | ESE | | | 2 | | 8 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.23 | 767.8 | 67 | 19.4 | 71 | 21.7 | 53 | NNE | 2 | 0.9 | | | 0 | | | 0 | 0 | | | Hazy | |
| Despatch, Constantinople, Turkey. | 30.22 | 767.6 | 65 | 18.3 | 66 | 18.9 | 59 | N | | | 4 | | 6 | | NNE | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.29 | 769.4 | 66 | 18.9 | 72 | 22.2 | 100 | E | 8 | 3.6 | | | 10 | | E | 0.5 | 13. | | | Raining | |
| Frolic, S. 26° 37′, W. 44° 49′ | 30.35 | 770.9 | 66 | 18.9 | 67 | 19.4 | 89 | E | | | 4–5 | | 9kn | | | Blank | Blank | Moderate. | E | Squally | |
| ‡ Gettysburg, Leghorn, Italy | 29.94 | 760.5 | | | 76 | 24.4 | 95 | SSE | | | 2 | | 10 | | | Blank | Blank | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.38 | 771.6 | 81 | 27.2 | 74 | 23.3 | 100 | SW | 2.4 | 1.1 | | | 3 | | | 0.062 | 1.57 | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.10 | 764.5 | 80 | 26.7 | 76 | 24.4 | 95 | SSE | | | 0–1 | | 9 | | | | | Light ground. | N&W | Raining | |
| Kearsarge, Nagasaki, Japan | 29.99 | 761.7 | 75 | 23.9 | 73 | 22.8 | 90 | Calm | | | 0 | | 10 | | WSW | 0 | 0 | Smooth | | Overcast | |
| Marion, Smyrna, Turkey | 30.11 | 764.8 | 75 | 23.9 | 75 | 23.9 | 60 | NW | | | 4 | | 3 | | NW | 0 | 0 | Chop'd | NW | D. clouds | |
| Michigan, Erie, Pa | 29.55 | 750.6 | 70 | 21.1 | 70 | 21.1 | 66 | S | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.55 | 750.6 | 73 | 22.8 | 72 | 22.2 | 100 | SE | | | 2 | | 3 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.21 | 767.3 | 64 | 17.8 | 65 | 18.3 | 68 | N | | | 1 | | 1ck | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.40 | 772.1 | | | 77 | 25.0 | 82 | WSW | 11 | 4.9 | | | 5 | | S | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.03 | 762.7 | 68 | 20.0 | 68 | 20.0 | 74 | N | 6 | 2.7 | | | 10 | | | 0 | 0 | Smooth | | Cloudy | |
| Ossipee, N. 32° 28′, W. 79° 49′ | 30.22 | 767.6 | 78 | 25.6 | 78 | 25.6 | 82 | SW | | | 2 | | 2 | | NNW | | | Light | SSE | D. clouds | |
| Palos, Yang-tsze-kiang Riv.; China | 29.86 | 758.4 | 78 | 25.6 | 78 | 25.6 | 91 | SE | | | 3 | | 5 | | S&E | 0 | 0 | | | Bright | |
| Pensacola, N. 23° 07′, W. 128° 57′ | 30.20 | 767.1 | | | 69 | 20.6 | 75 | NNE | | | 4 | | 10 | | | 0 | 0 | Moderate. | N&W | Cloudy | |
| Plymouth, N 21° 37′, W. 92° 35′ | 30.05 | 763 3 | 84 | 28.9 | 84 | 28.9 | 79 | E | | | 4 | | 3 | | E | 0.5 | 13. | Moderate. | E | Clear. | |
| Ranger, Suez, Egypt | 30.20 | 767.1 | | | 89 | 31.7 | 47 | N | | | 3 | | 4 | | S | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.59 | 774.7 | 66.5 | 19.2 | 65.5 | 19.2 | 89 | Calm | | | 0 | | 10 | | | | | | | Drizzling | |
| Rio Bravo, Matamoras, Mexico | 29.84 | 757.9 | | | 74 | 23.3 | 90 | SE | | | 1 | | 3 | | S | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.23 | 767.8 | 74 | 23.3 | 72 | 22.2 | 90 | SE | | | 3 | | 8 | | | 0 | 0 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.46 | 773.7 | | | 67 | 19.4 | | NW | | | 1 | | 0 | | | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 30.12 | 765.0 | 71 | 21.7 | 72 | 22.2 | 67 | ENE | 4 | 1.8 | | | 8 | | E | 0 | 0 | | | Fair | |
| Swatara, N. 16° 17′, W. 81° 44′ | 30.11 | 764.8 | 84 | 28.9 | 83 | 28 3 | 87 | NE | | | 5 | | 5ks | | NE | Blank | Blank | | | Fair | |
| Tennessee, Yokohama, Japan | 29.84 | 757.9 | 73 | 22.8 | 73 | 22.8 | 90 | N&E | | | 0–1 | | 10 | | | 0 | 0 | Smooth | | D clouds | |
| Trenton, Smyrna, Turkey | 30.31† | 769.9† | 76 | 24.4 | 81 | 27.2 | 74 | W | 16.1 | 7.2 | | | 2 | | N&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.23 | 767.8 | 66 | 18.9 | 66 | 18.9 | 54 | NE | | | 2 | | 4 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.20 | 767.1 | 68 | 20.0 | 69 | 20.6 | 48 | NW | 3 | 1.3 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Wyoming, Washington, D.C | 30.24† | 768.1† | 76 | 24.4 | 76 | 24.4 | | SE | | | 2 | | 4 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 20′, W. 166° 09′ | W | | 29.72 | 754.0 | 56 | 13.3 | 87 | WSW | | | 6 | | Haze | | SW | Rough | | Raining | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 46° 19′, W. 57° 3′ | N75E | 14.6 | 29.04 | 760.5 | 67.0 | 19.4 | 79 | NNW | | | 4 | | 1k | | N | Smooth | | Blue sky | Capt. H. Andressen. |
| S. S. Nürnberg, N. 42° 30′, W. 58° 30′ | W¼S | 11 | 29.83 | 757.7 | 56.8 | 13.8 | | W | | | 4 | | d | | WSW | Moderate | | Blue sky | Capt. C. Pohle. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, b do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

Reported to the Office of the Chief Signal Officer of the Army.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgens |

Note.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 19, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:0 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:40 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.02 | 762.4 | 76.3 | 24.6 | 51 | NNW | | | 3 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.18 | 766.6 | 77 7 | 25.4 | 67 | NE | | | 1 | | 3 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.09 | 764.2 | 77.7 | 25.4 | 74 | NW | | | 2 | | 5 | | | 0.197 | 5.0 | Fair | Fleury. |
| Tenis | | | 30.13 | 765.2 | 82.4 | 28 0 | | SW | | | 3 | | 6 | | | 0.039 | 1.0 | Fair | Jacques. |
| Sfax | | | 30.13 | 765 2 | 82.4 | 28 0 | | E | | | 4 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.08 | 764.1 | 84.2 | 29.0 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.12 | 765.1 | 85.4 | 26.9 | | NNW | | | 1 | | 2 | | | 0.157 | 4.0 | Clear | Bourgeois |
| Geriville | | | 30.09 | 764.3 | 83.1 | 28.4 | 31 | NE | | | 3 | | 2 | | | Inap. | Inap. | Clear | Lemaillot. |
| Laghount | | | 30.16 | 766.1 | 86.0 | 30.0 | 20 | E | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.12 | 765.0 | 95.2 | 35.1 | | NW | | | 1 | | 8 | | | Inap. | Inap. | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 800? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.14 | 765.5 | 75.6 | 24.2 | 38 | Calm | | | 0 | | 1 | | | 0 | 0 | | Prof. Ivan Stozir |
| Cracow, I. R. Observatory | | | 30.10 | 764.4 | 75.2 | 24.0 | 40 | WSW | | | 3 | | 0 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.07 | 763 8 | 75.2 | 24.0 | 45 | SE | | | 2 | | 1c | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.90 | 734.1 | 30.11 | 764.8 | 73.0 | 22.8 | 55 | SW | | | 3 | | 0 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.75 | 730 3 | 30.13 | 765.4 | 69.4 | 20.8 | 32 | N | | | 1 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.72 | 729 6 | 30.02 | 762.4 | 72 3 | 22.4 | 45 | E | | | 1 | | 0 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.02 | 762.4 | 71.6 | 22.0 | 51 | NW | | | 3 | | 2 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.16 | 766.1 | 78.1 | 25.6 | 44 | S | | | 1 | | 1k | | | 0 | 0 | | I.R. Hydrographic Office |
| Szegedin | | | 30.14 | 765 6 | 73.0 | 22.8 | 64 | E | | | 1 | | 0 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.18 | 766.6 | 78.1 | 25.6 | 60 | NNW | | | 1 | | 0 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.08 | 763.9 | 77.5 | 25.3 | 31 | SSE | | | 2 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.68 | 728.4 | 30.11 | 764.9 | 79.3 | 26.3 | 42 | W | | | 1 | | 6 | | | 0 | 0 | | Royal Observatory |
| Brussels | | | 30.06 | 763.4 | 80.2 | 26.8 | 42 | WNW | | | 1 | 1c | 1k | SW | WNW | 0 | 0 | | |
| Furnes | | | 30.08 | 764.0 | 71.8 | 22.1 | 69 | NW | | | 4 | | 4 | | | 0 | 0 | | |
| Maeseyck | | | 30.07 | 763.7 | 84.4 | 29.1 | 44 | SSW | | | 4 | | 2 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.24 | 768.1 | 52.5 | 11.4 | | SE | 11 | 4.9 | | | 6 | | | 0 | 0 | D. clouds | William Boswell. |
| Ardrossan | | | 30.15 | 765.8 | 65 | 18.3 | | NE | | | 1 | | 8 | | | | | Raining | William McNeil. |
| Armagh, Observatory | | | 30.14 | 765.5 | 66.9 | 19.4 | | ENE | 3 | 1.3 | | | 6 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.12 | 765.0 | 69.0 | 20.6 | | SE | 5 | 2.2 | | | 9 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.07 | 763.8 | 75.8 | 24.3 | | SE | | | 1 | | 8 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.15 | 765.8 | 71.2 | 21.8 | | E | | | 0 | | 5 | | | 0 | 0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 84.5 | 29.2 | | NE | | | 2 | | 6 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.11 | 764.8 | 80.0 | 26.7 | | NNE | | | 1–5 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.14 | 765.5 | 76.0 | 24.4 | | E | | | 1 | | 4 | | | | | D. clouds | John McLaren. |
| Chatham, School M. E. | | | 30.13 | 765.3 | 78.2 | 25.7 | | Calm | | | 0 | | 8 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 29.71 | 729.2 | 30.16 | 766.1 | 66.0 | 18.9 | | E | | | 1 | | 8 | | | | | Hazy | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.15 | 765.8 | 63 | 17.2 | | ENE | | | 2 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.10 | 764.5 | 72 | 22.2 | | NE | | | 3 | | 1 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.11 | 764.8 | 77.0 | 25.0 | | NE | 1.0 | 0.4 | | | 10 | | | | | Overcast | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.14 | 765.5 | 67.7 | 19.8 | | SW | | | 1 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.98 | 710.7 | 30.22 | 767.6 | 73.2 | 22.9 | | NE | | | 2 | | 2 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.05 | 763.3 | 88 | 31.1 | | N | | | 3 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.03 | 762.7 | 71 | 21.7 | | S | | | 1 | | 3 | | | | | D. clouds | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.01 | 763.5 | 72.0 | 22.2 | | SW | | | 3 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.16 | 766.1 | 63.3 | 17.4 | | NE | | | 3 | | 9 | | | | | Gloomy | D. G. Maclean. |
| Great Yarmouth | | | 30.13 | 765.3 | 64 | 17.8 | | NNE | | | 3 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.08 | 764.0 | 80.9 | 27.2 | | NE | | | 1 | | 1 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 30.14 | 765.5 | 63 | 17.2 | | WNW | | | 2 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.08 | 764.0 | 70 | 21.1 | | N | | | 2 | | 2ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.12 | 765.0 | 70 | 21.1 | | Calm | | | 0 | | 3 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.09 | 764.3 | 76.5 | 24.7 | | N | 6 | 2.7 | | | 7c,hz | | | | | Hazy | The Staff. |
| Kingstown | | | 30.14 | 765.5 | 64 | 17.8 | | E | | | 2 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.13 | 765.3 | 74.1 | 23.4 | | NE | | | 1 | | 5 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | | | 76.4 | 24.7 | | NE | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.20 | 767.1 | 57 | 13.9 | | Calm | | | 0 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.14 | 765.5 | 82.8 | 28.2 | | NE | | | 1 | | 7 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.15 | 765.8 | 77.5 | 25.3 | | E | | | 2 | | 5c | | W | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.12 | 765.0 | 76.0 | 24.4 | | ENE | | | 3 | | 8 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.10 | 764.5 | 77 | 25.0 | | E | | | 1 | | 6 | | | | | D. clouds | F. Lucas. |
| Plymouth | | | 30.12 | 765.0 | 65.5 | 18.6 | | S | | | 1 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.09 | 764.3 | 65 | 18.3 | | SSW | | | 2 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.11 | 764.8 | 61 | 16.1 | | ESE | | | 1 | | 6 | | | | | Foggy | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.16 | 766.1 | 67.0 | 19.4 | | W | | | 3 | | 8 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.25 | 768.3 | 55.2 | 13.0 | | E | 21 | 9.4 | | | 2 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.15 | 765.8 | 76.6 | 24.8 | | NE | | | 1 | | 1 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.14 | 765.5 | 74.8 | 23.8 | | ESE | | | 1 | | 2 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.14 | 765.5 | 78.4 | 25.8 | 47 | Calm | | | 0 | | 4 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.13 | 765.3 | 68.8 | 20.4 | | NE | | | 1 | | 10 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.14 | 766.5 | 65 | 18.3 | | NE | | | 1 | | 1 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.10 | 764.5 | 79.2 | 26.2 | | SE | | | 1 | | 0 | | | | | Blue sky | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 30.20 | 767.1 | 60 | 15.6 | | SE | | | 2 | | 4 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.14 | 765.5 | 70 | 21.1 | | W | | | 4 | | 5 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.09 | 764.3 | 62.3 | 16.8 | | NNW | 7 | 3.1 | | | 10 | | | | | Misty | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 64 | 17.8 | | E | | | 3 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.07 | 763.8 | 67.7 | 19.8 | 49 | WNW | 12 | 5.4 | | 0 | 0 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.84 | 757.9 | 58.0 | 14.4 | 82 | NW | | | 3 | | 10k | | | 0 | 0 | Covered | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.22 | 767.6 | 56.5 | 13.6 | | E | | | 2 | | 6ck | | | 0 | 0 | Fine | Andrew Gibb. |
| Mauritius, Observatory | | | 30.30 | 771.9 | 72.0 | 22.2 | 50 | ESE | 22.1 | 9.9 | | 0 | 4 | | ESE | 0.18 | 4.6 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.47 | 773.9 | 44.2 | 6.8 | 85 | N | 17 | 7.6 | | | 0 | | | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L'ht-house, (Hebrides) | | | 30.15 | 765.8 | 65 | 18.3 | | SE | | | 2 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.27 | 768.8 | 50 | 10.0 | | NE | | | 4 | 5 | 4 | W | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 40° 45′, W. 70° 50′ | | | 29.93 | 760.2 | 62.0 | 16.7 | | SSW | | | 3 | | 6 | | | 0 | Smooth | Hazy | Capt. W. Watson. |
| S. S. Batavia, N. 47° 45′, W. 37° 55′ | | | | | 57.0 | 13.9 | | SSE | | | 5 | | 7 | | | 3 | SW | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 47° 5′, W. 28° 45′ | | | 30.20 | 767.1 | | | | SE | | | 3 | | 7 | | | 2 | WNW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 40′ | | | 30.09 | 764.3 | 65.3 | 18.5 | | Calm | | | 0 | | 9 | | | 0 | | Overcast | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 42° 0′, W. 54° 30′ | | | 30.05 | 763.3 | 61.8 | 16.6 | | WNW | | | 4 | | 7 | | | 5 | NW | Hazy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Quang Le | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, Queenstown, Ireland | | | 30.09 | 764.3 | 62 | 16.7 | | SW | | | 2 | | 3 | | | | | Hailing | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.22 | 666.0 | | | 68.9 | 20.5 | 91 | NE | | | 3 | | 7cs | | E | 0.4 | 10. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.02 | 762.6 | 63.7 | 17.6 | 83 | NE | | | 2 | | 0 | | | | | | |
| Fanöe | | | 30.01 | 762.3 | 63.5 | 17.5 | 82 | W | | | 4 | | 0 | | | | | | |
| Godthaab, (Greenland) | | | 30.01 | 762.2 | 53.8 | 12.1 | 63 | ENE | | | 2 | | 8 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.32 | 770.2 | 50.9 | 10.5 | 90 | NW | | | 2 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.34 | 770.5 | 51.8 | 11.0 | 70 | NE | | | 2 | | 2 | | | | | | |
| Vestervig | | | 30.02 | 762.5 | 69.4 | 20.8 | 63 | N | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.25 | 768.4 | 73.4 | 23 | 78 | SW | | | 2 | | 8kn | | SW | 0 | 0 | Very cloudy | Collignon, Director. |
| Amiens, Normal School | | | 30.06 | 763.4 | 83.5 | 28.6 | 61 | WSW | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.11 | 764.9 | 83.8 | 28.8 | 40 | SE | | | 2 | | 2kn | | | 0.04 | 1. | Partly cl'dy | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.13 | 765.2 | 71.4 | 21.9 | 67 | SW | | | 2 | | 8kn | | SSW | 0 | 0 | Very cloudy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.13 | 765.4 | 72.6 | 22.2 | 22 | W | 1.6 | 0.7 | | | | | SW | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.12 | 765.0 | 80.4 | 26.9 | 56 | SSW | | | 2 | | 8 | | SW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.16 | 766.0 | 75.6 | 24.2 | 66 | ESE | | | 2 | | 5 | | SW | 0 | 0 | Cloudy | Normal School. |
| Bourg-en-Bresse | | | 30.06 | 763.4 | 71.2 | 21.8 | 75 | NE | | | 2 | | 8cn | | S | 0.04 | 1. | Very cloudy | Normal School. |
| Bourges, Normal School | | | 30.15 | 765.7 | 70.7 | 21.5 | 82 | S | | | 6 | | 2 | | N | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.08 | 764.0 | 76.5 | 24.7 | 61 | SW | | | 2 | | 2k | | SW | 0.177 | 4.50 | | The Staff. |
| Carcassonne, Normal School | | | 30.05 | 763.2 | 80.8 | 27.1 | 63 | N | | | 2 | | 1 | | N | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.15 | 765.9 | 69.4 | 20.8 | 75 | W | | | 1 | | 10 | | E | 0 | 0 | Covered | Normal School. |
| Chartres, Normal School | | | 30.12 | 765.1 | 68.4 | 20.2 | 94 | SW | | | 2 | | 9 | | N | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.11 | 764.9 | 73.9 | 23.3 | 73 | WSW | | | 3 | | 10k | | | 0 | 0 | Covered | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.11 | 764.8 | 76.6 | 24.8 | 47 | NE | | | 1 | | 5 | | | 0.394 | 10.0 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.12 | 765.0 | 72.0 | 22.2 | 67 | NW | | | 4 | | | | NW | 0 | 0 | Stormy | Dr. Goulet, Director. |
| Commune de Grénasque* | | | 30.21 | 767.3 | 79.2 | 26.2 | 40 | W | | | 2 | | 5 | | NE | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.11 | 764.9 | 75.4 | 24.1 | 60 | NW | | | 6 | | 2kn | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.16 | 766.0 | 72.0 | 22.2 | 62 | WSW | | | 1 | | 8 | | S | 0 | 0 | Very cloudy | Mouillot, Director. |
| Le Mans, Normal School | | | 30.17 | 766.2 | 68.7 | 20.4 | 74 | W | | | 2 | | 8 | | W | 0 | 0 | Very cloudy | Poirrier, Director. |
| Lons-le-[illegible] | | | 30.15 | 765.9 | 70.7 | 21.5 | 73 | SE | | | 2 | | 2 | | W | 0.205 | 5.2 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.19 | 766.7 | 69.8 | 21.0 | 65 | S | | | 3 | | 2 | | S | 0 | 0 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.14 | 765.6 | 70.0 | 21.1 | 82 | S | | | 2 | | 10 | | | 0.213 | 5.4 | Covered | M. Marchal, Director. |
| Metz | | | 30.17 | 766.2 | 70.7 | 26.5 | 42 | NW | | | 2 | | 3k | | | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.10 | 764.4 | 69.3 | 20.7 | 88 | WSW | | | 2 | | 8 | | E | 0 | 0 | Almost cov'd | Normal School. |
| Nismes, Normal School | | | 30.12 | 765.1 | 88.5 | 31.4 | 48 | SE | | | 1 | | ck | | SE | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 30.12 | 765.0 | 71.2 | 21.8 | 69 | W | | | 2 | | 10 | | | 0 | 0 | Covered | Bernard, Director. |
| Paris, Observatory | | | 30.13 | 765.3 | 75.7 | 24.3 | 60 | SW | | | 2 | | 5ck | | SW | 0.169 | 4.31 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.17 | 766.2 | 75.6 | 24.2 | 54 | SSE | | | 1 | | 2 | | SE | 0.04 | 1. | ¼ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.13 | 765.4 | 73.9 | 23.3 | 67 | WNW | | | 1 | | 8 | | | 0 | 0 | Very cloudy | F. Lucard, Director. |
| Tarbes, Normal School | 28.96 | 735.6 | 29.97 | 761.2 | 87.8 | 31 | 48 | W | | | 2 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.15 | 765.9 | 76.5 | 24.7 | 82 | E | | | 2 | | 8 | | E | 0.858 | 21.8 | Very cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.8 | 80.6 | 27 | | | | | | | | | | 0 | 0 | | L'Abbé Marchesi. |
| Marseilles, Observatory | | | | | 79.0 | 26.6 | 47 | WSW | | | 2 | | 1 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 25.06 | 636.6 | 30.38 | 771.6 | 59.7 | 15.4 | 72 | ESE | 13.0 | 5.83 | | | 8 | | SW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.13 | 765.2 | 76.8 | 24.9 | 60 | SW | | | 2 | | 7 | | SW | 0.472 | 12.0 | | Marié Davy, Director. |
| Perpignan | | | 30.14 | 765.5 | 74.7 | 23.7 | 71 | SE | 7.4 | 3.33 | | | 2 | | SE | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.43 | 544.4 | | | 46.9 | 8.3 | | N | | | 2 | | 8 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.71 | 576.8 | | | 50.9 | 10.5 | | N | | | 1 | | 8 | | | 0.118 | 3.0 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.14 | 765.6 | 76.8 | 24.9 | 56 | SW | | | 1 | | 5 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.19 | 766.7 | 75.0 | 23.9 | 54 | N | | | 1 | | 4 | | | 0 | 0 | | The Staff |
| Tours | | | 30.15 | 765.8 | 71.6 | 22.0 | 64 | W | | | 1 | | 8 | | W | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.15 | 765.7 | 76.3 | 24.6 | 56 | W | | | 1 | | 7 | | | 1.171 | 29.76 | Fair | Dr. A Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.73 | 755.2 | 70.7 | 21.5 | 92 | E | 3.8 | 1.7 | | 5ks | | | | 0 | 0 | Cloudy | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Grénasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.08 | 764.1 | 73.9 | 23.3 | 42 | Calm | | | 0 | | 0 | | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.05 | 763.2 | 82.6 | 28.1 | 33 | W | | | 1 | | 2 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.12 | 765.0 | 78.4 | 25.8 | 32 | W | | | 1 | | 2 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.03 | 762.8 | 81.0 | 27.2 | 38 | E | | | 1 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.11 | 764.9 | 81.9 | 27.7 | 32 | SSE | | | 1 | | 2 | NW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.05 | 763.2 | 86.5 | 30.3 | 45 | SE | | | 1 | | 3 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.02 | 762.5 | 75.0 | 23.9 | 43 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.11 | 764.8 | 82.4 | 28.4 | 25 | W | | | 1 | | 1 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.67 | 728.3 | 30.05 | 763.2 | 75.4 | 24.1 | 53 | WSW | | | 3 | | 0 | | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.07 | 763.6 | 79.3 | 26.3 | 48 | NW | | | 3 | | 0 | | | 0 | 0 | Sultry | Captain F. Hegemann. |
| Kiel | | | 30.04 | 763.1 | 74.3 | 23.5 | 53 | N | | | 2 | | 2 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.97 | 761.3 | 73.2 | 22.9 | 48 | NW | | | 5 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.09 | 764.3 | 82.9 | 28.3 | 34 | SSW | | | 2 | | 2 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.00 | 762.1 | 57.9 | 14.4 | 83 | NW | | | 4 | | 5ck.cs | NW | | 0 | 0 | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.03 | 762.8 | 74.7 | 23.7 | 48 | NW | | | 4 | | 5 | W | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.07 | 763.7 | 82.0 | 27.8 | 31 | W | | | 5 | | 1 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.07 | 763.6 | 80.2 | 26.8 | 35 | NE | | | 1 | | 1 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.04 | 762.9 | 80.1 | 26.7 | 32 | E | | | 1 | | 0 | | | 0 | 0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.93 | 760.3 | 82.0 | 27.8 | 46 | SW | | | 5 | | 6 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.60 | 726.3 | 30.03 | 762.7 | 78.3 | 25.7 | 35 | NNE | | | 1 | | | | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.15 | 765.8 | 70.5 | 21.4 | 65 | W | | | 2 | | 0 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.17 | 766.4 | 77.2 | 25.1 | | W | | | | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity, amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.51 | 749.6 | 29.56 | 750.9 | 87.7 | 30.9 | 67 | SW | 34.0? | 15.1? | | | 6 | | SW | 0 | 0 | D. clouds | |
| Deesa | 29.11 | 739.5 | 29.57 | 751.0 | 99.6 | 37.6 | 37 | SE | | | | | 7 | S | S | 0 | 0 | Dust-whirl | |
| Bombay | 29.67 | 753.6 | 29.71 | 754.6 | 76.5 | 24.7 | 99 | W | 19.0 | 8.4 | | | 10 | | | 12.20 | 309.9 | Thunder, lightn'g | |
| Poona | 27.70 | 703.6 | 29.71 | 754.7 | 73.9 | 23.3 | 88 | | | | | | | | SE | 2.22 | 56.4 | Raining | |
| Lahore | 28.83 | 732.4 | 29.54 | 750.4 | 100.2 | 37.9 | 27 | N | 1.8 | 0.8 | | | 6 | | | 0 | 0 | Cloudy | |
| Belgaum | | | | | 73.6 | 22.8 | 90 | W | 21.0 | 9.3 | | | 10 | | W | 0.08 | 2.0 | Raining | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | | | | | | | | | | | | | | | | | | | |
| Agra | 28.93 | 734.9 | 29.47 | 748.6 | 97.7 | 36.5 | 34 | W | 9.0 | 4.0 | | | | | E | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.56 | 725.3 | 29.56 | 750.8 | 96.2 | 35.7 | 48 | Calm | 8.4 | 3.7 | | | 5 | | | 0.23 | 5.8 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.10 | 739.2 | 29.46 | 748.2 | 102.5 | 39.2 | 23 | W | 4.9 | 2.1 | | | | | | 0 | 0 | Dust-haze | |
| Allahabad | 29.17 | 740.8 | 29.46 | 748.3 | 101.0 | 38.3 | 28 | N | 2.7 | 1.2 | | | 7 | S | | 0 | 0 | D. clouds | |
| Patna | 29.29 | 743.9 | 29.46 | 748.3 | 99.2 | 37.3 | 44 | E | 2.0 | 0.8 | | | 8 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.54 | 699.6 | 29.48 | 748.7 | 94.0 | 34.4 | 33 | WNW | 7.6 | 3.3 | | | 10 | E | | 1.71 | 43.4 | Raining | |
| Cuttack | 29.44 | 747.8 | 29.52 | 749.8 | 89.2 | 31.8 | 72 | S | 1.9 | 0.8 | | | 10 | | | 0.58 | 14.7 | Overcast | |
| Calcutta, (Alipore) | 29.51 | 757.2 | 29.54 | 750.2 | 83.9 | 28.8 | 81 | SSE | 4.0 | 1.7 | | | 6 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.14 | 740.0 | 29.52 | 749.7 | 85.9 | 29.9 | 74 | Calm | 2.0 | 0.8 | | | 8 | | | 0 | 0 | D. clouds | |
| Chittagong | 29.55 | 750.5 | 29.64 | 752.8 | 88.9 | 31.6 | 69 | WNW | 8.1 | 3.6 | | | 10 | | | 0 | 0 | Overcast | |
| Sibsagar | 29.22 | 742.2 | 29.55 | 750.5 | 85.0 | 29.7 | 78 | ENE | 3.2 | 1.4 | | | 3 | | | 0 | 0 | Blue sky | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.22 | 716.8 | 29.53 | 750.1 | 97.6 | 36.1 | 41 | SW | 6.1 | 2.7 | | | 7 | | | 0 | 0 | D. clouds | |

Note.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.: Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.44 | 569.9 | 30.07 | 763.7 | 45.3 | 7.4 | 94 | NNE | | | 1 | | 10 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.38 | 568.4 | 29.98? | 761.4? | 50.2 | 10.1 | | SE | | | 1 | | 5 | SSW | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.13 | 765.4 | 75.6 | 24.2 | 83 | S | 3.1 | 1.4 | | | 5 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.13 | 765.4 | 76.5 | 24.7 | 35 | ESE | 5.6 | 2.5 | | | 2 | E | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.13 | 765.3 | 78.8 | 26.0 | 34 | NE | 0.7 | 0.3 | | | 1 | S | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.14 | 765.5 | 78.8 | 26.0 | 42 | E | | | 2 | | 10 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.83 | 732.3 | 30.09 | 764.3 | 77.7 | 25.4 | 33 | WSW | | | 2 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.08 | 764.0 | 75.9 | 24.4 | 43 | SW | | | 6 | | 3 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.15 | 765.8 | 79.9 | 26.6 | 60 | N | | | 1 | | 1 | NE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.15 | 765.7 | 77.0 | 25.0 | 31 | E | | | 2 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.09 | 764.3 | 75.7 | 24.3 | 44 | NNW | 1.8 | 0.8 | | | 5 | E | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovì | 28.27 | 718.1 | 30.10 | 764.4 | 73.6 | 23.1 | 36 | NNW | | | 4 | | 3 | NE | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.17? | 766.3? | 73.4 | 23.0 | 42 | E | | | 4 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.13 | 765.2 | 77.2 | 25.1 | 28 | SW | 7.4 | 3.3 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.15 | 765.8 | 76.3 | 24.6 | 33 | E | 4.3 | 1.9 | | | 4 | E | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.08 | 764.1 | 78.4 | 25.8 | 47 | ENE | | | 4 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.14 | 765.6 | 80.6 | 27.0 | 37 | NE | | | 2 | | 7 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.11 | 764.9 | 73.9 | 23.3 | 56 | W | 8.1 | 3.6 | | | 7 | ENE | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.93 | 731.8 | 30.09 | 764.2 | 72.0 | 22.2 | 41 | ESE | 1.3 | 0.6 | | | 8 | E | | 0.031 | 0.8 | | Prof. L. Toscani. |
| Urbino | 28.65 | 727.8 | 30.15 | 765.9 | 69.8 | 21.0 | 51 | NE | | | 2 | | 6 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.16 | 766.1 | 72.1 | 22.3 | 63 | NE | 19.2 | 8.6 | | | 7 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.17 | 766.2 | 74.5 | 23.6 | 50 | SE | | | 4 | | 2 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.15 | 765.8 | 72.7 | 22.6 | 68 | S | | | 2 | | 7 | SE | | 0.220 | 5.6 | | Avv. P. Ponticelli. |
| Rome | | | 30.12 | 765.1 | 72.9 | 22.7 | 65 | NE | 7.4 | 3.3 | | | 9 | | | 0.447 | 11.3 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.10 | 766.8 | 72.0 | 22.2 | 69 | SW | | | 2 | | 10 | SW | | 0.709 | 18.0 | | Prof. L. Palmieri. |
| Lecce | | | 30.22 | 767.5 | 73.0 | 22.8 | 57 | SSE | 11.2 | 5.0 | | | 8 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.13 | 765.4 | 81.5 | 27.5 | 60 | NE | 1.8 | 0.8 | | | 6 | | | 0.28? | 7.2 | | Prof. F. D. Conti. |
| Cagliari | | | 30.02 | 762.4 | 77.7 | 25.4 | 62 | S | | | 2 | | 9 | W | | 0.028 | 0.7 | | Prof. A. Pacinotti. |
| Oristano | | | 30.16? | 766.1? | 76.0 | 24.8 | 58 | SE | | | 2 | | 7 | W | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.09 | 764.3 | 72.5 | 22.5 | 70 | ENE | 5.6 | 2.5 | | | 10 | | | 0.08? | 2.1 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.18 | 715.8 | 30.04 | 763.0 | 75.2 | 24.0 | 44 | E | | | 2 | | 9 | NW | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.05 | 763.2 | 78.4 | 25.8 | 70 | E | | | 4 | | 10 | SW | | 0.01? | 0.3 | | Prof. V. Giuliano. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.19 | 766.8 | 69.4 | 20.8 | 73 | ESE | 1.8 | 0.8 | | | 8 | SSW | | 0.988 | 25.1 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovì, 556 m., or 1,824.4 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.12 | 765.0 | 72 | 22.2 | 83 | Calm | 0 | 0 | | 7cs | 2s | | S | 0 | 0 | Cloudy | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.15 | 587.9 | 30.75 | 765.7 | 61.2 | 16.2 | 76 | NW | 0.3 | 0.13 | | 0 | 2c | | | 0 | 0 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.10 | 764.4 | 78.4 | 25.8 | | NW | | | 2 | | | | | 0 | 0 | | |
| Groningen | | | 30.04 | 762.9 | 74.1 | 23.4 | | NE | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.10 | 764.4 | 67.6 | 19.8 | | NE | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 30.02 | 762.6 | 81.9 | 27.7 | 46 | NNE | | | 3 | | 2 | | | 0 | 0 | Light cloudy | H. v d Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.09 | 764.2 | 66.9 | 19.4 | 43 | NNW | 11.6 | 5.2 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 30.15 | 765.7 | 46.4 | 8.0 | 72 | WNW | 18 | 8 | | | 6 | | | 0 | 0 | | |
| Christiania | | | 30.13 | 765.4 | 68.4 | 20.2 | 67 | SE | 4 | 2 | | | 3 | | | 0 | 0 | | |
| Tromsö | | | 29.89 | 759.3 | 40.6 | 4.8 | 87 | W | 4 | 2 | | | 10 | | | 0.16? | 4.2 | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.33 | 770.3 | 65.8 | 18.8 | 79 | W | 5.6 | 2.5 | | | 6 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.03 | 762.7 | 79.5 | 26.4 | 32 | SW | 4.9 | 2.2 | | | 6 | NW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.24 | 768.0 | 69.8 | 21.0 | 68 | SE | 4.9 | 2.2 | | | 3 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.11 | 764.8 | 67.5 | 19.7 | 73 | WSW | 18.6 | 8.3 | | | 10 | | | 0 | 0 | Solar corona | The Staff. |
| Ponta Delgada, (Azores) | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.29 | 769.4 | 77.4 | 25.2 | 40 | WSW | 16 | 7 | | | 3 | | | | | | Astronomical Obs. |
| Wilna | | | 29.97 | 761.2 | 66.2 | 19.0 | 47 | W | 7 | 3 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.96 | 760.9 | 55.4 | 13.0 | 29 | NNW | 9 | 4 | | | 3 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.82 | 757.3 | 52.2 | 11.2 | 50 | NNW | 20 | 9 | | | 5 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.80 | 756.8 | 48.7 | 9.3 | 100 | NW | 34 | 15 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.82 | 757.5 | 73.8 | 23.2 | 40 | WNW | 9 | 4 | | | 5 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.02 | 762.4 | 74.3 | 23.4 | 34 | W | 13 | 6 | | | 3 | | | | | | Kurdakof. |
| Kertch | | | 30.02 | 762.6 | 68.4 | 20.2 | 54 | WSW | 9 | 4 | | | 9 | | | | | | Lagorio. |
| Moscow | | | 29.75 | 755.7 | 60.4 | 15.8 | 42 | SE | 11 | 5 | | | 2 | | | | | | Meteorological Obs. |
| Lugan | | | 29.63 | 752.5 | 59.9 | 15.5 | 82 | NNW | 18 | 8 | | | 8 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.40 | 746.7 | 45.1 | 7.3 | 66 | NNW | 27 | 12 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.51 | 724.2 | 29.89 | 759.2 | 67.6 | 19.8 | 53 | N | 22 | 10 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.82 | 757.3 | 73.9 | 23.3 | 37 | W | 11 | 5 | | | 9 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.61 | 752.0 | 66.6 | 19.2 | 47 | S | 18 | 8 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.03 | 762.8 | 76.8 | 24.9 | 86 | NNE | 13 | 6 | | | 0 | | | | | | Tschernischef. |
| Ekaterinburg | 28.85 | 732.7 | 29.76 | 755.8 | 67.3 | 19.6 | 40 | SSE | 13 | 6 | | | 2 | | | | | | Meteorological Obs. |
| Nukuss | | | 29.61 | 752.1 | 96.4 | 35.8 | 29 | NE | 9 | 4 | | | 1 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.13 | 714.6 | 29.72 | 754.8 | 85.9 | 29.9 | 49 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.63 | 752.6 | 69.3 | 20.7 | 78 | NW | 2 | 1 | | | 9 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.47 | 748.6 | 72.3 | 22.4 | 76 | NW | 13 | 6 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 68.9 | 20.5 | | Calm | 0 | 0 | | | 1 | | | | | | Mossin. |
| Peking, (China) | | | 29.58 | 751.3 | 88.3 | 31.3 | 34 | S | 13 | 6 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.89 | 759.3 | 58.6 | 14.8 | 96 | SE | 16 | 7 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 57.2 | 14.0 | 90 | E | 4 | 2 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 29.98 | 761.4 | 83.1 | 28.4 | 34 | SE | 10.4 | 4.66 | | 0 | 7 | | | 0 | 0 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.16 | 766.0 | 82.8 | 28.2 | 85 | E | 8.5 | 3.8 | | 4c | 6k | | | 0.043 | 1.1 | Cloudy | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.07 | 763.7 | 82.9 | 28.3 | 35 | ESE | 14.8 | 6.6 | | 1 | 3 | WNW | SE | 0 | 0 | | Capt. C. Palazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.02 | 762.5 | 83.5 | 28.6 | 81 | E | 5.6 | 2.51 | | 2c | 1k | E | E | 0.020 | 0.50 | Clear | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.85 | 758.1 | 49.3 | 9.6 | 64 | N | | | 4 | | 8 | | | 0 | 0 | | |
| Umea | | | 29.96 | 760.9 | 57.6 | 14.2 | 72 | NW | | | 4 | | 6 | | | 0 | 0 | | |
| Hernosand | | | 30.03 | 762.8 | 59.0 | 15.0 | 31 | NW | | | 4 | | 7 | | | 0 | 0 | | |
| Stockholm | | | 30.09 | 764.2 | 57.9 | 14.4 | 38 | NNE | | | 2 | | 3 | | | 0 | 0 | | |
| Wisby | | | 30.10 | 764.4 | 59.0 | 15.0 | 39 | ENE | | | 6 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.09 | 764.3 | 60.8 | 16.0 | 32 | WNW | 6.0 | 2.7 | | | 3 | NW | NW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.72 | 729.6 | 30.10 | 764.5 | 72.7 | 22.6 | 68 | S | | | 3 | | 9 | | | | | Raining | The Observatory. |
| Zurich | 28.49 | 723.7 | 30.04 | 763.0 | 82.4 | 28.0 | 43 | W | | | 1 | | 2 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +2.9 mm; Thermometer, +1.5 cent.; Relative Humidity, +13 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.21 | 767.3 | 69.8 | 21.0 | 40 | N | 7 | 3.0 | | | 0 | | | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 29.88 | 759.0 | 89.6 | 32.0 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 30.25 | 768.3 | 74.7 | 23.7 | | SE | | | 2 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.28 | 769.2 | 72.0 | 22.2 | | W | | | 1 | | 10 | | | 0 | 0 | Covered | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 30.00 | 762.0 | 86.5 | 30.3 | 52 | WSW | | | 3 | | 1ks | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.56 | 750.8 | 64.2 | 17.9 | 76 | SW | 8 | 3.6 | | | 9 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.78 | 756.4 | 78 | 25.6 | | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear. | W. R. Bigg. |
| *Chatham, N. B | | | 29.60 | 751.8 | 67 | 19.4 | 65 | SW | 15 | 6.7 | | 10ck | 0 | SW | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.72 | 754.9 | 65 | 18.3 | 60 | SW | 13 | 5.8 | | 5cs | 0 | | | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.72 | 754.9 | 72.8 | 22.7 | 76 | SW | | | 3 | 0 | 1s | | | 0 | 0 | Bright | James Smith, M. A. |
| Dalhousie, N. B | | | 29.59 | 751.6 | 59.0 | 15.0 | 78 | N | | | 1 | | | | | 0 | 0 | Threatening | H. A. Johnson. |
| Esquimault, B. C | | | 30.10 | 764.5 | 52.3 | 11.3 | 83 | W | | | | 9cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.50 | 749.3 | 64 | 17.8 | 97 | S | 13 | 5.8 | | 5k | 2s | SW | SW | 0.18 | 4.6 | Clearing | J. McWilliams. |
| Fredericton, N. B | | | 29.70 | 754.4 | 66.0 | 18.9 | 67 | N | 3 | 1.3 | | 5ck | ks | W | | Inap. | Inap. | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.27 | 768.8 | 44 | 6.7 | 84 | SE | 12 | 5.4 | | 8k | 2ks | SE | SE | 0 | 0 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 30.05 | 763.3 | 58.9 | 14.9 | | NW | | | 3 | 1c | 1s | W | | 0 | 0 | Clear | H. J. Strang, M. A |
| Granton, Ontario | 28.92 | 734.6 | 30.00 | 762.0 | 60 | 15.6 | 82 | N | | | 1 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| *Halifax, N. S | | | 29.84 | 757.9 | 62 | 16.7 | 60 | SW | 12 | 5.4 | | 5cs | 0 | W | | 0 | 0 | Fair. | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.97 | 761.2 | 71.1 | 21.7 | 49 | SE | | | 1 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.61 | 752.1 | 49 | 9.4 | 78 | N | | | 5 | | 10 | | | 0.16 | 4.1 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 29.87 | 758.7 | 70 | 21.1 | 80 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.60 | 754.1 | 72 | 22.2 | 76 | W | 15 | 6.7 | | 0 | 2ks | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.96 | 761.0 | 60 | 15.6 | 82 | NE | 14 | 6.3 | | 2k | 5ks | N | N | 0.05 | 1.3 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 30.09 | 764.3 | 71.2 | 21.8 | 64 | SE | | | 3 | 0 | 0 | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.96 | 761.0 | 68 | 20.0 | 65 | NW | 13 | 5.8 | | 5ck | 0 | NW | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S | | | 29.78 | 756.4 | 69.5 | 20.8 | | SW | 6 | 2.7 | | | | | | 0 | 0 | Fine | Peter Morgan |
| Port Stanley, Ontario | | | 29.98 | 761.5 | 68 | 20.0 | 66 | W | 4 | 1.8 | | 5ck | 0 | W | | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | | | 29.61 | 752.1 | 71 | 21.7 | 71 | SW | 12 | 5.4 | | | 8n | | SW | 0.08 | 2.0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.94 | 760.5 | 57 | 13.9 | 72 | W | 10 | 4.5 | | | 8s | | NW | 0.01 | 0.3 | Fair | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 30.00 | 762.0 | 51 | 10.6 | 89 | Calm | 0 | 0 | | 5k | 0 | N | | 0 | 0 | Fair | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.73 | 729.7 | 29.97 | 761.2 | 62.0 | 16.7 | 61 | NW | 12 | 5.4 | | 2cs | 5s | NW | | 0 | 0 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.78 | 756.4 | 69 | 20.6 | 59 | SW | 9 | 4.0 | | 8c | 0 | | | 0 | 0 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.92 | 760.0 | 71 | 21.7 | 46 | NW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory |
| Windsor, N. S | | | 29.73 | 755.1 | 65 | 18.3 | 65 | NW | | | | 2c | 0 | NW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.97 | 761.2 | 67.0 | 19.4 | 60 | N | 15 | 6.7 | | 8c | 0 | E | | 0 | 0 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.70 | 754.4 | 58.0 | 14.4 | 64 | W | | | | 5k | 5s | | | 0.30 | 7.6 | | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Upper 0—10. | Low'r 0—10 | Direction. Upper. From— | Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.87 | 758.7 | 66 | 18.9 | 94 | S | 3 | 1.3 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Alpena, Mich. | | | 30.07 | 763.8 | 58 | 14.4 | 58 | NW | 16 | 7.2 | | 0 | 1ks | | | Inap | Inap. | Clear | |
| Atlantic City, N. J. | | | 29.96 | 761.0 | 67 | 19.4 | 94 | S | 8 | 3.6 | | | 10s, fg | | | 0.06 | 1.5 | Cloudy | |
| Augusta, Ga. | | | 30.12 | 765.0 | 76 | 24.4 | 86 | SW | 3 | 1.3 | | 2k | Haze | SW | | 0.82 | 20.8 | Fair | |
| Baltimore, Md. | | | 29.96 | 761.0 | 77 | 25.0 | 77 | S | 1 | 0.4 | | 2c | 2s | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 29.94 | 760.5 | 63 | 17.2 | 94 | S | 10 | 4.5 | | | Fog | | S | 0.05 | 1.3 | Foggy | |
| Bismarck, Dakota | 28.26 | 717.8 | 29.99 | 759.4 | 49 | 9.4 | 71 | SE | 8 | 3.6 | | 8cs | Haze | W | | 0.02 | 0.5 | Cloudy | |
| Boston, Mass. | | | 29.84 | 757.9 | 73 | 22.8 | 76 | SW | 14 | 6.3 | | 7cs | 0 | SW | | 0 | 0 | Fair | |
| Breckenridge, Minn. | | | 30.11 | 764.8 | 50 | 10.0 | 71 | E | 10 | 4.5 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Brownsville, Texas | | | 30.00 | 762.0 | 82 | 27.8 | 83 | SE | 2 | 0.9 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Buffalo, N. Y. | | | 29.91 | 759.7 | 65 | 18.3 | 89 | SW | 9 | 4.0 | | 1c | 0 | SW | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 29.77 | 756.1 | 73 | 22.8 | 71 | S | 10 | 4.5 | | | 10s | | S | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 30.09 | 764.3 | 75 | 23.9 | 90 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.39 | 695.6 | 29.96 | 761.0 | 45 | 7.2 | 75 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 59 | 15.0 | | Calm | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.01 | 762.2 | 78 | 25.6 | 82 | SW | 10 | 4.5 | | 0 | Haze | | | 0.02 | 0.5 | Clear | |
| Cape Henry, Va. | | | 30.00 | 762.0 | 77 | 25.0 | 82 | S | 12 | 5.4 | | 5c | Haze | N | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.09 | 764.3 | 78 | 25.6 | 86 | W | 14 | 6.3 | | 2ck | 2ks | W | W | 0.07 | 1.8 | Fair | |
| Cape May, N. J. | | | 29.97 | 761.2 | 69 | 20.6 | 79 | S | 10 | 4.5 | | 2c | 2k | SW | W | Inap. | Inap. | Fair | |
| Charleston, S. C. | | | 30.13 | 765.3 | 83 | 28.3 | 79 | SW | 4 | 1.8 | | 2c | 5ks | | SW | 0 | 0 | Fair | |
| Cheyenne, Wyoming | 24.06 | 611.1 | 30.00 | 762.0 | 58 | 14.4 | 76 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 30.06 | 763.5 | 60 | 15.6 | 82 | N | 12 | 5.4 | | 2c | 5s | W | | 0.61 | 15.5 | Fair | |
| Cincinnati, Ohio | | | 29.98 | 761.5 | 77 | 25.0 | 72 | W | 5 | 2.2 | | 2ck | 0 | W | | Inap. | Inap. | Clear | |
| Cleveland, Ohio | | | 30.00 | 762.0 | 70 | 21.1 | 77 | W | 8 | 3.6 | | 5k | 5s | W | W | 0.41 | 10.4 | Cloudy | |
| Corsicana, Tex. | | | 30.03 | 762.7 | 74 | 23.3 | 95 | S | 1 | 0.4 | | 5ck | 0 | SE | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 30.00 | 762.0 | 71 | 21.7 | 84 | S | 5 | 2.2 | | | 10ks | | | 0.51 | 13.0 | Threatening | |
| Denison, Texas | | | 30.04 | 763.0 | 78 | 25.6 | 81 | SE | 8 | 3.6 | | 1ck | 0 | SE | | 0 | 0 | Clear | |
| Denver, Col. | 24.80 | 629.9 | 30.02 | 762.5 | 57 | 13.9 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.99 | 761.7 | 66 | 18.9 | 68 | NE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Dodge City, Kan. | 27.38 | 695.4 | 29.56 | 750.8 | 71 | 21.7 | 90 | NE | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Dubuque, Iowa | | | 30.04 | 763.0 | 65 | 18.3 | 73 | NE | 3 | 1.3 | | 5cs | 0 | | | 0.45 | 11.4 | Fair | |
| Duluth, Minn. | | | 30.24 | 768.1 | 47 | 8.3 | 68 | NE | 28 | 12.5 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Eagle Pass, Tex. | | | 29.94 | 760.5 | 75 | 23.9 | 95 | Calm | 0 | 0 | | | 10s | | | 0.41 | 10.4 | Cloudy | |
| Eastport, Me. | | | 29.74 | 755.4 | 60 | 15.6 | 76 | S | 12 | 5.4 | | 10ck | Fog | | | 0 | 0 | Cloudy | |
| Erie, Pa. | | | 29.95 | 760.7 | 67 | 19.4 | 90 | W | 13 | 5.8 | | 2c | Haze | W | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.20 | 767.1 | 46 | 7.8 | 62 | N | 20 | 8.9 | | 2k | 2s | N | N | 0 | 0 | Fair | |
| Florence, Arizona | 28.27 | 718.0 | 29.87 | 758.7 | 84 | 28.9 | | NW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.00 | 762.0 | 78 | 25.6 | 77 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.75 | 730.2 | 29.97 | 761.2 | 73 | 22.8 | 85 | E | 4 | 1.8 | | 2c | 0 | S | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.78 | 756.4 | 55 | 12.8 | 68 | SE | | | 6 | 8c | 2ks | SW | SE | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.84 | 732.5 | 29.91 | 759.7 | 74 | 23.3 | 81 | S | 4 | 1.8 | | 2k | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.37 | 720.6 | 30.01 | 762.2 | 54 | 12.2 | 79 | SE | 12 | 5.4 | | 0 | 2s | | SE | 0 | 0 | Fair | |
| Galveston, Tex. | | | 30.07 | 763.8 | 81 | 27.2 | 82 | SE | 5 | 2.2 | | 2ck | 8ks | | SE | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 30.08 | 764.0 | 64 | 17.8 | 58 | NE | 15 | 6.7 | | 2c | 0 | W | | Inap. | Inap. | Clear | |
| Indianapolis, Ind. | | | 29.97 | 761.2 | 74 | 23.3 | 72 | SE | 8 | 3.6 | | | 10s | | | 0.40 | 10.2 | Cloudy | |
| Indianola, Tex. | | | 30.05 | 763.3 | 84 | 28.9 | 75 | SE | 9 | 4.0 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.15 | 765.8 | 84 | 28.9 | 67 | SW | 4 | 1.8 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Keokuk, Iowa | | | 29.92 | 760.0 | 70 | 21.1 | 79 | NE | 16 | 7.2 | | | 10s | | NE | 0 | 0 | Threatening | |
| Key West, Fla. | | | 30.14 | 765.5 | 85.0 | 29.4 | 71 | E | 7 | 3.1 | | 5c | 0 | | | 0 | 0 | Fair | |
| Kittyhawk, N. C. | | | 30.04 | 763.0 | 77 | 25.0 | 90 | SW | 3 | 1.3 | | 1c | 0 | | | Inap. | Inap. | Clear | |
| Knoxville, Tenn. | | | 30.11 | 764.8 | 73 | 22.8 | 85 | SW | 6 | 2.7 | | | 10ks | | W | Inap. | Inap. | Cloudy | |
| La Crosse, Wis. | | | 30.09 | 764.3 | 59 | 15.0 | 70 | N | 8 | 3.6 | | 5ck | 0 | NE | | 0.04 | 1.0 | Fair | |
| Leavenworth, Kan. | | | 29.92 | 760.0 | 77 | 25.0 | 82 | SE | 7 | 3.1 | | 0 | 2s | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 30.05 | 763.3 | 79 | 26.1 | 77 | W | 8 | 3.6 | | | 10s | | W | Inap. | Inap. | Cloudy | |
| Lynchburg, Va. | | | 29.99 | 761.7 | 78 | 25.6 | 73 | W | 4 | 1.8 | | 2k | 0 | W | | 0.10 | 2.5 | Fair | |
| Maricopa Wells, Arizona | | | | | 70 | 21.1 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.22 | 767.6 | 43 | 6.1 | 58 | NW | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mason, Tex. | 28.42 | 721.9 | 30.11 | 764.8 | 74 | 23.3 | 81 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.11 | 764.8 | 81 | 27.2 | 78 | S | 4 | 1.8 | | 2ck | 0 | SW | | Inap. | Inap. | Fair | |
| Milwaukee, Wis. | | | 30.18 | 766.6 | 50 | 10.0 | 78 | NE | 18 | 8.0 | | | 10ks | | SW | 0.13 | 3.3 | Cloudy | |
| Mobile, Ala. | | | 30.16 | 766.1 | 80 | 26.7 | 86 | S | 2 | 0.9 | | 5c | 2s | | | 0 | 0 | Fair | |
| Montgomery, Ala. | | | 30.15 | 765.8 | 76.0 | 24.7 | 84 | SW | 5 | 2.2 | | 10ck | 0 | | | 0 | 0 | Cloudy | |
| Morgantown, W. Va. | 29.00 | 736.6 | 30.01 | 762.2 | 74 | 23.3 | 72 | S | 5 | 2.2 | | 0 | 8s | | W | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 23.70 | 602.0 | 30.06 | 763.5 | 51 | 10.6 | 100 | NW | 40 | 17.9 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn. | | | 30.11 | 764.8 | 79 | 26.1 | 73 | SE | 5 | 2.2 | | 0 | 0 | | | 0.49 | 12.4 | Clear | |
| New Haven, Conn. | | | 29.91 | 759.7 | 74 | 23.3 | 84 | SW | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.92 | 760.0 | 69 | 20.6 | 84 | SW | 9 | 4.0 | | 0 | 10s | | W | 0 | 0 | Cloudy | |
| New Orleans, La. | | | 30.12 | 765.0 | 78 | 25.6 | 88 | SE | 1 | 0.4 | | 7cs | 2s | W | | 0.18 | 4.6 | Cloudy | |
| Newport, R. I. | | | 29.92 | 760.0 | 67 | 19.4 | 84 | SW | 19 | 8.5 | | | 10ks | | SW | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 29.92 | 760.0 | 69 | 20.6 | 90 | SW | 7 | 3.1 | | | 10s | | SW | 0.12 | 3.0 | Cloudy | |
| Norfolk, Va. | | | 30.02 | 762.5 | 82 | 27.8 | 83 | SW | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| North Platte, Neb. | 27.07 | 687.6 | 29.54 | 750.3 | 63 | 17.2 | 75 | E | 16 | 7.2 | | 0 | 2s | | E | 0 | 0 | Clear | |
| Omaha, Neb. | 28.85 | 732.8 | 29.88 | 758.9 | 66 | 18.9 | 84 | N | 14 | 6.3 | | 0 | 8s | | | 0.67 | 17.0 | Cloudy | |
| Oswego, N. Y. | | | 29.87 | 758.7 | 64 | 17.8 | 86 | W | 15 | 6.7 | | 2k | 0 | W | | 0.04 | 1.0 | Clear | |
| Pembina, Dakota | | | 30.20 | 767.1 | 45.5 | 7.5 | 80 | SE | 10 | 4.5 | | 2c | 5ks | | SE | 0 | 0 | Fair | |
| Philadelphia, Pa. | | | 29.95 | 760.7 | 73 | 22.8 | 85 | W | 5 | 2.2 | | 2k | 8ks | W | W | 0.02 | 0.5 | Cloudy | |
| Phoenix, Arizona | | | | | 68 | 20.0 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.99 | 456.9 | 30.20 | 767.1 | 30 | −1.1 | 78 | SW | 42 | 18.8 | | 0 | 2s | | | 0.02 | 0.5 | Fair | |
| Pittsburg, Pa. | | | 29.97 | 761.2 | 74 | 23.3 | 72 | W | 7 | 3.1 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 30.02 | 762.5 | 60 | 15.6 | 70 | NE | 13 | 5.8 | | 5c | 2s | W, SE | W | 0 | 0 | Fair | |
| Portland, Me. | | | 29.76 | 755.9 | 68 | 20.0 | 74 | SW | 11 | 4.9 | | 10cs | 0 | NW | | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.21 | 767.3 | 52 | 11.1 | 79 | NW | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |
| Prescott, Arizona | 24.85 | 631.2 | 30.21 | 767.3 | 49 | 9.4 | 6 | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.16 | 766.1 | 82 | 27.8 | 74 | Calm | 0 | 0 | | 2ck | 5ks | | | 0 | 0 | Cloudy | |
| Rochester, N. Y. | | | 29.87 | 758.7 | 73 | 22.8 | 63 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.52 | 648.2 | 29.85 | 758.2 | 67 | 19.4 | 20 | SE | 4 | 1.8 | | 2ck | 0 | SW | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.93 | 760.2 | 72 | 22.2 | 90 | S | 12 | 5.4 | | 10k | 0 | W | | 0.35 | 8.9 | Cloudy | |
| San Antonio, Tex. | | | 29.89 | 759.2 | 76 | 24.4 | 95 | SE | 4 | 1.8 | | 2ck | 8ks | | SE | 0.74 | 18.8 | Clearing | |
| San Diego, Cal. | | | 29.97 | 761.2 | 63 | 17.2 | 83 | NE | 3 | 1.3 | | | 10s | | NE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.90 | 759.4 | 56 | 13.3 | 77 | SW | 10 | 4.5 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Santa Fe, New Mexico | 23.38 | 593.8 | 29.92 | 760.0 | 63.5 | 17.5 | 46 | E | 8 | 3.6 | | 1k | s, hz. | SW | | 0 | 0 | Fair | |
| Savannah, Ga. | | | 30.13 | 765.3 | 83 | 28.3 | 70 | W | 5 | 2.2 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.16 | 766.1 | 77 | 25.0 | 91 | Calm | 0 | 0 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Smithville, N. C. | | | 30.12 | 765.0 | 77 | 25.0 | 82 | W | 8 | 3.6 | | 5k | 0 | W | | 0.02 | 0.5 | Fair | |
| Springfield, Mass. | | | 29.89 | 759.2 | 70.5 | 21.4 | 75 | S | 4 | 1.8 | | 5ck | 5s | SW | S | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 30.06 | 763.5 | 74 | 23.3 | 76 | E | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| St. Marks, Fla. | | | 30.16 | 766.1 | 77 | 25.0 | 92 | Calm | 0 | 0 | | 2c | 5s | | W | 0 | 0 | Fair | |
| S. Paul, Minn. | | | 30.12 | 765.0 | 54 | 12.2 | 67 | NE | 9 | 4.0 | | 8c | 0 | SW | | Inap. | Inap. | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | 69 | 20.6 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stanwix, Arizona | 26.92 | 683.8 | 29.92 | 760.0 | 72 | 22.2 | 85 | SE | 8 | 3.6 | | 0 | 1s | | | 0 | 0 | Clear | |
| Stockton, Tex | | | 29.83 | 757.7 | 63 | 17.2 | 83 | SW | 12 | 5.4 | | 5k | 5s | N | SW | 0 | 0 | Cloudy | |
| Thatcher's Island, Mass | | | 29.98 | 761.5 | 74 | 23.3 | 76 | W | 7 | 3.1 | | 5cs | 0 | W | | 0.02 | 0.5 | Fair | |
| Toledo, Ohio | 27.56 | 700.0 | 30.10 | 764.5 | 68 | 20.0 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tucson, Arizona | | | 30.11 | 764.8 | 82 | 27.8 | 83 | SW | 6 | 2.7 | | 1k | 0 | W | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.16 | 766.1 | 75 | 23.9 | 95 | S | 6 | 2.7 | | | 10n | | S | 0.10 | 2.5 | Light rain | |
| Vicksburg, Miss | 24.22 | 615.2 | 29.70 | 754.4 | 56 | 13.3 | 51 | E | 1 | 0.4 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Virginia City, Montana | | | 29.97 | 761.2 | 79 | 26.1 | 74 | SW | 6 | 2.7 | | 1c | 2s | W | W | 0.02 | 0.5 | Fair | |
| Washington, D. C | | | | | 80 | 26.7 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | 30.10 | 764.5 | 77 | 25.0 | 83 | SW | 7 | 3.1 | | 2cs | 0 | W | | 0.05 | 1.3 | Fair | |
| Wilmington, N. C | | | 29.94 | 760.5 | 66 | 18.9 | 84 | SW | 17 | 7.6 | | 8c,k | 0 | W | | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | 28.77 | 730.7 | 30.03 | 762.7 | 59 | 15.0 | 76 | E | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | | | 29.81 | 757.2 | 70 | 21.1 | 52 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | | | | | | | | | | | | | | | | | |
| Sub-Series | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.23 | 767.8 | 80 | 26.7 | 78 | Calm | 0 | 0 | | 8c | 5s | | SE | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.04 | 763.0 | 83 | 28.3 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.10 | 764.5 | 82 | 27.8 | 83 | E | | | 2 | 3c | 6k | E | | 0.330 | 8.38 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.25 | 641.3 | | | 68.5 | 20.3 | 78 | Calm | | | 0 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.21 | 767.3 | 48 | 8.9 | 92 | NE | 21 | 9.4 | | 3c | 0 | SW | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.14 | 765.5 | 72 | 22.2 | | NE | | | 3 | | | | | 0.25 | 6.3 | | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,957.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,185 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.6 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.37 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.00 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.09 | 764.3 | 79 | 26.1 | 74 | 23.3 | 81 | SW | | | 2 | | 2 | | SW | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.96 | 761.0 | 60.5 | 15.8 | 60.5 | 15.8 | | SSW | | | 3-4 | | 2 | | | 0 | 0 | | | Light dew | |
| Navy Yard, Pensacola, Fla. | 30.28 | 769.1 | | | 80 | 26.7 | 82 | S | 7 | 3.1 | | | 6 | | S | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.89 | 759.2 | 75 | 23.9 | 72 | 22.2 | 71 | SW | 9 | 4.0 | | | 10 | | E | 0 | 0 | | | Cloudy | |
| Naval Hospital, Yokohama, Japan | 29.93 | 761.7 | 71.5 | 21.9 | 70.5 | 21.4 | 90 | W | | | 1 | | 8k,s | | W | 0 | 0 | | | Cloudy | |
| Alert, S. 0° 24′, E. 130° 40′ | 30.00† | 762.0† | 81 | 28.9 | 82 | 27.8 | 100 | SSE | | | 1-2 | | 10 | | SE | | | Smooth | | Wet | |
| Alliance, N. 33° 38′ 10″, E. 35° 22′ | 30.13 | 765.3 | 79 | 26.1 | 82 | 27.8 | 91 | SW | | | 3 | | 2 | | | | | Smooth | None | Pleasant | |
| Ashuelot, Pagoda Anchorage, River Min, China | 29.66 | 753.4 | 74 | 23.3 | 72 | 22.2 | 85 | NE | | | 2 | | 10 | | N&E | | | | | Drizzling | |
| Canonicus, New Orleans, La | 30.04 | 763.0 | 55 | 12.8 | 78 | 25.6 | 91 | SSE | | | 1 | | 9 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 30.01 | 762.2 | 66 | 18.9 | 70 | 21.1 | 90 | S | 7 | 3.1 | | | 10 | | SW | 0.17 | 4.3 | | | Foggy | |
| Despatch, Constantinople, Turkey | 30.30 | 769.6 | 68 | 20.0 | 70 | 21.1 | 61 | ENE | | | 2 | | 4 | | NE | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.18 | 766.6 | 77 | 25.0 | 77 | 25.0 | 95 | SSW | 10 | 4.5 | | | 6 | | SSW | 0 | 0 | | | D. clouds | |
| Frolic, S. 24° 10′, W. 44° 17′ | 30.31 | 769.9 | 70 | 21.1 | 70 | 21.1 | 95 | NE | | | 5-6 | | 5ck | | | Blank | Blank | Heavy | N&E | Squally | |
| ‡Gettysburg, Leghorn, Italy | 29.97 | 761.2 | | | 74 | 23.3 | 95 | W | | | 1 | | 8 | | | Blank | Blank | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.30 | 769.6 | 77 | 25.0 | 76 | 24.4 | 95 | SW | 4.8 | 2.1 | | | 3 | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.08 | 764.0 | 82 | 27.8 | 81 | 27.2 | 91 | N | | | 0 | | 3 | | NNW | 2.438 | 61.92 | Light ground. | NNW | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.06 | 763.5 | 77 | 25.0 | 75 | 23.9 | 95 | E | | | 2 | | 10 | | | ¶0.96 | 24.4¶ | Smooth | | Raining | |
| Marion, Smyrna, Turkey | 30.14 | 765.5 | 75 | 23.9 | 76 | 24.4 | 60 | NNW | | | 3 | | 5 | | WNW | 0 | 0 | Chop'd | NW | D. clouds | |
| Michigan, Erie, Pa | 29.50 | 749.3 | 74 | 23.3 | 74 | 23.3 | 72 | WSW | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.55 | 750.6 | 78 | 25.6 | 75 | 23.9 | 77 | SE | | | 1 | | 1 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Off New London, Conn. | 29.98 | 761.5 | 62 | 16.7 | 62 | 16.7 | 88 | S | | | 1 | | 9k | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.49 | 774.4 | | | 79 | 26.1 | 86 | WSW | 5 | 2. | | | 6 | | S | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.04 | 763.0 | 68 | 20.0 | 68 | 20.0 | 74 | S | 3 | 1.3 | | | 10 | | | 0 | 0 | Slight | S | Cloudy | |
| Ossipee, Port Royal, S. C | 30.19 | 766.8 | 79 | 26.1 | 80 | 26.7 | 82 | W | | | 1 | | 1 | | W | | | | | D clouds | |
| Palos, Ching-Kiang-foo, China | 29.80 | 756.9 | 85 | 29.4 | 84 | 28.9 | 91 | ESE | | | 3 | | 1 | | N&W | 0 | 0 | | | Clear | |
| Pensacola, N. 24° 34′, W. 130° 55′ | 30.22 | 767.6 | | | 74 | 23.3 | 86 | NNE | | | 5-6 | | 3 | | N&E | Light | Light | Moderate. | N&E | Blue sky | |
| Plymouth, N 23° 36′, W. 91° 32′ | 30.14 | 765.5 | 84 | 28.9 | 83 | 28.3 | 83 | ESE | | | 4 | | 3 | | S&E | 0 | 0 | Moderate. | S&E | Clear | |
| Ranger, Gulf of Suez, Egypt | 30.20 | 767.1 | | | 84 | 28.9 | 60 | NNW | | | 4 | | 2 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.40 | 772.1 | 68.5 | 20.3 | 67.2 | 19.7 | 78 | Calm | | | 0 | | 9 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.88 | 758.9 | | | 74 | 23.3 | 95 | SE | | | 1 | | 2 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.06 | 763.5 | 77 | 25.0 | 76 | 24.4 | 82 | SW | | | 2 | | 3 | | | 0 | 0 | | | Clear | |
| Saratoga, Boston, Mass | 30.20 | 767.1 | | | 70 | 21.1 | | NNW | | | 1-2 | | 7 | | N&W | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 29.92 | 760.0 | 75 | 23.9 | 74 | 23.3 | 90 | SW | 7 | 3.1 | | | 8 | | SW | 0.01 | 0.3 | | | Cloudy | |
| Swatara, N. 18° 52′, W. 83° 20′ | 30.08 | 764.0 | 83 | 28.3 | 83 | 28.3 | 83 | ENE | | | 3 | | 3ck | | NE | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.86 | 758.4 | 74 | 23.3 | 75 | 23.9 | 86 | S | | | 2 | | 10 | | | Light | Light | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.33† | 770.4† | 79 | 26.1 | 77 | 25.0 | 91 | NW | 6 | 2.7 | | | 1 | | N&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.26 | 768.6 | 67 | 19.4 | 69 | 20.6 | 48 | NE | | | 2 | | 2 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.93 | 760.2 | 73 | 22.8 | 69 | 20.6 | 75 | WSW | 12 | 5.4 | | | 6 | | W | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.10‡ | 764.5‡ | 76 | 24.4 | 77 | 25.0 | | SSW | | | 2 | | 2 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 21′, W. 170° 37′ | W | | 29.87 | 758.7 | 53 | 11.7 | | W | | | 3 | | s | | | Smooth | | D. clouds | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 41° 20′, W. 50° 21′ | N77E | 12.5 | 30.09 | 764.3 | 58.0 | 14.4 | 76 | NW | | | 4 | | | | | Smooth | | Blue sky | Capt. H. Andressen. |
| S. S. Nürnberg, N. 41° 4′, W. 64° 35′ | W by S ¾S | 12 | 30.07 | 763.8 | 57.9 | 14.4 | | Calm | | | 0 | | d | | | Smooth | | Blue sky | Capt. C. Pohle. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—CONTINUED.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgens |

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 20, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:40 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.98 | 761.6 | 74.3 | 23.5 | 74 | Calm | | | 0 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Aiglers | | | 30.01 | 762.3 | 73.4 | 23.0 | 86 | E | | | 1 | | 10 | | | Inap | Inap. | Hidden | Peter. |
| La Calle | | | 30.03 | 762.7 | 73.8 | 23.2 | 79 | NE | | | 3 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.10 | 764.5 | 81.2 | 29.0 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.13 | 765.2 | 82.4 | 28.0 | | E | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.03 | 762.8 | 89.2 | 31.8 | | SE | | | 4 | | 2 | | | 0.087 | 2.2 | Clear | Millot. |
| Tebessa | | | 30.12 | 765.1 | 81.0 | 27.2 | | W | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.04 | 763.1 | 76.6 | 24.8 | 43 | SSE | | | 4 | | 4 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.14 | 765.6 | 87.8 | 31.0 | 22 | S | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.11 | 764.9 | 89.6 | 32.0 | 27 | SE | | | 1 | | 8 | | | 0 | 0 | Cloudy | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.98 | 761.5 | 81.3 | 27.4 | 27 | SW | | | 4 | | 0 | | | 0 | 0 | | Prof. Ivan Stozir |
| Cracow, I. R. Observatory | | | 29.95 | 760.8 | 78.8 | 26.0 | 39 | W | | | 2 | | 5 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 29.87 | 758.7 | 79.9 | 26.6 | 36 | S | | | 2 | | 1c | | | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.75 | 730.2 | 29.93 | 760.3 | 79.0 | 26.1 | 57 | NW | | | 3 | | 0 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.63 | 727.2 | 29.99 | 761.7 | 75.9 | 24.4 | 35 | NNW | | | 3 | | 1 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.65 | 727.8 | 29.93 | 760.1 | 77.7 | 25.4 | 40 | W | | | 1 | | 0 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 29.89 | 759.1 | 75.2 | 24.0 | 49 | NW | | | 3 | | 4 | | | 0.256 | 6.5 | | Dr. T. Stanecki. |
| Pola | | | 30.12 | 765.0 | 76.3 | 24.6 | 57 | SW | | | 1 | | 1k | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.00 | 762.1 | 76.1 | 24.5 | 47 | E | | | 2 | | 0 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.14 | 765.6 | 74.7 | 23.7 | 59 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 29.93 | 760.1 | 83.1 | 28.4 | 35 | SE | | | 1 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.59 | 726.1 | 30.05 | 763.2 | 70.2 | 21.2 | 60 | NE | | | 0 | | 9 | | | 0.157 | 4.0 | | |
| Brussels | | | 30.02 | 762.4 | 76.1 | 24.5 | 60 | WNW | | | 2 | | 6k | | SW | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.07 | 763.6 | 69.3 | 20.7 | 76 | NW | | | 4 | | 2 | | | 0 | 0 | | |
| Maeseyck | | | 30.04 | 763.1 | 79.7 | 26.5 | 47 | WNW | | | 2 | | 3 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.14 | 765.5 | 53.1 | 11.7 | | E | 11 | 4.9 | | | 7 | | | 0 | 0 | D. clouds | William Boswell. |
| Ardrossan | | | 30.06 | 763.5 | 64 | 17.8 | | NE | | | 2 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.06 | 763.5 | 70.0 | 21.1 | | ENE | 2 | 0.9 | | | 5 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.02 | 762.5 | 72.5 | 22.5 | | SE | 7 | 3.1 | | | 3 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.04 | 763.0 | 71.2 | 21.8 | | W | | | 1 | | 8 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.04 | 763.0 | 72.2 | 22.3 | | E | | | 0 | | 0 | | | 0 | 0 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 85.0 | 29.4 | | NE | | | 2 | | 3 | | | | | | Pvt. G. W. Roberts, A. H.C. |
| Cambridge, Observatory | | | 30.04 | 763.0 | 77.8 | 25.4 | | E | | | 1 | | 1 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.08 | 764.0 | 77.4 | 25.2 | | E | | | 1 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.12 | 765.0 | 65.2 | 18.4 | | | | | 2 | | 6 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.61 | 726.7 | 30.06 | 763.5 | 65.8 | 18.8 | | S | | | 1 | | 8 | | | | | Hazy | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.05 | 763.3 | 62 | 16.7 | | N | | | 1 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.06 | 763.5 | 61 | 16.1 | | E | | | 2 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.03 | 762.7 | 79.0 | 26.1 | | S | 1.4 | 0.6 | | | | | | | | Blue sky | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.05 | 763.3 | 67.7 | 19.8 | | NNW | | | 1 | | 8 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.86 | 707.6 | 30.09 | 764.3 | 78.2 | 25.7 | | E | | | 1 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.04 | 763.0 | 80 | 26.7 | | NW | | | 1 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.90 | 759.4 | 69 | 20.6 | | SE | | | 2 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.96 | 761.0 | 69.0 | 20.6 | | NE | | | 2 | | 10 | | | Blank | Blank | Overcast | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 30.06 | 763.5 | 65.1 | 18.4 | | NE | | | 6 | | 8 | | | | | Gloomy | D. G. Maclean. |
| Great Yarmouth | | | 30.08 | 764 0 | 60 | 15.6 | | NE | | | 2 | | 0 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.05 | 763.3 | 74.5 | 23.6 | | E | | | 1 | | 1 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 30.03 | 762.7 | 65.5 | 18.6 | | NE | | | 1 | | 4 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston. | | | 30.10 | 764.5 | 71 | 21.7 | | S | | | 2 | | 1c | | | 0.6 | 15. | Fine | M. P. Moyle. |
| Holyhead | | | 30.04 | 763.0 | 60 | 15.6 | | NNW | | | 1 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.04 | 763.0 | 71.7 | 22.1 | | ENE | 9 | 4.0 | | | 6c,hz | | | | | Hazy | The Staff. |
| Kingstown | | | 30.06 | 763.5 | 66 | 18.9 | | SE | | | 3 | | 4 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.05 | 763.3 | 72.9 | 22.7 | | SE | | | 1 | | 1 | | | | | Blue sky | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | | | 76.8 | 24.9 | | NE | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.11 | 764.8 | 56 | 13.3 | | Calm | | | 0 | | 10 | | | Blank | Blank | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.12 | 765.0 | 85.0 | 29.4 | | NE | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.07 | 763.8 | 80.2 | 26.8 | | ESE | | | 3 | | 3c | | SE | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.04 | 763.0 | 73.5 | 23.1 | | ENE | | | 2 | | 1 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.04 | 763.0 | 73 | 22.8 | | NE | | | 3 | | 9 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.05 | 763.3 | 67.5 | 19.7 | | Calm | | | 0 | | 5 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.05 | 763.3 | 65 | 18.3 | | SW | | | 3 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.04 | 763.0 | 59 | 15.0 | | WNW | | | 2 | | 3 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.04 | 763.0 | 69.8 | 21.0 | | WSW | | | 2 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.18 | 766.6 | 54.1 | 12.3 | | E | 22 | 9.8 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 30.05 | 763.3 | 73.8 | 23.2 | | SW | | | 1 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 30.04 | 763.0 | 75.9 | 24.4 | | E | | | 1 | | 1 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.03 | 762.7 | 80.0 | 26 7 | 53 | SE | | | 2 | | 3 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.02 | 762.5 | 75.1 | 23.9 | | NE | | | 0 | | 10 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 30.03 | 762.7 | 65 | 18.3 | | ENE | | | 1 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgis | | | 30.06 | 763.5 | 73.9 | 23.3 | | S | | | 1 | | 4 | | | | | D. clouds | Rev. C. H. Griffitt, F.M.S. |
| Thurso | | | 30.13 | 765.3 | 56 | 13.3 | | SE | | | 2 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.06 | 763.5 | 73 | 22.8 | | N | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.07 | 763.8 | 62.2 | 16.8 | | SW | 14 | 6.3 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 68 | 20.0 | | E | | | 3 | | 3 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.06 | 763.5 | 60.8 | 16.0 | 86 | NW | 16 | 7.2 | | 10 | 8 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.93 | 760.2 | 56.0 | 13.3 | 94 | NW | | | 2 | | 10kn | | | 0.13 | 3.3 | Cloudy | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.12 | 765.0 | 57.0 | 13.9 | | E | | | 2 | | 10s | | | 0 | 0 | Foggy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.38 | 771.6 | 71.4 | 21.7 | 64 | ESE | 23.7 | 10.6 | | 0 | 4 | | E | 0.10 | 2.5 | Fair | C. Meldrum. |
| Melbourne, Observatory | | | 30.28 | 769.1 | 47.0 | 8.3 | 85 | N | 20 | 8.9 | | | 10 | | SW | 0 | 0 | Dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.05 | 763.3 | 66 | 18.9 | | SSE | | | 3 | 0 | 0 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.16 | 766.1 | 52 | 11.1 | | NE | | | 4 | 0 | 3 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,409 feet, or 426.7 meters; Davos Platz, 5,1057 ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 46° 0′, W. 42° 55′ | | | | | 61.0 | 16.1 | | SSW | | | 5 | | 5 | | | 4 | SW | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 48° 5′, W. 25° 30′ | | | 30.08 | 764.0 | | | | SE | | | 3 | | 10 | | | 2 | SE | Drizzling | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 40′ | | | 30.06 | 763.5 | 64.1 | 17.8 | | S | | | 3 | | 4 | | | 1 | | D. clouds | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 43′ 25°, W. 50° 35′ | | | 29.85 | 758.2 | 53.8 | 12.1 | | SW | | | 5 | | 4 | | | 4 | SW | Hazy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Quang Le | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 51° 12′, W. 11° 26′ | | | 30.07 | 763.8 | 65 | 18.3 | | SW | | | 2 | | 6 | | | | | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.23 | 666.2 | | | 70.7 | 21.5 | 91 | NE | | | 5 | | 3c,lks | | E | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.90 | 759.5 | 63.1 | 17.3 | 75 | SE | | | 2 | | 1 | | | | | | |
| Fanöe | | | 29.94 | 760.4 | 64.2 | 17.9 | 63 | NW | | | 4 | | 1 | | | | | | |
| Godthaab, (Greenland) | | | 29.96 | 761.0 | 49.6 | 9.8 | 69 | Calm | | | 0 | | 1 | | | | | | |
| Styrkisholm, (Iceland) | | | 30.26 | 768.6 | 53.1 | 11.7 | 88 | Calm | | | 0 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 30.25 | 768.3 | 51.6 | 10.9 | 77 | Calm | | | 0 | | 4 | | | | | | |
| Vestervig | | | 29.93 | 760.2 | 61.5 | 16.4 | 73 | NW | | | 4 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.13 | 765.3 | 71.6 | 22 | 66 | NE | | | 1 | | 5ck | | NE | 0.63 | 16. | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 29.98 | 761.6 | 84.2 | 29.0 | 53 | WSW | | | 2 | | 2 | | W | 0 | 0* | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.08 | 764.0 | 84.9 | 29.4 | 38 | SSE | | | 2 | | 2k | | SSE | 0 | 0 | Partly cl'dy. | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.02 | 762.4 | 79.7 | 26.5 | 46 | SW | | | 2 | | 8n | | SW | 0 | 0 | Very cloudy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 29.97 | 761.1 | 80.2 | 26.8 | 48 | E | 4.5 | 2.0 | | | | | SSW | 0.220 | 5.6 | | Albert Cheux. |
| Beauvais | | | 30.05 | 763.3 | 76.5 | 24.7 | 56 | SSE | | | 2 | | 5 | | SSW | 0 | 0 | Cloudy | Normal School. |
| Besançon | | | 30.11 | 764.8 | 79.2 | 26.2 | 60 | SSW | | | 3 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg-en-Bresse | | | 30.17 | 766.4 | 83.7 | 28.6 | 54 | S | | | 2 | | 2ks | | N | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges, Normal School | | | 30.02 | 762.5 | 75.2 | 24 | 83 | SE | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.11 | 764.7 | 71.1 | 21.7 | 80 | ENE | | | 2 | | 10 | | ENE | 0 | 0 | Stormy | The Staff. |
| Carcassonne, Normal School | | | 30.02 | 762.4 | 80.6 | 27 | 63 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 30.05 | 763.2 | 73.4 | 23 | 68 | SSE | | | 1 | | 2 | | NNE | 0 | 0 | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 30.07 | 763.8 | 76.3 | 24.6 | 57 | E | | | 2 | | 5 | | N | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.01 | 762.3 | 78.4 | 25.8 | 54 | WNW | | | 3 | | 5 | | WNW | 0 | 0 | Cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.98 | 761.6 | 79.5 | 26.4 | 42 | N | | | 2 | | 5 | | | 0.315 | 8.0 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.04 | 763.1 | 72.5 | 22.5 | 66 | W | | | 2 | | | | W | 0 | 0 | Stormy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.17 | 766.4 | 80.6 | 27.0 | 37 | SW | | | 2 | | 8 | | NE | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.11 | 764.7 | 78.4 | 25.8 | 48 | WNW | | | 4 | | 2ck | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 29.95 | 760.8 | 81.0 | 27.2 | 53 | SE | | | 4 | | 8 | | E | 0 | 0 | Very cloudy | Mouillot, Director. |
| Le Mans, Normal School | | | 30.02 | 762.6 | 76.3 | 24.6 | 59 | SSE | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Poirrier, Director. |
| Lons-le-Saulnier | | | 30.06 | 763.4 | 76.1 | 24.5 | 67 | SE | | | 2 | | 2 | | E | 0.268 | 6.8 | Raining | Pin, Director. |
| Lorient, Naval Observatory | | | 30.00 | 762.0 | 75.9 | 24.4 | 56 | E | | | 3 | | 8 | | E | 0.039 | 1.0 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.13 | 765.3 | 73.4 | 23 | 65 | S | | | 2 | | 10 | | | 0 | 0 | Covered | M. Marchal, Director. |
| Metz | | | 30.11 | 764.8 | 80.1 | 26.7 | 40 | WNW | | | 2 | | 5k | | | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.00 | 763.4 | 74.8 | 23.8 | 71 | SW | | | 1 | | 5 | | E | 0.20 | 5. | Partly cov'd | Normal School. |
| Nismes, Normal School | | | 30.13 | 765.2 | 88.9 | 31.6 | 46 | S | | | 2 | | | | | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 30.00 | 762.1 | 79.2 | 26.2 | 40 | E | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | Bernard, Director. |
| Paris, Observatory | | | 30.03 | 762.7 | 78.6 | 25.9 | 50 | S | | | 2 | | 5k | | W | 0 | 0 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.00 | 761.9 | 79.7 | 26.5 | 61 | SE | | | 3 | | 10 | | SE | 0.43 | 11. | Covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.04 | 763.0 | 76.8 | 24.9 | 52 | S | | | 1 | | 2 | | E | 0 | 0 | Slightly cl'dy | F. Lucard, Director. |
| Tarbes, Normal School | 28.90 | 734.1 | 29.92 | 759.9 | 84.2 | 29 | 58 | WSW | | | 2 | | 2 | | W | 0.47 | 12. | Slightly cl'dy | T. Hugues, Director. |
| Villefranche | | | 30.07 | 763.6 | 80.2 | 26.8 | 58 | SSE | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.95 | 760.8 | 80.6 | 27 | | | | | | | | | | 0 | 0 | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 80.2 | 26.8 | 57 | SSE | | | 0–1 | | 2 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 24.98 | 634.6 | 30.30 | 769.6 | 64.4 | 18.0 | 56 | SSW | 14.9 | 6.66 | | | 6 | | SW | 0.181 | 4.6 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 30.03 | 762.7 | 80.2 | 26.8 | 50 | S | | | 1 | | 4 | | S | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.04 | 763.0 | 76.1 | 24.5 | 60 | SE | 20.5 | 9.17 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.40 | 543.6 | | | 49.1 | 9.5 | | S | | | 1 | | 8 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.65 | 575.3 | | | 50.4 | 10.2 | | S | | | 2 | | 8 | | | 0 | 0 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.03 | 762.8 | 80.1 | 26.7 | 47 | SSW | | | 2 | | 2 | | | 0.276 | 7.0 | | E. Renou. |
| Toulouse, Observatory | | | 30.04 | 763.1 | 79.2 | 26.2 | 43 | SSE | | | 4 | | 1 | | | 0 | 0 | | The Staff |
| Tours | | | 29.99 | 761.8 | 82.8 | 28.2 | 45 | SE | | | 1 | | 5 | | SW | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.06 | 763.5 | 79.2 | 26.2 | 52 | W | | | 1 | | 7 | | | 0 | 0 | Cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.71 | 754.6 | 71.8 | 22.1 | 99 | NW | 2.2 | 1.0 | | | 10k | | WNW | 0.665 | 16.9 | Covered | Marc Dechevrens, S. I |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.00 | 761.9 | 77.0 | 25.0 | 54 | Calm | | | 0 | | 8 | | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.92 | 760.0 | 78.4 | 25.8 | 24 | W | | | 3 | | 6 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.91 | 759.8 | 82.9 | 28.3 | 31 | WNW | | | 3 | | 5 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.97 | 761.1 | 80.2 | 26.8 | 48 | NW | | | 1 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.05 | 763.3 | 76.3 | 24.6 | 42 | NW | | | 5 | | 2 | NW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.01 | 762.3 | 79.9 | 26.5 | 36 | N | | | 3 | | | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.97 | 761.3 | 65.5 | 18.6 | 96 | NNW | | | 4 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.06 | 763.5 | 77.9 | 25.5 | 50 | S | | | 1 | | 8 | | | Inap. | Inap | Thunder-storm. | Physical Society. |
| Friedrichshafen | 28.64 | 727.4 | 30.00 | 762.1 | 76.3 | 24.6 | 55 | SW | | | 2 | | 2 | SSW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 29.98 | 761.4 | 73.8 | 23.2 | 44 | NW | | | 3 | | 4ck,k | SW | | 0 | 0 | Fair. | Captain F. Hegemann. |
| Kiel | | | 29.94 | 760.5 | 69.8 | 21.0 | 54 | N | | | 1 | | 5 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.91 | 759.8 | 69.4 | 20.8 | 32 | S | | | 2 | | 5 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 29.91 | 759.8 | 79.5 | 26.4 | 50 | NW | | | 4 | | 4 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.97 | 761.2 | 58.6 | 14.8 | 49 | WNW | | | 2 | | 9c,ck,cs | NW | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 29.93 | 760.2 | 64.0 | 17.8 | 52 | NE | | | 2 | | 3 | W | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.89 | 759.3 | 81.7 | 27.9 | 34 | NNW | | | 7 | | 4 | | | Inap. | Inap. | | Dr. Magener |
| Strassburg, (in Alsace) | | | 30.01 | 762.2 | 78.8 | 26.0 | 51 | NW | | | 3 | | 9 | W | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 29.98 | 761.6 | 75.2 | 24.2 | 61 | NE | | | 1 | | 4 | N | | 1.142 | 29.0 | | Prof. Schoder |
| Treves, (Trier) | | | 29.88 | 758.9 | 79.7 | 26.5 | 55 | WNW | | | 6 | | 10 | | | 0.827 | 21.0 | Thunder-storm. | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.52 | 724.3 | 29.93 | 760.3 | 80.8 | 27.1 | 40 | WNW | | | 1 | | 4 | WNW | | 0.787 | 20.0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.02 | 762.4 | 65.5 | 18.6 | 64 | N | | | 2 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.12 | 765.0 | 80.6 | 27.0 | | SW | | | | | k | | | | | Clear. | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.49 | 749.1 | 29.54 | 750.3 | 88.5 | 31.4 | 66 | SW | 28.0? | 12.5? | | | 4 | | WSW | 0 | 0 | D. clouds. | |
| Deesa | 29.10 | 739.3 | 29.56 | 750.9 | 95.5 | 35.3 | 43 | Calm | 0 | 0 | | | 2 | S | | 0.88 | 22.4 | D. clouds. | |
| Bombay | 29.57 | 751.0 | 29.61 | 752.0 | 77.1 | 25.1 | 99 | SW | 25.0 | 11.1 | | | 10 | | | 4.31 | 109.5 | Thunder, lightn'g | |
| Poona | 27.60 | 701.0 | 29.60 | 751.8 | 74.9 | 23.8 | 89 | | | | | | | | NE | 1.72 | 43.7 | Raining | |
| Lahore | 28.74 | 729.9 | 29.44 | 747.7 | 103.3 | 39.6 | 19 | W | 4.3 | 1.9 | | | 5 | | | 0 | 0 | Cloudy | |
| Belgaum | | | | | 70.9 | 21.6 | 93 | W | 22.0 | 9.8 | | | 10 | | W | 1.47 | 37.3 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | | | | | | | | | | | | | | | | | | | |
| Agra | 28.89 | 732.8 | 29.42 | 747.4 | 104.2 | 40.1 | 24 | W | 3.6 | 1.6 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.56 | 725.5 | 29.59 | 751.6 | 82.6 | 28.1 | 75 | NW | 8.4 | 3.7 | | | 9 | | | 0.11 | 2.8 | Gloomy | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.07 | 738.4 | 29.42 | 747.4 | 102.7 | 39.3 | 23 | WNW | 4.4 | 1.9 | | | | | | 0 | 0 | Dust-haze | |
| Allahabad | 29.12 | 739.6 | 29.41 | 747.0 | 102.1 | 38.9 | 36 | N | 1.7 | 0.7 | | | | | | 0 | 0 | Blue sky | |
| Patna | 29.23 | 742.5 | 29.40 | 746.8 | 99.6 | 37.6 | 41 | Calm | 2.3 | 1.0 | | | 6 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.52 | 699.0 | 29.45 | 748.1 | 93.8 | 34.3 | 36 | WNW | 4.9 | 2.1 | | | 10 | | | 0 | 0 | Dust-haze | |
| Cuttack | 29.42 | 747.3 | 29.50 | 749.3 | 88.3 | 31.3 | 68 | S | 6.1 | 2.7 | | | 10 | | | 0 | 0 | Overcast | |
| Calcutta, (Alipore) | 29.50 | 749.2 | 29.52 | 749.8 | 89.8 | 32.1 | 63 | SW | 14.0 | 6.2 | | | 10 | | | 0 | 0 | Thunder | |
| Goalpara | 29.09 | 739.0 | 29.47 | 748.6 | 88.4 | 31.3 | 61 | Calm | 2.0 | 0.8 | | | 1 | W | | 0 | 0 | D. clouds | |
| Chittagong | 29.44 | 747.9 | 29.54 | 750.2 | 81.6 | 27.6 | 91 | SE | 8.5 | 3.7 | | | 10 | | | 0 | 0 | Thunder | |
| Sibsagar | 29.18 | 741.3 | 29.51 | 749.6 | 86.2 | 30.1 | 80 | ENE | 2.1 | 0.9 | | | 6 | | | 0 | 0 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.22 | 716.7 | 29.56 | 750.7 | 95.0 | 29.4 | 66 | S | 6.4 | 2.8 | | | 7 | | | 0 | 0 | D. clouds | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.: Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.41 | 569.3 | 30.04 | 763.1 | 49.8 | 9.9 | 73 | N | | | 2 | | 8 | W | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.35 | 567.6 | 29.95? | 760.0? | 54.3 | 12.4 | | SW | | | 1 | | 7 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.08 | 764.0 | 78.4 | 25.8 | 57 | S | 4.3 | 1.9 | | | 6 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.07 | 763.8 | 77.5 | 25.3 | 41 | SW | 4.3 | 1.9 | | | 3 | W | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.04 | 763.0 | 82.2 | 27.9 | 37 | E | 1.3 | 0.6 | | | 1 | E | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.07 | 763.7 | 81.0 | 27.2 | 43 | E | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.77 | 730.7 | 30.03 | 762.7 | 80.6 | 27.0 | 37 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.00 | 762.0 | 77.9 | 25.5 | 47 | S | | | 6 | | 2 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.08 | 764.1 | 80.1 | 26.7 | 46 | WSW | | | 2 | | 1 | WSW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.07 | 763.8 | 81.0 | 27.2 | 31 | W | | | 2 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.05 | 763.2 | 79.7 | 26.5 | 36 | SSE | 3.1 | 1.4 | | | 1 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.19 | 716.0 | 30.01 | 762.3 | 77.2 | 25.1 | 34 | Calm | | | 0 | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.17? | 766.2? | 76.1 | 24.2 | 62 | SSW | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.12 | 765.0 | 77.0 | 25.0 | 50 | SW | 6.3 | 2.8 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.08 | 764.0 | 78.6 | 25.9 | 39 | N | 3.1 | 1.4 | | | 1 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.06 | 763.4 | 82.6 | 28.1 | 46 | NE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.11 | 764.7 | 79.7 | 26.5 | 28 | NW | | | 2 | | 2 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.12 | 765.1 | 76.6 | 24.8 | 58 | WSW | 6.3 | 2.8 | | | 3 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.91 | 734.2 | 30.07 | 763.6 | 76.1 | 24.5 | 40 | SSE | 0 | 0 | | | 4 | E | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.61 | 726.7 | 30.11 | 764.8 | 73.0 | 22.8 | 60 | NNE | | | 4 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.12 | 765.0 | 73.4 | 23.0 | 68 | NE | 26.2 | 11.7 | | | 3 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.10 | 764.5 | 75.9 | 24.4 | 59 | SE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.14 | 765.6 | 77.0 | 25.0 | 58 | SSE | | | 4 | | 4 | S | | 0.004 | 2.3 | | Avv. P. Ponticelli. |
| Rome | | | 30.13 | 765.4 | 73.8 | 23.2 | 72 | SW | 5.6 | 2.5 | | | 4 | SW | | 1.075 | 27.3 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.14 | 765.5 | 80.6 | 27.0 | 46 | SSE | | | 2 | | 7 | SE | | 0.059 | 1.5 | | Prof. L. Palmieri. |
| Lecce | | | 30.15 | 765.8 | 74.8 | 23.8 | 60 | SSE | 7.4 | 3.3 | | | 9 | | | 0.012 | 0.3 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.10 | 764.4 | 80.6 | 27.0 | 63 | NE | 4.3 | 1.9 | | | 2 | | | 0.138 | 3.5 | | Prof. F. D. Conti. |
| Cagliari | | | 30.04 | 763.0 | 79.3 | 26.3 | 59 | SE | | | 4 | | 3 | N | | 0 | 0 | | Prof. A. Pacinotti. |
| Rinosto, (Sicily) | | | 30.16 | 766.0 | 75.9 | 24.4 | 60 | SE | | | 2 | | 4 | S | | 0 | 0 | | Prof. F. Caffero. |
| Palermo | | | 30.06 | 763.5 | 75.0 | 23.9 | 71 | ENE | 5.6 | 2.5 | | | 8 | | | 0.004 | 0.1 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.14 | 714.8 | 30.00 | 762.0 | 75.7 | 24.3 | 42 | S | | | 4 | | 10 | W | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.07 | 763.6 | 78.4 | 25.8 | 70 | ESE | | | 4 | | 8 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.15 | 765.8 | 77.0 | 25.0 | 73 | NE | 0 | 0 | | | 9 | NE | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 30.11 | 764.8 | 74.5 | 23.6 | 93 | S | 6 | 2.7 | | 1ck | 1ks,d | WSW | S | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.17 | 588.6 | 30.18 | 766.6 | 57.2 | 14.0 | 85 | Calm | 0 | 0 | | 10c | 9s | | | 0.157 | 4.0 | Covered | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.06 | 763.5 | 72.8 | 23.0 | | NE | | | 2 | | | | | 0 | 0 | | |
| Groningen | | | 30.00 | 761.9 | 67.1 | 19.5 | | N | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.06 | 763.4 | 60.1 | 15.6 | | NW | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 30.01 | 762.2 | 74.5 | 23.6 | 41 | NNW | | | 2 | | 2 | | | 0 | 0 | Light cloudy | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.98 | 761.6 | 57.6 | 14.2 | 55 | NNW | 11.6 | 5.2 | | | 0 | | | 0 | 0 | | |
| Brönø | | | 30.09 | 764.2 | 48.9 | 9.4 | 74 | N | 18 | 8 | | | 5 | | | 0.087 | 2.2 | | |
| Christiania | | | 29.96 | 761.0 | 61.9 | 16.6 | 86 | ENE | 9 | 4 | | | 2 | | | 0 | 0 | | |
| Tromsö | | | 29.88 | 758.9 | 42.8 | 6.0 | 76 | W | 4 | 2 | | | 10 | | | 0.114 | 2.9 | Raining | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.24 | 768.2 | 69.8 | 21.0 | 82 | W | 7.4 | 3.3 | | | 7 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.95 | 760.6 | 74.3 | 23.5 | 40 | SW | 8.1 | 3.6 | | | 9 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.19 | 766.8 | 70.2 | 21.2 | 62 | SE | 3.8 | 1.7 | | | 6 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.01 | 762.3 | 66.9 | 19.4 | 53 | SW | 18.6 | 8.3 | | | 3 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 8 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'dr. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.84 | 758.0 | 77.7 | 25.4 | 48 | SW | 7 | 3 | | | 5 | | | | | | Astronomical Obs. |
| Wilna | | | 29.91 | 759.8 | 63.3 | 17.4 | 39 | WNW | 2 | 1 | | | 8 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.86 | 758.4 | 51.8 | 11.0 | 59 | SW | 13 | 6 | | | 10 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.76 | 755.9 | 48.7 | 9.3 | 75 | NW | 20 | 9 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.72 | 754.9 | 46.0 | 7.8 | 81 | E | 22 | 10 | | | 10 | | | | | Hail & snow | Ch. Forsten. |
| Kieff | | | 29.80 | 756.9 | 68.7 | 20.4 | 56 | N | 9 | 4 | | | 5 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.94 | 760.4 | 81.7 | 27.6 | 35 | SW | 18 | 8 | | | 9 | | | | | | Kurdakof. |
| Kertch | | | 30.00 | 762.0 | 71.6 | 22.0 | 64 | SSW | 11 | 5 | | | 2 | | | | | | Lagorio. |
| Moscow | | | 29.80 | 756.8 | 54.5 | 12.5 | 53 | SE | 13 | 6 | | | 3 | | | | | | Meteorological Obs. |
| Lugan | | | 29.76 | 756.0 | 66.9 | 19.4 | 66 | N | 2 | 1 | | | 8 | | | | | | Meteorological Obs. |
| Archangel | | | 29.59 | 751.6 | 45.9 | 7.7 | 64 | NW | 29 | 13 | | | 5 | | | | | | Ogorodnikof. |
| Tiflis | 28.62 | 727.0 | 30.00 | 761.9 | 71.1 | 21.7 | 34 | NW | 13 | 6 | | | 1 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.86 | 758.4 | 71.1 | 21.7 | 54 | NNW | 16 | 7 | | | 3 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 29.46 | 748.3 | 56.7 | 13.7 | 43 | W | 18 | 8 | | | 4 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.13 | 765.4 | 78.3 | 25.7 | 85 | NNE | 9 | 4 | | | 0 | | | | | | Tschernischef. |
| Ekaterinburg | 28.50 | 723.9 | 29.39 | 746.5 | 71.8 | 22.1 | 49 | WSW | 22 | 10 | | | 5 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.69 | 754.1 | 83.1 | 28.4 | 58 | NNW | 18 | 8 | | | 1 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.18 | 715.8 | 29.76 | 755.8 | 89.2 | 31.8 | 42 | Calm | 0 | 0 | | | 2 | | | | | | Michelson. |
| Barnaul | | | 29.87 | 758.8 | 68.4 | 20.2 | 55 | Calm | 0 | 0 | | | 5 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.67 | 753.7 | 55.6 | 13.1 | 90 | NNW | 13 | 6 | | | 10 | | | Blank | Blank | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 66.4 | 19.1 | | Calm | 0 | 0 | | | 1 | | | | | | Mossin. |
| Peking, (China) | | | 29.59 | 751.6 | 87.8 | 31.0 | 38 | SW | 13 | 6 | | | 1 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.85 | 758.3 | 59.0 | 15.0 | 99 | Calm | 0 | 0 | | | 10 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 54.9 | 12.7 | 95 | E | 13 | 6 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 29.96 | 760.9 | 72.0 | 22.2 | 58 | SE | 17.2 | 7.67 | | 0 | 9 | | | 0 | 0 | Almost cov'd | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.14 | 765.5 | 83.1 | 28.4 | 86 | ENE | 4.3 | 1.9 | | 1c | 3k | | | 0 | 0 | Cloudy | Benito Vines, S. J. |
| San Fernando, Naval Obs'y | | | 30.04 | 762.9 | 72.7 | 22.6 | 77 | S | 9.2 | 4.1 | | 0 | 10 | | S | 0.008 | 0.2 | | Capt. C. Pujazon, R. N., Dir. |
| San Juan de Porto Rico, W. I. | | | 30.02 | 762.4 | 83.8 | 28.8 | 78 | E | 2.5 | 1.16 | | 2c | 1k | E | E | 0 | 0 | Clear | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.82 | 757.5 | 47.5 | 8.6 | 60 | N | | | 6 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.91 | 759.7 | 49.3 | 9.6 | 54 | SSE | | | 4 | | 9 | | | 0 | 0 | | |
| Hernosand | | | 29.94 | 760.5 | 52.9 | 11.6 | 34 | NNW | | | 4 | | 9 | | | 0 | 0 | | |
| Stockholm | | | 29.95 | 760.7 | 55.4 | 13.0 | 35 | N | | | 2 | | 4 | | | 0 | 0 | | |
| Wisby | | | 29.95 | 760.6 | 54.3 | 12.4 | 29 | NNE | | | 4 | | 7 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.97 | 761.3 | 55.4 | 13.0 | 24 | N | 12.1 | 5.4 | | | 1 | | NNW, NE | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.66 | 728 0 | 30.02 | 762.4 | 79.5 | 26.4 | 50 | SSW | | | 4 | | 3 | | | 0.043 | 1.1 | Clouds | The Observatory. |
| Zurich | 28.45 | 722.5 | 29.99 | 761.7 | 84.0 | 28.9 | 49 | W | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +1.3 mm; Thermometer, +5.2 cent.; Relative Humidity, —5 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds: the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.10 | 764.6 | 73.2 | 22.9 | 53 | SW | 2 | 1.0 | | | 3 | | N | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 29.86 | 758.5 | 89.6 | 32.0 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 30.17 | 766.3 | 77.7 | 25.4 | | S | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.20 | 767.0 | 72.5 | 22.5 | | W | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.95 | 760.7 | 85.6 | 29.8 | 53 | WSW | | | 3 | | 3k | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.81 | 757.2 | 54.9 | 12 7 | 38 | NW | 10 | 4.5 | | | 0 | | | | | | Hon. J. Ferguson |
| Brockville, Ontario | | | 30.24 | 768.1 | 58 | 14.4 | | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | W. R. Bigg. |
| *Chatham, N. B | | | 29.83 | 757.7 | 53 | 11.7 | 48 | W | 24 | 10.7 | | 2ck | 0 | NW | | 0.11 | 2.8 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.77 | 756.1 | 54 | 12.2 | 65 | NW | 23 | 10.3 | | 5k | 0 | NW | | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.21 | 767.3 | 55.4 | 13.0 | 54 | NE | | | 3 | 0 | 0 | | | 0 | 0 | Bright | James Smith, M. A. |
| Dalhousie, N. B | | | 29.86 | 758.4 | 50.8 | 10.4 | 45 | W | | | 6 | | | | | 0.36 | 9.1 | Clear | H. A. Johnson. |
| Esquimault, B. C | | | 30.13 | 765.3 | 46.3 | 7.9 | 92 | NE | | | | 0 | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.02 | 762.5 | 47 | 8.3 | 96 | W | 10 | 4 5 | | 0 | 2s | | W | 0 | 0 | Clear. | J. McWilliams. |
| Fredericton, N. B | | | 29.98 | 761.5 | 53.0 | 11.7 | 42 | NW | 15 | 6.7 | | 0 | 0 | | | 0.31 | 7.9 | Clear | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.91 | 759.7 | 53 | 11.7 | 93 | E | 5 | 2.2 | | 2ck | 2ks | W | | 0.07 | 1.8 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.17 | 766.3 | 62.7 | 17.1 | | E | | | 3 | 5k | 2s | N | | 0 | 0 | Fair | H. J. Strang, M. A. |
| Granton, Ontario | 29.08 | 738.6 | 30.17 | 766.3 | 59 | 15.0 | 65 | E | | | 2 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S | | | 29.84 | 757.9 | 56 | 13.3 | 45 | NW | 24 | 10.7 | | 0 | 0 | | | 0 | 0 | Clear | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.03 | 762.7 | 59.9 | 15.5 | 57 | N | | | 3 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.40 | 746.7 | 49 | 9.4 | 85 | SW | | | 3 | | 10 | | | 0.06 | 1.5 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 30.27 | 768.8 | 64 | 17.8 | 73 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A |
| *Montreal, Quebec | | | 30.24 | 768.1 | 56 | 13.3 | 58 | N | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.24 | 768.1 | 56 | 13.3 | 71 | SE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R. Moslev |
| Peterboro, Ontario | | | 30.26 | 768.6 | 58.7 | 14.8 | 58 | SE | | | 1 | 0 | 0 | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.19 | 766.8 | 59 | 15.0 | 59 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S | | | 29.69 | 754.1 | 63.3 | 11.8 | | NW | 12 | 5.4 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.16 | 766.1 | 61 | 16.1 | 66 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.16 | 766.1 | 54 | 12.2 | 49 | W | 3 | 1.3 | | 0 | 0 | | | 0.80 | 20.3 | Clear. | Capt. Ashe, R. N. |
| Stockliffe, Ontario | | | 30.29 | 769.4 | 51 | 10.6 | 62 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear. | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 30.17 | 766.3 | 58 | 14.4 | 73 | SE | 8 | 3.6 | | 5cs | 0 | | | 0 | 0 | Fair | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28 90 | 734.0 | 30.17 | 766.3 | 55.3 | 12.9 | 55 | SE | 17 | 7.6 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.66 | 753.4 | 52 | 11.1 | 59 | W | 19 | 8.5 | | 0 | 8ks | | NW | Inap. | Inap. | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 30.26 | 768.6 | 57 | 13.9 | 44 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory |
| Windsor, N. S | | | 29.87 | 758.7 | 53 | 11.7 | 51 | NW | 9 | 4.0 | | 1k | 0 | | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.16 | 766.1 | 58.0 | 14.4 | 60 | SE | 19 | 8.5 | | 0 | 3s | | | 0 | 0 | Fair | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.49 | 749 0 | 56.0 | 13.3 | 81 | S | | | | | 10s | | | 0.01 | 0.3 | Cloudy | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.17 | 766.3 | 58 | 14.4 | 40 | NW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Alpena, Mich. | | | 30.18 | 766.6 | 52 | 11.1 | 66 | SE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.12 | 765.0 | 67 | 19.4 | 68 | NE | 25 | 11.2 | | 2k | 0 | NW | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.10 | 764.5 | 78 | 25.6 | 82 | NW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 30.14 | 765.5 | 73 | 22.8 | 50 | NE | 8 | 3.6 | | 5ck | Haze | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 30.13 | 765.3 | 66 | 18.9 | 59 | NE | 19 | 8.5 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.14 | 714.7 | 29.73 | 755.1 | 60 | 15.6 | 82 | SW | 6 | 2.7 | | | 10s | | W | 0.13 | 3.3 | Cloudy | |
| Boston, Mass. | | | 30.16 | 766.1 | 64 | 17.8 | 43 | NW | 5 | 2.2 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Breckenridge, Minn. | | | 29.71 | 754.6 | 64 | 17.8 | 94 | W | 11 | 4.9 | | | 10ks | | W | 0.63 | 16.0 | Cloudy | |
| Brownsville, Texas | | | 30.03 | 762.7 | 84 | 28.9 | 79 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 30.14 | 765.5 | 59 | 15.0 | 54 | E | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.24 | 768.1 | 55 | 12.8 | 43 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.09 | 764.3 | 74 | 23.3 | 90 | S | 3 | 1.3 | | 8k | 0 | S | | 0 | 0 | Fair | |
| Campo, Cal. | 27.41 | 696.2 | 29.95 | 761.5 | 47 | 8.3 | 60 | E | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 59 | 15.0 | | Calm | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 29.98 | 761.5 | 82 | 27.8 | 83 | NW | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.04 | 763.0 | 73 | 22.8 | 81 | NE | 18 | 8.0 | | 5cs | 0 | NW | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.06 | 763.5 | 78 | 25.6 | 90 | W | 4 | 1.8 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.09 | 764.3 | 72 | 22.2 | 58 | NE | 22 | 9.8 | | 2cs | 0 | W | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.09 | 764.3 | 82 | 27.8 | 78 | W | 4 | 1.8 | | 0 | 0 | | | 2.15 | 54.6 | Clear | |
| Cheyenne, Wyoming | 24.10 | 612.1 | 30.04 | 763.0 | 53 | 11.7 | 79 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 30.02 | 762.5 | 60 | 15.6 | 82 | SE | 4 | 1.8 | | Haze | 5s | | | Inap. | Inap. | Fair | |
| Cincinnati, Ohio | | | 30.01 | 762.2 | 76 | 24.4 | 81 | SE | 4 | 1.8 | | 10k | 0 | W | | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 30.14 | 765.5 | 63 | 17.2 | 72 | SE | 4 | 1.8 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 30.06 | 763.5 | 76 | 24.4 | 86 | S | 6 | 2.7 | | 2ck | 5s | | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 30.06 | 763.5 | 62 | 16.7 | 77 | SE | 4 | 1.8 | | 4k | 8ks | W | W | 0.37 | 9.4 | Cloudy | |
| Denison, Texas | | | 30.02 | 762.5 | 78 | 25.6 | 86 | S | 8 | 3.6 | | 2k | 1s | S | S | 0.03 | 0.8 | Fair | |
| Denver, Col. | 24.83 | 630.7 | 30.05 | 763.3 | 58 | 14.4 | 47 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.12 | 765.0 | 60 | 15.6 | 82 | E | 6 | 2.7 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Dodge City, Kan. | 27.31 | 693.7 | 29.47 | 748.5 | 73 | 22.8 | 76 | S | 18 | 8.0 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 30.00 | 762.0 | 57 | 13.9 | 87 | E | 5 | 2.2 | | | 10n | | | 0.96 | 24.4 | Light rain | |
| Duluth, Minn. | | | 29.87 | 758.7 | 45 | 7.2 | 92 | NE | 14 | 6.3 | | | 10n | | NE | 0.41 | 10.4 | Light rain | |
| Eagle Pass, Tex. | | | 29.94 | 760.5 | 75 | 23.9 | 95 | S | 2 | 0.9 | | | 10s | | S | 0.57 | 14.5 | Threatening | |
| Eastport, Me. | | | 29.99 | 761.7 | 56 | 13.3 | 34 | S | 17 | 7.6 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Erie, Pa. | | | 30.12 | 765.0 | 63 | 17.2 | 67 | Calm | 0 | 0 | | 2c | Sm'e | NW | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 30.05 | 763.3 | 54 | 12.2 | 67 | SE | 12 | 5.4 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Florence, Arizona | 28.35 | 720.1 | 29.95 | 760.7 | 83 | 28.3 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.98 | 761.5 | 79 | 26.1 | 78 | S | 10 | 4.5 | | 0 | 2s | | SW | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.74 | 730.0 | 29.95 | 760.7 | 77 | 25.0 | 77 | S | 4 | 1.8 | | 5c | 0 | S | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.54 | 750.3 | 53 | 11.7 | 86 | SW | | | 6 | 10ck | 1ks | SW | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.80 | 731.5 | 29.85 | 758.2 | 78 | 25.6 | 69 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.22 | 716.8 | 29.83 | 757.7 | 60 | 15.6 | 88 | NW | 8 | 3.6 | | 0 | 0 | | | 0.32 | 8.1 | Clear | |
| Galveston, Tex. | | | 30.11 | 764.8 | 82 | 27.8 | 83 | S | 8 | 3.6 | | 0 | 8ks | | | Inap. | Inap. | Cloudy | |
| Grand Haven, Mich. | | | 30.05 | 763.3 | 64 | 17.8 | 67 | E | 13 | 5.8 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 29.99 | 761.7 | 74 | 23.3 | 81 | NE | 1 | 0.4 | | 2ck | 5s | W | | 0.05 | 1.3 | Fair | |
| Indianola, Tex. | | | 30.07 | 763.8 | 85 | 29.4 | 71 | SE | 12 | 5.4 | | 0 | 5ks | | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.13 | 765.3 | 84 | 28.9 | 64 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.89 | 759.2 | 73 | 22.8 | 85 | SE | 3 | 1.3 | | 0 | 0 | | | 2.25 | 57.1 | Clear | |
| Key West, Fla. | | | 30.12 | 765.0 | 86.6 | 30.0 | 72 | E | 4 | 1.8 | | 0 | 2ks | | NE | 0.01 | 0.3 | Clear | |
| Kittyhawk, N. C. | | | 30.04 | 763.0 | 82 | 27.8 | 67 | W | 8 | 3.6 | | 2c | 0 | | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.12 | 765.0 | 70 | 21.1 | 95 | NW | 2 | 0.9 | | | Fog | | | 0.67 | 17.0 | Dense fog | |
| La Crosse, Wis. | | | 29.86 | 758.4 | 59 | 15.0 | 87 | SE | 6 | 2.7 | | | 10n | | SE | 0.12 | 3.0 | Heavy rain | |
| Leavenworth, Kan. | | | 29.87 | 758.7 | 77 | 25.0 | 82 | S | 11 | 4.9 | | 2c | 0 | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 30.04 | 763.0 | 75 | 23.9 | 85 | S | 4 | 1.8 | | 2ck | Sm'e | SW | S | 0.06 | 1.5 | Fair | |
| Lynchburg, Va. | | | 30.09 | 764.3 | 77 | 25.0 | 69 | E | 4 | 1.8 | | 2k | 0 | W | | Inap. | Inap. | Fair | |
| Maricopa Wells, Arizona | | | | | 89 | 31.7 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.03 | 762.7 | 54 | 12.2 | 73 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Tex. | 28.44 | 722.4 | 30.12 | 765.0 | 76 | 24.4 | 76 | SE | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.12 | 765.0 | 77 | 25.0 | 82 | S | 2 | 0.9 | | | 8ks | | SW | Inap. | Inap. | Cloudy | |
| Milwaukee, Wis. | | | 30.06 | 763.5 | 50 | 10.0 | 93 | E | 5 | 2.2 | | | Fog | | | 0 | 0 | Dense fog | |
| Mobile, Ala. | | | 30.18 | 766.6 | 80 | 26.7 | 86 | S | 1 | 0.4 | | 5k | 2ks | SW | | 0.03 | 0.8 | Cloudy | |
| Montgomery, Ala. | | | 30.16 | 766.1 | 80.5 | 26.9 | 78 | W | 3 | 1.3 | | 2ck | 1ks | W | W | 0 | 0 | Fair | |
| Morgantown, W. Va. | 29.06 | 738.1 | 30.08 | 764.0 | 71 | 21.7 | 66 | N | 1 | 0.4 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 23.91 | 607.3 | 30.27 | 768.8 | 34 | 1.1 | 61 | NW | 24 | 10.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Nashville, Tenn. | | | 30.09 | 764.3 | 82 | 27.8 | 70 | Calm | 0 | 0 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| New Haven, Conn. | | | 30.17 | 766.3 | 66 | 18.9 | 58 | N | 20 | 8.9 | | Haze | 0 | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.16 | 766.1 | 68 | 20.0 | 47 | NE | 6 | 2.7 | | 1cs | 0 | W | | 0.05 | 1.3 | Clear | |
| New Orleans, La. | | | 30.15 | 765.8 | 78 | 25.6 | 86 | S | 1 | 0.4 | | 2ck,k | 0 | W,S | | 0.41 | 10.4 | Fair | |
| Newport, R. I. | | | 30.16 | 766.1 | 64 | 17.8 | 45 | N | 6 | 2.7 | | 2k | 0 | NW | | 0 | 0 | Clear | |
| New York, N. Y. | | | 30.17 | 766.3 | 67 | 19.4 | 37 | NE | 21 | 9.4 | | 2c | Sm'e | | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.06 | 763.5 | 77 | 25.0 | 86 | E | 11 | 4.9 | | 2c | 0 | N | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.94 | 684.3 | 29.36 | 745.7 | 69 | 20.6 | 75 | NE | 8 | 3.6 | | 0 | 0 | | | 0.16 | 4.1 | Clear | |
| Omaha, Neb. | 28.71 | 729.2 | 29.72 | 754.9 | 75 | 23.9 | 85 | S | 14 | 6.3 | | 5ck | 5s | W | W | 0 | 0 | Cloudy | |
| Oswego, N. Y. | | | 30.23 | 767.8 | 55 | 12.8 | 59 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.90 | 759.4 | 51.5 | 10.8 | 90 | NW | 4 | 1.8 | | | 10s | | | 0.08 | 2.0 | Cloudy | |
| Philadelphia, Pa. | | | 30.16 | 766.1 | 68 | 20.0 | 56 | E | 16 | 7.2 | | 2cs | 0 | W | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 69 | 20.6 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.97 | 456.4 | 30.18 | 766.6 | 30 | −1.1 | 38 | W | 28 | 12.5 | | 0 | 1s | | | 0 | 0 | Clear | |
| Pittsburg, Pa. | | | 30.11 | 764.8 | 63 | 17.2 | 72 | E | 2 | 0.9 | | 10k | Sm'e | NW | | 0 | 0 | Cloudy | |
| Port Huron, Mich. | | | 30.13 | 765.3 | 57 | 13.9 | 75 | SE | 3 | 1.3 | | 2c | Sm'e | W | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.13 | 765.3 | 60 | 15.6 | 34 | N | 18 | 8.0 | | 0 | Haze | | | 0 | 0 | Clear | |
| Portland, Oregon | | | 30.19 | 766.8 | 52 | 11.1 | 79 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.87 | 631.7 | 30.23 | 767.8 | 49 | 9.4 | 32 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.14 | 765.5 | 83 | 28.3 | 52 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.19 | 766.8 | 59 | 15.0 | 48 | E | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.62 | 650.7 | 29.96 | 761.0 | 63 | 17.2 | 50 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.16 | 766.1 | 66 | 18.9 | 40 | NE | 18 | 8.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.92 | 760.0 | 78 | 25.6 | 86 | SE | 4 | 1.8 | | | 10n | | SE | Inap. | Inap. | Drizzling | |
| San Diego, Cal. | | | 30.01 | 762.2 | 62 | 16.7 | 83 | NE | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.93 | 760.2 | 54 | 12.2 | 79 | SW | 12 | 5.4 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Santa Fe, New Mexico | 23.35 | 593.8 | 29.92 | 760.0 | 58.5 | 14.7 | 23 | E | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Savannah, Ga. | | | 30.10 | 764.5 | 85 | 29.4 | 68 | W | 2 | 0.9 | | 0 | Sm'e | | | Inap. | Inap. | Clear | |
| Shreveport, La. | | | 30.19 | 766.8 | 76 | 24.4 | 95 | Calm | 0 | 0 | | | 10s | | S | 0.83 | 21.1 | Cloudy | |
| Smithville, N. C. | | | 30.06 | 763.5 | 80 | 26.7 | 86 | Calm | 0 | 0 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Springfield, Mass. | | | 30.20 | 767.1 | 65.5 | 18.6 | 83 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 30.02 | 762.5 | 76 | 24.4 | 81 | S | 12 | 5.4 | | 0 | 0 | | | nap. | Inap. | Clear | |
| St. Marks, Fla. | | | 30.15 | 765.8 | 79 | 26.1 | 86 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.74 | 754.4 | 65 | 18.3 | 89 | S | 20 | 8.9 | | | 10s | | SW | 0.38 | 9.7 | Cloudy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Upper 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | 62 | 16.7 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stanwix, Arizona | | | | | 72 | 22.2 | 85 | SE | 16 | 7.2 | | 8cs | 0 | SE | | 0 | 0 | Fair | |
| Stockton, Tex | 26.91 | 683.5 | 29.91 | 759.7 | 58 | 14.4 | 53 | NW | 8 | 3.6 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 30.16 | 766.1 | 67 | 19.4 | 74 | E | 2 | 0.9 | | 5c | 0 | SW | | 0.09 | 2.3 | Fair | |
| Toledo, Ohio | | | 30.10 | 764.5 | 64 | 17.8 | | SE | | | | 1c | 0 | SE | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.57 | 700.3 | 30.11 | 764.8 | 82 | 27.8 | 74 | W | 6 | 2.7 | | 1k | 0 | W | | 0.08 | 2.0 | Clear | |
| Tybee Island, Ga | | | 30.08 | 764.0 | 76 | 24.4 | 90 | S | 3 | 1.3 | | 2ck | 2s | W | S | 0.31 | 7.9 | Fair | |
| Vicksburg, Miss | | | 30.15 | 765.8 | 46 | 7.8 | 54 | SE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, Montana | 24.36 | 618.7 | 29.84 | 757.9 | 73.5 | 23.1 | 54 | NE | 7 | 3.1 | | 0 | 1s | | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.14 | 765.5 | 79 | 26.1 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 78 | 25.6 | 82 | Calm | 0 | 0 | | 1cs | 0 | | | 0.12 | 3.0 | Clear | |
| Wilmington, N. C | | | 30.06 | 763.5 | 65 | 18.3 | 52 | N | 5 | 2.2 | | 8c | 0 | NW | | 0 | 0 | Cloudy | |
| Wood's Holl, Mass | | | 30.16 | 766.1 | 70 | 21.1 | 70 | E | 11 | 4.9 | | 0 | 1ks | | | 0.01 | 0.3 | Clear | |
| Yankton, Dakota | 28.56 | 725.4 | 29.77 | 756.1 | 71 | 21.7 | 45 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.84 | 757.9 | | | | | | | | | | | | | | | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.21 | 767.3 | 81 | 27.2 | 78 | Calm | 0 | 0 | | 8c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 29.93 | 760.2 | 81 | 27.2 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.07 | 763.8 | 82 | 27.8 | 88 | E | | | 2 | 5k | 7ks | E | | 0.080 | 2.03 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S.A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.24 | 641.1 | | | 68.0 | 20.0 | 76 | S | | | 1 | 7cs,k | 2s | | | 0.06 | 1.5 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.01 | 762.2 | 46 | 7.8 | 88 | N | 10 | 4.5 | | 0 | | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.15 | 765.8 | 72 | 22.2 | | NE | | | 4 | | | | | 0.30 | 7.6 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,602 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.5 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,676 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,156.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.86 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.23 | 767.8 | 79 | 26.1 | 73 | 22.8 | 63 | NE | | | 2 | | 1 | | NE | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.00 | 762.0 | 60 | 15.6 | 56.5 | 13.6 | | S | | | 6 | | 8 | | S | 0 | 0 | | | Cloudy | |
| Navy Yard, Pensacola, Fla. | 30.30 | 769.6 | | | 81 | 27.2 | 83 | W | 4 | 1.8 | | | 4 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.20 | 767.1 | 70 | 21.1 | 60 | 15.6 | 55 | NW | 3 | 1.3 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 30.04 | 763.0 | 75 | 23.9 | 74 | 23.3 | 93 | SSW | | | 4 | | 6ck,d | | SSW | 0 | 0 | | | Clearing | |
| Alert, S. 0° 24′, E. 130° 40′ | 29.99† | 761.7† | 83 | 28.3 | 83 | 28.3 | 91 | SSE | | | 1-3 | | 9 | | SE | | | Smooth | | Squally | |
| Alliance, Sidon, Syria | 30.08 | 764.0 | 78 | 25.6 | 78 | 25.6 | 65 | WSW | | | 1 | | 3 | | | | | Long | N&W | Pleasant | |
| Ashuelot, Pagoda Anchorage, River Min, China | 29.75 | 755.6 | 78 | 25.6 | 76 | 24.4 | 86 | E | | | 3 | | 2 | | N&E | | | | | D. clouds | |
| Canonicus, New Orleans, La | 30.16 | 766.1 | 55 | 12.8 | 79 | 26.1 | 82 | SSE | | | 1 | | 4 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.22 | 767.6 | 61 | 16.1 | 65 | 18.3 | 35 | NE | 9 | 4.0 | | | 1 | | | 0 | 0 | | | Hazy | |
| Despatch, Constantinople, Turkey | 30.21 | 767.3 | 69 | 20.6 | 72 | 22.2 | 62 | S | | | 0-1 | | 1 | | | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.20 | 767.1 | 78 | 25.6 | 77 | 25.0 | 95 | NE | 8 | 3.6 | | | 4 | | NE | 0 | 0 | | | D. clouds | |
| Frolic, S. 23° 04′, W. 43° 08′ | 30.20 | 769.4 | 74 | 23.3 | 75 | 23.9 | 90 | E | | | 2 | | 4ck | | | 0 | 0 | Smooth | | D. clouds | |
| ‡Gettysburg, Leghorn, Italy | 29.98 | 761.5 | | | 76 | 24.4 | 95 | W | | | 1 | | 2 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.26 | 768.6 | 80 | 26.7 | 76 | 24.4 | ? | ENE | 12 | 5.4 | | | 5 | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.06 | 763.5 | 82 | 27.8 | 81 | 27.2 | 96 | Calm? | | | 1? | | 10 | | | 0.375 | 9.53 | Light ground. | N | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.05 | 763.3 | 81 | 27.2 | 78 | 25.6 | 95 | E | | | 1-2 | | 5 | | N | 0 | 0 | Smooth | | Clear | |
| Marion, Smyrna, Turkey | 30.07 | 763.8 | 75 | 23.9 | 77 | 25.0 | 38 | NNW | | | 3 | | 1 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.67 | 753.6 | 65 | 18.3 | 65 | 18.3 | 73 | NE | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.57 | 751.1 | 80 | 26.7 | 81 | 27.2 | 66 | SSE | | | 2 | | 3 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Off New London, Conn. | 30.18 | 766.6 | 61 | 16.1 | 61 | 16.1 | 66 | NE | | | 4 | | 2c | | | 0 | 0 | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.35 | 771.6 | | | 82 | 27.8 | 96 | W | 7 | 3.1 | | | 0 | | | 0.4 | 10. | | | Blue sky | |
| Omaha, Callao, Peru | 30.05 | 763.3 | 67 | 19.4 | 66 | 18.9 | 94 | E | 1 | 0.4 | | | 2 | | | 0 | 0 | Slight | S | Misty | |
| Ossipee, N. 33° 04′, W. 78° 52′ | 30.16 | 766.1 | 80 | 26.7 | 81 | 27.2 | 87 | WSW | | | 1 | | 1 | | WSW | | | Long | S | D. clouds | |
| Palos, Nankin, China | 29.80 | 756.9 | 84 | 28.9 | 84 | 28.9 | 91 | ENE | | | 0-1 | | 0 | | | 0 | 0 | | | Clear | |
| Pensacola, N. 25° 51′, W. 132° 24′ | 30.25 | 768.3 | | | 67 | 19.4 | 69 | NNE | | | 4 | | 10 | | | Light | Light | Moderate. | N&E | Overcast | |
| Plymouth, N 25° 7′, W. 90° 21′ | 30.20 | 767.1 | 84 | 28.9 | 82 | 27.8 | 87 | ESE | | | 3 | | 2 | | E | 0 | 0 | Light | S&E | Clear | |
| Ranger, N. 26° 23′, E. 34° 55′ | 30.00 | 762.0 | | | 82 | 27.8 | 75 | NNW | | | 5 | | 1 | | | | | Smooth | | Clear | |
| Richmond, Rio de Janeiro, Brazil | 30.32 | 770.1 | 72.0 | 22.2 | 71.8 | 22.1 | 74 | NW | | | 1 | | 9 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.92 | 760.0 | | | 75 | 23.9 | 86 | SE | | | 1 | | 2 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.21 | 767.3 | 74 | 23.3 | 73 | 22.8 | 54 | NE | | | 2 | | 2 | | | 0 | 0 | | | Clear | |
| Saratoga, Boston, Mass | 30.46 | 773.7 | | | 70 | 21.1 | | N&E | | | 0-1 | | 5 | | | Light | Light | | | Cloudy | |
| St. Louis, League Island, Pa | 30.08 | 764.0 | 72 | 22.2 | 71 | 21.7 | 85 | NE | 11 | 4.9 | | | 2 | | NE | 0 | 0 | | | Fair | |
| Swatara, N. 21° 07′, W. 85° 02′ | 30.06 | 763.5 | 83 | 28.3 | 83 | 28.3 | 83 | NE | | | 5 | | 4ck | | NE | | | | | Fair | |
| Tennessee, Yokohama, Japan | 30.02 | 762.5 | 77 | 25.0 | 78 | 25.6 | 91 | SSW | | | 2 | | 3 | | S&W | 0 | 0 | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.25† | 768.3† | 82 | 27.8 | 83 | 28.3 | 79 | N | 14 | 6.3 | | | 1 | | N | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.17 | 766.3 | 69 | 20.6 | 70 | 21.1 | 57 | S | | | 1 | | 2 | | NNE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.19 | 766.8 | 61 | 16.1 | 62 | 16.7 | 83 | NW | 10 | 4.5 | | | 2 | | | 0.01 | 0.3 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.24† | 768.1† | 76 | 24.4 | 76 | 24.4 | | NE | | | 2 | | | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | |
|---|---|
| S. S. Alaska | Capt. Seabury. |
| S. S. China | Capt. Berry. |
| S. S. City of New York | Capt. Cobb. |
| S. S. City of Panama | Capt. Howard. |
| S. S. City of Peking | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | Capt. Dearborn. |
| S. S. City of Tokio | Capt. Maury. |
| S. S. Colima | Capt. Searle. |
| S. S. Costa Rica | Capt. Whitebury. |
| S. S. Dakota | Capt. Morse. |
| S. S. Georgia | Capt. Cavarly. |
| S. S. Grenada | Capt. Connolly. |
| S. S. Wilmington | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | |
|---|---|
| S. S. Britannic | Capt. W. H. Thompson |
| S. S. Germanic | Capt. C. W. Kennedy. |
| S. S. Celtic | Capt. B. Gleadell. |
| S. S. Adriatic | Capt. H. H. Perry. |
| S. S. Baltic | Capt. J. W. Jenning. |
| S. S. Republic | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 26′, W. 176° 19′ | W | | 29.73 | 755.1 | 56 | 13.3 | 81 | WSW | | | 5 | | k | | WSW | Rough | | Gloomy | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 43° 32′, W. 43° 51′ | N65E | 12.5 | 30.11 | 774.8 | 64.5 | 18.1 | 81 | WSW | | | 4 | | 4c | | SW | Smooth | | Blue sky | Capt. C. Pohle. |
| S. S. Nürnberg, N. 39° 4′, W. 70° 24′ | SW by W¾W | 12 | 30.13 | 765.3 | 69.1 | 20.6 | | NE | | | 2 | | c | | NNE | Light | | Clear | Capt. K. Undütsch. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

### RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgenson. |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the Chief Signal Officer of the Army, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 21, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.01 | 762.2 | 76.1 | 24.5 | 67 | NNW | | | 1 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Akkers | | | 29.95 | 760.8 | 78.8 | 26.0 | 63 | W | | | 3 | | 10 | | | 0.094 | 2.4 | Hidden | Peter. |
| La Calle | | | 29.92 | 760.9 | 80.2 | 26.8 | 78 | NE | | | 1 | | 9 | | | 0 | 0 | Hidden | Fleury. |
| Tunis | | | 30.00 | 762.0 | 82.4 | 28.0 | | E | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.08 | 764.0 | 80.6 | 27.0 | | E | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.00 | 762.1 | 79.7 | 26.5 | | N | | | 3 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.10 | 764.4 | 84.4 | 28.1 | | SW | | | 2 | | 2 | | | 0 | 0 | Clear | Bourgeois |
| Geriville | | | 30.04 | 763.0 | 77.4 | 25.2 | 65 | S | | | 4 | | 10 | | | 0 | 0 | Hidden | Lemaillot. |
| Laghouat | | | 30.08 | 764.0 | 92.3 | 33.5 | 23 | E | | | 4 | | 6 | | | 0 | 0 | Fair | Guyot. |
| Biskra | | | 30.02 | 762.4 | 94.1 | 34.5 | 23 | SE | | | 3 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.85 | 758.3 | 82.8 | 28.2 | 42 | NW | | | 3 | | 0 | | | 0 | 0 | | Prof. Ivan Stozir |
| Cracow, I. R. Observatory | | | 29.85 | 758.1 | 74.5 | 23.6 | 43 | W | | | 3 | | 0 | | | 0.055 | 1.4 | | Dr. Wierzbiski. |
| Eperies | | | 29.82 | 757.3 | 70.7 | 21.5 | 76 | SE | | | 1 | | 10s | | | 0.138 | 3.50 | | Julius Mikolik. |
| Gratz | 28.66 | 727.9 | 29.87 | 758.7 | 67.6 | 19.8 | 91 | SSW | | | 4 | | 10 | | | 0.795 | 20.2 | Thunderstorm | Andreas Rospini. |
| Hermannstadt | 28.49 | 723.6 | 29.83 | 757.7 | 77.9 | 25.5 | 33 | NW | | | 4 | | 1 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.56 | 725.4 | 29.83 | 757.7 | 76.3 | 24.6 | 49 | WNW | | | 1 | | 1 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 29.71 | 754.5 | 73.2 | 22.9 | 58 | W | | | 3 | | 5 | | | 0.028 | 0.7 | | Dr. T. Stanecki. |
| Pola | | | 29.99 | 761.8 | 77.1 | 25.1 | 69 | SSE | | | 3 | | 9cks | | | 0 | 0 | | I.R. Hydrographic Office |
| Szegedin | | | 29.80 | 757.0 | 78.8 | 26.0 | 59 | Calm | | | 0 | | 0 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.02 | 762.4 | 79.2 | 26.2 | 63 | W | | | 1 | | 3 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 29.86 | 758.5 | 76.6 | 24.8 | 54 | N | | | 1 | | 8 | | | Blank | Blank | | I. I. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the cooperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.44 | 722.3 | 29.88 | 759.0 | 72.0 | 22.2 | 61 | SW | | | 2 | | 9 | | | 0.382 | 9.7 | | |
| Brussels | | | 29.84 | 758.0 | 78.1 | 25.6 | 56 | E | | | 1 | 5c | 3k | S | SW | 0.297 | 7.55 | | Royal Observatory |
| Furnes | | | 29.87 | 758.7 | 79.0 | 26.1 | 68 | NNW | | | 4 | | 6 | | | 0.508 | 12.9 | | |
| Maeseyck | | | 29.89 | 759.3 | 78.3 | 25.7 | 48 | NW | | | 0 | | 2 | | | 0.686 | 17.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the cooperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.93 | 760.2 | 52.6 | 11.1 | | SSE | 16 | 7.2 | | | 9 | | | 0.125 | 3.18 | Overcast | William Boswell. |
| Ardrossan | | | 29.88 | 758.9 | 66 | 18.9 | | NE | | | 3 | | | | | | | Hazy | William McNeil. |
| Armagh, Observatory | | | 29.86 | 758.4 | 70.2 | 21.2 | | NE | 3 | 1.3 | | | 2 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.86 | 758.4 | 74.1 | 23.4 | | ESE | 15 | 6.7 | | | 6 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.84 | 757.9 | 67.8 | 19.9 | | Calm | | | 0 | | 10 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 29.89 | 759.2 | 69.0 | 20.6 | | E | | | 1 | | 1 | | | 0 | 0 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 29.97 | 761.2 | 82.0 | 27.8 | | NE | | | 2 | | 5 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.87 | 758.7 | 76.0 | 24.4 | | ESE | | | 1 | | 1 | | | Blank | Blank | D. clouds | H. Todd. |
| Cardington | | | 29.89 | 759.2 | 80.0 | 26.7 | | E | | | 1 | | 4 | | | | | D. clouds | John McLaren. |
| Chatham, School M. E. | | | 29.93 | 760.2 | 63.2 | 17.3 | | NE | | | 2 | | 8 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 29.43 | 722.1 | 29.59 | 759.2 | 56.0 | 13.3 | | SW | | | 2 | | 10 | | | | | Rain & fog | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.86 | 758.4 | 63 | 17.2 | | NNE | | | 2 | | 7 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.86 | 758.4 | 67 | 19.4 | | NE | | | 4 | | 5 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.85 | 758.2 | 77.1 | 25.1 | | SE | 3.0 | 1.3 | | | 3 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.82 | 757.4 | 57.7 | 14.3 | | ENE | | | 2 | | 10 | | | | | Raining | The Staff. |
| Fort Napier, (Natal) | 27.78 | 705.6 | 30.02 | 762.5 | 75.2 | 24.0 | | NE | | | 2 | | 1 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.07 | 763.8 | 72 | 22.2 | | W | | | 2 | | 6 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.73 | 755.1 | 68 | 20.0 | | E | | | 1 | | 10 | | | | | Hazy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.96 | 761.0 | 76.0 | 24.4 | | W | | | 4 | | 2 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.89 | 759.2 | 59.8 | 15.4 | | NE | | | 4 | | 7 | | | | | Gloomy | D. G. Maclean. |
| Great Yarmouth | | | 29.94 | 760.5 | 62 | 16.7 | | E | | | 3 | | 1 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.85 | 758.2 | 74.6 | 23.7 | | E | | | 1 | | 5 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.81 | 757.2 | 63.5 | 17.5 | | SSW | | | 1 | | 10 | | | | | Hazy | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.87 | 758.7 | 63 | 17.2 | | E | | | 2 | | 10n | | | 1.10 | 27.9 | Heavy rain. | M. P. Moyle. |
| Holyhead | | | 29.83 | 757.7 | 69 | 20.6 | | WNW | | | 1 | | 10 | | | | | Overcast | John Tilston. |
| Kew, Observatory | | | 29.85 | 758.2 | 73.8 | 23.2 | | ENE | 8 | 3.6 | | | 5c,hz | | | | | Hazy | The Staff. |
| Kingstown | | | 29.86 | 758.4 | 66 | 18.9 | | ESE | | | 3 | | 8 | | | | | Hazy | George Mitchell, F.G.S. |
| Leicester, Museum | | | 29.87 | 758.7 | 70.0 | 21.1 | | SE | | | 4 | | 3 | | | | | D. clouds | Wm. J. Harrison, A.H.C. |
| Malta, (Mediterranean) | | | 30.05 | 763.3 | 75.8 | 24.3 | | NE | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.89 | 759.2 | 57 | 13.9 | | Calm | | | 0 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.11 | 764.8 | 82.8 | 28.2 | | NE | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.88 | 758.9 | 76.3 | 24.6 | | SSE | | | 3 | | 1c | | SW | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.86 | 758.4 | 71.0 | 21.7 | | ENE | | | 3 | | 8 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.85 | 758.2 | 73 | 22.8 | | E | | | 3 | | 10 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 29.82 | 757.4 | 60.6 | 15.9 | | E | | | 1 | | 10 | | | | | Raining | John Merrifield. |
| Roche's Point | | | 29.82 | 757.4 | 66 | 18.9 | | SE | | | 2 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.83 | 757.7 | 64 | 17.8 | | SE | | | 1 | | 10 | | | | | Overcast | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.83 | 757.7 | 65.0 | 18.3 | | SE | | | 1 | | 10 | | | | | Raining | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.98 | 761.5 | 50.1 | 10.3 | | SE | 21 | 9.4 | | | 10 | | | | | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.91 | 759.7 | 74.8 | 23.8 | | SW | | | 1 | | 0 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.88 | 758.9 | 71.8 | 22.1 | | ESE | | | 2 | | 2 | | | 0.083 | 2.11 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 29.87 | 758.7 | 72.6 | 22.6 33 | | Calm | | | 0 | | 7 | | | 0.040 | 1.02 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.84 | 757.9 | 71.9 | 22.2 | | E | | | 2 | | 5 | | | | | Hazy | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.86 | 758.4 | 59 | 15.0 | | Calm | | | 0 | | 10 | | | | | Gloomy | John Smith. |
| Stratfield Turgiss | | | 29.86 | 758.4 | 73.5 | 23.1 | | E | | | 1 | | 4 | | | | | D. clouds | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.92 | 760.0 | 52 | 11.1 | | ESE | | | 4 | | 10 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 29.83 | 757.7 | 64 | 17.8 | | E | | | 4 | | 10 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.86 | 758.4 | 63.4 | 17.4 | | NW | 14 | 6.3 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 67 | 19.4 | | E | | | 2 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.21 | 767.3 | 60.2 | 15.7 78 | | NW | 10 | 4.5 | | 2 | 4 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.62 | 752.3 | 54.0 | 12.2 87 | | NW | | | 5 | | 9kn | | | 0 | 0 | Squally | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.93 | 760.2 | 56.1 | 13.4 | | E | | | 2 | | 10k | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.31 | 769.9 | 68.7 | 20.4 82 | | ESE | 17.4 | 7.8 | | | 9 | | ESE | 0.21 | 5.3 | Showery | C. Meldrum. |
| Melbourne, Observatory | | | 30.13 | 765.3 | 49.3 | 9.6 84 | | WNW | 9 | 4.0 | | | 4 | | | 0.02 | 0.5 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.82 | 757.4 | 59 | 15.0 | | S | | | 3 | | 10 | | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.97 | 761.2 | 52 | 11.1 | | NE | | | 2 | 0 | 2 | | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,555.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 43° 50′, W. 48° 5′ | | | | | 54.0 | 12.2 | | WSW | | | 4 | | 7 | | | 3 | SW | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 48° 30′, W. 24° 15′ | | | 30.12 | 765.0 | | | | Calm | | | 0 | | 10 | | | 2 | W | Overcast | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 40′ | | | 29.87 | 758.7 | 65.0 | 18.3 | | WNW | | | 3 | | 9 | | | 2 | | Overcast | Capt. W. R. Cato |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 45′ 10°, W. 46° 25′ | | | 29.75 | 755.6 | 50.0 | 10.0 | | SW | | | 5 | | 10 | | | 4 | W | Hazy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 51° 59′, W. 12° 43′ | | | 29.89 | 759.2 | 58 | 14.4 | | NW | | | 4 | | 10 | | | | | Overcast | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 71.2 | 21.8 | 80 | NE | | | 1 | | 1ks | | NE | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.97 | 761.2 | 61.0 | 16.1 | 55 | SE | | | 4 | | 0 | | | | | | |
| Fanöe | | | 29.90 | 759.4 | 61.5 | 16.4 | 82 | NW | | | 4 | | 3 | | | | | | |
| Godthaab, (Greenland) | | | 29.80 | 757.0 | 60.4 | 15.8 | 45 | Calm | | | 0 | | 1 | | | | | | |
| Stykkisholm, (Iceland) | | | 30.11 | 764.8 | 49.1 | 9.5 | 74 | Calm | | | 0 | | 0 | | | | | | |
| Thorshavn, (Faröe) | | | 30.02 | 762.6 | 54.1 | 12.3 | 74 | SE | | | 2 | | 8 | | | | | | |
| Vestervig | | | 29.86 | 758.4 | 62.6 | 17.0 | 70 | NW | | | 2 | | 2 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols, no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 29.94 | 760.4 | 73.4 | 23 | 66 | SW | | | 1 | | 8kn | | SW | 0.31 | 8. | Very cloudy | Collignon, Director. |
| Amiens, Normal School | | | 29.82 | 757.5 | 86.0 | 30.0 | 54 | E | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.00 | 762.1 | 78.8 | 26 | 45 | S | | | 2 | | 2 | | S | 0 | 0 | Partly cl'dy. | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 29.88 | 758.9 | 76.1 | 24.5 | 40 | SW | | | 2 | | 10 | | | 0.008 | 0.2 | Covered | C. Saillard. |
| Beaunette Obs'y (Angers) | | | 29.80 | 757.0 | 67.5 | 19.7 | 94 | SSW | 4.5 | 2.0 | | | 10 | | S | 1.307 | 33.2 | Raining | Albert Cheux. |
| Beauvais | | | 29.83 | 757.7 | 79.5 | 26.4 | 53 | SSW | | | 3 | | 8 | | SSW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 29.95 | 760.8 | 75.4 | 24.1 | 60 | SSW | | | 4 | | 5 | | SW | 0 | 0 | Cloudy | Normal School. |
| Bourg-en-Bresse | | | 30.09 | 764.3 | 72.5 | 22.5 | 62 | SSE | | | 2 | | 8n | | N | 0 | 0 | Very cloudy | Normal School. |
| Bourges, Normal School | | | 29.88 | 758.9 | 73.4 | 23 | 74 | SSE | | | 2 | | 5 | | NE | 0.059 | 1.5 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.76 | 755.9 | 66.0 | 18.9 | 86 | SW | | | 1 | | 9 | | SW | 0.246 | 6.25 | Stormy | The Staff. |
| Carcassonne, Normal School | | | 29.96 | 761.0 | 75.6 | 24.2 | 74 | E | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 29.82 | 757.5 | 72.1 | 22.3 | 75 | NNE | | | 1 | | 8 | | SE | 0 | 0 | Very cloudy | Normal School. |
| Chartres, Normal School | | | 29.83 | 757.6 | 75.6 | 24.2 | 87 | ENE | | | 2 | | 8 | | N | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.85 | 758.1 | 79.9 | 26.6 | 52 | S | | | 3 | | 8ck | | S | 0.079 | 2.0 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.85 | 758.2 | 76.3 | 24.6 | 51 | SW | | | 2 | | 8 | | | 0 | 0 | Very cloudy | Alluard, Director. |
| Commercy, Normal School | | | 29.86 | 758.5 | 75.4 | 24.1 | 60 | SW | | | 2 | | 5 | | SW | 0.39 | 10. | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.08 | 763.9 | 79.9 | 26.6 | 38 | SE | | | 2 | | 5 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.01 | 762.2 | 71.4 | 21.9 | 63 | NW | | | 4 | | 7kn | | N | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon, N. School | | | 29.86 | 758.5 | 73.8 | 23.2 | 82 | SE | | | 2 | | 8 | | SW | 0.110 | 2.8 | Very cloudy | Mouillot, Director. |
| Le Mans, Normal School | | | 29.86 | 758.5 | 71.4 | 21.9 | 72 | W | | | 2 | | 5 | | W | 0.98 | 25. | Cloudy | Poirrier, Director. |
| Lons-l. | | | 29.98 | 761.5 | 75.6 | 24.2 | 62 | S | | | 6 | | 10 | | N | 0 | 0 | Covered | Pin, Director. |
| Lorient, Naval Observatory | | | 29.88 | 758.9 | 70.5 | 21.4 | 72 | S | | | 3 | | 5 | | SW | 0.386 | 9.8 | ⅗ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.99 | 761.8 | 72.5 | 22.5 | 59 | S | | | 2 | | 10 | | | 0 | 0 | Covered | M. Marchal, Director. |
| Metz | | | 29.98 | 761.5 | 76.1 | 24.5 | 48 | ESE | | | 1 | | 9k | | | 0.945 | 24.0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 29.83 | 757.7 | 73.4 | 23 | 61 | SW | | | 4 | | 8 | | SE | 0 | 0 | Almost cov'd | Normal School |
| Nismes, Normal School | | | 29.95 | 760.8 | 79.5 | 26.4 | 82 | S | | | 2 | | k | | | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 29.84 | 757.8 | 75.2 | 24 | 44 | SE | | | 6 | | 5 | | NE | 0 | 0 | Cloudy | Bernard, Director. |
| Paris, Observatory | | | 29.83 | 757.7 | 77.0 | 25.0 | 63 | SSE | | | 2 | | 10k | | SSW | 0 | 0 | Covered | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.89 | 759.3 | 76.6 | 24.8 | 62 | S | | | 2 | | 5 | | S | 0 | 0 | ⅗ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.85 | 758.1 | 69.4 | 20.8 | 87 | SW | | | 1 | | 10 | | | 0 | 0 | Covered | F. Lucard, Director. |
| Tarbes, Normal School | 28.91 | 734.2 | 29.94 | 760.4 | 76.6 | 24.8 | 83 | SW | | | 2 | | 0 | | | 0.492 | 12.5 | Clear | T. Hugues, Director. |
| Villefranche | | | 29.95 | 760.8 | 72.5 | 22.5 | 67 | SSE | | | 6 | | 8 | | S | 0 | 0 | Very cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.8 | 81.3 | 27.4 | | | | | | | | | | 0.55 | 14. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 78.3 | 25.7 | 43 | SE | | | 2–3 | | 1 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 24.91 | 632.6 | 30.22 | 767.6 | 64.8 | 18.2 | 52 | SSW | 22.4 | 10.00 | | | 5 | | SSW | 0 | 0 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.84 | 757.9 | 76.6 | 24.8 | 69 | S | | | 2 | | 8 | | S | Inap. | Inap. | | Marié Davy, Director. |
| Perpignan | | | 29.95 | 760.8 | 76.3 | 24.6 | 76 | SE | 9.3 | 4.17 | | | 1 | | NE | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.36 | 542.5 | | | 43.7 | 6.5 | | SW | | | 3 | | 8 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.58 | 573.4 | | | 48.6 | 9.2 | | SW | | | 4 | | 8 | | | 0.059 | 1.5 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.84 | 758.0 | 76.3 | 24.6 | 66 | S | | | 1 | | 9 | | | 0.122 | 3.1 | | F. Renou. |
| Toulouse, Observatory | | | 29.98 | 761.5 | 77.5 | 25.3 | 56 | SSE | | | 3 | | 2 | | | 0 | 0 | | The Staff |
| Tours | | | | | | | | SW | | | 2 | | 6 | | W | 0.354 | 9.0 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.85 | 758.1 | 79.9 | 26.6 | 57 | NW | | | 1 | | 8 | | | 0 | 0 | Cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.81 | 757.2 | 73.6 | 23.1 | 91 | SE | 5.4 | 2.4 | | | 2k | | | 0.008 | 0.2 | | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.87 | 758.8 | 75.2 | 24.0 | 57 | W | | | 6 | | 7 | W | | 0.098 | 2.5 | | Prof. T. Hoh. |
| Berlin | | | 29.91 | 759.7 | 75.0 | 23.9 | 22 | W | | | 1 | | 1 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.93 | 760.3 | 72.3 | 22.4 | 32 | WNW | | | 2 | | 1 | | | Inap. | Inap. | | Royal University Obs'y. |
| Carlsruhe | | | 29.85 | 758.1 | 80.2 | 26.8 | 51 | NW | | | 1 | | 8 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.96 | 761.0 | 76.1 | 24.5 | 42 | N | | | 3 | | 3 | NNW | | 0 | 0 | | Dr. H. Möhl. |
| Grefeld | | | 29.87 | 758.7 | 79.9 | 26.6 | 43 | NE | | | 1 | | 6 | | | 0 | 0 | | Director Lose. |
| Emden | | | 29.89 | 759.1 | 70.2 | 21.2 | 50 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.93 | 760.1 | 78.6 | 25.9 | 50 | NE | | | 1 | | 7 | | | 0.047 | 1.2 | | Physical Society. |
| Friedrichshafen | 28.53 | 724.6 | 29.89 | 759.2 | 77.7 | 25.4 | 60 | WSW | | | 3 | | 8 | W | | 0.606 | 15.4 | | M. Wilhelm. |
| Hamburg | | | 29.93 | 760.2 | 68.5 | 20.3 | 38 | WNW | | | 3 | | 0 | | | 0 | 0 | Clear | Captain F. Hegemann. |
| Kiel | | | 29.90 | 759.5 | 67.6 | 19.8 | 68 | N | | | 3 | | 10 | | | 0 | 0 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.98 | 761.4 | 59.2 | 15.1 | 41 | N | | | 5 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 29.90 | 759.4 | 77.7 | 25.4 | 39 | N | | | 1 | | 1 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.99 | 761.8 | 51.4 | 10.8 | 54 | NNW | | | 5 | | 10k | | | | | Squally | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.02 | 762.6 | 54.9 | 12.7 | 51 | NNE | | | 4 | | 1 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.93 | 760.2 | 72.5 | 22.5 | 35 | NNW | | | 2 | | 2 | | | 0 | 0 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.89 | 759.1 | 76.6 | 24.8 | 49 | Calm | | | 0 | | 10 | | | 0.047 | 1.2 | | Dr. Schur. |
| Stuttgart | | | 29.86 | 758.5 | 73.0 | 22.8 | 57 | W | | | 1 | | 5 | W | | 1.382 | 35.1 | | Prof. Schoder |
| Treves, (Trier) | | | 29.74 | 755.4 | 80.4 | 26.9 | 49 | SW | | | 6 | | 7 | | | 0.134 | 3.4 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.42 | 721.8 | 29.84 | 758.0 | 77.2 | 25.1 | 47 | WSW | | | 1 | | 5 | W | | 0.004 | 0.1 | Light rain | T. V. Dicknether |
| Wustrow, Naval School | | | 29.99 | 761.8 | 71.4 | 21.9 | 49 | SE | | | 2 | | 8 | | | 0 | 0 | | E. F. Schütz. |
| **German Naval Series.** | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. | Wind. Direction. | Velocity. Miles per hour. | Velocity. Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. | Lower. | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.12 | 765.0 | 80.6 | 27.0 | | SW | | | | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Barometer. Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. | Wind. Direction. From— | Velocity. Miles per hour. | Velocity. Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.43 | 747.5 | 29.48 | 748.7 | 88.6 | 31.4 | 66 | SW | 30.0? | 13.4? | | | 5 | | SW | 0 | 0 | D. clouds |
| Deesa | 29.06 | 738.1 | 29.51 | 749.6 | 100.0 | 37.8 | 38 | S | | | | | 1 | S | | 0 | 0 | D. clouds |
| Bombay | 29.62 | 752.4 | 29.66 | 753.4 | 77.7 | 25.4 | 94 | SSW | 13.0 | 5.8 | | | 10 | | E | 5.48 | 139.2 | Overcast |
| Poona | 27.65 | 702.3 | 29.66 | 753.4 | 72.4 | 22.4 | 91 | | | | | | | | SE | 1.36 | 34.3 | Raining |
| Lahore | 28.64 | 727.3 | 29.34 | 745.2 | 99.2 | 37.3 | 18 | W | 1.5 | 0.6 | | | 4 | | E | 0 | 0 | Cloudy |
| Belgaum | | | | | 72.2 | 22.3 | 93 | W | 13.0 | 5.8 | | | 9 | | W | 1.18 | 30.0 | Showery |
| Bangalore | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.47 | 723.1 | 29.32 | 744.6 | 102.9 | 39.4 | | NW | | | | | | | | 0 | 0 | |
| Agra | 28.83 | 732.2 | 29.36 | 745.7 | 106.2 | 41.2 | 19 | W | 3.0 | 1.3 | | | | | | 0 | 0 | Hot wind |
| Trichinopoly | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.45 | 722.7 | 29.47 | 748.5 | 88.0 | 31.1 | 56 | N | 5.3 | 2.3 | | | 7 | | | 0 | 0 | Thunder |
| Madras | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.01 | 736.8 | 29.36 | 745.7 | 104.2 | 40.1 | 20 | NW | 3.1 | 1.3 | | | | | | 0 | 0 | Dust-haze |
| Allahabad | 29.06 | 738.1 | 29.35 | 745.6 | 101.0 | 38.3 | 39 | Calm | 3.3 | 1.4 | | | 10 | | | 0 | 0 | Dust-haze |
| Patna | 29.20 | 741.6 | 29.37 | 746.0 | 100.2 | 37.9 | 47 | E | 1.2 | 0.5 | | | 8 | | | 0 | 0 | D. clouds |
| Hazaribagh | 27.46 | 697.6 | 29.38 | 746.4 | 95.6 | 35.3 | 30 | NW | 7.4 | 3.3 | | | 10 | | | 0 | 0 | Dust-haze |
| Cuttack | 29.42 | 747.3 | 29.50 | 749.3 | 88.2 | 31.2 | 64 | SW | 6.3 | 2.8 | | | 9 | | | 0 | 0 | Overcast |
| Calcutta, (Alipore) | 29.41 | 747.0 | 29.43 | 747.5 | 88.7 | 31.5 | 71 | SSW | 14.0 | 6.2 | | | 9 | | | 0 | 0 | Overcast |
| Goalpara | 29.07 | 738.5 | 29.45 | 748.1 | 89.3 | 31.8 | 68 | Calm | 3.1 | 1.3 | | | 1 | | | 0 | 0 | D. clouds |
| Chittagong | 29.35 | 745.5 | 29.44 | 747.8 | 83.4 | 28.6 | 95 | W | 7.1 | 3.1 | | | 10 | | | 0.29 | 7.4 | Gloomy |
| Sibsagar | 29.15 | 740.4 | 29.48 | 748.8 | 84.7 | 29.3 | 74 | SW | 2.8 | 1.2 | | | 5 | SW | | 0 | 0 | D. clouds |
| Rangoon | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.10 | 713.9 | 29.42 | 747.1 | 95.0 | 35.0 | 41 | S | 4.1 | 1.8 | | | 6 | | | 0 | 0 | D. clouds |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.32 | 566.8 | 29.91 | 759.7 | 47.5 | 8.6 | 85 | NW | | | 2 | | 10 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.29 | 566.1 | 29.91 | 759.6 | 51.8 | 11.0 | | W | | | 2 | | 9 | NE | | 0.055 | 1.4 | | Signora Ernesta Manfredi. |
| Udine | | | 29.96 | 761.0 | 74.3 | 23.5 | 65 | S | 4.9 | 2.2 | | | 10 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 29.95 | 760.6 | 77.7 | 25.4 | 62 | ENE | 12.5 | 5.6 | | | 9 | WSW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.94 | 760.5 | 84.9 | 29.4 | 38 | S | 1.3 | 0.6 | | | 5 | W | | 0 | 0 | | Conte Alm. Da Schio |
| Verona | | | 29.97 | 761.1 | 75.2 | 24.0 | 61 | E | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.67 | 728 3 | 29.94 | 760.5 | 79.5 | 26.4 | 36 | SW | | | 4 | | 7 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.91 | 759.8 | 77.0 | 25.0 | 47 | S | | | 4 | | 9 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.96 | 761.0 | 84.2 | 29.0 | 47 | WNW | | | 2 | | 1 | W | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.98 | 761.4 | 81.0 | 27.2 | 39 | SW | | | 4 | | 5 | SW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.95 | 760.8 | 76.6 | 24.8 | 42 | SE | 4.9 | 2.2 | | | 9 | S | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.10 | 713.6 | 29.91 | 759.8 | 77.9 | 25.5 | 80 | SE | | | 6 | | 1 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.07? | 763.6? | 71.4 | 21.9 | 76 | E | | | 6 | | 6 | W | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.04 | 763.0 | 75.9 | 24.4 | 64 | S | 7.4 | 3.3 | | | 4 | SW | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.97 | 761.1 | 79.7 | 26.5 | 45 | NW | 2.5 | 1.1 | | | 10 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.94 | 760.4 | 83.8 | 28.8 | 46 | W | | | 6 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.02 | 762.6 | 82.2 | 27.9 | 43 | SW | | | 2 | | 7 | SW | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.04 | 763.1 | 76.8 | 24.9 | 64 | WSW | 4.3 | 1.9 | | | 9 | WSW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.84 | 732.4 | 29.99 | 761.8 | 80.4 | 26.9 | 37 | SW | 1.3 | 0.6 | | | 8 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.51 | 724.2 | 30.01 | 762.2 | 79.3 | 26.3 | 42 | SW | | | 2 | | 10 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.97 | 761.1 | 76.6 | 24.8 | 61 | E | 19.2 | 8.6 | | | 10 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.97 | 761.1 | 80.8 | 27.1 | 49 | SE | | | 4 | | 3 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.11? | 764.7? | 78.1 | 25.6 | 61 | NNW | | | 4 | | 6 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.07 | 763.6 | 78.4 | 25.8 | 62 | SSW | 11.2 | 5.0 | | | 4 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.08 | 764.1 | 81.0 | 27.2 | 60 | W | | | 4 | | 6 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.06 | 763.4 | 77.4 | 25.2 | 63 | S | 10.5 | 4.7 | | | 5 | S | | 0.012 | 0.3 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.05 | 763.3 | 84.2 | 29.0 | 55 | N | 3.1 | 1.4 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.96 | 761.0 | 82.4 | 28.0 | 54 | S | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Siracusa, (Sicily) | | | 30.12? | 765.0? | 77.0 | 25.0 | 65 | SE | | | 2 | | 4 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.03 | 762.7 | 75.7 | 24.3 | 67 | ENE | 4.9 | 2.2 | | | 2 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.13 | 714.4 | 29.98 | 761.4 | 78.4 | 25.8 | 42 | S | | | 4 | | 4 | NW | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.00 | 762.0 | 79.7 | 26.5 | 66 | SSW | | | 4 | | 8 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.10 | 764.6 | 76.6 | 24.8 | 62 | SW | 1.8 | 0.8 | | | 5 | SW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.96 | 761.0 | 74 | 23.3 | 81 | ESE | 3 | 1.3 | | 1c | | W | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.18 | 588.7 | 30.19 | 766.7 | 56.8 | 13.8 | 82 | NW | 1.2 | 0.55 | | 0 | 28 | | | 0.016 | 0.4 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.89 | 759.1 | 75.2 | 24.0 | | E | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.89 | 759.3 | 68.7 | 20.4 | | NNE | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 29.93 | 760.2 | 64.4 | 18.0 | | NE | | | 2 | | | | | 0 | 0 | | |
| Utrecht | | | 29.87 | 758.6 | 73.9 | 23.3 | 53 | NE | | | 3 | | 2 | | | 0.035 | 0.9 | Light cloudy | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.91 | 759.8 | 55.8 | 13.2 | 75 | WNW | 8.5 | 3.8 | | | 0 | | | 0 | 0 | | |
| Brönö | | | 29.95 | 760.8 | 49.6 | 9.8 | 59 | NNE | 18 | 8 | | | 2 | | | 0 | 0 | | |
| Christiania | | | 29.86 | 758.5 | 66.7 | 19.3 | 91 | SSW | 20 | 9 | | | 5 | | | 0.008 | 0.2 | | |
| Tromsö | | | 29.80 | 756.8 | 42.3 | 5.7 | 83 | SW | 4 | 2 | | | 10 | | | 0.020 | 0.5 | Raining | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.11 | 764.7 | 67.6 | 19.8 | 83 | N | 8.7 | 3.9 | | | 5 | | | 0.449 | 11.4 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.98 | 761.5 | 72.5 | 22.5 | 39 | SW | 6.3 | 2.8 | | | 5 | WNW | | 0 | 0 | | Dr. A. M. R. dos Santos |
| Funchal, (Madeira) | | | 30.18 | 766.6 | 70.2 | 21.2 | 66 | SE | 3.1 | 1.4 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.04 | 763.0 | 66.6 | 19.2 | 64 | SW | 17.4 | 7.8 | | | 8 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | | | | | | | | | | | | | | | | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'dt. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the cooperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.85 | 758.3 | 69.1 | 20.6 | 32 | NNW | 11 | 5 | | | 0 | | | | | | Astronomical Obs. |
| Wilna | | | 29.87 | 758.6 | 59.4 | 15.2 | 40 | N | 7 | 3 | | | 3 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.85 | 758.2 | 51.8 | 11.0 | 58 | WSW | 7 | 3 | | | 9 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.75 | 755.6 | 50.2 | 10.1 | 65 | WNW | 11 | 5 | | | 9 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.74 | 755.4 | 47.7 | 8.7 | 77 | NNE | 22 | 10 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.69 | 754.0 | 60.8 | 16.0 | 80 | N | 9 | 4 | | | 5 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.78 | 756.3 | 83.5 | 28.6 | 33 | WSW | 18 | 8 | | | 4 | | | | | | Kurdakof. |
| Kertch | | | 29.92 | 760.0 | 72.5 | 22.5 | 67 | SSW | 7 | 3 | | | 2 | | | | | | Lagorio. |
| Moscow | | | 29.73 | 755.2 | 50.2 | 10.1 | 69 | SW | 7 | 3 | | | 7 | | | | | Light rain | Meteorological Obs. |
| Lugan | | | 29.63 | 752.6 | 67.1 | 19.5 | 83 | ESE | 2 | 1 | | | 7 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.60 | 751.8 | 46.2 | 7.9 | 61 | NW | 27 | 12 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.63 | 727.3 | 30.03 | 762.8 | 64.9 | 18.3 | 63 | SE | 4 | 2 | | | 10 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.91 | 759.7 | 77.5 | 25.3 | 50 | S | 16 | 7 | | | 3 | | | | | | Sebastianof. |
| Kasan | | | 29.72 | 754.8 | 60.3 | 15.7 | 36 | SW | 13 | 6 | | | 3 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.14 | 765.5 | 73.8 | 24.3 | 85 | NNE | 13 | 6 | | | 3 | | | | | | Tschernischel. |
| Ekaterinburg | 28.79 | 731.3 | 29.73 | 755.1 | 57.0 | 13.9 | 32 | W | 27 | 12 | | | 5 | | | | | | Meteorological Obs. |
| Nukuss | | | 29.97 | 761.2 | 77.4 | 25.2 | 43 | N | 11 | 5 | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.29 | 718.6 | 29.89 | 759.1 | 86.4 | 30.2 | 47 | | | | | | 4 | | | | | | Michelson. |
| Barnaul | | | 29.82 | 757.5 | 70.3 | 21.3 | 41 | N | 2 | 1 | | | 6 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29 80 | 756.9 | 62.8 | 17.1 | 83 | NNW | 2 | 1 | | | 10 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 71.8 | 22 1 | | Calm | 0 | 0 | | | 3 | | | | | | Mossin. |
| Peking, (China) | | | 29.81 | 757.1 | 76.6 | 24.8 | 78 | Calm | 0 | 0 | | | 0 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.71 | 754.7 | 57.7 | 14.3 | 99 | SE | 4 | 2 | | | 10 | | | | | Dense fog | |
| Nikolaievsk, on the Amoor | | | | | 49.1 | 9.5 | 83 | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 29.92 | 759.9 | 75.6 | 24.2 | 44 | SW | 15.7 | 7.00 | | 0 | 6 | | | 0.024 | 0.6 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.13 | 765.2 | 82.9 | 28.3 | 83 | Calm | 0 | 0 | | 1c | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.03 | 762.7 | 72.1 | 22.3 | 64 | WNW | 10.1 | 4.5 | | 2 | 3 | WNW | WNW | 0 | 0 | | Capt. C. Pujazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.03 | 762.7 | 84.2 | 29.0 | 88 | E | 4.4 | 1.98 | | 2c | 1k | E | E | 0 | 0 | Clear | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the cooperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparsanda | | | 29.84 | 758.0 | 48.6 | 9.2 | 68 | SW | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.89 | 759.3 | 48.6 | 9.2 | 60 | SW | | | 2 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.87 | 758.6 | 56.1 | 13.4 | 54 | SSE | | | 4 | | 3 | | | 0 | 0 | | |
| Stockholm | | | 29.90 | 759.4 | 59.7 | 15.4 | 36 | NW | | | 2 | | 6 | | | 0.020 | 0.5 | | |
| Wisby | | | 30.01 | 762.3 | 53.2 | 11.8 | 54 | WNW | | | 4 | | 0 | | | 0.004 | 0.1 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.90 | 759.4 | 61.5 | 16.4 | 35 | NNW | 8.3 | 3.7 | | | 5 | | NW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Lower 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.56 | 725.5 | 29.94 | 760.5 | 71.6 | 22.0 | 66 | SW | | | 1 | | 10 | | | Inap. | Inap. | Raining | The Observatory. |
| Zurich | 28.33 | 719.6 | 29.89 | 759.3 | 76.8 | 24.9 | 58 | W | | | 1 | | 7 | | | 0.413 | 10.5 | Lightly cov. | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, —1.3 mm: Thermometer, +0.7 cent.; Relative Humidity, +11 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Lower 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.95 | 760.8 | 74.8 | 23.8 | 36 | N | 4 | 2.0 | | | 0 | | | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 30.83 | 757.6 | 82.4 | 28.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.01 | 762.3 | 79.5 | 26.4 | | SE | | | 2 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.13 | 765.4 | 73.8 | 23.2 | | W | | | 1 | | 0 | | | 0 | 0 | Clear | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.92 | 760.0 | 86.5 | 30.3 | 53 | SW | | | 3 | | 4k | | SW | 0 | 0 | D. clouds | Pro C. V. A. Van Dyck |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Upper 0–10. | Clouds. Amount. Lower 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.95 | 760.7 | 56.9 | 13.8 | 57 | Calm | 0 | 0 | | | 0 | | | | | | Hon. J. Ferguson |
| Brockville, Ontario | | | 29.79 | 756.7 | 64 | 17.8 | | SW | 5 | 2.2 | | | 10s | | SW | 0.06 | 1.5 | Cloudy | W. R. Bigg. |
| *Chatham, N. B | | | 29.98 | 761.5 | 53 | 11.7 | 71 | N | 1 | 0.4 | | 1ocs | Haze | NW | | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.90 | 761.7 | 56 | 13.3 | 42 | NW | 5 | 2.2 | | | 8s | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.74 | 755.4 | 61.5 | 16.4 | 91 | N | | | 1 | | 10n | | | 0.169 | 4.29 | Threatening | James Smith, M. A. |
| Dalhousie, N. B | | | 29.98 | 761.5 | 52.2 | 11.2 | 54 | NW | | | 1 | | | | | 0 | 0 | Overcast | H. A. Johnson. |
| Esquimault, B. C | | | 29.95 | 760.7 | 54.2 | 12.3 | 100 | SW | | | | | 10 | | | 0.18 | 4.6 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.98 | 761.5 | 52 | 11.1 | 100 | NE | 5 | 2.2 | | 5k | 5s | | | 0 | 0 | Cloudy | J. McWilliams. |
| *Fredericton, N. B | | | 30.02 | 762.5 | 56.5 | 13.6 | 67 | SW | 4 | 1.8 | | 7ck | 0 | W | | Inap. | Inap | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.08 | 764.0 | 52 | 11.1 | 93 | N | 6 | 2.7 | | 8k | 5ks | N | N | 0.08 | 2.0 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.79 | 756.7 | 62.9 | 17.2 | | Calm | | | 0 | | 10n | | | 0 | 0 | Threatening | H. J. Strang, M. A. |
| Grantton, Ontario | 28.74 | 730.0 | 29.79 | 756.7 | 67 | 19.4 | 89 | Calm | | | 0 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| *Halifax, N. S | | | 30.00 | 762.0 | 63 | 17.2 | 42 | NW | 4 | 1.8 | | 5cs | 0 | NW | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.80 | 756.9 | 71.9 | 22.2 | 76 | SW | | | 2 | 10ck | 0 | SW | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.55 | 750 6 | 48 | 8.9 | 70 | N | | | 4 | | 10 | | | 0 | 0 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 29.82 | 757.4 | 64 | 17.8 | 92 | S | 17 | 7 6 | | 10cs | 0 | | | 0.54 | 13.7 | Cloudy | S. Woods, M. A |
| *Montreal, Quebec | | | 29.79 | 756.7 | 58 | 14.4 | 75 | S | 10 | 4.5 | | | 10n | | S | 0.01 | 0 3 | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.78 | 756.4 | 56 | 13.3 | 97 | E | 6 | 2.7 | | | 10n | | E | 0.03 | 0.8 | Cloudy | Rev. R Mosley |
| Peterboro, Ontario | | | 29.79 | 756 7 | 60 5 | 15.8 | 91 | Calm | | | 0 | | 10n | | | Inap | Inap. | Rainy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.81 | 757.2 | 70 | 21.1 | 85 | SW | 7 | 3.1 | | 8ck | 0 | SW | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S | | | 29.91 | 759.7 | 59.5 | 15.3 | | NW | 8 | 3.6 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.81 | 757.2 | 67 | 19.4 | 93 | W | 8 | 3.6 | | | 10n | | W | Inap. | Inap. | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.89 | 759.2 | 56 | 13.3 | 69 | NE | 12 | 5.4 | | | 10n | | NE | 0.02 | 0.5 | Light rain | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.71 | 754.6 | 56 | 13.3 | 78 | E | 8 | 3.6 | | | 10s | | W | 0.24 | 6.1 | Cloudy | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E |
| *Saugeen, Ontario | | | 29.76 | 755.9 | 57 | 13.9 | 94 | Calm | 0 | 0 | | | 10n | | | 0.19 | 4.8 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.53 | 724.6 | 29.75 | 755.6 | 66.2 | 19.0 | 91 | SW | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.93 | 760.2 | 52 | 11.1 | 53 | NW | 9 | 4.0 | | 8ck | 0 | NW | | Inap. | Inap. | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 29.80 | 756.9 | 59 | 15.0 | 68 | S | 5 | 2.2 | | | 10n | | SW | Inap. | Inap. | Threatening | Magnetic Observatory |
| Windsor, N. S | | | 29.95 | 760.7 | 60 | 15.6 | 54 | SW | 2 | 0.9 | | 0 | 8n | | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.78 | 756.4 | 69.8 | 21.0 | 85 | S | 4 | 1.8 | | 10k | 0 | | | Inap. | Inap. | Cloudy | J. Montgomery |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.64 | 752.8 | 51.0 | 10.6 | 72 | SW | | | | 8m'c | 5s | | | 0 | 0 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Quebec is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft. or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10 | Clouds. Amount. Low'r. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.92 | 760.0 | 62 | 16.7 | 71 | S | 4 | 1.8 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Alpena, Mich. | | | 29.76 | 755.9 | 57 | 13.9 | 100 | NW | 2 | 0.9 | | | 10n | | NW | 0.32 | 8.1 | Light rain | |
| Atlantic City, N. J. | | | 30.04 | 763.0 | 68 | 20.0 | 90 | S | 4 | 1.8 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Augusta, Ga. | | | 30.02 | 762.5 | 82 | 27.8 | 75 | S | 1 | 0.4 | | 2ck | Haze | | | 0 | 0 | Fair | |
| Baltimore, Md. | | | 30.01 | 762.2 | 71 | 21.7 | 80 | SE | 8 | 3.6 | | 8k | Sm'e | SW | | 0 | 0 | Cloudy | |
| Barnegat, N. J. | | | 30.04 | 763.0 | 67 | 19.4 | 84 | S | 10 | 4.5 | | | 10s | | S | 0 | 0 | Cloudy | |
| Bismarck, Dakota | 28.26 | 717.8 | 29.86 | 758.4 | 61 | 16.1 | 71 | Calm | 0 | 0 | | 1k | 5s | NW | NW | 0 | 0 | Fair | |
| Boston, Mass. | | | 30.01 | 762.2 | 65 | 18.3 | 58 | SW | 14 | 6.3 | | 1cs | 0 | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 30.01 | 762.2 | 56 | 13.3 | 93 | W | 7 | 3.1 | | | 10ks | | NW | Inap. | Inap. | Cloudy | |
| Brownsville, Texas | | | 30.05 | 763.3 | 85 | 29.4 | 75 | SE | 8 | 3.6 | | 2c | 8ks | | S | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 29.77 | 756.1 | 70 | 21.1 | 79 | SW | 12 | 5.4 | | 2ck | 5s | SW | SW | 0 | 0 | Fair | |
| Burlington, Vt. | | | 29.87 | 758.7 | 63 | 17.2 | 67 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Cairo, Ill. | | | 29.95 | 760.7 | 76 | 24.4 | 86 | W | 8 | 3.6 | | 2c | 2ks | | W | 0.02 | 0.5 | Fair | |
| Campo, Cal. | 27.45 | 697.2 | 30.02 | 762.5 | 42 | 5.6 | 75 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 60 | 15.6 | | Calm | | | | Haze | Haze | | | 0 | 0 | Hazy | |
| Cape Hatteras, N. C. | | | 29.98 | 761.5 | 84 | 28.9 | 79 | SE | 5 | 2.2 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 30.04 | 763.0 | 73 | 22.8 | 95 | E | 4 | 1.8 | | | 10s,fg | | | 0.01 | 0.3 | Cloudy | |
| Cape Lookout, N. C. | | | 30.05 | 763.3 | 79 | 26.1 | 90 | E | 5 | 2.2 | | 5ck,k | 0 | | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.03 | 762.7 | 70 | 21.1 | 70 | SE | 8 | 3.6 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Charleston, S. C. | | | 30.04 | 763.0 | 84 | 28.9 | 79 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.17 | 613.9 | 30.11 | 764.8 | 54 | 12.2 | 73 | W | 4 | 1.8 | | 0 | 0 | | | 0.29 | 7.4 | Clear | |
| Chicago, Ill. | | | 29.82 | 757.4 | 67 | 19.4 | 84 | NW | 4 | 1.8 | | 2c | 5s | W | W | 0.40 | 10.2 | Fair | |
| Cincinnati, Ohio | | | 29.79 | 756.7 | 81 | 27.2 | 70 | SW | 6 | 2.7 | | 2c | 5ks | W | W | Inap. | Inap. | Fair | |
| Cleveland, Ohio | | | 29.80 | 756.9 | 75 | 23.9 | 76 | S | 12 | 5.4 | | | 10n | | W | Inap. | Inap. | Light rain | |
| Corsicana, Tex. | | | 30.02 | 762.5 | 76 | 24.4 | 86 | S | 8 | 3.6 | | 2cs | 0 | | | 0 | 0 | Clear | |
| Davenport, Iowa | | | 29.92 | 760.0 | 68 | 20.0 | 90 | W | 8 | 3.6 | | 1c | 4ck | W | W | 0.68 | 17.3 | Fair | |
| Denison, Texas | | | 29.98 | 761.5 | 78 | 25.6 | 86 | SW | 10 | 4.5 | | 8k | 2s | SW | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.93 | 633.2 | 30.15 | 765.8 | 60 | 15.6 | 59 | Calm | 0 | 0 | | 0 | 0 | | | 0.05 | 1.3 | Clear | |
| Detroit, Mich. | | | 29.72 | 754.9 | 68 | 20.0 | 90 | S | 4 | 1.8 | | | 10s | | | 0.04 | 1.0 | Threatening | |
| Dodge City, Kan. | 27.50 | 698.5 | 29.72 | 754.9 | 67 | 19.4 | 84 | N | 20 | 8.9 | | | 10s | | NW | 0 | 0 | Threatening | |
| Dubuque, Iowa | | | 29.89 | 759.2 | 67 | 19.4 | 90 | N | 4 | 1.8 | | | 10s | | N | 1.03 | 26.2 | Cloudy | |
| Duluth, Minn. | | | 29.94 | 760.5 | 59 | 15.0 | 76 | NW | 6 | 2.7 | | 0 | 0 | | | 0.23 | 5.8 | Clear | |
| Eagle Pass, Tex. | | | 29.91 | 759.7 | 78 | 25.6 | 90 | S | 3 | 1.3 | | | 10s | | S | 0 | 0 | Cloudy | |
| Eastport, Me. | | | 29.98 | 761.5 | 62 | 16.7 | 36 | S | 6 | 2.7 | | 8k | 0 | W | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.76 | 755.9 | 75 | 23.9 | 76 | S | 8 | 3.6 | | 10cs | 0 | NW | | 0 | 0 | Cloudy | |
| Escanaba, Mich. | | | 29.85 | 758.9 | 53 | 11.7 | 80 | NW | 6 | 2.7 | | | 10s | | NW | 0.11 | 2.8 | Cloudy | |
| Florence, Arizona | 28.38 | 720.8 | 29.98 | 761.5 | 84 | 28.9 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.91 | 759.7 | 80 | 26.7 | 78 | S | 7 | 3.1 | | 2cs | 0 | W | | 0.01 | 0.3 | Fair | |
| Fort Griffin, Tex. | 28.72 | 729.5 | 29.93 | 760.2 | 76 | 24.4 | 86 | SE | 4 | 1.8 | | | 10ks | | W | 0.05 | 1.3 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.60 | 751.8 | 54 | 12.2 | 80 | NE | | | 1 | 10c,ck | 1ks | SE | | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.77 | 730.7 | 29.83 | 757.7 | 75 | 23.9 | 81 | Calm | 0 | 0 | | 2ck | 2s | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.37 | 720.6 | 30.00 | 762.0 | 59 | 15.0 | 87 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.10 | 764.5 | 82 | 27.8 | 78 | S | 6 | 2.7 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.79 | 756.7 | 64 | 17.8 | 86 | W | 9 | 4.0 | | 2k | 4s | W | NW | 0.80 | 20.3 | Fair | |
| Indianapolis, Ind. | | | 29.77 | 756.1 | 74 | 23.3 | 85 | S | 4 | 1.8 | | | 10n | | SW | 0.11 | 2.8 | Light rain | |
| Indianola, Tex. | | | 30.09 | 764.3 | 85 | 29.4 | 71 | S | 16 | 7.2 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.07 | 763.8 | 83 | 28.3 | 74 | SW | 5 | 2.2 | | 0 | 0 | | | 1.23 | 31.2 | Clear | |
| Keokuk, Iowa | | | 29.86 | 758.4 | 70 | 21.1 | 84 | NW | 3 | 1.3 | | 5k | 0 | NW | | 1.38 | 35.1 | Fair | |
| Key West, Fla. | | | 30.10 | 764.5 | 82.5 | 28.1 | 78 | SE | 2 | 0.9 | | 2k | 1ks | E | E | 0.22 | 5.6 | Fair | |
| Kittyhawk, N. C. | | | 30.04 | 763.0 | 74 | 23.3 | 97 | NE | 6 | 2.7 | | | Fog | | | 0 | 0 | Foggy | |
| Knoxville, Tenn. | | | 30.00 | 762.0 | 73 | 22.8 | 85 | SW | 3 | 1.3 | | | 8ks | | W | 0 | 0 | Cloudy | |
| La Crosse, Wis. | | | 29.94 | 760.5 | 61 | 16.1 | 82 | N | 10 | 4.5 | | | 10s | | N | 0.58 | 14.7 | Cloudy | |
| Leavenworth, Kan. | | | 29.97 | 761.2 | 69 | 20.6 | 90 | SE | 2 | 0.9 | | | 10s | | | 1.41 | 35.8 | Cloudy | |
| Louisville, Ky. | | | 29.86 | 758.4 | 76 | 24.4 | 90 | S | 8 | 3.6 | | 2ck | 8ks | SW | SW | 0.09 | 2.3 | Cloudy | |
| Lynchburg, Va. | | | 30.00 | 762.0 | 78 | 25.6 | 65 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Maricopa Wells, Arizona | | | | | 80 | 26.7 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.90 | 759.4 | 52 | 11.1 | 86 | W | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Tex. | 28.41 | 721.6 | 30.09 | 764.3 | 77 | 25.0 | 81 | Calm | 0 | 0 | | | 10s | | | 0.48 | 12.2 | Cloudy | |
| Memphis, Tenn. | | | 30.02 | 762.5 | 79 | 26.1 | 86 | SW | 6 | 2.7 | | | 8ks,s | | SW | 0.07 | 1.8 | Cloudy | |
| Milwaukee, Wis. | | | 29.84 | 757.9 | 66 | 18.9 | 84 | NW | 10 | 4.5 | | | 10ks | | N | 1.52 | 38.6 | Cloudy | |
| Mobile, Ala. | | | 30.12 | 765.0 | 81 | 27.2 | 82 | SW | 4 | 1.8 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Montgomery, Ala. | | | 30.09 | 764.3 | 79 | 26.1 | 84 | NW | 6 | 2.7 | | 2ck | 5ks | N | NW | 0.18 | 4.6 | Fair | |
| Morgantown, W. Va. | 28.88 | 733.5 | 29.86 | 758.4 | 78 | 25.6 | 73 | SW | 8 | 3.6 | | 2c | 0 | W | | 0.03 | 0.8 | Fair | |
| Mt. Washington, N. H. | 23.79 | 604.3 | 30.15 | 765.8 | 45 | 7.2 | 84 | W | 34 | 15.2 | | 10s | 0 | W | | 0 | 0 | Cloudy | |
| Nashville, Tenn. | | | 29.97 | 761.2 | 81 | 27.2 | 74 | W | 5 | 2.2 | | 5k | 2s | SW | W | 0.15 | 3.8 | Cloudy | |
| New Haven, Conn. | | | 30.03 | 762.7 | 67 | 19.4 | 68 | S | 5 | 2.2 | | 8k | Haze | SW | | 0 | 0 | Fair | |
| New London, Conn. | | | 30.06 | 763.5 | 67 | 19.4 | 69 | S | 9 | 4.0 | | 3c,ck | 0 | N,W | | 0 | 0 | Fair | |
| New Orleans, La. | | | 30.11 | 764.8 | 80 | 26.7 | 82 | W | 3 | 1.3 | | 4ck | 0 | W | | 0.50 | 12.7 | Fair | |
| Newport, R. I. | | | 30.05 | 763.3 | 65 | 18.3 | 64 | S | 7 | 3.1 | | 4c | 0 | SW | | 0 | 0 | Fair | |
| New York, N. Y. | | | 30.05 | 763.3 | 64 | 17.8 | 78 | SW | 7 | 3.1 | | 5ck | 2ks | W | W | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.04 | 763.0 | 76 | 24.4 | 90 | S | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| North Platte, Neb. | 27.20 | 690.9 | 29.70 | 754.4 | 63 | 17.2 | 78 | E | 4 | 1.8 | | 2cs | 5s | | | Inap. | Inap. | Fair | |
| Omaha, Neb. | 28.94 | 735.1 | 29.98 | 761.5 | 68 | 20.0 | 79 | N | 4 | 1.8 | | 0 | 2s | | | 1.36 | 34.5 | Clear | |
| Oswego, N. Y. | | | 29.80 | 756.9 | 67 | 19.4 | 87 | SE | 6 | 2.7 | | | 10n | | W | 0.29 | 7.4 | Light rain | |
| Pembina, Dakota | | | 30.05 | 763.3 | 52.5 | 11.4 | 93 | NW | 4 | 1.8 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Philadelphia, Pa. | | | 30.05 | 763.3 | 65 | 18.3 | 89 | SW | 10 | 4.5 | | | 10ks,sm | | SW | 0 | 0 | Cloudy | |
| Phoenix, Arizona | | | | | 63 | 17.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 18.07 | 459.0 | 30.28 | 769.1 | 32 | 0.0 | 57 | NW | 8 | 3.6 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 29.84 | 757.9 | 77 | 25.0 | 69 | SW | 8 | 3.6 | | | 10ks | | W | 0 | 0 | Threatening | |
| Port Huron, Mich. | | | 29.71 | 754.6 | 66 | 18.9 | 90 | S | 3 | 1.3 | | | 10n | | SW | 0.06 | 1.5 | Light rain | |
| Portland, Me. | | | 29.96 | 761.0 | 62 | 16.7 | 61 | S | 4 | 1.8 | | 2ck | Haze | W | | 0 | 0 | Fair | |
| Portland, Oregon | | | 30.02 | 762.5 | 51 | 10.6 | 86 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Prescott, Arizona | 24.95 | 633.7 | 30.31 | 769.9 | 49 | 9.4 | 28 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.12 | 765.0 | 82 | 27.8 | 74 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.74 | 755.4 | 76 | 24.4 | 64 | W | 12 | 5.4 | | 2ck | 0 | W | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.68 | 652.3 | 30.01 | 762.2 | 64 | 17.8 | 43 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.04 | 763.0 | 70 | 21.1 | 75 | S | 11 | 4.9 | | 8k | 0 | W | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.89 | 759.2 | 79 | 26.1 | 82 | S | 4 | 1.8 | | | 10ks | | SE | Inap. | Inap. | Cloudy | |
| San Diego, Cal. | | | 30.06 | 763.5 | 61 | 16.1 | 88 | NE | 4 | 1.8 | | | 10s | | NE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.03 | 762.7 | 54 | 12.2 | 79 | SW | 4 | 1.8 | | 0 | 8s8 | | S | 0 | 0 | Fair | |
| Santa Fe, New Mexico | 23.42 | 594.9 | 29.96 | 761.0 | 59 | 15.0 | 14 | E | 3 | 1.3 | | 0 | Haz | | | 0 | 0 | Hazy | |
| Savannah, Ga. | | | 30.04 | 763.0 | 87 | 30.6 | 69 | W | 6 | 2.7 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.15 | 765.8 | 78 | 25.6 | 86 | S | 3 | 1.3 | | | 10s | | S | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.05 | 763.3 | 81 | 27.2 | 82 | SE | 4 | 1.8 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Springfield, Mass. | | | 30.01 | 762.2 | 65.5 | 18.6 | 68 | S | 6 | 2.7 | | 9ck | 0 | W | | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 29.91 | 759.7 | 72 | 22.2 | 71 | NW | 4 | 1.8 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| St. Marks, Fla. | | | 30.09 | 764.3 | 80 | 26.7 | 86 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.94 | 760.5 | 61 | 16.1 | 77 | NW | 3 | 1.3 | | 2c | Haze | N | | 0 | 0 | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10 | Clouds. Amount. Upper 0—10 | Clouds. Amount. Lower 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches | Rain-fall or melted snow in the past 24 hours. Millimeters | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 63 | 17.2 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.91 | 683.5 | 29.91 | 759.7 | 72 | 22.2 | 80 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 30.00 | 762.0 | 58 | 14.4 | 81 | S | 12 | 5.4 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Toledo, Ohio | | | 29.76 | 755.9 | 70 | 21.1 | 90 | S | 1 | 0.4 | | | 10n | | S | 0.25 | 6.3 | Light rain | |
| Tucson, Arizona | 27.65 | 702.3 | 30.19 | 766.8 | 66 | 18.9 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.03 | 762.7 | 82 | 27.8 | 78 | W | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.12 | 765.0 | 82 | 27.8 | 78 | SW | 5 | 2.2 | | 0 | 5s | | W | 0 | 0 | Fair | |
| Virginia City, Montana | 24.37 | 619.0 | 29.85 | 758.2 | 47 | 8.3 | 48 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.01 | 762.2 | 71 | 21.7 | 90 | S | 10 | 4.5 | | 10k | Haze | S | | 0 | 0 | Cloudy | |
| Wickenburg, Arizona | | | | | 81 | 27.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.03 | 762.7 | 81 | 27.2 | 78 | SE | 6 | 2.7 | | 0 | 5ks | | SE | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 30.10 | 764.5 | 62 | 16.7 | 56 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.80 | 731.5 | 30.05 | 763.3 | 65 | 18.3 | 84 | Calm | 0 | 0 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.91 | 759.7 | 70 | 21.1 | 45 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.21 | 767.3 | 81 | 27.2 | 74 | Calm | 0 | 0 | | 5c | 0 | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 29.94 | 760.5 | 82 | 27.8 | | NE | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.07 | 763.8 | 81 | 27.2 | 87 | E | | | 2 | 6k | 6ks | E | | 0.300 | 7.62 | Cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.23 | 640.8 | | | 67.5 | 19.7 | 69 | SW | | | 1 | 8cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.03 | 762.7 | 42.5 | 5.8 | 83 | SW | 6 | 2.7 | | 2k | 0 | N | | 0.10 | 2.5 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.17 | 766.3 | 72 | 22.2 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.13 | 765.3 | 77 | 25.0 | 73 | 22.8 | 85 | S | | | 3 | | 8 | | S | 0 | 0 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.05 | 763.3 | 65 | 18.3 | 57 | 13.9 | | WSW | | | 2 | | 10 | | SW | 0 | 0 | | | Cloudy | |
| Navy Yard, Pensacola, Fla. | 30.26 | 768.6 | | | 80 | 26.7 | 87 | NW | 8 | 3.6 | | | 3 | | NW | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.05 | 763.3 | 74 | 23.3 | 66 | 18.9 | 68 | SW | 2 | 0.9 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.94 | 760.5 | 74 | 23.3 | 73 | 22.8 | 81 | SW | | | 6 | | 1k | | | 0 | 0 | | | Fair | |
| Alert, S. 0° 27′ 13″, E. 130° 12′ | 29.96† | 761 0† | 82 | 27.8 | 82 | 27.8 | 96 | S | | | 2–3 | | 5 | | S | | | Smooth | | D. clouds | |
| Alliance, Sidon, Syria | 30.06 | 763.5 | 79 | 26.1 | 78 | 25.6 | 69 | WSW | | | 2 | | 2 | | | | | Smooth | None | Pleasant | |
| Ashuelot, Pagoda Anchorage, River Min, China | 29.86 | 758.4 | 79 | 26.1 | 78 | 25.6 | 82 | ENE | | | 2 | | 2 | | ENE | | | | | D. clouds | |
| Canonicus, New Orleans, La | 30.15 | 765.8 | 55 | 12.8 | 78 | 25.6 | 86 | NW | | | 3 | | 4 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.11 | 764.8 | 61 | 16.1 | 65 | 18 3 | 78 | SSE | 11 | 4.9 | | | 7 | | S | 0 | 0 | | | Hazy | |
| Despatch, Constantinople, Turkey | 30.06 | 763.5 | 73 | 22.8 | 71 | 21.7 | 53 | SE | | | 0–1 | | 1 | | | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.17 | 766.3 | 73 | 22.8 | 75 | 23.9 | 95 | SSW | 4 | 1.8 | | | 10 | | SSW | 0.3 | 8. | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.39 | 771.9 | 70 | 21.1 | 72 | 22.2 | 80 | ESE | | | 1 | | 4k | | | 0 | 0 | | | D. clouds | |
| ‡ Gettysburg, Leghorn, Italy | 29.93 | 760.2 | | | 74 | 23.3 | 100 | SSW | | | 1 | | 9 | | SW | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.32 | 770.1 | 70 | 21.1 | 75 | 23.9 | 86 | SE | 2 | 0.9 | | | | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.05 | 763.3 | 85 | 29.4 | 83 | 28.3 | 91 | NNE | | | 2 | | 9 | | N | 0.375 | 9.53 | Light ground. | N | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.17 | 766.3 | 82 | 27.8 | 81 | 27.2 | 100 | E | | | 1 | | 2 | | NNW | ¶ 0.1 | 3.¶ | Smooth | | Heavy dew | |
| Marion, Smyrna, Turkey | 29.96 | 761.0 | 75 | 23.9 | 76 | 24.4 | 60 | WSW | | | 3 | | 0 | | | 0 | 0 | Chop'd | WSW | Blue sky | |
| Michigan, Erie, Pa | 29.36 | 745.7 | 76 | 24.4 | 76 | 24.4 | 82 | SW | | | 1 | | 10 | | SW | | | | | Raining | |
| Monocacy, Tientsin, China | 29.73 | 755.1 | 73 | 22.8 | 74 | 23.3 | 81 | S | | | 2 | | 10 | | SW | | | | | Thunder-storm | |
| Monongahela, Off New London, Conn. | 30.10 | 764.5 | 63 | 17.2 | 63 | 17.2 | 78 | S | | | 1 | | 4ck | | | 0 | 0 | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.30 | 769.6 | | | 84 | 28.9 | 79 | N | 4 | 1.8 | | | 8 | | W | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.08 | 764.0 | 67 | 19.4 | 66.5 | 19.2 | 81 | E | 2 | 0.9 | | | 10 | | | 0 | 0 | Slight | S | Overcast | |
| Ossipee, N. 34° 12′, W. 76° 53′ | 30.12 | 765.0 | 79 | 26.1 | 81 | 27.2 | 83 | E | | | 1 | | 1 | | E | | | Long | S | D clouds | |
| Palos, Nankin, China | 29.87 | 758.7 | 88 | 31.1 | 88 | 31.1 | 92 | E | | | 0–1 | | 5 | | N&E | 0 | 0 | | | Clear | |
| Pensacola, N. 27° 27′, W. 134° 02′ | 30.30 | 769.6 | | | 67 | 19.4 | 79 | NNE | | | 4–5 | | 10 | | NE | Light | Light | Long | N&E | Cloudy | |
| Plymouth, N 26° 33′, W. 89° 36′ | 30.20 | 767.1 | 84 | 28.9 | 82 | 27.8 | 87 | Calm | | | 0 | | 5 | | S&E | 0 | 0 | Light | E | Clear | |
| Ranger, N. 24° 20′, E. 36° 20′ | 30.00 | 762.0 | | | 87 | 30.6 | 72 | NNW | | | 5 | | 0 | | | | | Moderate. | S | Hazy | |
| Richmond, Rio de Janeiro, Brazil | 30.43 | 772.9 | 70.8 | 21.6 | 69.8 | 21.0 | 86 | Calm | | | 0 | | 1 | | | 0 | 0 | | | Hazy | |
| Rio Bravo, Matamoras, Mexico | 29.94 | 760.5 | | | 76 | 24.4 | 91 | SE | | | 2 | | 6 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.11 | 764.8 | 74 | 23.3 | 72 | 22.2 | 80 | SSW | | | 2 | | 8 | | | 0 | 0 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.36 | 771.1 | | | 65 | 18.3 | | SSW | | | 3 | | 0 | | | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 29.95 | 760.7 | 65 | 18.3 | 66 | 18.9 | 89 | SW | 11 | 4.9 | | | 10 | | SW | 0 | 0 | | | Overcast | |
| Swatara, N. 23° 52′, W. 85° 07′ | 30.11 | 764.8 | 83 | 28.3 | 84 | 28.9 | 79 | NE | | | 3 | | 5ck | | NE | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.86 | 758.4 | 74 | 23.3 | 79 | 26.1 | 91 | SSW | | | 5–6 | | 1 | | N&E | 0 | 0 | Light | E | D. clouds | |
| Trenton, Smyrna, Turkey | 30.19† | 766.8† | 76 | 24.4 | 82 | 27.8 | 87 | SW | 10.2 | 4.6 | | | 1 | | S&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.04 | 763.0 | 70 | 21.1 | 74 | 23.3 | 47 | NNE | | | 1 | | 0 | | | | | | | Blue sky | |
| Wabash, Boston, Mass | 30.07 | 763.8 | 63 | 17.2 | 64 | 17.8 | 68 | SW | 11 | 4.9 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.16† | 766.1† | 74 | 23.3 | 75 | 23.9 | | SSE | | | 2 | | 8 | | S | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation: not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 20′, E. 179° 20′ | W | | 29.87 | 758.7 | 52 | 11.1 | 93 | WSW | | | 5 | | d | | W | Short | | Gloomy | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the air. Fahrenheit. | Temperature of the air. Centigrade. | Relative humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Braunschweig, N. 45° 12′, W. 39° 40′ | N68E | 7.8 | 29.86 | 758.4 | 61.3 | 16.3 | 97 | S | | | 5 | | 10n | | | Rough | | Raining | Capt. C. Pohle. |
| S. S. Nürnberg, 12 miles off Cape Henry, Va. | SW by W¾W | | 30.04 | 763.0 | 74.8 | 23.8 | | S | | | 1 | | Fog | | | Smooth | | Foggy | Capt. K. Undütsch. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. G. Meyer |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Percent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Upper. 0—10. | Clouds. Amount. Lower. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgen'on. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 22, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.05 | 763.2 | 77.7 | 25.4 | 62 | NNW | | | 2 | | 1 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.00 | 762.0 | 78.4 | 25.8 | 65 | NNW | | | 3 | | 6 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 29.90 | 759.4 | 75.7 | 26.5 | 84 | NW | | | 1 | | 10 | | | 0 | 0 | Hidden | Fleury. |
| Tunis | | | 29.97 | 761.2 | 93.2 | 34.0 | | SW | | | 4 | | 6 | | | 0 | 0 | Fair | Jacques. |
| Sfax | | | 30.06 | 763.5 | 82.4 | 28.0 | | S | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.03 | 762.8 | 80.2 | 26.8 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.07 | 763.6 | 89.1 | 31.7 | | W | | | 3 | | 10 | | | 0 | 0 | Hidden | Bourgeois |
| Geriville | | | 30.07 | 763.6 | 83.3 | 28.5 | 37 | SSW | | | 4 | | 5 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.07 | 763.6 | 95.0 | 35.0 | 23 | SW | | | 6 | | 6 | | | 0 | 0 | Fair | Guyot. |
| Biskra | | | 29.97 | 761.1 | 99.5 | 37.5 | | SE | | | 4 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.89 | 759.1 | 72.0 | 22.0 | 64 | NE | | | 4 | | 9 | | | 0.055 | 1.4 | | Prof. Ivan Stozir |
| Cracow, I. R. Observatory | | | 29.86 | 758.5 | 78.4 | 25.8 | 49 | ENE | | | 3 | | 10 | | | 0.008 | 0.2 | | Dr. Wierzbiski. |
| Eperies | | | 29.86 | 758.4 | 77.7 | 25.4 | 49 | Calm | | | 0 | | 3c | | | 0.039 | 1.00 | | Julius Mikolik. |
| Gratz | 28.68 | 728.4 | 29.88 | 759.0 | 71.2 | 21.8 | 81 | ESE | | | 3 | | 5 | | | | | Thunder-storm | Andreas Rospini. |
| Hermannstadt | 28.55 | 725.1 | 29.90 | 759.4 | 77.7 | 25.4 | 42 | NW | | | 3 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.56 | 725.3 | 29.83 | 757.7 | 74.5 | 23.6 | 58 | ENE | | | 1 | | 8 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 29.89 | 759.1 | 72.5 | 22.5 | 63 | W | | | 3 | | 4 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 29.97 | 761.3 | 81.3 | 27.4 | 59 | SSE | | | 2 | | 2ks | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 29.87 | 758.7 | 83.1 | 28.4 | 53 | S | | | 3 | | 8 | | | 0 | 0 | Lightning | Karl Stancel. |
| Trieste | | | 29.97 | 761.3 | 78.1 | 25.6 | 69 | N | | | 1 | | 1 | | | 0 | 0 | | P. Busin. |
| Vienna | | | 29.84 | 757.8 | 81.3 | 27.4 | 45 | WSW | | | 2 | | 3 | | | 0 | 0 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 388.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.35 | 720.2 | 29.80 | 757.0 | 70.0 | 21.1 | 52 | SW | | | 2 | | 8 | | | 0.075 | 1.9 | | |
| Brussels | | | 29.71 | 754.5 | 72.0 | 22.2 | 61 | SW | | | 4 | | 5k | | SW | 0.324 | 8.25 | | Royal Observatory |
| Furnes | | | 29.68 | 753.9 | 69.1 | 20.6 | 69 | SW | | | 6 | | 9 | | | 0.343 | 8.7 | | |
| Maeseyck | | | 29.74 | 755.3 | 75.4 | 24.1 | 60 | SSW | | | 6 | | 5 | | | 0.366 | 9.3 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.49 | 749.0 | 52.6 | 11.4 | | S | 7 | 3.1 | | | 10 | | | 0.610 | 15.49 | Raining | William Boswell. |
| Ardrossan | | | 29.47 | 748.5 | 58 | 14.4 | | NNE | | | 1 | | 9 | | | | | Hazy | William McNeil. |
| Armagh, Observatory | | | 29.52 | 749.8 | 59.3 | 15.2 | | NW | 7 | 3.1 | | | 9 | | | | | Gloomy | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.48 | 748.8 | 57.5 | 14.2 | | W | 19 | 8.5 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.58 | 751.3 | 59.6 | 15.3 | | NW | | | 1 | | 10 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 29.48 | 748.8 | 62.3 | 16.8 | | SW | | | 1 | | 10 | | | 0.06 | 1.5 | Raining | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.02 | 762.5 | 82 | 27.8 | | NE | | | 2 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H.C. |
| Cambridge, Observatory | | | 29.55 | 750.6 | 68.0 | 20.0 | | SW | | | 3 | | 10 | | | Blank | Blank | Overcast | H. Todd. |
| Cardington | | | 29.58 | 751.3 | 72.0 | 22.2 | | SW | | | 4 | | 6 | | | | | D. clouds | John McLaren. |
| Chatham, School M. E. | | | 29.70 | 754.4 | 68.2 | 20.1 | | NW | | | 4 | | 10 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.21 | 716.5 | 29.65 | 753.1 | 57.0 | 13.9 | | S | | | 3 | | 8 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.52 | 749.8 | 57 | 13.9 | | WNW | | | 3 | | 10 | | | | | Overcast | J. Mac Gowan. |
| Dover | | | 29.62 | 752.3 | 59 | 15.0 | | SW | | | 4 | | 9 | | | | | Raining | J. Costello. |
| Eccles, (near Manchester) | | | 29.47 | 748.5 | 62.6 | 17.0 | | W | 1.4 | 0.6 | | | 10 | | | | | Drizzling | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.62 | 752.3 | 64.1 | 17.8 | | SW | | | 3 | | 9 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.73 | 704.3 | 29.97 | 761.2 | 76.2 | 24.6 | | NE | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.06 | 763.5 | 82 | 27.8 | | W | | | 2 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.83 | 757.7 | 64 | 17.8 | | NE | | | 7 | | 7 | | | | | Gloomy | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.00 | 762.0 | 77.8 | 25.4 | | W | | | 1 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 29.44 | 747.8 | 59.8 | 15.4 | | NE | | | 1 | | 10 | | | | | Raining | D. G. Maclean. |
| Great Yarmouth | | | 29.58 | 751.3 | 65 | 18.3 | | S | | | 4 | | 5 | | | | | Showery | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.57 | 751.1 | 74.0 | 23.3 | | SW | | | 3 | | 8 | | | Blank | Blank | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 29.67 | 753.6 | 63 | 17.2 | | SW | | | 3 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 29.69 | 754.1 | 67 | 19.4 | | SW | | | 2 | | 4k | | | 0.5 | 13. | Fine | M. P. Moyle. |
| Holyhead | | | 29.50 | 749.3 | 59 | 15.0 | | SW | | | 1 | | 10 | | | | | Hazy | John Tilston. |
| Kew, Observatory | | | 29.59 | 751.6 | 64.1 | 17.8 | | SW | 9 | 4.0 | | | 9 | | | | | Threatening | The Staff. |
| Kingstown | | | 29.52 | 749.8 | 62 | 16.7 | | Calm | | | 0 | | 10 | | | Blank | Blank | Hazy | George Mitchell. |
| Leicester, Museum | | | 29.51 | 749.5 | 67.0 | 19.4 | | SW | | | 4 | | 6 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.02 | 762.5 | 79.4 | 26.3 | | SE | | | 1 | | 8k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.53 | 750.0 | 51 | 10.6 | | NE | | | 2 | | 10 | | | | | Raining | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.08 | 764.0 | 76.8 | 24.9 | | SE | | | 1 | | 9 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 29.52 | 749.8 | 70.2 | 21.2 | | SSW | | | 5 | | 9k,d | | SW | 0.465 | 11.81 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.50 | 749.3 | 65.9 | 18.8 | | SSW | | | 5–6 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.56 | 750.8 | 68 | 20.0 | | SSW | | | 3 | | 8 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 29.62 | 752.3 | 64.1 | 17.8 | | SW | | | 2 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 29.60 | 751.8 | 60 | 15.6 | | N | | | 5 | | 8 | | | Blank | Blank | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.55 | 750.6 | 58 | 14.4 | | Calm | | | 0 | | 10 | | | | | Foggy | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.69 | 754.1 | 63.8 | 17.7 | | W | | | 3 | | 10 | | | | | Overcast | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.67 | 753.6 | 44.8 | 7.1 | | NE | 24 | 10.7 | | | 10 | | | | | Rain & hail | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.93 | 760.2 | 75.0 | 23.9 | | SW | | | 1 | | 0 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.44 | 747.8 | 70.3 | 21.3 | | SSW | | | 3 | | 8 | | | 0.150 | 3.81 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.46 | 748.3 | 61.7 | 16.5 | 87 | Calm | | | 0 | | 10 | | | 0.310 | 7.87 | Overcast | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.47 | 748.5 | 59.9 | 15.5 | | SW | | | 3 | | 10 | | | | | Drizzling | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.63 | 752.6 | 45 | 7.2 | | NE | | | 6 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 29.61 | 752.1 | 66.7 | 19.3 | | SW | | | 2 | | 6 | | | | | D. clouds | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.61 | 752.1 | 45 | 7.2 | | ENE | | | 5 | | 9 | | | | | Raining | John Trotter. |
| Truro, Royal Institution | | | 29.67 | 753.6 | 62 | 16.7 | | W | | | 3 | | 10 | | | | | Raining | W. Newcombe. |
| Valencia, Observatory | | | 29.68 | 753.9 | 59.0 | 15.0 | | WNW | 16 | 7.2 | | | 10 | | | | | Misty | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 58 | 14.4 | | E | | | 2 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.18 | 766.6 | 58.7 | 14.8 | 90 | NW | 17 | 7.6 | | 10 | 9 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.91 | 759.7 | 54.5 | 12.5 | 87 | W | | | 3 | | 8kn | | | 0.60 | 15.2 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.47 | 748.5 | 59.0 | 15.0 | | E | | | 5 | | 10s | | | 0.16 | 4.1 | Overcast | Andrew Gibb. |
| Mauritius, Observatory | | | 30.27 | 768.8 | 72.5 | 22.5 | 67 | ESE | 21.2 | 9.5 | | 0 | 3 | | ESE | 0.28 | 7.1 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.31 | 769.9 | 49.9 | 9.9 | 80 | NW | 3 | 1.3 | | | 10 | | WSW | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.69 | 754.1 | 51 | 10.6 | | NE | | | 6 | 5 | 5 | NE | | 1. | 25. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.65 | 753.1 | 49 | 9.4 | | NE | | | 4 | 4 | 7 | NE | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 43° 10′, W. 53° 35′ | | | | | 55.0 | 12.8 | | SSE | | | 4 | | 4 | | | 1 | WSW | D. clouds | Capt. J. E. Monland. |
| Ship Camperdown, N. 48° 45′, W. 22° 30′ | | | 30.00 | 762.0 | 60.0 | 15.6 | | W | | | 1 | | 7 | | | 1 | WNW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 40′ | | | 29.71 | 754.6 | 58.0 | 14.4 | | WNW | | | 4 | | 10 | | | 4 | | Drizzling | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 46′ 10°, W. 42° 25′ | | | 29.90 | 759.4 | 49.6 | 9.8 | | NW | | | 3 | | 10 | | | 4 | W | Hazy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 52° 13′, W. 14° 31′ | | | 29.82 | 757.4 | 62 | 16.7 | | NNW | | | 4 | | 10 | | | | | Overcast | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10 | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.22 | 666.0 | | | 71 2 | 21.8 | 89 | SE | | | 3 | | 8ks | | NE | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10 | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.72 | 755.0 | 60.8 | 16.0 | 64 | SE | | | 4 | | 9 | | | | | | |
| Fanöe | | | 29.58 | 751.2 | 66.0 | 18.9 | 72 | SSE | | | 4 | | 9 | | | | | | |
| Godthaab, (Greenland) | | | 29.69 | 754.0 | 54.0 | 12.2 | 66 | NE | | | 2 | | 3 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.97 | 761.3 | 51.3 | 10.7 | 65 | Calm | | | 0 | | 0 | | | | | | |
| Thorshavn, (Faröe) | | | 29.81 | 757.1 | 46.8 | 8.2 | 63 | N | | | 4 | | 1 | | | | | | |
| Vestervig | | | 29.54 | 750.4 | 67.3 | 19.6 | 63 | SW | | | 2 | | 8 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10 | 0—10. | 0—10. | From— | From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 29.87 | 758.8 | 71.6 | 22 | 89 | SW | | | 4 | | 8kn | | SW | 0.04 | 1. | Very cloudy | Collignon, Director. |
| Amiens, Normal School | | | 29.70 | 754.4 | 73.8 | 23.2 | 98 | S | | | 3 | | 5 | | W | 0.134 | 3.4 | Cloudy | Bouvarne, Director. |
| Avignon, Normal School | | | 29.96 | 761 0 | 77.0 | 25 | 52 | S | | | 2 | | 5 | | S | 0 | 0 | Cloudy | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 29.87 | 758.7 | 64.9 | 18.3 | 80 | SSW | | | 1 | | 10 | | S | | | Sprinkling | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 29.78 | 756.4 | 67.3 | 19.6 | 61 | SW | 20.1 | 9.0 | | | | | SW | 0.142 | 3.6 | | Albert Cheux. |
| Beauvais | | | 29.75 | 755.7 | 70.5 | 21.4 | 61 | SSW | | | 3 | | 8 | | SW | 0.541 | 13.75 | Very cloudy | Normal School. |
| Besançon | | | 29.85 | 758.2 | 79.5 | 26.4 | 56 | S | | | 4 | | 8 | | W | 0 | 0 | Very cloudy | Normal School. |
| Bourg-en-Bresse | | | 29.97 | 761.3 | 81.9 | 27.7 | 44 | S | | | 2 | | 8n | | N | 0 | 0 | Very cloudy | Normal School. |
| Bourges, Normal School | | | 29.85 | 758.1 | 68.0 | 20 | 91 | W | | | 2 | | 5 | | N | 0.071 | 1.8 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.67 | 753.7 | 63.1 | 17.3 | 80 | SW | | | 4 | | 10 | | WNW | 0.118 | 3.0 | Misty | The Staff. |
| Carcassonne, Normal School | | | 29.95 | 760.8 | 69.8 | 21 | 91 | E | | | 4 | | 2 | | E | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 29.73 | 755.1 | 64.2 | 17.9 | 80 | SSW | | | 2 | | 10 | | SSW | 0.829 | 21.05 | Covered | Normal School. |
| Chartres, Normal School | | | 29.72 | 754.8 | 71.4 | 21.9 | 83 | W | | | 6 | | 5 | | NE | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.84 | 757.8 | 64.8 | 18.2 | 71 | WSW | | | 4 | | 8kn | | WSW | 0 | 0 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.87 | 758 7 | 65.5 | 18.6 | 77 | SW | | | 2 | | 8 | | SW | 0.055 | 1.4 | Very cloudy | Alluard, Director. |
| Commercy, Normal School | | | 29.85 | 758.2 | 71.6 | 22 | 53 | WSW | | | 4 | | 10 | | WSW | 0 024 | 0.6 | Covered | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.05 | 763.3 | 67.8 | 19.9 | 81 | SE | | | 2 | | 10 | | SE | 0 | 0 | | M. Kina. |
| Grenoble | | | 29.90 | 759.4 | 74.7 | 23.7 | 54 | NW | | | 6 | | 5kn | | N | 0 | 0 | Cloudy | Normal School. |
| La Roche-sur-Yon, N. School | | | 29.87 | 758.8 | 64.0 | 17.8 | 94 | S | | | 6 | | 8 | | S | 0.028 | 0.7 | Very cloudy | Mouillot, Director. |
| Le Mans, Normal School | | | 29.79 | 756.6 | 69.1 | 20.6 | 61 | W | | | 6 | | 8 | | W | 0 | 0 | Very cloudy | Poirrier, Director. |
| Lons-l. | | | 29.85 | 758.1 | 76.5 | 24.7 | 58 | NW | | | 4 | | 10 | | SE | 0 | 0 | Covered | Pin, Director. |
| Lorient, Naval Observatory | | | 29.81 | 757.1 | 66.9 | 19.4 | 63 | WSW | | | 6 | | 8 | | SW | 0.157 | 4.0 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.85 | 758.3 | 72.1 | 22.3 | 79 | N | | | 2 | | 5 | | S | 0.110 | 2.8 | Cloudy | M. Marchal, Director. |
| Metz | | | 29.92 | 760.0 | 74.3 | 23.5 | 47 | WSW | | | 2 | | 10 | | | 0.256 | 6.5 | Covered | M. A. Schuster, Dir. |
| Mirecourt | | | 29.78 | 756.4 | 74.3 | 23.5 | 56 | SW | | | 4 | | 5 | | NE | 0 | 0 | Partly cov'd | Normal School |
| Mismes, Normal School | | | 29.95 | 760.7 | 79.2 | 26.2 | 38 | E | | | 2 | | k | | N | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 29.78 | 756.3 | 71.2 | 21.8 | 68 | S | | | 6 | | 5 | | SW | 0 | 0 | Slightly cl'dy | Bernard, Director. |
| Paris, Observatory | | | 29.76 | 755.8 | 73.6 | 23.1 | 43 | SW | | | 4 | | 6ck | | SW | 0.004 | 0.11 | Cloudy | National Observatory |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 29.92 | 760 0 | 69.4 | 20.8 | 73 | SW | | | 5 | | 5 | | SW | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.74 | 755.3 | 62.4 | 16.9 | 76 | W | | | 3 | | 10 | | S | 0.457 | 11.6 | Covered | F. Lucard, Director. |
| Tarbes, Normal School | 28.90 | 734.1 | 29.95 | 760.6 | 71.6 | 22 | 98 | W | | | 2 | | 5 | | W | 0 | 0 | Cloudy | T. Hugues, Director. |
| Villefranche | | | 29.85 | 758.2 | 81.1 | 27.3 | 64 | WNW | | | 2 | | 8 | | W | 0.16 | 4. | Very cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.89 | 759.1 | 77.0 | 25 | | | | | | | | | | 0.98 | 25. | | L'Abbé Marchésa. |
| Marseilles, Observatory | | | | | 69.1 | 20.6 | 88 | NW | | | 1-2 | | 10 | | | 0.114 | 2.90 | Covered | The Staff. |
| Mont-Louis | 24.89 | 632.3 | 30.21 | 767.3 | 60.1 | 15.6 | 72 | SSW | 7.4 | 3.33 | | | 10 | | SSW | 0.142 | 3.6 | | Mr. Falguère. |
| Paris, Montsouris Obs'y | | | 29.75 | 755.7 | 75.9 | 24.4 | 43 | SW | | | 4 | | 7 | | SW | Inap. | Inap. | | Marié Davy, Director. |
| Perpignan | | | 29.96 | 760.9 | 71.2 | 21.8 | 82 | SE | 9.3 | 4.17 | | | 8 | | SW | 0 | 0 | | Fr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.34 | 542.0 | | | 39.0 | 3.9 | | SW | | | 3 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.56 | 572.9 | | | 45.9 | 7.7 | | SW | | | 3-4 | | 10 | | | 0.142 | 3.6 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.76 | 756.0 | 74.5 | 23.6 | 48 | SSW | | | 3-4 | | 8 | | | 0.307 | 7.8 | Very cloudy | F. Renou. |
| Toulouse, Observatory | | | 29.98 | 761.4 | 72.9 | 22.7 | 70 | NW | | | 1 | | 7 | | | 0 | 0 | | The Staff |
| Tours | | | 29.82 | 757.5 | 73.0 | 22.8 | 53 | WSW | | | 4 | | 7 | | W | 0.004 | 0.1 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.73 | 755.1 | 72.3 | 22.4 | 55 | SW | | | 3 | | 8 | | | 0 | 0 | Cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.85 | 758.3 | 74.5 | 23.6 | 92 | SE | 10.1 | 4.5 | | | 6k | | SE | 0 | 0 | Cloudy | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4. The rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft. Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometer observations for altitude, the constant 13 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches-du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.78 | 756.5 | 77.0 | 25.0 | 51 | W | | | 4 | | 7 | W | | 0.020 | 0.5 | | Prof. T. Hoh. |
| Berlin | | | 29.78 | 756.3 | 74.8 | 23.8 | 55 | S | | | 1 | | 8 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.88 | 759.0 | 75.7 | 24.3 | 50 | S | | | 2 | | 10 | | | 0.150 | 3.8 | Thunder-storm. | Royal University Obs'y. |
| Carlsruhe | | | 29.81 | 757.2 | 71.4 | 21.9 | 74 | SW | | | 1 | | 4 | | | 0.228 | 5.8 | | Albert Senz. |
| Cassel | | | 29.80 | 756.8 | 77.7 | 25.4 | 56 | SE | | | 6 | | 8 | ENE | | 0.031 | 0.8 | | Dr. H. Möhl. |
| Crefeld | | | 29.71 | 754.6 | 77.5 | 25.3 | 53 | W | | | 4 | | 6 | | | 0.394 | 10. | | Director Lose. |
| Emden | | | 29.53 | 750.0 | 74.1 | 23.4 | 64 | W | | | 3 | | 8 | | | 0.039 | 1.0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.84 | 757.8 | 81.7 | 27.6 | 35 | SW | | | 3 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.49 | 723.6 | 29.86 | 758.5 | 74.1 | 23.4 | 68 | SW | | | 2 | | 5 | SW | | 0.724 | 18.4 | | M. Wilhelm. |
| Hamburg | | | 29.67 | 753.6 | 72.0 | 22.2 | 71 | SSE | | | 5 | | 9kn | SSW | | 0.031 | 0.8 | Threatening | Captain F. Hegemann. |
| Kiel | | | 29.64 | 752.9 | 67.6 | 19.8 | 86 | SE | | | 1 | | 10 | | | 0.012 | 0.3 | | Prof. G. Karsten |
| Königsberg, (Prussia) | | | 29.90 | 759.5 | 74.1 | 23.4 | 29 | SE | | | 5 | | 0 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 29.81 | 757.1 | 75.2 | 24.0 | 59 | SW | | | 3 | | 7 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.99 | 761.8 | 63.5 | 17.5 | 38 | SSW | | | 2 | | 1ck,es | | | | | | Reinbrecht & Skalwell. |
| Neufahrwasser | | | 29.89 | 759.3 | 72.3 | 22.4 | 40 | SSE | | | 4 | | 3 | WSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 29.85 | 758.2 | 76.3 | 24.6 | 44 | SW | | | 7 | | 10 | | | 0.004 | 0.1 | | Dr. Magener |
| Strassburg, (in Alsace) | | | 29.83 | 757.6 | 78.3 | 25.7 | 51 | SW | | | 2 | | 7 | SW | | 0.020 | 0.5 | | Dr. Schur. |
| Stuttgart | | | 29.83 | 757.6 | 72.9 | 22.7 | 63 | N | | | 1 | | 8 | W | | 0.252 | 6.4 | | Prof. Schoder |
| Treves, (Trier) | | | 29.67 | 753.7 | 77.0 | 25.0 | 47 | W | | | 7 | | 10 | | | 0.028 | 0.7 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.39 | 721.2 | 29.83 | 757.6 | 74.7 | 23.7 | 51 | W | | | 1 | | 10 | WNW | | 0.315 | 8.0 | | T. V. Dickmether |
| Wustrow, Naval School | | | 29.80 | 756.9 | 70.5 | 21.4 | 64 | SSE | | | 1 | | 10 | | | 0.059 | 1.5 | | E. F. Schütz. |
| GERMAN NAVAL SERIES. | | | | | | | | | | | | | | | | | | | |

NOTE.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenburg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2.0, instead of 2:5, p. m.; Memel, 2.1, instead of 2.7, p.m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.97 | 761.2 | 87.3 | 30.7 | | SW | | | | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

NOTE.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.43 | 747.4 | 29.48 | 748.7 | 89.2 | 31.8 | 71 | SW | 26.0? | 11.8? | | | 6 | | SW | 0 | 0 | D. clouds | |
| Deesa | 29.06 | 738.2 | 29.52 | 749.7 | 100.0 | 37.8 | 42 | SSW | | | | | 8 | SSW | | 0 | 0 | D. clouds | |
| Bombay | 29.62 | 752.4 | 29.66 | 753.4 | 81.5 | 27.5 | 97 | W | 10.0 | 4.4 | | | 10 | | | 0.48 | 12.2 | Raining | |
| Poona | 27.65 | 702.2 | 29.65 | 753.0 | 74.6 | 23.7 | 88 | | | | | | | | E | 0.71 | 18.0 | Raining | |
| Lahore | 28.67 | 728.2 | 29.37 | 745.9 | 106.3 | 41.3 | 19 | W | 1.4 | 0.6 | | | 3 | | | 0 | 0 | Blue sky | |
| Belgaum | | | | | 70.9 | 21.6 | 93 | W | 10.0 | 4.4 | | | 10 | | W | 2.05 | 52.1 | Raining | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.51 | 724.2 | 29.36 | 745.6 | 104.8 | 40.2 | | NW | 3.4 | 1.5 | | | 3 | | | 0 | 0 | | |
| Agra | 28.83 | 732.4 | 29.36 | 745.8 | 107.2 | 41.8 | 20 | W | 2.4 | 1.0 | | | 4 | | N | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.46 | 723.0 | 29.47 | 748.4 | 94.5 | 34.7 | 46 | W | 5.7 | 2.5 | | | 9 | | | 0.65 | 16.5 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.02 | 737.1 | 29.37 | 746.0 | 105.5 | 40.8 | 24 | NW | 2.5 | 1.1 | | | | | | 0 | 0 | Blue sky | |
| Allahabad | 29.08 | 738.5 | 29.37 | 745.9 | 105.7 | 40.9 | 27 | N | 2.3 | 1.0 | | | 10 | S | | 0 | 0 | Overcast | |
| Patna | 29.23 | 742.3 | 29.40 | 746.7 | 102.1 | 38.9 | 40 | E | 2.2 | 0.9 | | | 6 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.49 | 698.3 | 29.42 | 747.2 | 96.0 | 35.6 | 31 | WNW | 6.1 | 2.7 | | | 10 | | | 0 | 0 | Dust-haze | |
| Cuttack | 29.42 | 747.2 | 29.50 | 749.2 | 90.3 | 32.4 | 67 | SSW | 6.5 | 2.9 | | | 8 | | | 0 | 0 | Overcast | |
| Calcutta, (Alipore) | 29.45 | 748.1 | 29.47 | 748.6 | 86.2 | 30.1 | 89 | S | 4.0 | 1.7 | | | 10 | | | 0 | 0 | Overcast | |
| Goalpara | 29.08 | 738.7 | 29.47 | 748.5 | 79.8 | 26.6 | 93 | W | 5.3 | 2.3 | | | 10 | | | 0.12 | 3.0 | Raining | |
| Chittagong | 29.47 | 748.6 | 29.56 | 750.9 | 78.1 | 25.6 | 92 | SW | 5.9 | 2.6 | | | 10 | | | 0.16 | 4.1 | Gloomy | |
| Sibsagar | 29.15 | 740.4 | 29.47 | 748.6 | 90.4 | 32.4 | 72 | SSE | 3.7 | 1.6 | | | 10 | SSW | | 0 | 0 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.14 | 714.6 | 29.46 | 748.2 | 91.0 | 32.8 | 51 | SW | 5.8 | 2.5 | | | 9 | | | 0 | 0 | Overcast | |

NOTE.—The barometric observations refer to the Calcutta standard which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given: the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,980 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.30 | 566.5 | 29.90 | 759.4 | 51.3 | 10.7 | 83 | W | | | 2 | | 9 | SW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.27 | 565.6 | 29.89 | 759.1 | 52.7 | 11.5 | | W | | | 4 | | 8 | N | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.92 | 759.9 | 79.3 | 26.3 | 57 | S | 4.3 | 1.9 | | | 7 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 29.91 | 759.6 | 81.5 | 27.5 | 47 | NW | 3.1 | 1.4 | | | 3 | WSW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.90 | 759.5 | 84.9 | 29.4 | 37 | SW | 4.9 | 2.2 | | | 4 | W | | 0 | 0 | | Conte Alm. Da Schio |
| Verona | | | 29.93 | 760.1 | 70.5 | 21.4 | 44 | W | | | 1 | | 0 | | | 0.094 | 2.4 | | Dott. B. Bertoncelli. |
| Bergamo | 28.64 | 727.5 | 29.91 | 759.7 | 81.3 | 27.4 | 42 | SSW | | | 2 | | 7 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.94 | 760.5 | 75.2 | 24.0 | 52 | SW | | | 6 | | 10 | | | 0.067 | 1.7 | | Prof. Giuseppe Calza. |
| Milan | | | 29.95 | 760.7 | 83.1 | 28.4 | 57 | WNW | | | 1 | | 3 | W | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.92 | 760.0 | 83.1 | 28.4 | 44 | SW | | | 4 | | 6 | SW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.91 | 759.6 | 78.8 | 26.0 | 49 | WSW | 1.3 | 0.6 | | | 7 | NW | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.07 | 712.9 | 29.89 | 759.1 | 76.1 | 24.5 | 47 | S | | | 2 | | 8 | W | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.02? | 762.5? | 72.7 | 22.6 | 88 | E | | | 8 | | 6 | E | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.99 | 761.7 | 76.5 | 24.7 | 63 | S | 7.4 | 3.3 | | | 10 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.93 | 760.3 | 80.1 | 26.7 | 45 | N | 3.1 | 1.4 | | | 3 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.91 | 759.8 | 84.2 | 29.0 | 44 | ESE | | | 4 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.98 | 761.6 | 85.6 | 29.8 | 35 | SW | | | 2 | | 3 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.00 | 762.0 | 77.7 | 25.4 | 76 | SW | 11.9 | 5.3 | | | 6 | S | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.81 | 731.8 | 29.97 | 761.2 | 81.3 | 27.4 | 43 | SW | 0.7 | 0.3 | | | 4 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.49 | 723.6 | 29.98 | 761.6 | 80.2 | 26.8 | 47 | SW | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.98 | 761.5 | 78.3 | 25.7 | 64 | NE | 19.2 | 8.6 | | | 2 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.96 | 761.0 | 79.2 | 26.2 | 62 | SE | | | 4 | | 2 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.07? | 763.7? | 81.7 | 27.6 | 54 | SSW | | | 4 | | 6 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.03 | 762.8 | 80.6 | 27.0 | 58 | WSW | 9.4 | 4.2 | | | 10 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.07 | 763.6 | 81.1 | 27.3 | 52 | SW | | | 2 | | 0 | | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.06 | 763.4 | 79.5 | 26.4 | 41 | ENE | 6.3 | 2.8 | | | 2 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.00 | 761.9 | 88.3 | 31.3 | 46 | SE | 2.5 | 1.1 | | | 4 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.89 | 759.2 | 85.6 | 29.8 | 60 | SE | | | 2 | | 10 | | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.10? | 764.5? | 81.9 | 27.7 | 58 | SSW | | | 2 | | 2 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.97 | 761.1 | 77.7 | 25.4 | 69 | E | 4.3 | 1.9 | | | 2 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.10 | 713.7 | 29.95 | 760.7 | 83.8 | 28.8 | 28 | SSE | | | 4 | | 10 | N | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.98 | 761.6 | 79.5 | 26.4 | 65 | SE | | | 2 | | 10 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.08 | 764.0 | 78.8 | 26.0 | 56 | SW | 0.7 | 0.3 | | | 6 | W | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,[illegible] ft.; Mondovi, 556 m., or 1,824.[illegible]; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.85 | 758.2 | 74.5 | 23.6 | 88 | Calm | 0 | 0 | | 1c | | W | | 0 | 0 | Clear | Prof. P. V Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.18 | 588.8 | 30.19 | 766.8 | 58.1 | 14.5 | 77 | Calm | 0 | 0 | | 10k | 18 | | | 0 | 0 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.68 | 753.8 | 72.0 | 22.2 | | SW | | | 4 | | | | | 0.394 | 10.0 | | |
| Groningen | | | 29.58 | 751.3 | | | | WSW | | | 5 | | | | | 0.075 | 1.9 | | |
| Helder | | | 29.62 | 752.4 | 65.7 | 18.7 | | SW | | | 4 | | | | | 0.035 | 0.9 | | |
| Utrecht | | | 29.63 | 752.5 | 73.4 | 23.0 | 57 | SW | | | 4 | | 8 | | | 0.043 | 1.1 | Very cloudy | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.60 | 751.9 | 52.2 | 11.2 | 68 | NNW | 6.0 | 2.7 | | | 8 | | | 0.315 | 8.0 | | |
| Brönö | | | 29.59 | 751.6 | 53.6 | 12.0 | 54 | NNE | 18 | 8 | | | 7 | | | 0 | 0 | | |
| Christiania | | | 29.60 | 751.8 | 64.0 | 17.8 | 53 | S | 13 | 6 | | | 9 | | | 0.949 | 24.1 | | |
| Tromsö | | | 29.64 | 752.9 | 46.4 | 8.0 | 64 | SW | 9 | 4 | | | 10 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Wind. Velocity Miles per hour. | Wind. Velocity Meters per second. | Wind. Force 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.11 | 764.8 | 63.3 | 17.4 | 78 | W | 2.7 | 1.1 | | | 7 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.98 | 761.5 | 73.4 | 23.0 | 37 | WNW | 9.4 | 4.2 | | | 5 | WNW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.11 | 764.9 | 72.1 | 22.3 | 69 | WSW | 9.8 | 4.4 | | | 9 | | | 0.031 | 0.8 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.06 | 763.5 | 69.6 | 20.9 | 47 | NNW | 8.7 | 3.9 | | | 5 | | | Inap. | Inap. | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.12 | 765.0 | 70.5 | 21.4 | 57 | W | 3.1 | 1.4 | | | 4 | | | 0.043 | 1.1 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS | Inches | Millimeters | Inches | Millimeters | Fahrenheit | Centigrade | Per cent | From— | Miles per hour | Meters per second | Force | Up'er | Low'r | Upper | Lower | Inches | Millimeters | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.93 | 760.3 | 71.6 | 22.0 | 38 | SSE | 7 | 3 | | | 4 | | | | | Solar corona | Astronomical Obs. |
| Wilna | | | 30.05 | 763.2 | 63.3 | 17.4 | 42 | Calm | 0 | 0 | | | 0 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.98 | 761.5 | 61.7 | 16.5 | 33 | SSW | 4 | 2 | | | 2 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.94 | 760.4 | 54.5 | 12.5 | 62 | WNW | 16 | 7 | | | 2 | | | | | | Central Physical Obs. |
| Knopio | | | 29.82 | 757.3 | 58.6 | 14.8 | 55 | W | 18 | 8 | | | 7 | | | | | | Ch. Forsten. |
| Kieff | | | 29.98 | 761.4 | 64.4 | 18.0 | 39 | ENE | 7 | 3 | | | 4 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.01 | 762.2 | 75.9 | 24.4 | 47 | SE | 13 | 6 | | | 9 | | | | | | Kurdakof |
| Kertch | | | 30.00 | 762.1 | 74.1 | 23.4 | 68 | NNW | 2 | 1 | | | 3 | | | | | | Lagorio. |
| Moscow | | | 29.96 | 760.9 | 54.9 | 12.7 | 56 | NNE | 11 | 5 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.87 | 758.7 | 68.2 | 20.1 | 51 | N | 18 | 8 | | | 5 | | | Blank | Blank | | Meteorological Obs. |
| Archangel | | | 29.71 | 754.7 | 46.2 | 7.9 | 59 | NW | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.47 | 723.1 | 29.80 | 757.0 | 82.0 | 27.8 | 33 | W | 2 | 1 | | | 5 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.89 | 759.2 | 75.7 | 24.3 | 47 | SW | 13 | 6 | | | 6 | | | | | | Sebastianof. |
| Kasan | | | 29.71 | 754.6 | 54.3 | 12.4 | 62 | NW | 2 | 1 | | | 10 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischei. |
| Ekaterinburg | 28.92 | 734.6 | 29.86 | 758.4 | 54.0 | 12.2 | 75 | SSE | 7 | 3 | | | 10 | | | | | Raining | Meteorogical Obs. |
| Nukuss | | | 29.78 | 756.4 | 71.4 | 21.9 | 74 | N | 18 | 8 | | | 9 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.26 | 717.9 | 29.85 | 758.3 | 91.0 | 32.8 | 43 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.88 | 759.0 | 71.1 | 21.7 | 41 | Calm | 0 | 0 | | | 5 | | | | | Thunder-storm | Meteorological Obs. |
| Yeniseisk | | | 29.83 | 757.6 | 67.8 | 19.9 | 73 | NNW | 2 | 1 | | | 2 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzof. |
| Oorga | | | | | 72.5 | 22.5 | | W | 9 | 4 | | | 6 | | | | | | Mossin. |
| Peking, (China) | | | 29.78 | 756.4 | 86.4 | 30.2 | 49 | S | 13 | 6 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.75 | 755.7 | 68.9 | 20.5 | 68 | Calm | 0 | 0 | | | ks | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 46.8 | 8.2 | 98 | NE | 11 | 5 | | | 10 | | | | | Raining | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the cooperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS | Inches | Millimeters | Inches | Millimeters | Fahrenheit | Centigrade | Per cent | From— | Miles per hour | Meters per second | Force | Up'er | Low'r | Upper | Lower | Inches | Millimeters | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 29.88 | 759.0 | 77.9 | 25.5 | 34 | W | 17.9 | 8.00 | | 1 | 1 | SW | | 0 | 0 | Light clouds | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.08 | 764.0 | 82.5 | 28.2 | 80 | Calm | 0 | 0 | | 1c | 1k | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.07 | 763.7 | 72.1 | 22.3 | 64 | W | 13.7 | 6.1 | | 0 | 6 | | W | 0 | 0 | | Capt. C. Pajazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.00 | 762.0 | 84.9 | 29.4 | 77 | E | 7.6 | 3.40 | | 4cs | 1k | | E | | | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the cooperation of Professor K. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS | Inches | Millimeters | Inches | Millimeters | Fahrenheit | Centigrade | Per cent | From— | Miles per hour | Meters per second | Force | Up'er | Low'r | Upper | Lower | Inches | Millimeters | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.76 | 756.0 | 51.8 | 11.0 | 54 | SW | | | 4 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.78 | 756.5 | 45.7 | 7.6 | 77 | SW | | | 6 | | 10 | | | 0 | 0 | | |
| Hernosand | | | 29.67 | 753.5 | 48.6 | 9.2 | 84 | E | | | 2 | | 10 | | | 0 | 0 | | |
| Stockholm | | | 29.76 | 756.0 | 61.5 | 16.4 | 33 | S | | | 6 | | 8 | | | 0 | 0 | | |
| Wisby | | | 29.88 | 759.0 | 62.2 | 16.8 | 35 | SSW | | | 6 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.75 | 755.7 | 65.5 | 18.6 | 36 | SSW | 19.5 | 8.7 | | | 9 | WSW | WSW | 0.004 | 0.09 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low' 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimet r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.47 | 723.2 | 29.83 | 757.6 | 80.1 | 26.7 | 47 | SW | | | 6 | | 8 | | | 0 | 0 | Covered | The Observatory. |
| Zurich | 28.29 | 718.6 | 29.85 | 758.1 | 80.2 | 26.8 | 59 | W | | | 1 | | 2 | | | 0.413 | 10.5 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —3.6 mm; Thermometer, +5.4 cent.; Relative Humidity, —8 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low' 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimet r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.07 | 761.3 | 77.0 | 25.0 | 47 | ENE | 2 | 1.0 | | | 0 | | | 0 | 0 | | The Observatory |
| Fao, (Persian Gulf) | | | 29.87 | 758.8 | 78.8 | 26.0 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.03 | 762.7 | 83.8 | 28.8 | | S | | | 0 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.13 | 765.4 | 76.6 | 24.8 | | W | | | 1 | | 0 | | | 0 | 0 | Clear | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.83 | 757.6 | 80.8 | 27.1 | 67 | N | | | 2 | | 1c | | | 0 | 0 | D. clouds | Pro C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low' 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimet r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.34 | 745.2 | 52.2 | 11.2 | 92 | NE | 8 | 3.6 | | | 10 | | | | | | Hon. J. Ferguson |
| Brockville, Ontario | | | 29.83 | 757.7 | 54 | 12.2 | | NW | 3 | 1.3 | | | 10s | | NW | 0.15 | 3.8 | Cloudy | W. R. Bigg. |
| *Chatham, N. B | | | 29.37 | 746.0 | 53 | 11.7 | 93 | NW | 9 | 4.0 | | | 10ks | | NW | 0.31 | 7.9 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.39 | 746.5 | 53 | 11.7 | 94 | S | 3 | 1.3 | | | 10n | | | 0.195 | 4.96 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.76 | 755.9 | 61.0 | 16.1 | 62 | W | | | 3 | | 10n | | | 0.187 | 4.75 | Raining | James Smith, M. A. |
| Dalhousie, N. B | | | 29.40 | 746.7 | 46.6 | 8.1 | 96 | E | | | 1 | | | | | | | Raining | H. A. Johnson. |
| Esquimault, B. C | | | 29.95 | 760.7 | 50.8 | 10.4 | 89 | W | | | | 4cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.48 | 748.8 | 44 | 6.7 | 100 | NE | 18 | 8.0 | | 5k | 5n | NE | NE | 0.22 | 5.6 | Light rain | J. McWilliams. |
| Fredericton, N. B | | | 29.40 | 746.7 | 59.0 | 15.0 | 83 | NW | 5 | 2.2 | | 10cs | 0 | W | | 0.345 | 8.77 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 30.07 | 763.8 | 56 | 13.3 | 87 | S | 5 | 2.2 | | 2cs | 2s | W | W | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.10 | 764.5 | 51.7 | 10.9 | | NW | | | 3 | 0 | 1s | | | 0 | 0 | Clear | H. J. Strang, M. A |
| Granton, Ontario | 28.94 | 735.1 | 30.04 | 763.0 | 51 | 10.6 | 79 | N | | | 2 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S | | | 29.41 | 747.0 | 55 | 12.8 | 99 | S | 5 | 2.2 | | | 8n | | | 1.14 | 29.0 | Heavy rain | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.03 | 762.7 | 57.7 | 14.3 | 72 | NW | | | 3 | 4k | 0 | N | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Henry's Content, N. F | | | 29.82 | 757.4 | 48 | 8.9 | 70 | SW | | | 3 | | 10 | | | 0 | 0 | Overcast | E. Weedon. |
| *Kingston, Ontario | | | 29.91 | 759.7 | 57 | 13.9 | 58 | N | 16 | 7.2 | | 5k | 0 | N | | 0.16 | 4.1 | Fair | S. Woods, M. A |
| *Montreal, Quebec | | | 29.70 | 754.4 | 56 | 13.3 | 74 | W | 15 | 6.7 | | 2cs | 8s | W | W | 0.39 | 9.9 | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.04 | 763.0 | 52 | 11.1 | 79 | N | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | Rev. R Mosley |
| Peterboro, Ontario | | | 29.94 | 760.5 | 55.7 | 13.2 | 74 | NW | | | 3 | 0 | 4k | | | 0 | 0 | | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.02 | 762.5 | 54 | 12.2 | 74 | NW | 14 | 6.3 | | 2k | 0 | NW | | 0.20 | 5.1 | Fair | H. Morgan. |
| Port Hastings, N. S | | | 29.51 | 749.5 | 60.2 | 15.7 | | Calm | 0 | 0 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.05 | 763.3 | 53 | 11.7 | 80 | W | 3 | 1.3 | | 5k | 0 | N | | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | | | 29.57 | 751.1 | 53 | 11.7 | 67 | W | 11 | 4.9 | | 5ks | 8n | NW | NW | 0.51 | 1.30 | Fair | Capt. Ashe, R N |
| *Rockliffe, Ontario | | | 29.95 | 760.7 | 40 | 9.4 | 68 | NW | 15 | 6.7 | | | 10s | | NW | 0 | 0 | Cloudy | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E |
| *Saugeen, Ontario | | | 30.07 | 763.8 | 50 | 10.0 | 79 | NE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.75 | 730.2 | 30.03 | 762.7 | 48.5 | 9.2 | 78 | NW | 12 | 5.4 | | 1c | 3s | N | | 0.045 | 1.14 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.46 | 748.3 | 53 | 11.7 | 100 | SE | 12 | 5.4 | | | 10n | | S | 0.33 | 8.4 | Light rain | T. C. Hill. |
| *Toronto, Ontario | | | 30.01 | 762.2 | 54 | 12.2 | 63 | NW | 18 | 8.0 | | 2ck | 0 | NW | | 0.23 | 5.8 | Clear | Magnetic Observatory |
| Windsor, N. S | | | 29.38 | 746.2 | 59 | 15.0 | 94 | SW | 3 | 1.3 | | | 10n | | | Inap. | Inap. | Raining | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.01 | 762.2 | 53.7 | 12.1 | 67 | N | 27 | 12.1 | | 3ck | 0 | S | | 0 | 0 | Fair | J. Montgomery |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.95 | 760.7 | 51.0 | 10.6 | 65 | SW | | | | 10k | 10s | | | 0 | 0 | Cloudy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,016 feet, or 309.7 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Upper. 0—10 | Clouds. Amount. Lower. 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.70 | 754.4 | 64 | 17.8 | 67 | NW | 19 | 8.5 | | 2k | 0 | W | | 0.93 | 23.6 | Fair | |
| Alpena, Mich. | | | 30.16 | 766.1 | 53 | 11.7 | 60 | N | 9 | 4.0 | | 0 | 0 | | | 0.07 | 1.8 | Clear | |
| Atlantic City, N. J. | | | 29.76 | 755.9 | 72 | 22.2 | 80 | N | 14 | 6.3 | | 5k | 0 | N | | 1.00 | 25.4 | Fair | |
| Augusta, Ga. | | | 29.90 | 759.4 | 77 | 25.0 | 77 | NW | 4 | 1.8 | | 2c | 0 | | | 0.28 | 7.1 | Clear | |
| Baltimore, Md. | | | 29.84 | 757.9 | 72 | 22.2 | 58 | N | 12 | 5.4 | | 5c,k | 2s | SW,NW | | 0.90 | 22.9 | Fair | |
| Barnegat, N. J. | | | 29.75 | 755.6 | 70 | 21.1 | 71 | NW | 20 | 8.9 | | 5c | 0 | W | | 1.72 | 43.7 | Fair | |
| Bismarck, Dakota | 28.15 | 715.0 | 29.73 | 755.1 | 63 | 17.2 | 62 | SE | 7 | 3.1 | | | 10s | | S | 0 | 0 | Cloudy | |
| Boston, Mass. | | | 29.59 | 751.6 | 68 | 20.0 | 69 | NW | 16 | 7.2 | | 4cs | 2ks | W | W | 0.23 | 5.8 | Fair | |
| Breckenridge, Minn. | | | 30.04 | 763.0 | 55 | 12.8 | 87 | SE | 9 | 4.0 | | | 10n | | | Inap. | Inap. | Light rain | |
| Brownsville, Texas | | | 30.00 | 762.0 | 87 | 30.6 | 72 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 29.95 | 760.7 | 55 | 12.8 | 68 | NW | 10 | 4.5 | | 8k | 0 | NW | | 0.39 | 9.9 | Fair | |
| Burlington, Vt. | | | 29.73 | 755.1 | 59 | 15.0 | 58 | N | 8 | 3.6 | | | 10s | | N | 0.58 | 14.7 | Cloudy | |
| Cairo, Ill. | | | 30.04 | 763 0 | 68 | 20.0 | 69 | NE | 8 | 3.6 | | 5ck | 5s | W | | 0 | 0 | Cloudy | |
| Campo, Cal. | 27.43 | 696.7 | 30.00 | 762.0 | 41 | 5.0 | 63 | SW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 64 | 17.8 | | Calm | | | | Haze | Haze | | | 0 | 0 | Hazy | |
| Cape Hatteras, N. C. | | | 29.74 | 755.4 | 78 | 25.6 | 90 | SW | 14 | 6.3 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| Cape Henry, Va. | | | 29.75 | 755.6 | 77 | 25.0 | 82 | NW | 10 | 4.5 | | | 10s | | NE | 0 | 0 | Cloudy | |
| Cape Lookout, N. C. | | | 29.82 | 757.4 | 80 | 26.7 | 91 | SW | 24 | 10.7 | | 2 | 2ks | | SW | 0 | 0 | Fair | |
| Cape May, N. J. | | | 29.77 | 756.1 | 71 | 21.7 | 85 | NW | 22 | 9.8 | | 5c | 0 | W | | 1.40 | 35.6 | Fair | |
| Charleston, S. C. | | | 29.89 | 759.2 | 81 | 27.2 | 82 | SW | 6 | 2.7 | | 0 | 0 | | | 0.67 | 17.0 | Clear | |
| Cheyenne, Wyoming | 24.03 | 610.4 | 29.97 | 761.2 | 57 | 13 9 | 68 | SW | 2 | 0.9 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 30.11 | 764.8 | 58 | 14 4 | 70 | NE | 8 | 3.6 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.99 | 761.7 | 64 | 17.8 | 73 | NE | 8 | 3.6 | | | 10s | | E | 0.55 | 14.0 | Cloudy | |
| Cleveland, Ohio | | | 30.06 | 763.5 | 57.5 | 14.2 | 66 | N | 12 | 5.4 | | 8k | 0 | N | | 0.37 | 9.4 | Cloudy | |
| Corsicana, Tex. | | | 29.98 | 761.5 | 73 | 22.8 | 95 | Calm | 0 | 0 | | 2cs | 8s | | | 1.10 | 27.9 | Cloudy | |
| Davenport, Iowa | | | 30.11 | 764.8 | 67 | 19.4 | 69 | NE | 4 | 1.8 | | 1cs | 0 | | | 0 | 0 | Clear | |
| Denison, Texas | | | 29.99 | 761.7 | 71 | 21.7 | 95 | NE | 1 | 0.4 | | | 10s | | N | 0.63 | 16.0 | Cloudy | |
| Denver, Col. | 24.78 | 629.4 | 30.00 | 762.0 | 56 | 13.3 | 62 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 30.06 | 763.5 | 54 | 12.2 | 73 | N | 10 | 4.5 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Dodge City, Kan. | 27.46 | 697.5 | 29.64 | 752.8 | 71 | 21.7 | 95 | SE | 6 | 2.7 | | | Fog | | | 0.17 | 4.3 | Foggy | |
| Dubuque, Iowa | | | 30.11 | 764.8 | 64 | 17.8 | 67 | NW | 2 | 0.9 | | 2cs | 0 | NW | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.17 | 766.3 | 54 | 12 2 | 79 | N | 4 | 1.8 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Eagle Pass, Tex. | | | 29.86 | 758.4 | 79 | 26.1 | 86 | Calm | 0 | 0 | | 2c | 0 | E | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.41 | 747.0 | 52 | 11.1 | 100 | S | 4 | 1.8 | | | 10n | | | 0.30 | 7.6 | Light rain | |
| Erie, Pa. | | | 30.00 | 762.0 | 54 | 12.2 | 79 | NW | 6 | 2.7 | | 5k | 0 | N | | 0.48 | 12.2 | Fair | |
| Escanaba, Mich. | | | 30.10 | 767.1 | 44 | 6 7 | 84 | N | 8 | 3.6 | | | Fog | | | 0 | 0 | Dense fog | |
| Florence, Arizona | 28.25 | 717.5 | 29.85 | 758.2 | 86 | 30.0 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.98 | 761.5 | 71 | 21.7 | 85 | S | 1 | 0.4 | | 0 | 0 | | | 0.22 | 5.6 | Clear | |
| Fort Griffin, Tex. | 28.74 | 730.0 | 29.98 | 761.5 | 67 | 19.4 | 100 | E | 2 | 0.9 | | | Fog | | | 0.24 | 6.1 | Light rain | |
| Ft. St. Michael, Alaska | | | 29.69 | 754.1 | 54 | 12.2 | 80 | S | | | 4 | | 10ks | | | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.80 | 731.5 | 29.87 | 758.7 | 67 | 19.4 | 84 | NE | 2 | 0.9 | | 0 | 0 | | | 2.19 | 55.6 | Clear | |
| Fort Sully, Dakota | 28.16 | 715.3 | 29.74 | 755.4 | 66 | 18.9 | 78 | SE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.02 | 762.5 | 82 | 27.8 | 83 | SW | 9 | 4 0 | | 2k | 5ks | SW | SW | 0 | 0 | Cloudy | |
| Grand Haven, Mich. | | | 30.12 | 765 0 | 59 | 15.0 | 70 | N | 5 | 2.2 | | 5ck | 0 | NW | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.07 | 763.8 | 63 | 17.2 | 61 | NE | 6 | 2 7 | | 2cs | 2s | W | | 0.23 | 5.8 | Fair | |
| Indianola, Tex. | | | 30.01 | 762.2 | 82 | 27 8 | 83 | S | 17 | 7.6 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 29.95 | 760.7 | 82 | 27.8 | 70 | SW | 7 | 3.1 | | 2k | 0 | SW | | 0.30 | 7.6 | Fair | |
| Keokuk, Iowa | | | 29.98 | 761.5 | 72 | 22.2 | 71 | NE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 30.04 | 763.0 | 82.5 | 28.1 | 76 | Calm | 0 | 0 | | | 10n | | | 0.10 | 2.5 | Light rain | |
| Kittyhawk, N. C. | | | 29.79 | 756.7 | 80 | 26.7 | 80 | SW | 14 | 6.3 | | | 8ks | | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 29.93 | 760.2 | 69 | 20.6 | 90 | W | 4 | 1.8 | | 5cs,k | Fog | W | | 0.19 | 4.8 | Cloudy | |
| La Crosse, Wis. | | | 30.12 | 765.0 | 58 | 14.4 | 75 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.03 | 762.7 | 71 | 21.7 | 66 | SE | 3 | 1.3 | | 2c | 0 | | | 0 | 0 | Clear | |
| Louisville, Ky. | | | 30.01 | 762.2 | 61 | 16.1 | 82 | NE | 12 | 5.4 | | | 10s | | N | 0.32 | 8.1 | Cloudy | |
| Lynchburg, Va. | | | 29.81 | 757.2 | 78 | 25.6 | 65 | NW | 2 | 0.9 | | 2k | 0 | NW | | 0.02 | 0.5 | Fair | |
| Maricopa Wells, Arizona | | | | | 78 | 25.6 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 30.20 | 767.1 | 49 | 9 4 | 77 | NW | 4 | 1.8 | | 2k | 0 | NW | | 0 | 0 | Clear | |
| Mason, Tex. | 28.37 | 720.6 | 30.05 | 763.3 | 76 | 24.4 | 85 | Calm | 0 | 0 | | 2c | 2s | | | 1.52 | 38.6 | Fair | |
| Memphis, Tenn. | | | 30.00 | 762.0 | 74 | 23.3 | 85 | NE | 6 | 2.7 | | | 10n | | NE | 0.07 | 1.8 | Light rain | |
| Milwaukee, Wis. | | | 30.18 | 766.6 | 53 | 11.7 | 73 | NE | 14 | 6.3 | | 2c | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.00 | 762.0 | 81 | 27.2 | 78 | W | 9 | 4.0 | | 0 | 0 | | | 0.20 | 5.1 | Clear | |
| Montgomery, Ala. | | | 29.98 | 761.5 | 77.5 | 25.3 | 84 | NW | 5 | 2.2 | | 5c | 0 | | | 0.03 | 0.8 | Fair | |
| Morgantown, W. Va. | 28.96 | 735.6 | 29.99 | 761.7 | 58 | 14.4 | 69 | N | 8 | 3.6 | | | 10s | | N | 0.75 | 19.1 | Cloudy | |
| Mt. Washington, N. H. | 23.39 | 594.1 | 29.75 | 755.6 | 34 | 1.1 | 100 | NW | 60 | 26.8 | | | Fog | | | 1.38 | 35.1 | Foggy | |
| Nashville, Tenn. | | | 29.97 | 761.2 | 74 | 23.3 | 76 | N | 5 | 2.2 | | 5k | 5s | SW | SE | 0 | 0 | Cloudy | |
| New Haven, Conn. | | | 29.68 | 753.9 | 70 | 21.1 | 52 | N | 20 | 8.9 | | 8c | 0 | N | | 0.80 | 20.3 | Fair | |
| New London, Conn. | | | 29.65 | 753.1 | 71 | 21.7 | 57 | NW | 17 | 7.6 | | 3c,cs | 2s | NW | | 0.60 | 15.2 | Fair | |
| New Orleans, La. | | | 30.03 | 762.7 | 79 | 26.1 | 82 | W | 3 | 1.3 | | 4k | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.61 | 752.1 | 69 | 20.6 | 75 | W | 16 | 7.2 | | 0 | 5ks | | W | 0.23 | 5.8 | Fair | |
| New York, N. Y. | | | 29.76 | 755.9 | 68 | 20.0 | 55 | NW | 12 | 5 4 | | 5c | 0 | W | | 1.84 | 46.7 | Fair | |
| Norfolk, Va. | | | 29.80 | 756.9 | 77 | 25.0 | 90 | N | 10 | 4.5 | | 5k | 0 | N | | 0 | 0 | Fair | |
| North Platte, Neb. | 27.09 | 688.1 | 29.54 | 750.3 | 69 | 20.6 | 56 | SE | 12 | 5.4 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Omaha, Neb. | 28.98 | 736.1 | 30.02 | 762.5 | 68 | 20.0 | 79 | S | 2 | 0.9 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 29.88 | 758.9 | 54 | 12.2 | 83 | NW | 14 | 6.3 | | 1k | 0 | | | 0.77 | 19.6 | Clear | |
| Pembina, Dakota | | | 29.98 | 761.5 | 51 | 10.6 | 86 | SE | 5 | 2.2 | | 10k | 0 | SE | | 0 | 0 | Cloudy | |
| Philadelphia, Pa. | | | 29.79 | 756.7 | 68 | 20.0 | 60 | N | 20 | 8.9 | | 5k,cs | 2 s | W | W | 1.72 | 43.7 | Fair | |
| Phoenix, Arizona | | | | | 68 | 20.0 | 18 | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.95 | 456.7 | 30.19 | 766 8 | 32 | 0.0 | 40 | W | 12 | 5.4 | | 1k | 0 | W | | 0 | 0 | Clear | |
| Pittsburg, Pa. | | | 29.98 | 761 5 | 57 | 13.9 | 79 | N | 8 | 3.6 | | | 10s | | N | 0.79 | 20.1 | Cloudy | |
| Port Huron, Mich. | | | 30.07 | 763.8 | 52 | 11.1 | 79 | N | 21 | 9.4 | | 0 | 2ks | | | Inap. | Inap. | Fair | |
| Portland, Me. | | | 29.53 | 750.0 | 64 | 17.8 | 67 | W | 3 | 1.3 | | 2k | 8s | W | W | 0.36 | 9.1 | Cloudy | |
| Portland, Oregon | | | 30.13 | 765.3 | 55 | 12.8 | 80 | W | 3 | 1.8 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Prescott, Arizona | 24.86 | 631.4 | 30.22 | 767.6 | 54 | 12.2 | 19 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.06 | 763.5 | 85 | 29.4 | 71 | W | 3 | 1.3 | | 5cs | 5ks | | | 0.29 | 7.4 | Cloudy | |
| Rochester, N. Y. | | | 29.90 | 759.4 | 55 | 12.8 | 80 | NW | 16 | 7.2 | | 8k | 0 | NW | | 0.69 | 17.5 | Fair | |
| Salt Lake City, Utah | 25.54 | 648.7 | 29.87 | 758.7 | 67 | 19.4 | 11 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.76 | 755.9 | 67 | 19.4 | 69 | NW | 25 | 11.2 | | 8c | 2k | W | NW | 0.87 | 22.1 | Cloudy | |
| San Antonio, Tex. | | | 29.84 | 757.9 | 79 | 26.1 | 86 | S | 2 | 0.9 | | 8k | 8ks | | S | 0 | 0 | Cloudy | |
| San Diego, Cal. | | | 30.03 | 762.7 | 61 | 16.1 | 83 | N | 4 | 1.8 | | | 1s | | N | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.04 | 763.0 | 55 | 12.8 | 87 | S | 4 | 1.8 | | | 11 cs | | | 0 | 0 | Hazy | |
| Santa Fe, New Mexico | 23.36 | 593.3 | 29.90 | 759.4 | 62 | 16.7 | 46 | E | 2 | 0.9 | | [illegible] | 11 cs | | | 0 | 0 | Hazy | |
| Savannah, Ga. | | | 29.91 | 759.7 | 86 | 30.0 | 68 | W | 7 | 3.1 | | 0 | 0 | W | | 0.03 | 0.8 | Clear | |
| Shreveport, La. | | | 30.07 | 763.8 | 75 | 23.9 | 95 | Calm | 0 | 0 | | 1k | 10s | | | 0.10 | 2.5 | Light rain | |
| Smithville, N. C. | | | 29.86 | 758.4 | 80 | 26.7 | 78 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.67 | 753.6 | 68.5 | 20.3 | 62 | NW | 9 | 4.0 | | 8k | 0 | W | | 0.64 | 16.3 | Fair | |
| St. Louis, Mo. | | | 30.08 | 764.0 | 70 | 21.1 | 57 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 29.98 | 761.5 | 77 | 25.0 | 95 | SW | 4 | 1.8 | | 0 | 5s | | W | 1.58 | 40.1 | Fair | |
| St. Paul, Minn. | | | 30.07 | 763.8 | 61 | 16.1 | 66 | E | 8 | 3.6 | | 8c | 0 | W | | 0 | 0 | Fair | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 65 | 18.3 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.93 | 684.0 | 29.93 | 760.2 | 71 | 21.7 | 62 | S | 4 | 1.8 | | 0 | 2s | | | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 29.58 | 751.3 | 63 | 17.2 | 83 | NW | 20 | 8.9 | | 10k | 0 | NW | | 0.60 | 15.2 | Cloudy | |
| Toledo, Ohio | | | 30.08 | 764.0 | 58 | 14.4 | 69 | NW | 16 | 7.2 | | 5k | 0 | NW | | 0.05 | 1.3 | Fair | |
| Tucson, Arizona | 27.61 | 701.3 | 30.15 | 765.8 | 67 | 19.4 | | SE | | | | 1k | 0 | E | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.89 | 759.2 | 80 | 26.7 | 78 | W | 8 | 3.6 | | 5k | 0 | W | | 0.10 | 2.5 | Fair | |
| Vicksburg, Miss | | | 30.02 | 762.5 | 78 | 25.6 | 86 | S | 4 | 1.8 | | | 10s | | W | 0.07 | 1.8 | Cloudy | |
| Virginia City, Montana | 24.16 | 613.6 | 29.04 | 752.8 | 55 | 12.8 | 50 | SE | 6 | 2.7 | | 1c | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 29.86 | 758.4 | 70.5 | 21.4 | 69 | NW | 12 | 5.4 | | 4c.cs | 0 | W | | 2.19 | 55.6 | Fair | |
| Wickenburg, Arizona | | | | | 81 | 27.2 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 29.83 | 757.7 | 82 | 27.8 | 74 | W | 10 | 4.5 | | 1cs | 0 | | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 29.60 | 751.8 | 70 | 21.1 | 90 | W | 8 | 3.6 | | 10k | 0 | W | | 0.12 | 3.0 | Cloudy | |
| Yankton, Dakota | 28.72 | 729.5 | 29.96 | 761.0 | 67 | 19.4 | 79 | E | 5 | 2.2 | | 8cs | 5s | W | W | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | 29.86 | 758.4 | 75 | 23.9 | 34 | E | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear. | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.21 | 767.3 | 81 | 27.2 | 78 | Calm | 0 | 0 | | 8c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 29.93 | 760.2 | 83 | 28.3 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S.A | | | 30.09 | 764.3 | 82 | 27.8 | 83 | E | | | 2 | 4c | 5k | E | | 0.040 | 1.02 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S.A. | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.21 | 640.3 | | | 67.5 | 19.7 | 71 | Calm | | | 0 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 30.05 | 763.3 | 40 | 4.4 | 96 | N | 8 | 3.6 | | 3k | 0 | NE | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.18 | 766.6 | 72 | 22.2 | | NE | | | 5 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.6 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m.; Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.; Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phoenix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m.; Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,273 ft., or 388.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., to reduce to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Commodore Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10 | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.94 | 760.5 | 78 | 25.6 | 72 | 22.8 | 80 | NNW | | | 3 | | 6 | | NNW | 2.13 | 54.1 | | | Fair | |
| Navy Yard, Mare Island, Cal. | 30.04 | 763.0 | 56 | 13.3 | 55 | 12.8 | | SW | 17 | 7.6 | | | 1 | | SW | 0 | 0 | | | Clear | |
| Navy Yard, Pensacola, Fla. | 30.16 | 766.1 | | | 81 | 27.2 | 83 | NW | 7 | 3.1 | | | 7 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.62 | 752.3 | 73 | 22.8 | 66 | 18.9 | 79 | NW | 5 | 2.2 | | | | | SE | 0.2 | 5. | | | Clear | |
| Naval Hospital. Yokohama, Japan | 29.80 | 756.9 | 75.5 | 24.2 | 74 | 23.3 | 86 | SW | | | 2 | | 1ck | | SW | 0 | 0 | | | Fair | |
| Alert, S. 0° 06′, E. 129° 32′ 32″ | 29.95† | 760.7† | 81 | 27.2 | 81 | 27.2 | 96 | SE | | | 5–6 | | 7 | | SE | | | Moderate. | E | D. clouds | |
| Alliance, Beirut, Syria | 29.96 | 761.0 | 78 | 25.6 | 78 | 25.6 | 78 | N&E | | | 2 | | 2 | | | | | Smooth | None | Pleasant | |
| Ashuelot, N. 27° 04′ E. 120° 57′ | 29.84 | 757.9 | 79 | 26.1 | 78 | 25.6 | 78 | NE | | | 5–6 | | 10 | | | | | Long | E | Fog & mist | |
| Canonicus, New Orleans, La | 30.06 | 763.5 | 55 | 12.8 | 77 | 25.0 | 86 | W | | | 1 | | 7 | | | | | | | Fair | |
| Colorado, New York, N. Y | 29.79 | 756.7 | 62 | 16.7 | 65 | 18.3 | 68 | WNW | 16 | 7.2 | | | 7 | | S | 1.31 | 33.3 | | | Hazy | |
| Despatch, Constantinople, Turkey | 30.07 | 763.8 | 73 | 22.8 | 72 | 22.2 | 50 | NE | | | 1 | | 1 | | | | | | | Clear | |
| Franklin, Norfolk, Va | 29.97 | 761.2 | 78 | 25.6 | 79 | 26.1 | 95 | N | 1 | 0.4 | | | 6 | | N | 0 | 0 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.41 | 772.4 | 73 | 22.8 | 74 | 23.3 | 95 | NW | | | 1 | | 5kn | | | 0 | 0 | | | Hazy | |
| ‡Gettysburg, Leghorn, Italy | 29.90 | 759.4 | | | 75 | 23.9 | 100 | SSE | | | 2 | | 5 | | | 0 | 0 | Calm | None | Misty | |
| Hartford, Hampton Roads, Va | 30.07 | 763.8 | 81 | 27.2 | 69 | 20.6 | 80 | NE | 1 | 0.4 | | | | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.05 | 763.3 | 85 | 29.4 | 85 | 29.4 | 87 | N | | | 0 | | 9 | | | 0 | 0 | Light ground. | | Misty | |
| Kearsarge, Nagasaki, Japan | 30.04 | 763.0 | 76 | 24.4 | 74 | 23.3 | 100 | ESE | | | 4 | | 10 | | SSW | 0 | 0 | Smooth | | Misty | |
| Marion, Smyrna, Turkey | 29.95 | 760.7 | 78 | 25.6 | 82 | 27.8 | 67 | SW | | | 3 | | 0 | | | 0 | 0 | Smooth | | Blue sky | |
| Michigan, Erie, Pa | 29.50 | 749.3 | 64 | 17.8 | 60 | 15.6 | 65 | NNW | | | 3 | | 10 | | NNW | | | | | Cloudy | |
| Monocacy, Tientsin, China | 29.80 | 756.9 | 78 | 25.6 | 78 | 25.6 | 82 | SSE | | | 2 | | 0 | | | Blank | Blank | | | Blue sky | |
| Monongahela, Off New London, Conn. | 29.73 | 755.1 | 67 | 19.4 | 67 | 19.4 | 69 | NW | | | 5 | | 2k | | | Light | Light | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.15 | 765.8 | | | 82 | 27.8 | 83 | WSW | 11 | 4.9 | | | 1 | | S | 0.16 | 4.1 | | | D. clouds | |
| Omaha, Callao, Peru | 30.08 | 764.0 | 67 | 19.4 | 67 | 19.4 | 79 | E | 1 | 0.4 | | | 10 | | | 0 | 0 | Slight | S | Overcast | |
| Ossipee, N. 35° 56′, W. 75° 24′ | 29.85 | 758.2 | 75 | 23.9 | 72 | 22.2 | 95 | WSW | | | 4 | | 4 | | W | | | | | Hazy | |
| Palos, Nankin, China | 29.94 | 760.5 | 87 | 30.6 | 86 | 30.0 | 92 | ENE | | | 2 | | 6 | | N&E | 0 | 0 | | | Clear | |
| Pensacola, N. 29° 21′, W. 135° 17′ | 30.39 | 771.9 | | | 67 | 19.4 | 84 | NE | | | 4 | | 9 | | NE | 0 | 0 | Long | N&E | Cloudy | |
| Plymouth, N 26° 14′, W. 88° | 30.14 | 765.5 | 84 | 28.9 | 84 | 28.9 | 79 | S&W | | | 2 | | 3 | | SSW | 0 | 0 | Smooth | | Clear | |
| Ranger, N. 22° 56′, E. 37° 59′ | 29.95 | 760.7 | | | 88 | 31.1 | 76 | NNW | | | 3 | | 0 | | | | | Smooth | | Hazy | |
| Richmond, Rio de Janeiro, Brazil | 30.46 | 773.7 | 73.0 | 22.8 | 70.0 | 21.1 | 95 | NE | | | 2 | | 5 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.91 | 759.7 | | | 79 | 26.1 | 78 | SE | | | 2 | | 4 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.90 | 759.4 | 75 | 23.9 | 73 | 22.8 | 81 | NW | | | 5 | | 8 | | | 0.18 | 4.6 | | | Cloudy | |
| Saratoga, Boston, Mass | 29.94 | 760.5 | | | 68 | 20.0 | | NNW | | | 3 | | 7 | | WNW | Blank | Blank | | | | |
| St. Louis, League Island, Pa | 29.78 | 756.4 | 71 | 21.7 | 69 | 20.6 | 70 | NNW | 8 | 3.6 | | | 5 | | WSW | 1.95 | 49.5 | | | Fair | |
| Swatara, Off Key West, Fla | 30.08 | 764.0 | 83 | 28.3 | 83 | 28.3 | 87 | ENE | | | 2 | | 3k | | NE | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.78 | 756.4 | 80 | 26.7 | 79 | 26.1 | 91 | WSW | | | 3 | | 4 | | N&E | 0 | 0 | Long | E | D. clouds | |
| Trenton, Smyrna, Turkey | 30.15† | 765.8† | 80 | 26.7 | 80 | 26.7 | 91 | WSW | 8 | 3.6 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Vandalia, Constantinople, Turkey | 30.05 | 763.3 | 70 | 21.1 | 70 | 21.1 | 75 | SSE | | | 1 | | 10 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.62 | 752.3 | 69 | 20.6 | 68 | 20.0 | 84 | NNW | 10 | 4.5 | | | 6 | | N | 0.2 | 5. | | | D. clouds | |
| Wyoming, Washington, D.C | 30.00† | 762.0† | 74 | 23.3 | 73 | 22.8 | | WNW | | | 2 | | 3 | | W | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | CHARACTER. | DIRECTION FROM— | | |

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Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 20′, E. 174° 50′ | W | | 29.87 | 758.7 | 58 | 14.4 | 82 | WSW | | | 3 | | k | | W | Smooth | | D. clouds | Capt. W. H. Kidley |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 47° 8′, W. 33° 4′ | N68E | 12.8 | 29.73 | 755.1 | 59.5 | 15.3 | 97 | SE | | | 4 | | Fog | | | Rough | | Fog and mist | Capt. H. Andressen. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. C. Pe[illegible]. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| | | | | | | | | | | | | | | | | | | | Capt. G. Meyer |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgenson. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 23, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.12 | 765.1 | 79.5 | 26.4 | 50 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Aiglers | | | 30.08 | 764.0 | 80 6 | 27.0 | 63 | N | | | 2 | | 0 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.00 | 761.9 | 80.1 | 26.7 | 76 | NW | | | 2 | | 8 | | | 0.079 | 2.0 | Cloudy | Fleury. |
| Tunis | | | 30.03 | 762.8 | 93.2 | 34.0 | | W | | | 4 | | 7 | | | 0.039 | 1.0 | Cloudy | Jacques. |
| Sfax | | | 30.08 | 764 1 | 86.0 | 30 0 | | SSW | | | 1 | | 3 | | | Inap. | Inap. | Fair | Husson. |
| Saida | | | 30.10 | 764 5 | 77.0 | 25 0 | | N | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.07 | 763.8 | 86.0 | 30 0 | | SW | | | 3 | | 2 | | | 0.118 | 3.0 | Clear | Bourgeois. |
| Geriville | | | 30.15 | 765.8 | 85.8 | 29 9 | 21 | W | | | 6 | | 1 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.11 | 761.8 | 95.0 | 35.5 | 23 | W | | | 6 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.00 | 761.9 | 106.0 | 41.3 | | SE | | | 4 | | 10 | | | Inap. | Inap. | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.85 | 758.2 | 83.1 | 28.4 | 43 | SW | | | 3 | | 8 | | | Inap | Inap. | Raining | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.84 | 758.0 | 73.9 | 23.3 | 78 | W | | | 1 | | 10 | | | 0.165 | 4.2 | | Dr. Wierzbiski. |
| Eperies | | | 29.81 | 757 2 | 78.4 | 25.8 | 62 | S | | | 2 | | 6k,s | | N | 0.020 | 0.50 | | Julius Mikolik. |
| Gratz | 28.63 | 727.3 | 29.82 | 757.5 | 76.8 | 24.9 | 68 | SE | | | 2 | | 7 | | | 0.322 | 8.2 | | Andreas Rospini. |
| Hermannstadt | 28.60 | 726 4 | 29.95 | 760.7 | 76.8 | 24.9 | 57 | SSE | | | 2 | | 5 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.60 | 726 3 | 29.90 | 759.4 | 65 5 | 18.6 | 84 | WNW | | | 2 | | 10 | | | 0.157 | 4.0 | | Prof. O. Wagner |
| Lemberg | | | 29.81 | 757.2 | 79 5 | 26.4 | 57 | SE | | | 1 | | 7 | | | 0.417 | 10.6 | | Dr. T. Stanecki. |
| Pola | | | 29.91 | 759.6 | 80.4 | 26.9 | 64 | SE | | | 3 | | 10 | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 29.86 | 758.5 | 84 6 | 29.2 | 54 | S | | | 1 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 29.93 | 760.1 | 78.8 | 26.0 | 67 | E | | | 1 | | 9 | | | 0.661 | 16.8 | | P. Busin. |
| Vienna | | | 29.88 | 758.9 | 73.8 | 23.2 | 61 | WNW | | | 1 | | 10 | | | 0.138 | 3.5 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.42 | 721.9 | 759 7 | 58.1 | 14.5 | 84 | SW | | | 2 | | 9 | | | 0.276 | 7.0 | | | Royal Observatory. |
| Brussels | | | 29.91 | 759.4 | 64.0 | 17.8 | 79 | SW | | | 4 | 2c | 7k | SW | WSW | 0.033 | 0.85 | | |
| Furnes | | | | | | | | | | | | | | | | | | | |
| Maeseyck | | | 29.78 | 756.4 | 64.2 | 17.9 | 86 | SW | | | 6 | | 10 | | | 0.094 | 2.4 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1 371.4 feet At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.79 | 756.7 | 49.6 | 9.8 | | NW | 19 | 8.5 | | | 3 | | | 0.510 | 12.95 | Blue sky | William Boswell. |
| Ardrossan | | | 29.82 | 757.4 | 57 | 13.9 | | NNW | | | 3 | | 4 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 29.93 | 760.2 | 57.2 | 14.0 | | NNW | 6 | 2.7 | | | 7 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.86 | 758.4 | 53.1 | 11.7 | | WNW | 19 | 8.5 | | | 9 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 29.98 | 761.5 | 57.5 | 14.2 | | NW | | | 1 | | 7 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 29.79 | 756.7 | 53.3 | 11.8 | | N | | | 1 | | 10 | | | 0.04 | 1.0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.03 | 762.7 | 82.8 | 28.2 | | NE | | | 3 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 29.77 | 756.1 | 63.0 | 17.2 | | WSW | | | 2 | | 10 | | | Blank | Blank | Overcast | H. Todd. |
| Cardington | | | 29.81 | 757.2 | 64.0 | 17.8 | | W | | | 4 | | 7 | | | | | D. clouds | John McLaren. |
| Chatham, School M. E. | | | 29.79 | 756.7 | 64.2 | 17.9 | | SW | | | 2 | | 8 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.80 | 731.5 | 30.28 | 769.1 | 54.0 | 12.2 | | W | | | 4 | | 6 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.89 | 759.2 | 57 | 13.9 | | N | | | 6 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 29.82 | 757.4 | 62 | 16.7 | | WNW | | | 3 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.82 | 757.4 | 53.0 | 11.7 | | N | 0.4 | 0.2 | | | 10 | | | | | Gloomy | Thomas Mackereth. |
| Falmouth, Observatory | | | 29.98 | 761.5 | 57.9 | 14.4 | | NW | | | 4 | | 7 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.86 | 707.6 | 30.10 | 764.5 | 66.3 | 19.1 | | NE | | | 1 | | 4 | | | | | D. clouds | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.07 | 763.8 | 83 | 28.3 | | E | | | 2 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.95 | 760.7 | 68 | 20.0 | | NW | | | 3 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.10 | 764.5 | 78.1 | 25.6 | | SW | | | 5 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.80 | 756.9 | 59.2 | 15.1 | | WNW | | | 6 | | 5 | | | | | D. clouds | D. G. Maclean. |
| Great Yarmouth | | | 29.75 | 755.6 | 57 | 13.9 | | NW | | | 4 | | 5 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 29.80 | 756.9 | 63.7 | 17.6 | | WNW | | | 2 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 29.94 | 760.5 | 61 | 16.1 | | WNW | | | 3 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.01 | 762.2 | 68 | 20.0 | | N | | | 2 | | 2ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.93 | 760.2 | 55 | 12.8 | | NNW | | | 4 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 29.81 | 757.2 | 62.1 | 16.7 | | W | 12 | 5.4 | | | 9 | | | | | Threatening | The Staff. |
| Kingstown | | | 29.94 | 760.5 | 56 | 13.3 | | NNW | | | 5 | | 6 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 29.82 | 757.4 | 52.3 | 11.3 | | N | | | 2 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.98 | 761.5 | 85.8 | 29.9 | | SE | | | 1 | | 6k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.81 | 757.2 | 53 | 11.7 | | WSW | | | 3 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.07 | 763.8 | 83.2 | 28.4 | | W | | | 1 | | 8 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 29.84 | 757.9 | 54.5 | 12.5 | | NNW | | | 2 | | 10k,d | | NW | 0.197 | 5.01 | Overcast | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 29.82 | 757.4 | 53.9 | 12.2 | | NW | | | 5–6 | | 10 | | | | | Overcast | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 29.81 | 757.2 | 61 | 16.1 | | WNW | | | 5 | | 9 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 29.93 | 760.2 | 64.0 | 17.8 | | NW | | | 3 | | 7 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 29.98 | 761.5 | 60 | 15.6 | | NNW | | | 3 | | 5 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 29.94 | 760.5 | 55 | 12.8 | | WNW | | | 2 | | 3 | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 29.94 | 760.5 | 64.0 | 17.8 | | W | | | 4 | | 5 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.74 | 755.4 | 47.8 | 8.8 | | NW | 27 | 12.1 | | | 5 | | | | | Showery | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 30.00 | 762.0 | 81.0 | 27.2 | | NE | | | 2 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.81 | 757.2 | 53.1 | 11.7 | | NNE | | | 1 | | 9 | | | 0.076 | 1.93 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 29.85 | 758.2 | 65.4 | 18.6 | 72 | W | | | 2 | | 4 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.82 | 757.4 | 56.9 | 13.8 | | W | | | 2 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.83 | 757.7 | 54 | 12.2 | | NW | | | 4 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 29.81 | 757.2 | 60.3 | 15.7 | | NW | | | 1 | | 8 | | | | | D. clouds | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.74 | 755.4 | 48 | 8.9 | | NW | | | 5 | | 10 | | | | | Showery | John Trotter. |
| Truro, Royal Institution | | | 29.99 | 761.7 | 62 | 16.7 | | N | | | 6 | | 3 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.04 | 763.0 | 57.9 | 14.4 | | NNW | 17 | 7.6 | | | 4 | | | | | D. clouds | The Staff. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | N | | | 6 | | 0 | | | 0.10 | 2.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.38 | 771.6 | 60.3 | 15.7 | 83 | NW | 8 | 3.6 | | 4 | 4 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.92 | 760.0 | 54.5 | 12.5 | 88 | Calm | | | 0 | | 8k | | | 0.02 | 0.5 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 29.82 | 757.4 | 53.9 | 12.2 | | NW | | | 2 | | 6k | | | 0.39 | 9.9 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.26 | 768.6 | 73.0 | 22.8 | 70 | E | 16.1 | 7.2 | | 0 | 3 | | E | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.32 | 770.1 | 50.8 | 10.4 | 69 | N | 9 | 4.0 | | | 10 | | SW | 0 | 0 | Fine, dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.95 | 760.7 | 52 | 11.1 | | N | | | 4 | 3 | 5 | N | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.60 | 751.8 | 46 | 7.8 | | NW | | | 6 | 5 | 5 | NW | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| MARINE SERIES. VESSELS. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 42° 45′, W. 59° 30′ | | | | | 53.0 | 11.7 | | WNW | | | 4 | | 3 | | | 2 | WSW | D. clouds | Capt. J. E. Mouland. |
| Ship Camperdown, N. 49° 10′, W. 20° 45′ | | | 30.04 | 763.0 | 59.0 | 15.0 | | E | | | 3 | | 8 | | | 1 | NW | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 11° 40′ | | | 30.04 | 763.0 | 59.9 | 15.5 | | N | | | 3 | | 1 | | | 4 | N | Blue sky | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 46′ 45°, W. 39° 15′ | | | 29.96 | 761.0 | 56.5 | 13.6 | | SE | | | 3 | | 10 | | | 4 | W | Overcast | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 52° 12′, W. 14° 31′ | | | 30.07 | 763.8 | 57 | 13.9 | | E | | | 3 | | 3 | | | | Confused. | | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | N | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 70 7 | 21.5 | 91 | NE | | | 3 | | 8cs | | NE | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.49 | 749.1 | 62.2 | 16.8 | 88 | WSW | | | 4 | | 10 | | | | | Raining | |
| Fanöe | | | 29.54 | 750.4 | 56.3 | 13.5 | 77 | W | | | 6 | | 10 | | | | | | |
| Godthaab, (Greenland) | | | 29.63 | 753.7 | 52.9 | 11.6 | 73 | E | | | 2 | | 8 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.89 | 759.3 | 47.8 | 8.8 | 74 | W | | | 4 | | 8 | | | | | | |
| Thorshavn, (Faröe) | | | 29.76 | 755.8 | 52.3 | 11.3 | 55 | N | | | 4 | | 4 | | | | | | |
| Vestervig | | | 29.40 | 746.8 | 53.2 | 11.8 | 78 | WNW | | | 7 | | 8 | | | | | Raining | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds

## FRENCH SERIES.

Furnished by the cooperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alengon; Normal School | | | 30.03 | 762.8 | 69.8 | 21 | 76 | W | | | 2 | | 8kn | | W | 0.299 | 7.6 | Very cloudy | Collignon, Director. |
| Amiens, Normal School | | | 29.82 | 757.3 | 66.9 | 19.4 | 68 | SW | | | 4 | | 8 | | W | 0.126 | 3.2 | Very cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 29.95 | 760.8 | 77.4 | 25.2 | 49 | N | | | 2 | | 8 | | S | 0 | 0 | Very cloudy | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 29.95 | 760.7 | 68.0 | 20.0 | 55 | WSW | | | 2 | | 10 | | WSW | 0.012 | 0.3 | Covered | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 29.95 | 760.6 | 64.4 | 18.0 | 82 | SW | 3.1 | 1.4 | | | | | SW | 0.213 | 5.4 | | Albert Cheux. |
| Beauvais | | | 29.91 | 759 7 | 64 4 | 18 | 67 | W | | | 6 | | 10 | | W | 0.217 | 5.50 | Covered | Normal School. |
| Besançon | | | 29.98 | 761.6 | 73.0 | 22.8 | 53 | SSW | | | 6 | | 2 | | SSW | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourg-en-Bresse | | | 30.11 | 764.8 | 71.6 | 22 | 56 | W | | | 2 | | 8n | | E | 0.142 | 3.6 | Very cloudy | Normal School. |
| Bourges, Normal School | | | 29.99 | 761.7 | 68.0 | 20 | 81 | S | | | 8 | | 8 | | N | 0.20 | 5. | Very cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 29.92 | 760.0 | 67.1 | 19.5 | 64 | W | | | 3 | | 9k | | W | 0.010 | 0.26 | | The Staff. |
| Carcassonne, Normal School | | | 30.08 | 763.9 | 62.6 | 17 | 80 | N | | | 4 | | 2 | | N | 0.43 | 11. | Slightly cl'dy | Vateau, Director. |
| Caen | | | 29.93 | 760.1 | 64.0 | 17.8 | 65 | W | | | 2 | | 10 | | W | 0.165 | 4.2 | Covered | Normal School. |
| Chartres, Normal School | | | 29.85 | 758 1 | 66.2 | 19 | 74 | W | | | 2 | | 9 | | E | 0.701 | 17.8 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 29.91 | 759.7 | 67.6 | 19.8 | 62 | SW | | | 3 | | 8k | | SW | 0.047 | 1.2 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 29.95 | 760.8 | 73.2 | 22.9 | 48 | W | | | 3 | | 5 | | SW | 0.094 | 2.4 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 29.89 | 759.3 | 62.8 | 17.1 | 72 | W | | | 4 | | 10 | | W | 0.04 | 1. | Covered | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.00 | 761.9 | 77.0 | 25.0 | 51 | NW | | | 1 | | 8 | | SW | 0.12 | 3. | | M. Kina. |
| Grenoble | | | 30.03 | 762.7 | 72.7 | 22.6 | 54 | NW | | | 6 | | 8s,kn | | SE | 0.177 | 4.50 | Cloudy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.02 | 762.6 | 68.4 | 20.2 | 62 | SW | | | 6 | | 8 | | S | 0.102 | 2.6 | Very cloudy | Mouillot, Director. |
| Le Mans, Normal School | | | 29.96 | 761.0 | 64.4 | 18 | 68 | NW | | | 2 | | 5 | | W | 0.04 | 1. | Cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.03 | 762.8 | 70.7 | 21.5 | 67 | W | | | 4 | | 2 | | SE | 0.724 | 18.4 | Partly cl'dy. | Pin, Director. |
| Lorient, Naval Observatory | | | 30.01 | 762.3 | 66.9 | 19.4 | 61 | W | | | 4 | | 10 | | SW | 0.016 | 0.4 | Covered | T. Carré, Director. |
| Mâcon, Normal School | | | 29.98 | 761.4 | 66.4 | 19.1 | 83 | S | | | 2 | | 0 | | | 0.087 | 2.2 | Clear | M. Marchal, Director. |
| Metz | | | 29.99 | 761.7 | 67.6 | 19.8 | 55 | SW | | | 3 | | 9k | | | | | Light rain | M. A. Schuster, Dir. |
| Mirecourt | | | 29.89 | 759.2 | 68.7 | 20.4 | 57 | WSW | | | 4 | | 10 | | NE | 0 | 0 | Covered | Normal School. |
| Nismes, Normal School | | | 29.93 | 760.2 | 76 6 | 24.8 | 46 | W | | | 2 | | 10 | | N | 0.069 | 1.75 | Raining | Boyer, Director. |
| Orleans, Normal School | | | 29.91 | 759.8 | 69.4 | 20.8 | 53 | NW | | | 6 | | 5 | | SW | 0 | 0 | Cloudy | Bernard, Director. |
| Paris, Observatory | | | 29.91 | 759.6 | 67.5 | 19.7 | 57 | SW | | | 3 | | 9ck | | WSW | 0.331 | 8.41 | Almost cov'd | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School. |
| Rochefort, Naval Obs'y | | | 30.04 | 762.9 | 73.0 | 22.8 | 60 | SW | | | 4 | | 8 | | SW | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 29.91 | 759.7 | 63.3 | 17.4 | 68 | W | | | 2 | | 5 | | W | 0.374 | 9.5 | Cloudy | F. Lucard, Director. |
| Tarbes, Normal School | 29.01 | 736.8 | 30.05 | 763.2 | 75.6 | 24.2 | 85 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 29.97 | 761.2 | 73.8 | 23.2 | 60 | NNW | | | 2 | | 5 | | NW | 1.032 | 26.2 | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.95 | 760.7 | 80.6 | 27 | | | | | | | | | | 0.43 | 11. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 79.2 | 26.2 | 42 | SW | | | 1 | | 10 | | | 0 | 0 | Covered | The Staff. |
| Mont-Louis | 24.94 | 633.5 | 30.26 | 768.5 | 50.0 | 10.0 | 72 | E | 5.6 | 2.50 | | | 10 | | | 0.362 | 9.2 | | Mr. Falguère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 29.91 | 759.6 | 69.3 | 20.7 | 60 | WSW | | | 3-4 | | 10 | | W | 0.303 | 7.7 | | Marié Davy, Director. |
| Perpignan | | | 30.05 | 763.2 | 65.5 | 18.6 | 92 | NW | 1.9 | 0.83 | | | 10 | | SW | 0.902 | 22.9 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.37 | 542.7 | | | 40.8 | 4.9 | | SW | | | 2 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.58 | 573.6 | | | 46.0 | 7.8 | | SW | | | 2 | | 9 | | | 1.000 | 25.4 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 29.92 | 759.9 | 68.0 | 20.0 | 63 | WSW | | | 2-3 | | 10 | | | 0.008 | 0.2 | | E. Renou. |
| Toulouse, Observatory | | | 30.10 | 764.6 | 62.1 | 16.7 | 89 | NW | | | 1 | | 10 | | | 0.469 | 11.9 | | The Staff |
| Tours | | | 29.97 | 761.3 | 69.1 | 20.6 | 51 | W | | | 3 | | 7 | | WNW | 0.024 | 0.6 | | C. Marquet. |
| Versailles, (near Paris) | | | 29.93 | 760.2 | 66.9 | 19.4 | 60 | W | | | 3 | | 10 | | | 0.161 | 4.10 | Covered | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.76 | 755.9 | 73.4 | 23.0 | 84 | ESE | 13.4 | 6.0 | | | 9k | | ESE | 0 | 0 | Covered | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4. The rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2.877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10 | Clouds. Amount. Up'er 0–10 | Clouds. Amount. Low'r 0–10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 29.87 | 758.8 | 75.2 | 24.0 | 35 | W | | | 6 | | 4 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 29.72 | 754.9 | 76.8 | 24.9 | 46 | S | | | 5 | | 8 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 29.84 | 757.8 | 79.5 | 26.4 | 46 | S | | | 3 | | 10 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 29.90 | 759.4 | 70.2 | 21.2 | 72 | SW | | | 5 | | 5 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 29.85 | 758.3 | 70.7 | 21.5 | 62 | SE | | | 6 | | 8 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 29.74 | 755.5 | 68.2 | 20.1 | 66 | SW | | | 6 | | 9 | | | 0.04 | 1. | | Director Lose. |
| Emden | | | 29.61 | 752.1 | 66.6 | 19.2 | 69 | WSW | | | 3 | | 7 | | | 0.354 | 9.0 | | Prof. Prestel. |
| Frankfort on the Main | | | 29.91 | 759.6 | 71.6 | 22.0 | 50 | SW | | | 4 | | 7 | | | 0.122 | 3.1 | | Physical Society. |
| Friedrichshafen | 23.56 | 725.4 | 29.95 | 760.6 | 69.8 | 21.0 | 73 | WSW | | | 6 | | 7 | W | | 0.248 | 6.3 | | M. Wilhelm. |
| Hamburg | | | 29.62 | 752.3 | 65.8 | 18.8 | 81 | WSW | | | 8 | | 10n | | | 1.374 | 9.5 | Thunder-storm. | Captain F. Hegemann. |
| Kiel | | | 29.58 | 751.2 | 62.8 | 17.1 | 88 | W | | | 3 | | 10 | | | 0.154 | 3.9 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.66 | 753.4 | 70.0 | 21.1 | 77 | W | | | 5 | | 9 | | | 0.035 | 0.1 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 29.80 | 757.0 | 73.9 | 23.3 | 41 | SW | | | 5 | | 9 | SW | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.68 | 753.8 | 64.4 | 18.0 | 84 | W | | | 2 | | 7s | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 29.67 | 753.7 | 77.5 | 25.3 | 42 | WSW | | | 3 | | 5 | | | 0.028 | 0.7 | | A. Lothes. |
| Posen | | | 29.76 | 756.0 | 81.1 | 27.3 | 36 | WSW | | | 8 | | 5 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 29.93 | 760.3 | 72.5 | 22.5 | 42 | W | | | 3 | | 10 | W | | 0.055 | 1.4 | | Dr. Schur. |
| Stuttgart | | | 29.85 | 758.2 | 72.9 | 22.7 | 43 | W | | | 1 | | 6 | W | | 0 | 0 | | Prof. Schoder. |
| Treves, (Trier) | | | 29.74 | 755.5 | 65.8 | 18.8 | 71 | SW | | | 8 | | 9 | | | 0.020 | 0.5 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.41 | 721.5 | 29.85 | 758.1 | 72.1 | 22.3 | 48 | W | | | 4 | | 6 | SW | | 0.118 | 3.0 | Raining | T. V. Dicknether. |
| Wustrow, Naval School | | | 29.65 | 753.2 | 70.7 | 21.5 | 63 | SW | | | 4 | | 7 | | | 0.091 | 2.3 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet: Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.01 | 762.2 | 88.2 | 31.2 | | NE | | | | | cs | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.45 | 748.1 | 29.50 | 749.4 | 89.3 | 31.8 | 66 | SW | 19.0? | 8.4? | | | 8 | | SW | 0 | 0 | D. clouds | |
| Deesa | 29.08 | 738.2 | 29.53 | 750.1 | 97.9 | 36.6 | 40 | S | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.62 | 752.3 | 29.66 | 753.3 | 81.6 | 27.6 | 87 | SSE | 14.0 | 6.2 | | | 10 | | SSW | 1.52 | 38.6 | Dust-haze | |
| Poona | 27.64 | 701.9 | 29.63 | 752.7 | 75.6 | 24.2 | 84 | | | | | | | | E | 0.15 | 3.8 | Raining | |
| Lahore | 28.65 | 727.8 | 29.34 | 745.3 | 109.8 | 43.2 | 28 | W | 1.3 | 0.5 | | | 4 | | | 0 | 0 | Blue sky | |
| Belgaum | | | | | 69.7 | 20.9 | 95 | W | 12.0 | 5.3 | | | 10 | | W | 6.91 | 175.5 | Raining | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.49 | 723.6 | 29.33 | 745.0 | 105.9 | 41.1 | | NW | 1.7 | 0.7 | | | | | | 0 | 0 | | |
| Agra | 28.82 | 732.1 | 29.35 | 745.5 | 107.7 | 42.1 | 20 | NW | 6.6 | 2.9 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.52 | 724.3 | 29.55 | 750.5 | 80.6 | 27.0 | 69 | N | 10.3 | 4.6 | | | 9 | | | 1.45 | 36.8 | Thunder-storm | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.01 | 736.9 | 29.36 | 745.8 | 105.0 | 40.6 | 26 | NW | 2.3 | 1.0 | | | | | | 0 | 0 | Dust-haze | |
| Allahabad | 29.06 | 738.0 | 29.35 | 745.4 | 105.9 | 41.1 | 32 | N | 2.0 | 0.8 | | | 10 | | | 0 | 0 | Dust-haze | |
| Patna | 29.25 | 743.0 | 29.42 | 747.4 | 97.2 | 36.2 | 51 | E | 2.0 | 0.8 | | | 6 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.48 | 697.9 | 29.43 | 747.6 | 86.0 | 30.0 | 61 | ENE | 6.7 | 2.9 | | | 10 | W | NE | 0.15 | 3.8 | Thunder, lightn'g | |
| Cuttack | 29.36 | 745.8 | 29.44 | 747.7 | 94.1 | 34.5 | 58 | SW | 5.6 | 2.5 | | | 8 | | | 0 | 0 | D. clouds | |
| Calcutta (Alipore) | 29.44 | 747.7 | 29.46 | 748.2 | 80.1 | 26.7 | 96 | NNW | 1.0 | 0.4 | | | 9 | | | 0.06 | 1.5 | Overcast | |
| Goalpara | 29.07 | 738.4 | 29.46 | 748.2 | 82.8 | 28.2 | 89 | SW | 2.2 | 0.9 | | | 10 | | | 1.06 | 26.9 | Overcast | |
| Chittagong | | | | | | | | | | | | | | | | | | | |
| Sibsagar | 29.18 | 741.2 | 29.51 | 749.6 | 85.9 | 29.9 | 77 | SSW | 3.0 | 1.3 | | | 7 | | | 0.01 | 0.3 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.11 | 713.9 | 29.41 | 746.9 | 98.0 | 36.7 | 37 | N | 4.5 | 2.0 | | | 8 | | | 0 | 0 | D. clouds | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force 0—10 | Clouds. Amount. Upper. 0—10 | Clouds. Amount. Low'r. 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.25 | 565.1 | 29.84 | 758.0 | 50.5 | 10.3 | 79 | W | | | 4 | | 8 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22 23 | 564.6 | 29.85 | 758.1 | 44.6 | 7.0 | | W | | | 2 | | 10 | | | 0.787 | 20.0 | | Signora Ernesta Manfredi. |
| Udine | | | 29.88 | 758.9 | 78.1 | 25.6 | 64 | S | 4.3 | 1.9 | | | 9 | | | 0.130 | 3.3 | | Ab. Dom. Morgini. |
| Padua | | | 29.85 | 758.3 | 80.6 | 27.0 | 53 | SE | 9.4 | 4.2 | | | 4 | NNW | | 0.024 | 0.6 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.85 | 758.1 | 82.8 | 28.2 | 51 | SE | 6.9 | 3.1 | | | 8 | S | | 0.047 | 1.2 | | Conte Alm. Da Schio |
| Verona | | | 29.90? | 759.5? | 72.9 | 22.7 | 54 | E | | | 2 | | 10 | | | 0.984 | 25.0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.60 | 726.4 | 29.87 | 758.6 | 74.8 | 23.8 | 58 | NW | | | 4 | | 9 | | | 0.039 | 1.0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.85 | 758.1 | 72.3 | 22.4 | 65 | S | | | 6 | | 7 | | | 0.205 | 5.2 | | Prof. Giuseppe Calze. |
| Milan | | | 29.88 | 759.0 | 80.8 | 27.1 | 60 | W | | | 1 | | 8 | W | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 29.91 | 759.6 | 79.5 | 26.4 | 55 | N | | | 4 | | 6 | SW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.84 | 758.0 | 80.6 | 27.0 | 46 | NNE | 0.7 | 0.3 | | | 8 | SE | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.00 | 711.3 | 29.82 | 757.5 | 78.3 | 25.7 | 55 | SE | | | 4 | | 4 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.97? | 761.2? | 77.9 | 25.5 | 68 | SW | | | 4 | | 7 | SW | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.93 | 760.3 | 77.7 | 25.4 | 68 | SE | 12.5 | 5.6 | | | 8 | SE | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.87 | 758.6 | 83.7 | 28.7 | 43 | SW | 1.8 | 0.8 | | | 10 | S | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.84 | 758.0 | 84.7 | 29.3 | 55 | WSW | | | 6 | | 9 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 29.96 | 760.9 | 81.5 | 27.5 | 58 | NW | | | 2 | | 10 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.90 | 759.5 | 80.8 | 27.1 | 71 | S | 10.5 | 4.7 | | | 10 | S | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.78 | 731.0 | 29.93 | 760.2 | 78.8 | 26 0 | 62 | SSW | 0 | 0 | | | 10 | SW | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.45 | 722.5 | 29.94 | 760.5 | 82.2 | 27.9 | 71 | SW | | | 2 | | 10 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.90 | 759.5 | 79.7 | 26.5 | 68 | NE | 26.2 | 11.7 | | | 10 | SW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.87 | 758.8 | 79.2 | 26.2 | 72 | SE | | | 4 | | 10 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.96 | 760.9 | 80.6 | 27.0 | 64 | SSE | | | 4 | | 7 | S | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.97 | 761.3 | 82.9 | 28.3 | 55 | S | 11.9 | 5.3 | | | 10 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.04 | 763.0 | 84.2 | 29.0 | 47 | W | | | 6 | | 10 | | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.04 | 762 9 | 82.4 | 28.0 | 47 | SW | 9.4 | 4.2 | | | 8 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.95 | 760.8 | 93.9 | 34.4 | 45 | N | 0 | 0 | | | 9 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.90 | 759.5 | 86.4 | 30.2 | 60 | SE | | | 2 | | 6 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.07 | 763.6? | 80.2 | 26.8 | 72 | SE | | | 2 | | 5 | E | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.94 | 760.5 | 83.7 | 28.7 | 46 | ENE | 1.8 | 0.8 | | | 10 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.10 | 713.6 | 29.95 | 760.6 | 84.2 | 29.0 | 30 | SW | | | 2 | | 10 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.93 | 760.3 | 83.8 | 28.8 | 71 | SW | | | 6 | | 10 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.04 | 762.9 | 81.1 | 27.3 | 50 | NE | 0 | 0 | | | 9 | SW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,2[illegible] ft.; Mondovi, 556 m., or 1,824.[illegible] ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.94 | 760.5 | 76 | 24.4 | 82 | E | 1 | 0.4 | | 4c | | W | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.17 | 588.4 | 30.77 | 766.3 | 55.4 | 13.0 | 77 | SW | 0.1 | 0.06 | | 8c | 0 | W | | 0.012 | 0.3 | Cloudy | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 29.77 | 756.2 | 64.0 | 17.8 | | WNW | | | 4 | | | | | 0.339 | 8.6 | | |
| Groningen | | | 29.60 | 751.9 | 61.9 | 16.6 | | WNW | | | 4 | | | | | 0.327 | 8.3 | | |
| Helder | | | 29.67 | 753.5 | 58.3 | 14.6 | | WSW | | | 5 | | | | | 0.232 | 5.9 | | |
| Utrecht | | | 29.68 | 753.8 | 63.1 | 17.3 | 71 | WSW | | | 4 | | 8 | | | 0.098 | 2.5 | Very cloudy | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds It is assumed that the barometer readings have been reduced to sea-level

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.33 | 745.0 | 50.4 | 10.2 | 72 | NNW | 29 5 | 13.2 | | | 4 | | | 0.079 | 2.0 | | |
| Brönö | | | 29.36 | 745.7 | 51.1 | 10.6 | 68 | N | 18 | 8 | | | 2 | | | 0 | 0 | | |
| Christiania | | | 29.20 | 741.6 | 56.1 | 13.4 | 99 | Calm | 0 | 0 | | | 10 | | | 0.614 | 15.6 | Light rain | |
| Tromsö | | | 29.30 | 744.2 | 50.7 | 10.4 | 63 | SW | 4 | 2 | | | 5 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction From— | Velocity Miles per hour. | Meters per second. | Force 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.03 | 762.7 | 64.0 | 17.8 | 74 | W | 12.5 | 5.6 | | | 7 | | | 0.087 | 2.2 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.06 | 763.5 | 72.5 | 22.5 | 38 | WNW | 11.9 | 5.3 | | | 6 | WNW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.16 | 766.0 | 71.4 | 21.9 | 70 | WSW | 8.7 | 3.9 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.13 | 765.2 | 69.3 | 20.7 | 62 | WSW | 13.7 | 6.1 | | | 8 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.04 | 763.0 | 69.4 | 20.8 | 65 | NW | 3.1 | 1.4 | | | 2 | | | 0.130 | 3.3 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'dt. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.76 | 755.9 | 75.2 | 24.0 | 61 | WNW | 13 | 6 | | | 10 | | | | | | Astronomical Obs. |
| Wilna | | | 29.77 | 756.1 | 68.4 | 20.2 | 84 | SSE | 27 | 12 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.70 | 754.4 | 67.5 | 19.7 | 55 | S | 11 | 5 | | | 10 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.81 | 757.1 | 68.7 | 20.4 | 40 | SSE | 22 | 10 | | | 9 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.54 | 750.4 | 54.0 | 12.2 | 100 | S | 47 | 21 | | | 10 | | | | | Raining | Ch. Forsten. |
| Kieff | | | 30.06 | 763.5 | 74.5 | 23.6 | 39 | SSE | 11 | 5 | | | 6 | | | | | Dust-haze | Physical Cabinet. |
| Nikolaiev | | | 30.18 | 766.6 | 79.7 | 26.5 | 45 | S | 18 | 8 | | | 6 | | | | | | Kurdakof |
| Kertch | | | 30.23 | 767.9 | 71.2 | 21.8 | 55 | NE | 9 | 4 | | | 1 | | | | | | Lagorio. |
| Moscow | | | 30.20 | 767.1 | 64.9 | 18.3 | 51 | S | 7 | 3 | | | 2 | | | | | | Meteorological Obs. |
| Lugan | | | 30.18 | 766.6 | 66.7 | 19.3 | 40 | N | 4 | 2 | | | 4 | | | | | | Meteorological Obs. |
| Archangel | | | 29.93 | 760.2 | 57.7 | 14.3 | 49 | SSW | 22 | 10 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.59 | 726.2 | 29.93 | 760.3 | 82.0 | 27.8 | 35 | Calm | 0 | 0 | | | 8 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.11 | 764.7 | 68.9 | 20.5 | 31 | NNE | 7 | 3 | | | 3 | | | Blank | Blank | | Sebastianof. |
| Kasan | | | 30.03 | 762.7 | 62.4 | 16.9 | 44 | W | 4 | 2 | | | 5 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.15 | 765.9 | 79.7 | 26.5 | 87 | E | 11 | 5 | | | 0 | | | | | | Tschernischei. |
| Ekaterinburg | 29.01 | 736.8 | 29.94 | 760.4 | 59.7 | 15.4 | 86 | ESE | 2 | 1 | | | 10 | | | | | | Meteorogical Obs |
| Nukuss | | | 29.82 | 757.4 | 81.1 | 27.3 | 57 | N | 7 | 3 | | | 8 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.21 | 716.4 | 29.78 | 756.5 | 90.7 | 32.6 | 56 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.88 | 758.9 | 76.1 | 24.5 | 59 | N | 4 | 2 | | | 4 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.89 | 759.2 | 64.6 | 18.1 | 82 | N | 2 | 1 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 54.9 | 12.7 | | NW | 4 | 2 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.69 | 754.1 | 70.5 | 21.4 | 81 | NW | 18 | 8 | | | 10 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.76 | 755.9 | 63.5 | 17.5 | 82 | NE | 7 | 3 | | | ks | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 42.3 | 5.7 | 93 | NE | 2 | 1 | | | 9 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Domingo. |
| Madrid, Royal Observatory | | | 29.94 | 760.4 | 77.7 | 25.4 | 34 | SW | 14.2 | 6.33 | | 4 | 1 | W | | 0 | 0 | Light clouds | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.07 | 763.7 | 84.0 | 28.9 | 79 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y | | | 30.16 | 766.0 | 72.5 | 22.5 | 61 | WNW | 13.0 | 5.8 | | 0 | 4 | | W | 0 | 0 | | Capt. C. Pajazon, R. N., Dir. |
| San Juan de Porto Rico, W. I. | | | 30.04 | 763.0 | 79.5 | 26.4 | 82 | SE | 3.1 | 1.38 | | 6cs | 2n | | SE | 0.217 | 5.50 | Cloudy | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson, Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.43 | 747.5 | 45.7 | 7.6 | 98 | SW | | | 4 | | 10 | | | | | Raining | |
| Umea | | | 29.33 | 744.9 | 48.9 | 9.4 | 89 | SW | | | 2 | | 10 | | | 0.322 | 8.2 | | |
| Hernosand | | | 29.28 | 743.6 | 52.9 | 11.6 | 94 | ESE | | | 2 | | 10 | | | 0.220 | 5.6 | Raining | |
| Stockholm | | | 29.34 | 745.1 | 64.0 | 17.8 | 76 | S | | | 4 | | 10 | | | 0.012 | 0.3 | Light rain | |
| Wisby | | | 29.46 | 748.2 | 64.8 | 18.2 | 73 | WSW | | | 7 | | 7 | | | 0.106 | 2.7 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.32 | 744.8 | 67.3 | 19.6 | 65 | S | 15.0 | 6.7 | | | 10 | | SW | 0.040 | 1.25 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.57 | 725.6 | 29.03 | 760.3 | 74.7 | 23.7 | 45 | WSW | | | 4 | | 7 | | | 0.039 | 1.0 | Cloudy | The Observatory. |
| Zurich | 28.37 | 720.6 | 29.07 | 761.3 | 64.8 | 18.2 | 76 | W | | | 2 | | 9 | | | 0 | 0 | Cloudy | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, —1.3 mm; Thermometer, +2.3 cent.; Relative Humidity, —10 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.07 | 763.6 | 75.2 | 24.0 | 51 | ENE | 22 | 10.0 | | | 0 | | | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.88 | 759.6 | 79.3 | 26.3 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.13 | 765.2 | 86.4 | 30.2 | | SW | | | 0 | | 5 | | | | | | B. Stéfanidès. |
| Valona | | | 30.12 | 765.1 | 88.7 | 31.5 | | SW | | | 1 | | 10 | | | 0 | 0 | Misty | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.86 | 758.4 | 81.9 | 27.7 | 69 | N | | | 2 | | 0 | | | 0 | 0 | Blue sky | Pro . C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.63 | 752.6 | 57.9 | 14.4 | 42 | NW | 9 | 4.0 | | | 5 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.01 | 762.2 | 65 | 18.3 | | SW | 6 | 2.7 | | 2c | 0 | SW | | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.67 | 753.6 | 55 | 12.8 | 56 | W | 9 | 4.0 | | 0 | 0 | | | 0.02 | 0.5 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.67 | 753.6 | 53 | 11.7 | 50 | NW | 15 | 6.7 | | 5c | 0 | | | 0.106 | 2.54 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.02 | 762.5 | 57.8 | 14.3 | 64 | N | | | 4 | 0 | 0 | | | 0 | 0 | Bright | James Smith, M. A. |
| Dalhousie, N. B. | | | | | 56.9 | 13.8 | 50 | W | | | 4 | | | | | 0.27 | 6.9 | Clear | H. A. Johnson. |
| Esquimault, B. C. | | | 30.06 | 763.5 | 51.3 | 10.7 | 89 | SW | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.69 | 754.1 | 48 | 8.9 | 74 | SW | 19 | 8.5 | | 1k | 5s | NW | NW | 0.27 | 6.9 | Cloudy | J. McWilliams. |
| Fredericton, N. B. | | | 29.82 | 757.4 | 55.0 | 12.8 | 54 | W | 9 | 4.0 | | 0 | 0 | | | 0.040 | 1.02 | Clear | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.48 | 748.8 | 59 | 15.0 | 91 | E | 13 | 5.8 | | 5k | 5ks | W | S | 0.26 | 6.6 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 30.13 | 765.3 | 57.7 | 14.3 | | NW | | | 1 | 0 | 0 | | | 0 | 0 | Clear | H. J. Strang, M. A |
| Granton, Ontario | 29.04 | 737.6 | 30.13 | 765.3 | 57 | 13.9 | 75 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.75 | 755.6 | 57 | 13.9 | 51 | NW | 18 | 8.0 | | 0 | 0 | | | 0.16 | 4.11 | Clear | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.17 | 766.3 | 53.1 | 11.7 | 67 | NW | | | 2 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.34 | 745.2 | 48 | 8.9 | 74 | SW | | | 5 | 3k | 2s | W | SW | 0.28 | 7.1 | Cloudy | E. Weedon. |
| *Kingston, Ontario | | | 30.15 | 765.8 | 58 | 14.4 | 68 | W | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | S. Woods, M. A |
| *Montreal, Quebec | | | 30.00 | 762.0 | 55 | 12.8 | 67 | W | 14 | 6.3 | | 0 | 2ks | | | Inap. | Inap | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.12 | 765.0 | 56 | 13.3 | 72 | W | 6 | 2.7 | | 2cs | 0 | W | | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 30.13 | 765.3 | 61.7 | 16.5 | 66 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Pleasant | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.15 | 765.8 | 52 | 11.1 | 79 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | H. Morgan. |
| Port Hastings, N. S. | | | 29.66 | 753.4 | 54.6 | 12.6 | | NW | 8 | 3.6 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.14 | 765.5 | 55 | 12.8 | 81 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.90 | 759.4 | 46 | 7.8 | 84 | Calm | 0 | 0 | | 5c | 2n | W | W | 0 | 0 | Fair | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 30.06 | 763.5 | 55 | 12.8 | 68 | NW | 16 | 7.2 | | 5c | 0 | NW | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B. | | | | | | | | | | | | | | | | | | | G. Murdock, C. E |
| *Saugeen, Ontario | | | 30.09 | 764.3 | 56 | 13.3 | 75 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.85 | 732.8 | 30.13 | 765.3 | 49.9 | 9.9 | 72 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.60 | 751.8 | 55 | 12.8 | 64 | W | 16 | 7.2 | | 0 | 3ks | | W | 0.03 | 0.8 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 30.17 | 766.3 | 58 | 14.4 | 50 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | Magnetic Observatory. |
| Windsor, N. S. | | | 29.78 | 756.4 | 53.8 | 12.1 | 58 | NW | 8 | 3.6 | | 2k | 0 | | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.13 | 765.3 | 52.1 | 11.2 | 80 | S | 3 | 1.3 | | 0 | 1s | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.42 | 747.3 | 51.0 | 10.6 | 72 | W | | | | 5k | 5s | | | 0.21 | 5.3 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 10; for Bathurst not any distinction between upper and lower clouds. The elevation of Kingston is 1,015 feet, or 309.1 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10 | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10 | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain fall or melted snow in the past 24 hours. Inches. | Rain fall or melted snow in the past 24 hours. Millimeters. | Weather | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.12 | 765.0 | 58 | 14.4 | 57 | Calm | 0 | 0 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Alpena, Mich. | | | 30.07 | 763.8 | 58 | 14.4 | 58 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 30.17 | 766.3 | 62 | 16.7 | 61 | N | 10 | 4.5 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.02 | 762.5 | 73 | 22.8 | 90 | E | 7 | 3.1 | | | 10n | | | 0.45 | 11.4 | Heavy rain | |
| Baltimore, Md. | | | 30.19 | 766.8 | 65 | 18.3 | 44 | NE | 4 | 1.8 | | 2c | Sm'e | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 30.15 | 765.8 | 61 | 16.1 | 61 | N | 12 | 5.4 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.75 | 704.8 | 30.28 | 769.1 | 64 | 17.8 | 72 | Calm | 0 | 0 | | 5c | Haze | | | 0 | 0 | Clear | |
| Boston, Mass. | | | 30.09 | 764.3 | 59 | 15.0 | 43 | NW | 15 | 6.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Breckenridge, Minn. | | | 29.51 | 749.5 | 66 | 18.9 | 90 | S | 12 | 5.4 | | | 10ks | | W | 0.05 | 1.3 | Cloudy | |
| Brownsville, Texas | | | 29.90 | 759.4 | 88 | 31.1 | 72 | S | 12 | 5.4 | | 2c | 8ks | | S | 0 | 0 | Cloudy | |
| Buffalo, N. Y. | | | 30.11 | 764.8 | 55 | 12.8 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Burlington, Vt. | | | 30.08 | 764.0 | 57 | 13.9 | 57 | S | 7 | 3.1 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Cairo, Ill. | | | 29.98 | 761.5 | 65 | 18.3 | 73 | E | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.30 | 693.4 | 29.87 | 758.7 | 45 | 7.2 | 60 | NE | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 63 | 17.2 | | SW | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.02 | 762.5 | 70 | 21.1 | 56 | NE | 24 | 10.7 | | 10k | 0 | SW | | 0.95 | 24.1 | Cloudy | |
| Cape Henry, Va. | | | 30.16 | 766.1 | 67 | 19.4 | 54 | NE | 21 | 9.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C. | | | 30.08 | 764.0 | 71 | 21.7 | 67 | NE | 28 | 12.5 | | | 10s | | NE | 1.45 | 36.8 | Cloudy | |
| Cape May, N. J. | | | 30.18 | 766.6 | 60 | 15.6 | 55 | NE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.01 | 762.2 | 77 | 25.0 | 77 | NE | 19 | 8.5 | | | 10s | | E | 0.25 | 6.3 | Threatening | |
| Cheyenne, Wyoming | 23.87 | 606.3 | 29.81 | 757.2 | 53 | 11.7 | 43 | NW | 20 | 8.9 | | 5c | 2s | | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 30.00 | 762.0 | 63 | 17.2 | 72 | SE | 8 | 3.6 | | 1c | 0 | W | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.99 | 761.7 | 62 | 16.7 | 61 | NE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cleveland, Ohio | | | 30.15 | 765.8 | 53 | 11.7 | 66 | E | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Corsicana, Tex. | | | 29.85 | 758.2 | 74 | 23.3 | 90 | S | 10 | 4.5 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Davenport, Iowa | | | 29.97 | 761.2 | 62 | 16.7 | 77 | SE | 5 | 2.2 | | 1c | 10ks | | | 0 | 0 | Clear | |
| Denison, Texas | | | 29.80 | 756.9 | 74 | 23.3 | 90 | SE | 15 | 6.7 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Denver, Col. | 24.61 | 625.1 | 29.83 | 757.7 | 55 | 12.8 | 68 | W | 4 | 1.8 | | 0 | 5s | | | 0 | 0 | Fair | |
| Detroit, Mich. | | | 30.10 | 764.5 | 55 | 12.8 | 68 | E | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Dodge City, Kan. | 29.11 | 739.4 | 29.26 | 743.2 | 68 | 20.0 | 78 | S | 15 | 6.7 | | 0 | 2s | | S | 0.94 | 23.9 | Clear | |
| Dubuque, Iowa | | | 29.94 | 760.5 | 61 | 16.1 | 71 | SE | 7 | 3.1 | | 5cs | 0 | SE | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 29.70 | 754.4 | 53 | 11.7 | 86 | NE | 3 | 1.3 | | 5c | 0 | W | | 0.37 | 9.4 | Fair | |
| Eagle Pass, Tex. | | | 29.76 | 755.9 | 80 | 26.7 | 78 | E | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.84 | 757.9 | 59 | 15.0 | 42 | NW | 7 | 3.1 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Erie, Pa. | | | 30.10 | 764.5 | 59 | 15.0 | 70 | S | 10 | 4.5 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Escanaba, Mich. | | | 29.97 | 761.2 | 56 | 13.3 | 69 | S | 3 | 1.3 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Florence, Arizona | 28.12 | 714.2 | 29.72 | 754.9 | 85 | 29.4 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.77 | 756.1 | 74 | 23.3 | 76 | SE | 10 | 4.5 | | 2cs | 0 | | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.53 | 724.6 | 29.74 | 755.4 | 71 | 21.7 | 80 | S | 6 | 2.7 | | 2c | 0 | S | | 0.20 | 5.1 | Fair | |
| Ft. St. Michael, Alaska | | | 29.90 | 759.4 | 47 | 8.3 | 92 | SW | | | 4 | 5ck | 5s | S | SW | 0 | 0 | Fair | |
| Fort Sill, Indian Ter. | 28.58 | 725.9 | 29.63 | 752.6 | 70 | 21.1 | 79 | SE | 4 | 1.8 | | 2k | 0 | SE | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 27.89 | 708.4 | 29.45 | 748.0 | 63 | 16.7 | 88 | NW | 8 | 3.6 | | 0 | 0 | | | 0.25 | 6.3 | Clear | |
| Galveston, Tex. | | | 29.97 | 761.2 | 82 | 27.8 | 78 | S | 6 | 2.7 | | 5k | 0 | SW | | Inap. | Inap. | Fair | |
| Grand Haven, Mich. | | | 30.04 | 763.0 | 63 | 17.2 | 57 | S | 8 | 3.6 | | 2k | 0 | W | | 0 | 0 | Clear | |
| Indianapolis, Ind. | | | 30.03 | 762.7 | 64 | 17.8 | 62 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 29.93 | 760.2 | 85 | 29.4 | 75 | S | 16 | 7.2 | | 2k | 2ks | S | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 29.98 | 761.5 | 82 | 27.8 | 70 | W | 6 | 2.7 | | 0 | 0 | | | 0.10 | 2.5 | Clear | |
| Keokuk, Iowa | | | 29.83 | 757.7 | 68 | 20.0 | 79 | SE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Key West, Fla. | | | 30.03 | 762.7 | 84.0 | 28.9 | 71 | SW | 4 | 1.8 | | 2cs | 1ks | | | 0.49 | 12.4 | Fair | |
| Kittyhawk, N. C. | | | 30.13 | 765.3 | 68 | 20.0 | 60 | NE | 24 | 10.7 | | 2cs | 0 | | | 0.18 | 4.6 | Fair | |
| Knoxville, Tenn. | | | 29.97 | 761.2 | 63 | 17.2 | 78 | N | 6 | 2.7 | | 1c | 2ks | SW | SW | 0 | 0 | Fair | |
| La Crosse, Wis. | | | 29.85 | 758.2 | 63 | 17.2 | 78 | S | 17 | 7.6 | | 1c | 0 | W | | 0 | 0 | Fair | |
| Leavenworth, Kan. | | | 29.77 | 756.1 | 70 | 21.1 | 61 | SE | 11 | 4.9 | | 2c | 2k | | S | 0 | 0 | Fair | |
| Louisville, Ky. | | | 29.99 | 761.7 | 64 | 17.8 | 67 | E | 8 | 3.6 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.18 | 766.6 | 66 | 18.9 | 54 | E | 8 | 3.6 | | 2k | 0 | NW | | 0 | 0 | Fair | |
| Maricopa Wells, Arizona | | | | | 74 | 23.3 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.93 | 760.2 | 56 | 13.3 | 51 | S | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Tex. | 28.25 | 717.5 | 29.93 | 760.2 | 72 | 22.2 | 90 | Calm | 0 | 0 | | | 10s | | | 0.70 | 17.8 | Cloudy | |
| Memphis, Tenn. | | | 29.94 | 760.5 | 68 | 20.0 | 75 | NE | 5 | 2.2 | | | 10s | | NE | 0.01 | 0.3 | Cloudy | |
| Milwaukee, Wis. | | | 30.07 | 763.8 | 54 | 12.2 | 73 | SE | 5 | 2.2 | | 2c | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 29.99 | 761.7 | 80 | 26.7 | 78 | W | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 29.96 | 761.0 | 77.5 | 25.3 | 84 | SW | 6 | 2.7 | | 0 | 2ks | | SW | 0.19 | 4.8 | Clear | |
| Morgantown, W. Va. | 29.05 | 737.9 | 30.09 | 764.3 | 62 | 16.7 | 56 | SE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mt. Washington, N. H. | 23.71 | 602.2 | 30.07 | 763.8 | 27 | − 2.8 | 100 | NW | 54 | 24.1 | | | Fog | | | 0.34 | 8.6 | Foggy | |
| Nashville, Tenn. | | | 29.95 | 760.7 | 69 | 20.6 | 65 | E | 5 | 2.2 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.14 | 765.5 | 64 | 17.8 | 45 | NW | 5 | 2.2 | | 1cz | 0 | | | 0 | 0 | Clear | |
| New London, Conn. | | | 30.14 | 765.5 | 64 | 17.8 | 52 | NW | 4 | 1.8 | | 0 | 1s | | | 0 | 0 | Clear | |
| New Orleans, La. | | | 29.98 | 761.5 | 81 | 27.2 | 74 | W | 6 | 2.7 | | 1k | 0 | W | | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.12 | 765.0 | 60 | 15.6 | 48 | NW | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| New York, N. Y. | | | 30.18 | 766.6 | 62 | 16.7 | 46 | NW | 4 | 1.8 | | 5c | 0 | | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.16 | 766.1 | 66 | 18.9 | 90 | NE | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb. | 26.79 | 680.4 | 29.22 | 742.2 | 61 | 16.1 | 88 | E | 8 | 3.6 | | | 10s | | | 0.24 | 6.1 | Cloudy | |
| Omaha, Neb. | 28.69 | 728.7 | 29.71 | 754.6 | 69 | 20.6 | 70 | SE | 9 | 4.0 | | 5c | 5s | | SE | 0 | 0 | Cloudy | |
| Oswego, N. Y. | | | 30.16 | 766.1 | 54 | 12.2 | 73 | W | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Pembina, Dakota | | | 29.44 | 747.8 | 61 | 16.1 | 94 | SE | 13 | 5.8 | | | 10s | | SE | 2.74 | 69.6 | Cloudy | |
| Philadelphia, Pa. | | | 30.20 | 767.1 | 60 | 15.6 | 48 | E | 4 | 1.8 | | 2c | 0 | W | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 69 | 20.6 | 13 | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.78 | 451.6 | 30.00 | 762.0 | 28 | − 2.2 | 57 | SW | 24 | 10.7 | | 2c | 2s | SW | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 30.12 | 765.0 | 56 | 13.3 | 62 | SE | 5 | 2.2 | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Port Huron, Mich. | | | 30.12 | 765.0 | 50 | 10.0 | 78 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Portland, Me. | | | 30.03 | 762.7 | 57 | 13.9 | 52 | W | 10 | 4.5 | | 0 | Haze | | | 0 | 0 | Clear | |
| Portland, Oregon | | | 30.20 | 767.1 | 53 | 11.7 | 79 | S | 4 | 1.8 | | | 10n | | | 0.01 | 0.3 | Light rain | |
| Prescott, Arizona | | | | | 55 | 12.8 | 21 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.01 | 762.2 | 79 | 26.1 | 69 | SW | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 30.14 | 765.5 | 56 | 13.3 | 62 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Salt Lake City, Utah | 25.60 | 650.2 | 29.93 | 760.2 | 57 | 13.9 | 25 | NW | 8 | 3.6 | | 5c | 2ks | NW | NW | 0 | 0 | Fair | |
| Sandy Hook, N. J. | | | 30.17 | 766.3 | 63 | 17.2 | 46 | N | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.72 | 754.9 | 79 | 26.1 | 82 | S | 4 | 1.8 | | 0 | 10ks | | S | 0.10 | 2.5 | Cloudy | |
| San Diego, Cal. | | | 29.91 | 759.7 | 61 | 16.1 | 83 | SE | 4 | 1.8 | | | 10s | | SE | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.96 | 761.0 | 56 | 13.3 | 74 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fe, New Mexico | 23.20 | 589.3 | 29.74 | 755.4 | 55 | 12.8 | 22 | E | 5 | 2.2 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Savannah, Ga. | | | 29.99 | 761.7 | 79 | 26.1 | 82 | E | 21 | 9.4 | | | 10ks | | | 0.42 | 10.7 | Threatening | |
| Shreveport, La. | | | 29.98 | 761.5 | 75 | 23.9 | 86 | S | 2 | 0.9 | | 5cs | 0 | W | | 0.07 | 1.8 | Fair | |
| Smithville, N. C. | | | 30.05 | 763.3 | 72 | 22.2 | 76 | NE | 14 | 6.3 | | | 10s | | NE | 0.05 | 1.3 | Cloudy | |
| Springfield, Mass. | | | 30.13 | 765.3 | 64 | 17.8 | 46 | N | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Louis, Mo. | | | 29.94 | 760.5 | 70 | 21.1 | 66 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.00 | 762.0 | 77 | 25.0 | 97 | Calm | 0 | 0 | | | 10s | | | 0.11 | 2.8 | Cloudy | |
| St. Paul, Minn. | | | 29.65 | 753.1 | 67 | 19.4 | 74 | SE | 28 | 12.5 | | 8c | 0 | | | 0 | 0 | Fair | |

## UNITED STATES SERIES.—Continued.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 66 | 18.9 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.74 | 679.2 | 29.74 | 755.4 | 73 | 22.8 | 75 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 30.07 | 763.8 | 57 | 13.9 | 57 | NW | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Toledo, Ohio | | | 30.07 | 763.8 | 61 | 16.1 | 60 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.44 | 697.0 | 29.99 | 761.7 | 77 | 25.0 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.96 | 761.6 | 77 | 25.0 | 90 | NE | 28 | 12.5 | | | 10ks | | NE | 2.18 | 55.4 | Cloudy | |
| Vicksburg, Miss | | | 29.96 | 761.0 | 75 | 23.9 | 95 | SW | 8 | 3.6 | | | 10s | | SW | 1.24 | 31.5 | Cloudy | |
| Virginia City, Montana | 24.13 | 612.9 | 29.61 | 752.1 | 38 | 3.3 | 63 | SW | 10 | 4.5 | | | 10s | | W | 0.53 | 13.5 | Cloudy | |
| Washington, D. C | | | 30.21 | 767.3 | 62 | 16 7 | 52 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 80 | 26.7 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.07 | 763.8 | 70 | 21.1 | 70 | NE | 8 | 3.6 | | 10cs | 0 | NW | | 0.76 | 19.3 | Cloudy | |
| Wood's Holl, Mass | | | 30.13 | 765.3 | 60 | 15.6 | 55 | NW | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yankton, Dakota | 28.44 | 722.4 | 29.66 | 753.4 | 65 | 18.3 | 89 | S | 12 | 5.4 | | | 10s | | W | 0.36 | 9.1 | Cloudy | |
| Yuma, Arizona | | | 29.73 | 755.1 | 73 | 22.8 | 36 | N | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.19 | 766.8 | 81 | 27.2 | 78 | Calm | 0 | 0 | | 2c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.02 | 762.5 | 83 | 28.3 | | NNE | | | 3 | | | | | 0.15 | 3.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.07 | 763.8 | 82 | 27.8 | 88 | E | | | 2 | 5k | 6ks | E | | 0.020 | 0.51 | ½ cloudy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.22 | 640.6 | | | 68 5 | 20.3 | 73 | Calm | | | 0 | Haze | 0 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.00 | 762.0 | 39.5 | 4.2 | 91 | N | 9 | 4.0 | | 1c | 0 | N | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.17 | 766.3 | 72 | 22.2 | | NE | | | 5 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. J. Clarke. |

Note.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.8 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m.. Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft.. or 1,329.6 m.: Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.: Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.86 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.27 | 768.8 | 72 | 22.2 | 62 | 16.7 | 61 | ENE | | | 3 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.99 | 761.7 | 60 | 15.6 | 58 | 14.4 | | SW | 13 | 5.8 | | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Pensacola, Fla. | 30.12 | 765.0 | | | 80 | 26.7 | 87 | SW | 11 | 4.9 | | | 4 | | W | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.14 | 765.5 | 74 | 23.3 | 57 | 13.9 | 58 | W | 8 | 3.6 | | | | | | 0 | 0 | | | Clear | |
| Naval Hospital, Yokohama, Japan | 29.85 | 758.2 | 76 | 24.4 | 75 | 23.9 | 86 | Calm | | | 0 | | 8k | | WNW | 0 | 0 | | | Cloudy | |
| Alert, S. 0° 02′, E. 129° 40′ | 30.01† | 762.2† | 82 | 27.8 | 82 | 27.8 | 96 | SSE | | | 5 | | 4 | | SW | | | Long | SE | Squally | |
| Alliance, Beirut, Syria | 29.99 | 761.7 | 81 | 27.2 | 80 | 26.7 | 74 | N&W | | | 0–1 | | 1 | | | | | Smooth | None | Clear | |
| Ashuelot, San Moon Bay, China | 29.75 | 755.6 | 79 | 26.1 | 76 | 24.4 | 82 | NNE | | | 4–5 | | 10 | | N&E | | | Long | E | Misty | |
| Canonicus, New Orleans, La | 30.02 | 762.5 | 56 | 13.3 | 80 | 26.7 | 82 | SW | | | 3 | | 3 | | | | | | | Clear. | |
| Colorado, New York, N. Y | 30.20 | 767.1 | 56 | 13.3 | 62 | 16.7 | 61 | N | 2 | 0.9 | | | 1 | | | 0 | 0 | | | Hazy | |
| Despatch, Constantinople, Turkey. | 30.17 | 766.3 | 74 | 23.3 | 73 | 22.8 | 63 | NNE | | | 3 | | 1 | | | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.24 | 768.1 | 71 | 21.7 | 67 | 19.4 | 95 | NE | 8 | 3.6 | | | 1 | | NE | 0 | 0 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.41 | 772.4 | 71 | 21.7 | 74 | 23.3 | 90 | NNE | | | 1 | | 9k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Leghorn, Italy | 29.87 | 758.7 | | | 77 | 25.0 | 95 | S | | | 2 | | 7 | | S | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.40 | 772.1 | 72 | 22.2 | 68 | 20.0 | 95 | NE | 4 | 1.8 | | | | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.03 | 762.7 | 83 | 28.3 | 82 | 27.8 | 96 | Calm? | | | 3? | | 5 | | | 0 | 0 | Light ground. | N&E | Misty | |
| Kearsarge, Nagasaki, Japan | 30.06 | 763.5 | 80 | 26.7 | 78 | 25.6 | 91 | ENE | | | 1 | | 10 | | | ¶0.1 | 3.¶ | Smooth | | Drizzling | |
| Marion, Smyrna, Turkey | 29.96 | 761.0 | 78 | 25.6 | 80 | 26.7 | 66 | W | | | 2 | | 0 | | | 0 | 0 | Smooth | | Blue sky | |
| Michigan, Erie, Pa | 29.63 | 752.6 | 60 | 15.6 | 60 | 15.6 | 71 | SSW | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.65 | 753.1 | 82 | 27.8 | 82 | 27.8 | 71 | SE | | | 3 | | 10 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Off New London, Conn. | 30.19 | 766.8 | 60 | 15.6 | 60 | 15.6 | 71 | NNW | | | 1–2 | | 1cs | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.22 | 767.6 | | | 77 | 25.0 | 86 | E | 26 | 11.6 | | | 10 | | W | 0.46 | 11.7 | | | D. clouds | |
| Omaha, Callao, Peru | 30.03 | 762.7 | 68 | 20.0 | 68 | 20.0 | 79 | NW | 1 | 0.4 | | | 10 | | | 0 | 0 | Slight | S | Overcast | |
| Ossipee, Hampton Roads, Va | 30.20 | 767.1 | 68 | 20.0 | 68 | 20.0 | 74 | NE | | | 3 | | | | | | | | | Hazy | |
| Palos, Nankin, China | 29.84 | 757.9 | 88 | 31.1 | 88 | 31.1 | 84 | ESE | | | 5 | | 2 | | W | 0 | 0 | | | Clear | |
| Pensacola, N. 31° 30′, W. 136° 28′ | 30.40 | 772.1 | | | 66 | 18.9 | 84 | NNE | | | 4–6 | | 5 | | NE | Light | Light | Long | N&E | Cloudy | |
| Plymouth, N 25° 22′, W. 85° 8′ | 30.12 | 765.0 | 84 | 28.9 | 83 | 28.3 | 75 | S | | | 2 | | 5 | | S&E | 0 | 0 | Smooth | | Pleasant | |
| Ranger, N. 19° 45′, E. 38° 54′ | 29.95 | 760.7 | | | 93 | 33.9 | 61 | S | | | 0–1 | | 0 | | | | | Smooth | | Hazy | |
| Richmond, Rio de Janeiro, Brazil | 30.44 | 773.2 | 71.2 | 21.8 | 69.5 | 20.8 | 86 | ENE | | | 2 | | 1 | | | 0 | 0 | | | Foggy | |
| Rio Bravo, Matamoras, Mexico | 29.81 | 757.2 | | | 77 | 25.0 | 86 | SE | | | 3 | | 4 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.26 | 768.6 | 66 | 18.9 | 63 | 17.2 | 47 | E | | | 3 | | 1 | | WNW | 0 | 0 | | | Clear | |
| Saratoga, Boston, Mass | 30.44† | 773.2† | | | 60 | 15.6 | | NW | | | 2 | | 0 | | | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 30.10 | 764.5 | 60 | 15.6 | 60 | 15.6 | 65 | N | 2 | 0.9 | | | 2 | | WNW | 0 | 0 | | | Fair | |
| Swatara, Key West, Fla | 30.02 | 762.5 | 84 | 28.9 | 83 | 28.3 | 83 | SW | | | 1 | | 2k | | SSW | Blank | Blank | | | Fair | |
| Tennessee, Yokohama, Japan | 29.85 | 758.2 | 78 | 25.6 | 77 | 25.0 | 82 | SE | | | 1 | | 9 | | S&E | 0 | 0 | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.14† | 765.5† | 77 | 25.0 | 81 | 27.2 | 78 | W | 6 | 2.7 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Vandalia, Constantinople, Turkey | 30.13 | 765.3 | 74 | 23.3 | 74 | 23.3 | 55 | NE | | | 1–3 | | 1 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.11 | 764.8 | 58 | 14.4 | 59 | 15.0 | 88 | NW | 14 | 6.3 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Wyoming, Washington, D.C | 30.44† | 773.2† | 64 | 17.8 | 65 | 18.3 | | NNE | | | 1 | | 1 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |
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| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

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| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 20′, E. 169° 04′ | W | | 29.62 | 752.3 | 58 | 14.4 | 88 | WSW | | | 4 | | k | | W | Short | | Foggy | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 48° 40′, W. 25° 20′ | N74E | 13.3 | 29.94 | 760.5 | 61.0 | 16.1 | 80 | E | | | 4 | | 9k | | E | Smooth | | Overcast | Capt. C. Pohle. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Ohio, N. 49° 22′, W. 6° 50′ | W by S | 11 | 30.00 | 762.0 | 59.0 | 15.0 | | N | | | 4 | | 0 | | | Smooth | | Blue sky | Capt. A. Jaeger. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
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| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
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| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgenson. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 24, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:38 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.8 | 79.3 | 26.2 | 54 | NNW | | | 2 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.14 | 765.5 | 77.4 | 25.2 | 63 | N | | | 1 | | 1 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.10 | 764.5 | 77.7 | 25.4 | 73 | N | | | 2 | | 2 | | | 0.236 | 6.0 | Clear | Fleury. |
| Tunis | | | 30.09 | 764 2 | 100.4 | 38.0 | | SE | | | 4 | | 6 | | | 0.039 | 1.0 | Fair | Jacques. |
| Sfax | | | 30.10 | 764.6 | 86.0 | 30.0 | | W | | | 2 | | 3 | | | 0.157 | 4.0 | Fair | Husson. |
| Saida | | | 30.12 | 765.1 | 79.2 | 26.2 | | N | | | 3 | | 1 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.11 | 764.9 | 86.9 | 30.5 | | SW | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.18 | 766.6 | 87.3 | 30.7 | | NNW | | | 2 | | 3 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.15 | 765.7 | 91.4 | 33.0 | 22 | NW | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.08 | 764.0 | 102 9 | 39.4 | | NW | | | 1 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 29.82 | 757.4 | 72.0 | 22.2 | 77 | SW | | | 2 | | 10 | | | 1.095 | 27.8 | Thunder-storm | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 29.86 | 758.4 | 76.8 | 24.8 | 67 | W | | | 1 | | 10 | | | 1.054 | 3.9 | | Dr. Wierzbiski. |
| Eperies | | | 29.87 | 758.6 | 68.4 | 20.2 | 89 | Calm | | | 0 | | 10s | | | 1.045 | 26.55 | | Julius Mikolik. |
| Gratz | 28.65 | 727 6 | 29.87 | 758.8 | 62.4 | 16.9 | 84 | NNW | | | 2 | | 10 | | | 0.425 | 36.2 | | Andreas Rospini. |
| Hermannstadt | 28.53 | 724.6 | 29.86 | 758.5 | 81.5 | 27.5 | 62 | SW | | | 3 | | 6 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.67 | 728 3 | 30.00 | 762.0 | 57.6 | 14.2 | 92 | WSW | | | 2 | | 10 | | | 1.004 | 25.5 | | Prof. C. Wagner |
| Lemberg | | | 29.83 | 757.6 | 73.4 | 23.0 | 74 | NW | | | 2 | | 9 | | | 0.417 | 10.6 | | Dr. T. Stanecki. |
| Pola | | | 29.84 | 757.8 | 74.1 | 23.4 | 70 | S | | | 2 | | 8cks | | | 0.588 | 14.93 | | I.R. Hydrographic Office |
| Szegedin | | | 29.80 | 757.0 | 81.3 | 27.4 | 45 | W | | | 1 | | 8 | | | 0.782 | 19.85 | Lightning | Karl Stancel. |
| Trieste | | | 29.88 | 758 9 | 66.9 | 19.4 | 89 | E | | | 1 | | 10 | | | 4.138 | 105.1 | Rainy | P. Busin. |
| Vienna | | | 29.92 | 759.0 | 63.3 | 17.4 | 78 | WNW | | | 3 | | 10 | | | 0.437 | 11.1 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.58 | 725.8 | 30.07 | 763.7 | 60.3 | 15.7 | 52 | W | | | 2 | | 8 | | | 0 | 0 | | |
| Brussels | | | 30.08 | 764.1 | 61.2 | 16.2 | 62 | NW | | | 2 | | 10ks | | W | 0.106 | 2.70 | | Royal Observatory. |
| Furnes | | | | | | | | | | | | | | | | | | | |
| Maeseyck | | | 30.08 | 763.9 | 63.0 | 17.2 | 57 | NW | | | 2 | | 7 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.98 | 761.5 | 57.7 | 14.3 | | WNW | 17 | 7.6 | | | 6 | | | 0.030 | 0.76 | D. clouds | William Boswell. |
| Ardrossan | | | | | | | | | | | | | | | | | | | William McNeil. |
| Armagh, Observatory | | | 30.16 | 766.1 | 61.0 | 16.1 | | W | 4 | 1.8 | | | | | | | | | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.15 | 765.8 | 56.1 | 13.4 | | WNW | 16 | 7.2 | | | 3 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.20 | 767.1 | 58.6 | 14.8 | | SW | | | 1 | | 4 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | | | | | | | | | | | | | | 0.07 | 1.8 | | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.03 | 762.7 | 83.5 | 28.6 | | NE | | | 3 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.00 | 762.0 | 67.0 | 19.4 | | N | | | 1 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.13 | 765.3 | 65.4 | 18.6 | | N | | | 1 | | 6 | | | | | D. clouds | John McLaren. |
| Chatham, School M. E. | | | 30.17 | 766.3 | 63.2 | 17.3 | | Calm | | | 0 | | 6 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.74 | 730.0 | 30.20 | 767.1 | 58.2 | 14.6 | | NW | | | 4 | | 3 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.13 | 765.3 | 59 | 15.0 | | N | | | 4 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.12 | 765.0 | 60 | 15.6 | | W | | | 2 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.10 | 764.5 | 73.3 | 22.9 | | NW | 5.0 | 2.2 | | | 5 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.20 | 767.1 | 61.9 | 16.6 | | NW | | | 2 | | 3 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.98 | 710.7 | 30.21 | 767.3 | 67.2 | 19.6 | | NE | | | 3 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.02 | 762.5 | 83 | 28.3 | | W | | | 0 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.93 | 760.2 | 68 | 20.0 | | NW | | | 5 | | 8 | | | | | Gloomy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.10 | 764.5 | 75.7 | 24.3 | | SW | | | 6 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.06 | 763.5 | 59.9 | 15.5 | | W | | | 5 | | 3 | | | | | Blue sky | D. G. Maclean. |
| Great Yarmouth | | | 30.09 | 764.3 | 60 | 15.6 | | E | | | 1 | | 3 | | | Blank | Blank | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.12 | 765.0 | 66.8 | 19.3 | | NNW | | | 1 | | 5 | | | | | Hazy | The Staff, for G. B. Airy. |
| Guernsey | | | 30.18 | 766.6 | 61 | 16.1 | | WNW | | | 2 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.22 | 767.6 | 64 | 17.8 | | N | | | 2 | | 2ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.18 | 766.6 | 57 | 13.9 | | WNW | | | 3 | | 1 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.13 | 765.3 | 61.2 | 16.2 | | NW | 11 | 4.9 | | | 5 | | | | | D. clouds | The Staff. |
| Kingstown | | | 30.19 | 766.8 | 59 | 15.0 | | ESE | | | 3 | | 4 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.11 | 764.8 | 59.6 | 15.3 | | NW | | | 1 | | 9 | | | | | Overcast | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 29.96 | 761.0 | 83.2 | 28.4 | | SW | | | 1 | | 8k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.97 | 761.2 | 57 | 13.9 | | WSW | | | 3 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.06 | 763.5 | 78.8 | 26.0 | | E | | | 1 | | 7 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.12 | 765.0 | 60.7 | 15.9 | | NW | | | 2 | | 8k, ks | | NNW | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.11 | 764.8 | 60.0 | 15.6 | | WNW | | | 2 | | 0 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.12 | 765.0 | 64 | 17.8 | | Calm | | | 0 | | 5? | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.16 | 766.1 | 64.8 | 18.2 | | NW | | | 2 | | 2 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.21 | 767.3 | 62 | 16.7 | | SW | | | 2 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | | | | | | | | | | | | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.18 | 766.6 | 65.0 | 18.3 | | NNW | | | 3 | | 2 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.89 | 759.2 | 49.5 | 9.7 | | W | 26 | 11.6 | | | 10 | | | | | Raining | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.96 | 761.0 | 79.2 | 26.2 | | NE | | | 2 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 30.10 | 764.5 | 59.6 | 15.3 | | NW | | | 2 | | 9 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.09 | 764.3 | 65.5 | 18.6 | 60 | W | | | 1 | | 3 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.11 | 764.8 | 58.3 | 14.6 | | W | | | 3 | | 8 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.93 | 760.2 | 56 | 13.3 | | W | | | 5 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.14 | 765.5 | 59.2 | 15.1 | | NW | | | 1 | | 7 | | | | | D. clouds | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 29.88 | 758.9 | 55 | 12.8 | | WNW | | | 5 | | 8 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 30.19 | 766.8 | 66 | 18.9 | | N | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.23 | 767.8 | 58.4 | 14.7 | | W | 14 | 6.3 | | | 5 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 54 | 12.2 | | NW | | | 4 | | 0 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.35 | 770.9 | 60.0 | 15.6 | 69 | WNW | 4 | 1.8 | | 0 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.13 | 765.3 | 57.0 | 13.9 | 94 | W | | | 1 | | 10k | | | 0 | 0 | Covered | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.05 | 763.3 | 59.5 | 15.3 | | W | | | 3 | | 5k | | | 0.18 | 4.6 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.21 | 767.3 | 72.3 | 22.4 | 58 | ESE | 12.0 | 5.4 | | 0 | 0 | | | 0.02 | 0.5 | Clear | C. Meldrum. |
| Melbourne, Observatory | | | 30.34 | 770.6 | 47.2 | 8.4 | 78 | NNE | 8 | 3.6 | | | 10 | | | 0 | 0 | Fine, dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.96 | 761.0 | 55 | 12.8 | | W | | | 6 | 3 | 5 | W | | 0 | 0 | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.77 | 756.1 | 51 | 10.6 | | W | | | 4 | 7 | 5 | W | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105† ft., or 1,556.0† m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia, N. 42° 20′, W. 65° 25′ | | | | | 52.0 | 11.1 | | WSW | | | 4 | | 2 | | | 2 | WSW | Blue sky | Capt. J. E. Mouland. |
| Ship Camperdown, N. 50° 10′, W. 19° 35′ | | | 30.20 | 767.1 | 60.5 | 15.8 | | ESE | | | 2 | | 2 | | | 2 | E | Hazy | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 50′, W. 12° 10′ | | | 30.22 | 767.6 | 67.6 | 19.8 | | SW | | | 3 | | 2 | | | 3 | | Blue sky | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 47° 30°, W. 33° 35′ | | | 29.96 | 761.0 | 59.0 | 15.0 | | SSE | | | 6 | | 9 | | | 4 | SSW | D. clouds | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 52° 12′, W. 14° 32′ | | | 30.21 | 767.3 | 65 | 18.3 | | S | | | 3 | | 9 | | | 0 | | Overcast | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 70.2 | 21.2 | 89 | NE | | | 1 | | 3ck | | E | 0.3 | 8. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.91 | 759.8 | 62.8 | 17.1 | 46 | WNW | | | 4 | | 5 | | | | | | |
| Fanöe | | | 29.95 | 760.7 | 56.3 | 13.5 | 73 | WNW | | | 6 | | 8 | | | | | | |
| Godthaab, (Greenland) | | | 29.53 | 750.0 | 50.0 | 10.0 | 60 | S | | | 4 | | 8 | | | | | | |
| Grykdisholm, (Iceland) | | | 29.93 | 760.2 | 47.7 | 8.7 | 84 | NW | | | 2 | | 0 | | | | | | |
| Thorshavn, (Faröe) | | | 29.78 | 756.4 | 46.6 | 8.1 | 68 | N | | | 4 | | 10 | | | | | | |
| Vestervig | | | 29.93 | 760.2 | 56.5 | 13.6 | 67 | WNW | | | 6 | | 4 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.22 | 767.5 | 66.2 | 19 | 47 | NW | | | 1 | | 5kn | | NW | 0.063 | 1.6 | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 30.07 | 763.7 | 60.4 | 15.8 | 79 | NW | | | 3 | | 8 | | W | 0 | 0 | Very cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.02 | 762.5 | 78.3 | 25.7 | 34 | N | | | 3 | | 2 | | NW | 0 | 0 | Partly cl'dy. | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.10 | 764.4 | 63.0 | 17.2 | 63 | NE | | | 2 | | 8kn | | W | 0.157 | 4.0 | Very cloudy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.14 | 765.5 | 62.1 | 16.7 | 52 | NNW | 3.6 | 1.6 | | | | | W | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.12 | 765.0 | 63.5 | 17.5 | 50 | NNE | | | 2 | | 8 | | N | 0.098 | 2.50 | Very cloudy | Normal School. |
| Besançon | | | 30.07 | 763.6 | 67.3 | 19.6 | 61 | SW | | | 3 | | 5 | | W | 0.087 | 2.2 | Cloudy | Normal School. |
| Bourg-en-Bresse | | | 30.17 | 766.3 | 71.6 | 22 | 58 | NW | | | 4 | | 5kn | | SE | 0.08 | 2. | Cloudy | Normal School. |
| Bourges, Normal School | | | 30.10 | 764.4 | 64.8 | 18.2 | 88 | SW | | | 2 | | 5 | | SE | 0.04 | 1. | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.15 | 765.9 | 63.1 | 17.3 | 70 | NW | | | 3 | | 5k | | NW | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.09 | 764.2 | 77.0 | 25 | 50 | N | | | 4 | | 1 | | N | 0.08 | 2. | Clear | Vateau, Director. |
| Caen | | | 30.15 | 765.9 | 58.8 | 14.9 | 76 | N | | | 4 | | 10 | | NNW | 0.08 | 2. | Covered | Normal School. |
| Chartres, Normal School | | | 30.17 | 766.4 | 67.3 | 19.6 | 79 | NW | | | 2 | | 6 | | SE | 0.307 | 7.8 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.07 | 763.8 | 66.6 | 19.2 | 46 | W | | | 3 | | 8k | | W | 0 | 0 | Very cloudy | T. Leloup, Director. |
| Clermont-F'd., Puy de D. Obs. | | | 30.07 | 763.8 | 66.2 | 19.0 | 66 | WNW | | | 2 | | 8 | | NW | 0.016 | 0.4 | Very cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.09 | 764.2 | 61.9 | 16.6 | 59 | W | | | 1 | | 10 | | W | 0.059 | 1.5 | Covered | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.12 | 765.0 | 74.8 | 23.8 | 28 | NW | | | 6 | | 2 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.08 | 764.0 | 70.7 | 21.5 | 53 | NW | | | 6 | | 2k | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.21 | 767.3 | 71.6 | 22.0 | 49 | NW | | | 1 | | 5 | | S | 0 | 0 | Partly cl'dy | Mouillot, Director. |
| Le Mans, Normal School | | | 30.17 | 766.4 | 64.2 | 17.9 | 47 | NW | | | 2 | | 5 | | W | 0.08 | 2. | Cloudy | Poirrier, Director. |
| Lons-l.-e-Saulnier, N. School | | | 30.05 | 763.2 | 68.9 | 20.5 | 71 | SW | | | 1 | | 5 | | E | 0 | 0 | Cloudy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.22 | 767.5 | 66.2 | 19.0 | 54 | N | | | 3 | | 10 | | S | 0 | 0 | Covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.02 | 762.6 | 68.7 | 20.4 | 85 | SW | | | 6 | | 5 | | W | 0 | 0 | Cloudy | M. Marchal, Director. |
| Metz | | | 30.14 | 765.6 | 65.3 | 18.5 | 45 | NW | | | 4 | | 7k | | | 0.020 | 0.5 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.06 | 763.5 | 64.6 | 18.1 | 67 | WNW | | | 2 | | 5 | | NE | 0 | 0 | Partly cov'd | Normal School. |
| Nismes, Normal School | | | 30.00 | 762.0 | 83.1 | 28.4 | 48 | N | | | 6 | c | | N | | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 30.06 | 763.5 | 75.2 | 24 | 21 | W | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Bernard, Director. |
| Paris, Observatory | | | 30.09 | 764.2 | 66.2 | 19.0 | 37 | NW | | | 2 | | 8 | | | 0 | 0 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.17 | 766.2 | 77.0 | 25.0 | 54 | NW | | | 2 | | 2 | | N | 0.08 | 2. | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.14 | 765.5 | 58.5 | 14.7 | 67 | W | | | 2 | | 10 | | NW | 0.083 | 2.1 | Covered | F. Lucard, Director. |
| Tarbes, Normal School | 29.08 | 738.7 | 30.14 | 765.6 | 68.0 | 20 | 91 | W | | | 2 | | 5 | | W | 0 | 0 | Cloudy | T. Hugues, Director. |
| Villefranche | | | 30.05 | 763.2 | 67.8 | 19.9 | 78 | NW | | | 6 | | 5 | | W | 0.08 | 2. | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.89 | 759.1 | 81.0 | 27.2 | | | | | | | | | | 0.12 | 3. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 77.5 | 25.3 | 29 | NW | | | 6 | | 1 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 24.98 | 634.6 | 30.80 | 769.6 | 56.1 | 13.4 | 72 | NNW | 18.6 | 8.33 | | | 8 | | SW | 0.146 | 3.7 | | Mr. Falguère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 30.09 | 764.2 | 64.6 | 18.1 | 38 | N | | | 1 | | 8 | | N | 0.031 | 0.8 | | Marié Davy, Director. |
| Perpignan | | | 30.02 | 762.6 | 72.7 | 22.6 | 82 | NW | 16.8 | 7.50 | | | 1 | | W | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.38 | 543.0 | | | 30.2 | 4.0 | | SW | | | 2 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.67 | 575.7 | | | 41.0 | 5.0 | | SW | | | 2 | | 9 | | | 0.098 | 2.5 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.09 | 764.3 | 68.5 | 20.3 | 45 | WNW | | | 1 | | 8k | | NW | 0 | 0 | Very cloudy | E. Renou. |
| Toulouse, Observatory | | | 30.19 | 766.7 | 67.5 | 19.7 | 65 | NW | | | 3 | | 7 | | | 0 | 0 | | The Staff |
| Tours | | | 30.14 | 765.5 | 66.7 | 19.3 | 43 | WNW | | | 2 | | 7 | | WNW | 0.126 | 3.2 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.11 | 764.7 | 66.9 | 19.4 | 36 | NW | | | 2 | | 9 | | | 0.059 | 1.36 | Almost cov'd | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.68 | 753.8 | 72.5 | 22.5 | 95 | NE | 3.6 | 1.6 | | | 7k | | NE | 0.362 | 9.2 | Stormy | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft. Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10 | Clouds. Amount. Up'er 0-10 | Clouds. Amount. Low'r 0-10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.04 | 762.9 | 68.0 | 20.0 | 44 | W | | | 5 | | 5 | W | | 0.079 | 2.0 | | Prof. T. Hoh. |
| Berlin | | | 30.05 | 763.2 | 65.8 | 18.8 | 44 | SW | | | 4 | | 6 | | | 0.161 | 4.1 | | Prof. Arndt. |
| Breslau | | | 30.01 | 762.3 | 67.3 | 19.6 | 54 | NW | | | 3 | | 10 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.01 | 762.2 | 68.5 | 20.3 | 48 | SW | | | 3 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.14 | 765.5 | 60.8 | 16.0 | 59 | NNW | | | 6 | | 7 | WNW | | 0.118 | 3.0 | | Dr. H. Möhl. |
| Crefeld | | | 30.06 | 763.4 | 64.9 | 18.3 | 48 | N | | | 3 | | 7 | | | 0.4 | 1. | | Director Lose. |
| Emden | | | 30.05 | 763.3 | 63.3 | 17.4 | 45 | N | | | 3 | | 2 | | | 0.268 | 6.8 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.09 | 764.3 | 70 0 | 21.1 | 34 | NNW | | | 1 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.63 | 727.2 | 30.04 | 763.0 | 61.9 | 16.6 | 78 | NE | | | 3 | | 10 | NNE | | 0.665 | 16.9 | | M. Wilhelm. |
| Hamburg | | | 30.06 | 763.4 | 60.8 | 16.0 | 52 | WNW | | | 5 | | 5k | | | 0.327 | 8.3 | Fair | Captain F. Hegemann. |
| Kiel | | | 29.98 | 761.6 | 60.3 | 15.7 | 57 | WNW | | | 5 | | 5 | | | 0.083 | 2.1 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 29.97 | 761.2 | 61.5 | 16.4 | 44 | W | | | 5 | | 2 | | | 0.012 | 0.3 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.05 | 763.3 | 65.7 | 18.7 | 42 | N | | | 1 | | 7 | WNW | | 0.020 | 0.5 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.96 | 761.0 | 59.7 | 15.4 | 68 | WSW | | | 5 | | 3c | WSW | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 29.97 | 761.2 | 65.8 | 18.8 | 45 | WNW | | | 4 | | 7 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.00 | 761.9 | 66.2 | 19.0 | 51 | NW | | | 5 | | 10 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.01 | 762.3 | 67.6 | 19.8 | 55 | NW | | | 2 | | 10 | W | | 0.043 | 1.1 | | Dr. Schur. |
| Stuttgart | | | 29.99 | 761.7 | 68.0 | 20.0 | 50 | W | | | 1 | | 8 | W | | Inap. | Inap. | | Prof. Schoder. |
| Treves, (Trier) | | | 29.92 | 760.0 | 66.4 | 19.1 | 44 | NW | | | 4 | | 8 | | | 0.075 | 1.9 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.53 | 724.7 | 30.01 | 762.2 | 61.9 | 16.6 | 69 | NNE | | | 1 | | 10 | NW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.07 | 763.6 | 59.2 | 15.1 | 66 | W | | | 4 | | 4 | | | 0.102 | 2.6 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355. 9 feet: Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.96 | 761 0 | 90.0 | 32.2 | | NE | | | Strong | | ck | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.44 | 747.7 | 29.49 | 749.0 | 89.2 | 31.8 | 68 | WSW | 36.0? | 16.0? | | | 7 | | WSW | 0 | 0 | D. clouds | |
| Deesa | 29.03 | 737.2 | 29.48 | 748.7 | 100.2 | 37.9 | 40 | S | | | | | 0 | | | 0 | 0 | Blue sky | |
| Bombay | 29.58 | 751.4 | 29.62 | 752.4 | 81.7 | 27.6 | 90 | W | 5.0 | 2.2 | | | 10 | | WNW | 4.85 | 123.2 | Dust-haze | |
| Poona | 27.61 | 701.3 | 29.60 | 752.0 | 76.2 | 24.6 | 89 | | | | | | | E | SE | 0.08 | 2.0 | Raining | |
| Lahore | 28.58 | 725.8 | 29.26 | 743.3 | 110.3 | 43.5 | 19 | W | 1.3 | 0.5 | | | 4 | | | 0 | 0 | Blue sky | |
| Belgaum | | | | | 73.3 | 22.9 | 94 | W | 18.0 | 8.0 | | | 10 | | W | 0.91 | 23.1 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.42 | 721.8 | 29.26 | 743.2 | 104.9 | 40.5 | | NW | 3.5 | 1.5 | | | | | | 0 | 0 | | |
| Agra | 28.79 | 731.2 | 29.32 | 744.6 | 107.7 | 42.1 | 28 | NW | 6.0 | 2.6 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.43 | 722.1 | 29.45 | 748.0 | 84.6 | 29.2 | 69 | W | 5.2 | 2.3 | | | 8 | | | | | Drizzling | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 28.55 | 735.4 | 29.30 | 744.2 | 105.5 | 40.8 | 21 | WNW | 2.5 | 1.1 | | | | | | 0 | 0 | Dust-haze | |
| Allahabad | 28.96 | 735.4 | 29.24 | 742.8 | 104.7 | 40.4 | 33 | NW | 1.7 | 0.7 | | | 3 | | | 0 | 0 | D. clouds | |
| Patna | 29.19 | 741.4 | 29.36 | 745.8 | 98.0 | 36.7 | 47 | E | 1.5 | 0.6 | | | 6 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.45 | 697.3 | 29.42 | 747.4 | 80.8 | 27.1 | 78 | E | 7.0 | 3.1 | | | 10 | N | N | 0.01 | 0.3 | Showery | |
| Cuttack | 29.31 | 744.5 | 29.39 | 746.5 | 85.0 | 29.4 | 72 | S | 3.5 | 1.5 | | | 10 | | | 0.03 | 0.8 | Thunder-storm | |
| Calcutta (Alipore) | 29.34 | 745.2 | 29.36 | 745.7 | 82.1 | 27.8 | 91 | NNE | 2.0 | 0.8 | | | 7 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.03 | 737.2 | 29.41 | 746.9 | 83.9 | 28.8 | 82 | SSW | 3.9 | 1.7 | | | 10 | | | 0.03 | 0.8 | Thunder, lightn'g | |
| Chittagong | 29.38 | 746.4 | 29.48 | 748.7 | 79.9 | 26.6 | 89 | SSW | 10.2 | 4.5 | | | 10 | | | | | Drizzling | |
| Sibsagar | 29.10 | 739.1 | 29.42 | 747.3 | 88.6 | 31.4 | 78 | ENE | 3.8 | 1.6 | | | 10 | SSE | | 0 | 0 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.09 | 713.4 | 29.41 | 747.0 | 90.0 | 32.2 | 68 | W | 6.5 | 3.0 | | | 8 | | | 0.06 | 1.5 | D. clouds | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.8 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.22 | 564.5 | 29.82 | 757.4 | 49.6 | 9.8 | 70 | W | | | 6 | | 7 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.19 | 563.6 | 29.81 | 757.1 | 45.9 | 7.7 | | SE | | | 1 | | 9 | | | 0.488 | 12.4 | | Signora Ernesta Manfredi. |
| Udine | | | 29.84 | 757.9 | 62.8 | 17.1 | 94 | NE | 3.8 | 1.7 | | | 10 | | | 2.067 | 52.5 | | Ab. Dom. Morgini. |
| Padua | | | 29.84 | 757.9 | 70.7 | 21.5 | 75 | ENE | 3.8 | 1.7 | | | 10 | NE | | 0.338 | 59.4 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.84 | 758.0 | 71.1 | 21.7 | 72 | E | 0.7 | 0.3 | | | 9 | E | | 2.575 | 65.4 | | Conte Alm. Da Schio. |
| Verona | | | 29.88? | 759.0? | 73.8 | 23.2 | 82 | W | | | 1 | | 10 | | | 0.445 | 11.3 | | Dott. B. Bertoncelli. |
| Bergamo | 28.60 | 726.4 | 29.87 | 758.6 | 75.2 | 24.0 | 60 | S | | | 2 | | 6 | | | 1.024 | 26.0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.78 | 756.4 | 77.0 | 25.0 | 34 | N | | | 6 | | 3 | | | 0.746 | 18.8 | | Prof. Giuseppe Calza. |
| Milan | | | 29.85 | 758.3 | 79.5 | 26.4 | 60 | SW | | | 1 | | 4 | SW | | 0.413 | 10.5 | | Ab. Gio. Capelli. |
| Pavia | | | 29.85 | 758.1 | 77.2 | 25.1 | 57 | SE | | | 2 | | 4 | SW | | 0.039 | 1.0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.82 | 757.5 | 80.4 | 26.9 | 45 | WNW | 1.3 | 0.6 | | | 2 | N | | 0.039 | 1.0 | | Prof. P. F. Denza. |
| Mondovi | 27.96 | 710.2 | 29.78 | 756.4 | 73.4 | 23.0 | 46 | NW | | | 4 | | 3 | | | 0.461 | 11.7 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 29.91? | 759.8? | 77.4 | 25.2 | 62 | SSE | | | 2 | | 3 | W | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.87 | 758.7 | 76.6 | 24.8 | 66 | SE | 9.4 | 4.2 | | | 4 | SE | | 0.004 | 0.1 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.86 | 758.5 | 73.8 | 23.2 | 67 | SE | 1.3 | 0.6 | | | 5 | | | 0.827 | 21.0 | | Dott. G. Manzi. |
| Parma | | | 29.84 | 757.9 | 77.9 | 25.5 | 58 | WSW | | | 2 | | 7 | | | 0.098 | 2.5 | | Prof. P. Pigorini. |
| Florence | | | 29.92 | 759.9 | 78.8 | 26.0 | 59 | SW | | | 6 | | 9 | | | 0.568 | 14.3 | | Cav. F. Meucci. |
| Leghorn | | | 29.99? | 761.7? | 76.6 | 24.8 | 64 | WSW | 15.4 | 6.9 | | | 9 | WSW | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.73 | 729.8 | 29.89 | 759.2 | 74.7 | 23.7 | 56 | WSW | 1.8 | 0.8 | | | 7 | W | | 0.937 | 23.8 | | Prof. L. Toscani. |
| Urbino | 28.38 | 720.9 | 29.88 | 758.9 | 74.5 | 23.6 | 48 | SW | | | 2 | | 5 | | | 1.024 | 26.0 | | Prof. P. Serpieri. |
| Pesaro | | | 29.85 | 758.2 | 79.3 | 26.3 | 59 | SW | 23.0 | 10.3 | | | 8 | SW | | 0.433 | 11.0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.88 | 758.9 | 78.4 | 25.8 | 68 | SE | | | 4 | | 5 | | | 0.220 | 5.6 | | Prof. F. DeBosis. |
| Grosseto | | | 29.92 | 759.9 | 70.3 | 21.3 | 88 | SSE | | | 4 | | 4 | SE | | 0.496 | 12.6 | | Avv. P. Ponticelli. |
| Rome | | | 29.93 | 760.1 | 79.9 | 26.6 | 66 | SW | 7.4 | 3.3 | | | 8 | | | 0.079 | 2.0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 29.97 | 761.2 | 82.0 | 27.8 | 65 | SW | | | 4 | | 7 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.96 | 761.0 | 83.1 | 28.4 | 52 | S | 12.5 | 5.6 | | | 8 | S | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.00 | 761.9 | 86.0 | 30.0 | 41 | SW | 3.8 | 1.7 | | | 8 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.97 | 761.1 | 84.6 | 29.2 | 36 | NW | | | 4 | | 2 | W | | 0.010 | 0.4 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.02? | 762.5? | 81.0 | 27.2 | 60 | NE | | | 2 | | 8 | SE | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 29.95 | 760.6 | 80.4 | 26.9 | 64 | NNW | 16.1 | 7.2 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.03 | 712.0 | 29.88 | 759.0 | 85.8 | 29.4 | 28 | WNW | | | 6 | | 5 | S | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.90 | 759.5 | 76.5 | 24.7 | 83 | SE | | | 2 | | 10 | SW | | 0.004 | 0.1 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 29.99 | 761.8 | 79.3 | 26.3 | 73 | WSW | 0 | 0 | | | 8 | WSW | | 0 | 0 | | Prof. F. Brioschi |

NOTE.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.94 | 760.5 | 76 | 24.4 | 84 | S | 5 | 2.2 | | 7cs | | W | | 0 | 0 | Fair | Prof. P. V. Veeder. |

NOTE.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the SECRETARY OF PUBLIC WORKS.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.16 | 588.2 | 30.16 | 766.0 | 59.0 | 15.0 | 78 | SW | 0.1 | 0.04 | | Sck | 0 | | | 0 | 0 | Cloudy | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

NOTE.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.12 | 765.1 | 62.1 | 16.7 | | NNE | | | 3 | | | | | 0.051 | 1.3 | | |
| Groningen | | | | | 59.9 | 15.5 | | NNW | | | 2 | | | | | 0.008 | 0.2 | | |
| Helder | | | 30.10 | 764.4 | 58.3 | 14.6 | | W | | | 1 | | | | | 0 | 0 | | |
| Utrecht | | | 30.06 | 763.4 | 63.1 | 17.3 | 49 | NNW | | | 2 | | 5 | | | 0 | 0 | Cloudy | H. v d Brink. |

NOTE.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.76 | 756.0 | 50.7 | 10.4 | 65 | WNW | 11.6 | 5.2 | | | 4 | | | 0.598 | 15.2 | | |
| Brönö | | | 29.46 | 748.3 | 50.4 | 10.2 | 50 | W | 27 | 12 | | | 3 | | | 0 | 0 | | |
| Christiania | | | 29.61 | 752.2 | 61.9 | 16.6 | 32 | WSW | 13 | 6 | | | 2 | | | 0 | 0 | | |
| Tromsö | | | 29.27 | 743.4 | 49.6 | 9.8 | 76 | NE | 9 | 4 | | | 10 | | | 0.256 | 6.5 | Raining | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.11 | 764.8 | 62.2 | 16.8 | 78 | WNW | 3.1 | 1.4 | | | 8 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 30.08 | 763.9 | 81.0 | 27.2 | 28 | SW | 3.8 | 1.7 | | | 4 | ESE | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.15 | 765.9 | 70.9 | 21.6 | 77 | W | 8.1 | 3.6 | | | 10 | | | 0.020 | 0.5 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.14 | 765.5 | 71.8 | 22.1 | 48 | WSW | 8.7 | 3.9 | | | 5 | W | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.11 | 764.8 | 68.0 | 20.0 | 61 | NW | 4.3 | 1.9 | | | 4 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | | Observer. |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. P'etersburg.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 29.90 | 759.4 | 73.8 | 23.2 | 51 | NW | 9 | 4 | | | 7 | | | | | | Astronomical Obs. |
| Wilna | | | 29.84 | 757.8 | 74.8 | 23.8 | 57 | W | 4 | 2 | | | 5 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.76 | 755.8 | 64.2 | 17.9 | 59 | W | 11 | 5 | | | 2 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.72 | 754.9 | 65.3 | 18.5 | 78 | WSW | 13 | 6 | | | 10 | | | | | Raining | Central Physical Obs. |
| Kuopio | | | 29.48 | 748.8 | 61.2 | 16.2 | 87 | S | 27 | 12 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.92 | 759.9 | 73.2 | 22.9 | 63 | S | 13 | 6 | | | 7 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 30.13 | 765.3 | 77.0 | 25.0 | 38 | SE | 18 | 8 | | | 2 | | | | | | Kurdukof. |
| Kertch | | | 30.14 | 765.6 | 73.2 | 22.9 | 53 | ENE | 13 | 6 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.08 | 763.9 | 56.1 | 13.4 | 96 | S | 11 | 5 | | | 10 | | | | | Raining | Meteorological Obs. |
| Lugan | | | 30.17 | 766.2 | 70.9 | 21.6 | 43 | SSE | 4 | 2 | | | 8 | | | | | | Meteorological Obs. |
| Archangel | | | 29.87 | 758.6 | 63.1 | 17.3 | 52 | SSE | 34 | 15 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.77 | 730.7 | 30.13 | 765.4 | 75.6 | 24.2 | 46 | E | 4 | 2 | | | 6 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.13 | 765.3 | 70.3 | 21.3 | 25 | NNW | 11 | 5 | | | 4 | | | | | | Sebastianof. |
| Kasan | | | 30.03 | 762.7 | 68.4 | 20.2 | 38 | N | 11 | 5 | | | 9 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.17 | 766.3 | 81.1 | 27.3 | 86 | NNE | 9 | 4 | | | 2 | | | | | | Tschernischef. |
| Ekaterinburg | 28.99 | 736.4 | 29.91 | 759.7 | 66.0 | 18.9 | 57 | NNE | 7 | 3 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.92 | 759.9 | 79.9 | 26.6 | 47 | NNW | 7 | 3 | | | 2 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.26 | 717.7 | 29.84 | 757.8 | 90.5 | 32.5 | 58 | Calm | 0 | 0 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.84 | 758.0 | 75.6 | 24.2 | 44 | N | 0 | 0 | | | 3 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.81 | 757.1 | 79.0 | 26.1 | 60 | SE | 2 | 1 | | | 2 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 59.9 | 15.5 | | Calm | 0 | 0 | | | 3 | | | | | | Mossin. |
| Peking, (China) | | | 29.55 | 750.5 | 74.8 | 23.8 | 88 | E | 18 | 8 | | | 4 | | | Blank | Blank | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.84 | 757.9 | 60.8 | 16.0 | 98 | Calm | 0 | 0 | | | 10 | | | | | Dense fog | |
| Nikolaievsk, on the Amoor | | | | | 44.1 | 6.7 | 83 | Calm | 0 | 0 | | | 0 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Navaran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Domingo Martin y Peres. |
| Madrid, Royal Observatory | | | 30.01 | 762.2 | 82.6 | 28.1 | 33 | SW | 6.0 | 2.67 | | 0 | 4 | | | Inap. | Inap. | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.07 | 763.6 | 84.0 | 28.9 | 77 | SE | 1.8 | 0.8 | | 0 | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.15 | 765.9 | 73.4 | 23.0 | 60 | W | 10.1 | 4.5 | | 0 | 2 | | W | 0 | 0 | | Capt. C. Pajazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.02 | 762.4 | 83.5 | 28.6 | 83 | E | 7.6 | 3.40 | | 7cs | 0 | | | 0.157 | 4.00 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Inches. | Millimeters. | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | Up'er 0—10. | Low'r 0—10. | Upper. From— | Lower. From— | Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.57 | 746.1 | 51.4 | 10.8 | 93 | S | | | 2 | | 5 | | | 1.260 | 32.0 | | |
| Umea | | | 29.30 | 744.2 | 48.9 | 9.4 | 79 | SW | | | 7 | | 9 | | | 0.114 | 2.9 | | |
| Hernosand | | | 29.36 | 745.7 | 49.6 | 9.8 | 84 | NW | | | 4 | | 10 | | | 0.110 | 2.8 | Raining | |
| Stockholm | | | 29.57 | 751.1 | 57.6 | 14.2 | 75 | N | | | 7 | | 5 | | | 0.008 | 0.2 | | |
| Wisby | | | 29.73 | 755.2 | 59.4 | 15.2 | 52 | WNW | | | 6 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.59 | 751.5 | 57.2 | 14.0 | 50 | W | 16.3 | 7.3 | | | 5 | | W | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0–10. | Clouds. Amount. Up'er 0–10. | Low'r 0–10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.63 | 727.3 | 30.02 | 762.6 | 66.9 | 19.4 | 52 | SSW | | | 2 | | 6 | | | 0 | 0 | Cloudy | The Observatory. |
| Zurich | 28.42 | 721.9 | 30.01 | 762.3 | 67.6 | 19.8 | 71 | S | | | 1 | | 9 | | | 0.354 | 9.0 | Thunder-storm. | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +0.4 mm; Thermometer, —2.1 cent.; Relative Humidity, —3 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.02 | 762.5 | 71.2 | 21.8 | 65 | NNE | 22 | 10.0 | | 2 | | NNE | | 0 | 0 | | The Observatory. |
| Feo, (Persian Gulf) | | | 29.87 | 758.7 | 82.4 | 28.0 | | NW | | | 3 | 0 | | | | | | | |
| Salonica | | | 30.05 | 763.2 | 82.9 | 28.3 | | S | | | 0 | 0 | | | | | | | B. Stéfanidès. |
| Yalona | | | 30.06 | 763.5 | 82.9 | 28.3 | | SW | | | 2 | 10 | | | | 0 | 0 | Covered | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.87 | 758.7 | 84.0 | 28.9 | 64 | WNW | | | 2 | | 1ks | | | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | | | | | | | | | | | | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.81 | 757.2 | 57 | 13.9 | | SW | 6 | 2.7 | | 0 | 5s | | SW | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B | | | 29.71 | 754.6 | 56 | 13.3 | 59 | SW | 15 | 6.7 | | 5k | 0 | SW | | 0.02 | 0.5 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.73 | 755.1 | 54 | 12.2 | 59 | NW | 10 | 4.5 | | 0 | 0 | | | 0.110 | 2.79 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.78 | 756.4 | 59.6 | 15.3 | 69 | SW | | | 1 | | 10s | | | 0 | 0 | Dull | James Smith, M. A. |
| Dalhousie, N. B | | | | | 56.9 | 13.8 | 39 | SW | | | 3 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C | | | 29.90 | 759.4 | 51.8 | 11.0 | 93 | W | | | | 4ck | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.66 | 753.4 | 47 | 8.3 | 81 | W | 11 | 4.9 | | 0 | 2ks | | W | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B | | | 29.81 | 757.2 | 56.0 | 13.3 | 67 | W | 8 | 3.6 | | 10cs | 0 | | | 0.015 | 0.38 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.26 | 743.2 | 58 | 14.4 | 97 | SW | 16 | 7.2 | | 5k | 5n | SW | SW | 2.54 | 64.5 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.79 | 756.7 | 66.5 | 19.2 | | SW | | | 2 | 0 | 0 | | | 0.115 | 2.92 | Clear | H. J. Strang, M. A. |
| Granton, Ontario | 28.74 | 730.0 | 29.81 | 757.2 | 66 | 18.9 | 69 | S | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S | | | 29.81 | 757.2 | 57 | 13.9 | 75 | W | 12 | 5.4 | | 5k | 2s | NW | | 0.060 | 1.52 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.83 | 757.7 | 64.9 | 18.3 | 58 | Calm | | | 0 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.59 | 751.6 | 49 | 9.4 | 71 | SW | | | 5 | 0 | 1s | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.85 | 758.2 | 61 | 16.1 | 77 | SW | 10 | 4.5 | | 5c | 0 | SW | | 0 | 0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.80 | 756.9 | 60 | 15.6 | 67 | W | 4 | 1.8 | | | 10n | | | Inap. | Inap. | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.76 | 755.9 | 63 | 17.2 | 97 | S | 6 | 2.7 | | 5k | 2ks | W | W | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 30.21 | 767.3 | 68.7 | 20.4 | 51 | E | | | 1 | 0 | 1s | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.83 | 757.7 | 60 | 15.6 | 88 | S | 5 | 2.2 | | 5ck | 0 | W | | 0 | 0 | Fair | H. Morgan. |
| Port Hastings, N. S | | | | | | | | | | | | | | | | | | | Peter Grant. |
| Port Stanley, Ontario | | | 29.84 | 757.9 | 66 | 18.9 | 74 | E | 3 | 1.3 | | 2ck | 0 | W | | 0 | 0 | Clear | M. Payne. |
| *Quebec, Quebec | | | 29.76 | 755.9 | 54 | 12.2 | 87 | Calm | 0 | 0 | | | 10n | | | 0.03 | 0.8 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.77 | 756.1 | 53 | 11.7 | 92 | E | 3 | 1.3 | | | 10s | | NW | 0.13 | 3.3 | Light rain | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.73 | 755.1 | 67 | 19.4 | 74 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | | | | | | | | | | | | | | | | | R. J. Cole. |
| Stratford, Ontario | 28.54 | 724.9 | 29.79 | 756.7 | 54.9 | 12.7 | 68 | SW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.71 | 754.6 | 57 | 13.9 | 72 | W | 12 | 5.4 | | 0 | 5ks | | W | 0.02 | 0.5 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.82 | 757.4 | 61 | 16.1 | 68 | N | 3 | 1.3 | | 5cs | 0 | | | 0 | 0 | Fair | Magnetic Observatory |
| Windsor, N. S | | | 29.81 | 757.2 | 56 | 13.3 | 78 | NW | 6 | 2.7 | | | 10n | | | 0.24 | 6.1 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.80 | 756.9 | 65.1 | 18.4 | 66 | S | 6 | 2.7 | | 0 | 1s | | | 0.02 | 0.5 | Clear | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.74 | 755.4 | 60.0 | 15.6 | 60 | SW | | | | 5k | 5s | | | 0 | 0 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y | | | 29.91 | 759.7 | 62 | 16.7 | 57 | SE | 10 | 4.5 | | 8cs | 0 | S | | 0 | 0 | Fair | |
| Alpena, Mich | | | 29.68 | 753.9 | 68 | 20.0 | 55 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J | | | 30.03 | 762.7 | 64 | 17.8 | 83 | SW | 4 | 1.8 | | 8ck | 0 | W | | 0 | 0 | Cloudy | |
| Augusta, Ga | | | 29.99 | 761.7 | 73 | 22.8 | 85 | NE | 2 | 0.9 | | | 10s | | | 0.54 | 13.7 | Cloudy | |
| Baltimore, Md | | | 30.00 | 762.0 | 64 | 17.8 | 78 | S | 9 | 4.0 | | 2k | Haze | SW | | 0 | 0 | Fair | |
| Barnegat, N. J | | | 30.02 | 762.5 | 69 | 20.6 | 65 | SW | 15 | 6.7 | | 8ck | 0 | W | | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.80 | 706.1 | 29.36 | 745.7 | 57 | 13.9 | 58 | NW | 10 | 4.5 | | Haze | 1s | | W | 0.02 | 0.5 | Clear | |
| Boston, Mass | | | 29.92 | 760.0 | 64 | 17.8 | 58 | SW | 12 | 5.4 | | 10cs | 0 | W | | 0 | 0 | Cloudy | |
| Breckenridge, Minn | | | 29.48 | 748.8 | 57 | 13.9 | 81 | W | 14 | 6.3 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Brownsville, Texas | | | 29.85 | 758.2 | 86 | 30.0 | 72 | SE | 12 | 5.4 | | 5c | 5ks | | SE | 0 | 0 | Cloudy | |
| Buffalo, N. Y | | | 29.78 | 756.4 | 64 | 17.8 | 67 | SW | 4 | 1.8 | | 5c | 2k | SW | SW | 0 | 0 | Fair | |
| Burlington, Vt | | | 29.84 | 757.9 | 64 | 17.8 | 57 | S | 7 | 3.1 | | 2c | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill | | | 29.79 | 756.7 | 74 | 23.3 | 85 | S | 12 | 5.4 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Campo, Cal | 27.28 | 692.9 | 29.85 | 758.2 | 45 | 7.2 | 85 | SW | 4 | 1.8 | | Haze | 0 | | | 0 | 0 | Hazy | |
| Camp Verde, Arizona | | | | | 63 | 17.2 | | SE | | | | 0 | Sm'e | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C | | | 29.96 | 761 0 | 73 | 22.8 | 71 | NE | 6 | 2.7 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va | | | 30.03 | 762.7 | 70 | 21.1 | 75 | SE | 12 | 5.4 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Lookout, N. C | | | 30.00 | 762.0 | 76 | 24.4 | 75 | NE | 10 | 4.5 | | 2ck | 0 | NE | | 0 | 0 | Fair | |
| Cape May N. J | | | 30.03 | 762.7 | 67 | 19.4 | 79 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C | | | 29.98 | 761.5 | 79 | 26.1 | 82 | E | 12 | 5.4 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Cheyenne, Wyoming | 23.91 | 607.3 | 29.85 | 758.2 | 47 | 8.3 | 48 | W | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill | | | 29.60 | 751.8 | 68 | 20.0 | 74 | SW | 10 | 4.5 | | 2k | 0 | S | | 0 | 0 | Fair | |
| Cincinnati, Ohio | | | 29.78 | 756.4 | 72 | 22.2 | 80 | S | 6 | 2 7 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 29.83 | 757.7 | 66 | 18.9 | 68 | E | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Corsicana, Tex | | | 29.77 | 756.1 | 78 | 25.6 | 82 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Davenport Iowa | | | 29.62 | 752.3 | 67 | 19.4 | 79 | SW | 5 | 2.2 | | 4ck | 6s | SW | SW | 0 | 0 | Cloudy | |
| Denison, Texas | | | 29.72 | 754.9 | 77 | 25.0 | 76 | SE | 20 | 8.9 | | | 10s | | S | 0 | 0 | Cloudy | |
| Denver, Col | 24.65 | 626.1 | 29.87 | 758.7 | 50 | 10.0 | 58 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich | | | 29.76 | 755.9 | 63 | 17.2 | 83 | S | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Dodge City, Kan | 27.14 | 689.3 | 29.30 | 744.2 | 67 | 19.4 | 78 | NE | 7 | 3.1 | | 0 | 2s | | NE | 0 | 0 | Clear | |
| Dubuque, Iowa | | | 29.60 | 751.8 | 67 | 19.4 | 79 | W | 1 | 0.4 | | | 10s | | | 0.05 | 1.3 | Cloudy | |
| Duluth, Minn | | | 29.49 | 749.0 | 54 | 12.2 | 93 | Calm | 0 | 0 | | | 10s | | | 1.07 | 27.2 | Cloudy | |
| Eagle Pass, Tex | | | 29.68 | 753.9 | 80 | 26.7 | 74 | S | 1 | 0.4 | | 2c | 2ks | S | S | 0 | 0 | Fair | |
| Eastport, Me | | | 29.82 | 757.4 | 67 | 19.9 | 75 | SW | 9 | 4.0 | | | 10s | | W | 0.19 | 4.8 | Cloudy | |
| Erie, Pa | | | 29.79 | 756.7 | 68 | 20.0 | 77 | S | 10 | 4.5 | | 2ck | Haze | SW | | 0 | 0 | Fair | |
| Escanaba, Mich | | | 29.54 | 750.3 | 59 | 15.0 | 82 | SE | 9 | 4.0 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Florence, Arizona | 28.18 | 715.8 | 29.73 | 756.4 | 86 | 30.0 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter | | | 29.76 | 755.9 | 66 | 18.9 | 90 | E | 17 | 7.6 | | | 10n | | | 0.52 | 13.2 | Light rain | |
| Fort Griffin, Tex | 28.43 | 722.1 | 29.61 | 752.1 | 80 | 26.7 | 78 | SE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.99 | 761.7 | 53 | 11.7 | 86 | N | | | 1 | 2ck | 5ks | S | S | 0 | 0 | Fair | |
| Fort Sill, Indian Ter | 28.45 | 722.6 | 29.48 | 748.8 | 77 | 25.0 | 82 | S | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Sully, Dakota | 28.01 | 711.4 | 29.62 | 752.3 | 51 | 10.6 | 72 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex | | | 29.91 | 759.7 | 83 | 28.3 | 83 | S | 14 | 6.3 | | 2k | 0 | S | | 0 | 0 | Fair | |
| Grand Haven, Mich | | | 29.64 | 752.8 | 72 | 22.2 | 58 | S | 9 | 4.0 | | 2c | 0 | SW | | 0 | 0 | Clear | |
| Indianapolis, Ind | | | 29.76 | 755.9 | 69 | 20.6 | 90 | S | 7 | 3.1 | | | 10s | | | 0 | 0 | Threatening | |
| Indianola, Tex | | | 29.86 | 758.4 | 85 | 29.4 | 79 | S | 20 | 8.9 | | 2k | 0 | S | | 0 | 0 | Clear | |
| Jacksonville, Fla | | | 29.99 | 761.7 | 84 | 28.9 | 71 | W | 12 | 5.4 | | 2c | 0 | W | | 1.11 | 28.2 | Clear | |
| Keokuk, Iowa | | | 29.54 | 750.3 | 66 | 18.9 | 70 | W | 4 | 1.8 | | | 10s | | W | 0 | 0 | Cloudy | |
| Key West, Fla | | | 30.04 | 763.0 | 83.0 | 28.3 | 74 | N | 2 | 0.9 | | 2cs | 2ks | NE | E | 1.70 | 43.2 | Fair | |
| Kittyhawk, N. C | | | 30.03 | 762.7 | 72 | 22.2 | 80 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn | | | 29.96 | 761.0 | 65 | 18.3 | 94 | SW | 4 | 1.8 | | | 10s | | SW | 0.03 | 0.8 | Cloudy | |
| La Crosse, Wis | | | 29.56 | 750.8 | 67 | 19.4 | 84 | SW | 8 | 3.6 | | 8cs | 0 | | | 0.04 | 1.0 | Clearing | |
| Leavenworth, Kan | | | 29.64 | 752.8 | 67 | 19.4 | 79 | SE | 6 | 2.7 | | 2c | 2s | SW | | 1.50 | 38.1 | Fair | |
| Louisville, Ky | | | 29.82 | 757.4 | 72 | 22.2 | 80 | S | 10 | 4.5 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Lynchburg, Va | | | 29.98 | 761.5 | 70 | 21.1 | 66 | Calm | 0 | 0 | | | 10n | | W | Inap. | Inap. | Light rain | |
| Maricopa Wells, Arizona | | | | | 78 | 25.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich | | | 29.56 | 750.8 | 64 | 17.8 | 78 | SE | 2 | 0.9 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Tex | 28.89 | 733.8 | 29.85 | 758.2 | 78 | 25.6 | 77 | SE | 8 | 3.6 | | 2ck | 2s | S | | 0 | 0 | Fair | |
| Memphis, Tenn | | | 29.85 | 758.2 | 79 | 26.1 | 78 | SW | 8 | 3.6 | | 0 | 1ks | | SW | 0 | 0 | Clear | |
| Milwaukee, Wis | | | 29.62 | 752.3 | 65 | 18.3 | 73 | S | 12 | 5.4 | | | 8ks | | SW | 0 | 0 | Cloudy | |
| Mobile, Ala | | | 30.00 | 762.0 | 83 | 28.3 | 74 | SW | 4 | 1.8 | | 2k | 0 | SW | | 0 | 0 | Clear | |
| Montgomery, Ala | | | 29.99 | 761.7 | 76.5 | 24.7 | 88 | Calm | 0 | 0 | | | 10s | | W | 0.55 | 14.0 | Cloudy | |
| Morgantown, W. Va | 28.86 | 733.0 | 29.86 | 758.4 | 70 | 21.1 | 70 | S | 1 | 0.4 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Mt. Washington, N. H | 23.66 | 601.0 | 30.02 | 762.5 | 37 | 2.8 | 80 | NW | 40 | 17.9 | | 5c | Haze | NW | | 0 | 0 | Fair | |
| Nashville, Tenn | | | 30.00 | 759.4 | 70 | 21.1 | 90 | SE | 7 | 3.1 | | | 10s | | SE | 0 | 0 | Cloudy | |
| New Haven, Conn | | | 29.97 | 761.2 | 68 | 20.0 | 64 | SW | 10 | 4.5 | | 8c | Haze | | | 0 | 0 | Fair | |
| New London, Conn | | | 30.00 | 762.0 | 65 | 18.3 | 68 | W | 9 | 4.0 | | 5cs | 0 | W | | 0 | 0 | Fair | |
| New Orleans, La | | | 29.98 | 761.5 | 81 | 27.2 | 78 | S | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Newport, R. I | | | 29.98 | 761.5 | 61 | 16.1 | 83 | SW | 12 | 5.4 | | 10cs | 0 | NW | | 0 | 0 | Cloudy | |
| New York, N. Y | | | 30.01 | 762.2 | 59 | 15.0 | 76 | SW | 12 | 5.4 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| Norfolk, Va | | | 30.03 | 762.7 | 75 | 23.9 | 68 | S | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb | 26.90 | 682.2 | 29.39 | 746.5 | 55 | 12.8 | 73 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb | 28.58 | 725.9 | 29.60 | 751.8 | 66 | 18.9 | 84 | S | 2 | 0.9 | | 2k | 2s | SW | | 1.08 | 27.4 | Fair | |
| Oswego, N. Y | | | 29.83 | 757.7 | 64 | 17.8 | 62 | S | 12 | 5.4 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 29.30 | 744.2 | 58 | 14.4 | 76 | W | 14 | 6.3 | | 2k | 0 | W | | 0.65 | 16.5 | Clear | |
| Philadelphia, Pa | | | 30.02 | 762.5 | 64 | 17.8 | 73 | W | 14 | 6.3 | | 2cs | 0 | W | | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 71 | 21.7 | 29 | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col | 17.71 | 449.8 | 29.98 | 761.5 | 26 | — 3.3 | 64 | SW | 22 | 9.8 | | 0 | 2ks | | | 0 | 0 | Clear | |
| Pittsburg, Pa | | | 29.83 | 757.7 | 70 | 21.1 | 66 | SW | 8 | 3.6 | | 2k | 0 | W | | 0 | 0 | Fair | |
| Port Huron, Mich | | | 29.77 | 756.1 | 62 | 16.7 | 83 | S | 8 | 3.6 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Portland, Me | | | 29.85 | 758.2 | 62 | 16.7 | 61 | SW | 6 | 2.7 | | 8ck | 2s | W | W | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 29.99 | 761.7 | 54 | 12.2 | 93 | SW | 8 | 3.6 | | | 10n | | | 0.17 | 4.3 | Light rain | |
| Prescott, Arizona | | | | | 58 | 14.4 | 26 | | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla | | | 30.05 | 763.3 | 82 | 27.8 | 59 | NW | 8 | 3.6 | | 2cs | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y | | | 29.79 | 756.7 | 63 | 17.2 | 62 | SW | 10 | 4.5 | | 8k | 0 | NW | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.49 | 647.4 | 29.82 | 757.4 | 51 | 10.6 | 72 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J | | | 30.01 | 762.2 | 64 | 17.8 | 78 | SW | 16 | 7.2 | | 0 | 5ks | | SW | 0.24 | 6.1 | Fair | |
| San Antonio, Tex | | | 29.66 | 753.4 | 80 | 26.7 | 82 | SE | 8 | 3.6 | | | 10s | | SE | 0 | 0 | Cloudy | |
| San Diego, Cal | | | 29.86 | 758.4 | 63 | 17.2 | 78 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Francisco, Cal | | | 29.88 | 758.9 | 56 | 13.3 | 80 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fe, New Mexico | 23.30 | 591.8 | 29.84 | 757.9 | 53 | 11.7 | 33 | SE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Hazy | |
| Savannah, Ga | | | 29.98 | 761.5 | 75 | 23.9 | 95 | N | 2 | 0.9 | | | Fog | | N | 0.90 | 22.9 | Foggy | |
| Shreveport, La | | | 29.93 | 760.2 | 78 | 25.6 | 86 | S | 6 | 2.7 | | | 10s | | S | 0.40 | 10.2 | Cloudy | |
| Smithville, N. C | | | 30.02 | 762.5 | 76 | 24.4 | 90 | E | 8 | 3.6 | | 2c | 0 | W | | 0 | 0 | Fair | |
| Springfield, Mass | | | 29.93 | 760.2 | 64.5 | 18.1 | 62 | SW | 8 | 3.6 | | 8c | 0 | NW | | 0 | 0 | Fair | |
| St. Louis, Mo | | | 29.74 | 755.4 | 67 | 19.4 | 95 | N | 12 | 5.4 | | | 10s | | | 0.47 | 11.9 | Cloudy | |
| St. Marks, Fla | | | 30.00 | 762.0 | 77 | 25.0 | 95 | Calm | 0 | 0 | | | 10s | | W | 1.39 | 35.3 | Cloudy | |
| St. Paul, Minn | | | 29.48 | 748.8 | 69 | 20.6 | 75 | S | 12 | 5.4 | | 2c | 0 | | | 0.66 | 16.8 | Fair | |

UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 68 | 20.0 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.73 | 678.9 | 29.73 | 755.1 | 76 | 24.4 | 40 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 29.80 | 756.9 | 58 | 14.4 | 75 | SW | 16 | 7.2 | | 8c,cs | 0 | NW | | 0 | 0 | Fair | |
| Toledo, Ohio | | | 29.76 | 755.9 | 69 | 20.6 | 70 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Tucson, Arizona | 27.47 | 697.7 | 30.01 | 762.2 | 71 | 21.7 | | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 29.95 | 760.7 | 77 | 25.0 | 90 | NW | 4 | 1.8 | | 2c | 2ks | | | 0.17 | 4.3 | Fair | |
| Vicksburg, Miss | | | 29.94 | 760.5 | 82 | 27.8 | 74 | S | 8 | 3.6 | | 2ck | 0 | | | 0.05 | 1.3 | Clear | |
| Virginia City, Montana | 24.07 | 611.4 | 29.55 | 750.6 | 44 | 6.7 | 30 | SW | 14 | 1.8 | | 0 | 5s | | W | 0 | 0 | Fair | |
| Washington, D. C | | | 30.01 | 762.2 | 67.5 | 19.7 | 77 | SW | 12 | 5.4 | | 0 | 1s | | W | 0 | 0 | Clear | |
| Wickenburg, Arizona | | | | | 79 | 26.1 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.02 | 762.5 | 76 | 24.4 | 72 | E | 4 | 1.8 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 30.02 | 762.5 | 64 | 17.8 | 72 | SW | 12 | 5.4 | | 10c,k | 0 | W | | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.46 | 722.9 | 29.70 | 754.4 | 56 | 13.3 | 87 | W | 10 | 4.5 | | 5cs | 0 | SW | | 1.18 | 30.0 | Fair | |
| Yuma, Arizona | | | 29.67 | 753.6 | 76 | 24.4 | 56 | SE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.18 | 766.6 | 82 | 27.8 | 79 | N | 4 | 1.8 | | 2k | 2s | E | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.00 | 762.0 | 83 | 28.3 | | E | | | 4 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.06 | 763.5 | 82 | 27.8 | 79 | E | | | 2 | 4c | 3s | | E | 0.165 | 4.19 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.22 | 640.6 | | | 67.5 | 19.7 | 71 | Calm | | | 0 | 1c | 0 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 29.94 | 760.5 | 37.5 | 3.1 | 95 | NE | 14 | 6.3 | | 1k | 0 | N | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.16 | 766.1 | 72 | 22.2 | | NE | | | 4 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. J. Clarke. |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,676 ft., or 1,426.2 m., Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.10 | 764.5 | 72 | 22.2 | 66 | 18.9 | 74 | SW | | | 2 | | 1 | | SW | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.91 | 759.7 | 59 | 15.0 | 57 | 13.9 | | WSW | 14.4 | 6.4 | | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Pensacola, Fla. | 30.08 | 764.0 | | | 80 | 26.7 | 82 | WSW | 26 | 11.6 | | | 5 | | W | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.95 | 760.7 | 72 | 22.2 | 64 | 17.8 | 58 | W | 2 | 0.9 | | | 10 | | | 0 | 0 | | | Cloudy | |
| Naval Hospital, Yokohama, Japan | 29.86 | 758.4 | 76.5 | 24.7 | 74.5 | 23.6 | 88 | SW | | | 3 | | 10k,s | | W | 0 | 0 | | | Cloudy | |
| Alert, Piapic, Waigeom Island | 29.95† | 760.7† | 82 | 27.8 | 82 | 27.8 | 96 | S | | | 3–4 | | 9 | | S | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.02 | 762.5 | 83 | 28.3 | 80 | 26.7 | 78 | N&W | | | 1 | | 1 | | | | | Smooth | None | Clear | |
| Ashuelot, San Moon Bay, China | 29.75 | 755.6 | 78 | 25.6 | 78 | 25.6 | 82 | SE | | | 3 | | 4 | SW | S&E | | | Smooth | | D. clouds | |
| Canonicus, New Orleans, La | 30.02 | 762.5 | 56 | 13.3 | 80 | 26.7 | 82 | SSW | | | 2 | | 4 | | | | | | | Clear | |
| Colorado, New York, N. Y | 30.07 | 763.8 | 58 | 14.4 | 61 | 16.1 | 71 | S | 16 | 7.2 | | | 4 | | S | 0 | 0 | | | D. clouds | |
| Despatch, Constantinople, Turkey | 30.16 | 766.1 | 72 | 22.2 | 69 | 20.6 | 75 | NNE | | | 3 | | 8 | | NE | | | | | Cloudy | |
| Franklin, Norfolk, Va. | 30.13 | 765.3 | 66 | 18.9 | 72 | 22.2 | 90 | W | 6 | 2.7 | | | 2 | | W | 0 | 0 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.39 | 771.9 | 69 | 20.6 | 71 | 21.7 | 90 | NNE | | | 1 | | | | | 0 | 0 | | | Foggy | |
| ‡Gettysburg, Leghorn, Italy | 29.84 | 757.9 | | | 76 | 24.4 | ? | W | | | 4 | | 5 | | | Blank | Blank | Light | S | D. clouds | |
| Hartford, Hampton Roads, Va | 30.28 | 769.1 | 71 | 21.7 | 70 | 21.1 | ? | SE | 2 | 0.9 | | | | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.03 | 762.7 | 83 | 28.3 | 84 | 28.9 | 91 | S | | | 1 | | 7 | | | 0.625 | 15.88 | Ground | N&E | Misty | |
| Kearsarge, Nagasaki, Japan | 29.70 | 754.4 | 81 | 27.2 | 77 | 25.0 | 100 | S | | | 3–8 | | 7 | | N | ¶0.77 | 19.6¶ | Moderate. | SSW | Showery | |
| Marion, Smyrna, Turkey | 29.95 | 760.7 | 79 | 26.1 | 80 | 26.7 | 70 | WSW | | | 4 | | 1 | | WSW | 0 | 0 | Chop | W | D. clouds | |
| Michigan, Erie, Pa | 29.35 | 745.5 | 71 | 21.7 | 68 | 20.0 | 84 | WSW | | | 1 | | 0 | | | | | | | Fair | |
| Monocacy, Tientsin, China | 29.52 | 749.8 | 77 | 25.0 | 79 | 26.1 | 82 | SE | | | 3 | | 9 | | SE | 0 | 0 | | | D. clouds | |
| Monongahela, Off Sachem's Head, Conn. | 30.04 | 763.0 | 62 | 16.7 | 61 | 16.1 | 82 | WSW | | | | | 7ck | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.20 | 767.1 | | | 77 | 25.0 | 91 | NNW | 6 | 2.7 | | | 8 | | E | 0.15 | 3.8 | | | D. clouds | |
| Omaha, Callao, Peru | 30.06 | 763.5 | 67 | 19.4 | 68 | 20.0 | 74 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | Slight | S | Overcast | |
| Ossipee, Norfolk, Va | 30.07 | 763.8 | 69 | 20.6 | 70 | 21.1 | 85 | SSE | | | 2 | | 1 | | | | | | | Hazy | |
| Palos, Nankin, China | 29.75 | 755.6 | 85 | 29.4 | 86 | 30.0 | 92 | ENE | | | 2 | | 0 | | | 0 | 0 | | | Clear | |
| Pensacola, N. 33° 28′, W. 137° 55′ | 30.46 | 773.7 | | | 66 | 18.9 | 68 | NNE | | | 4–5 | | 10 | | NE | 0 | 0 | Long | N&E | Cloudy | |
| Plymouth, N 24° 19′, W. 82° 23′ | 30.10 | 764.5 | 85 | 29.4 | 83 | 28.3 | 96 | E | | | 1 | | 3 | | E | 0 | 0 | Smooth | | Clear | |
| Ranger, N. 17° 10′, E. 40° 08′ | 30.00 | 762.0 | | | 92 | 33.9 | 81 | Calm | | | 0 | | 5 | | | | | Smooth | | Cloudy | |
| Richmond, Rio de Janeiro, Brazil | 30.43 | 772.9 | 68.2 | 20.1 | 65.8 | 18.8 | 97 | NNE | | | 2 | | Fog | | | 0 | 0 | | | Dense fog | |
| Rio Bravo, Matamoras, Mexico | 29.73 | 755.1 | | | 76 | 24.4 | 91 | SE | | | 5 | | 10 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.09 | 764.3 | 71 | 21.7 | 67 | 19.4 | 74 | SW | | | 2 | | 2 | | | 0 | 0 | | | Clear | |
| Saratoga, Boston, Mass | 30.34† | 770.6† | | | 62 | 16.7 | | W | | | 4 | | 5 | | E | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 29.95 | 760.7 | 66 | 18.9 | 66 | 18.9 | 74 | SW | 5 | 2.2 | | | 0 | | | 0 | 0 | | | Clear | |
| Swatara, Key West, Fla | 30.04 | 763.0 | 84 | 28.9 | 83 | 28.3 | 91 | Calm | | | 0 | | 4s | | | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.88 | 758.9 | 78 | 25.6 | 73 | 22.8 | 90 | SSW | | | 2 | | 9 | | E | 0 | 0 | Slight | S&E | D. clouds | |
| Trenton, Smyrna, Turkey | 30.10† | 764.5† | 78 | 25.6 | 85 | 29.4 | 72 | WSW | 10 | 4.5 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.09 | 764.3 | 72 | 22.2 | 71 | 21.7 | 80 | NE | | | 1–3 | | 1 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.00 | 762.0 | 62 | 16.7 | 63 | 17.2 | 62 | SW | 10 | 4.5 | | | 8 | | S&W | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.26† | 768.6† | 66 | 18.9 | 67 | 19.4 | | SW | | | 2 | | 1 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

## WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

## OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 41° 14′, E. 165° 14′ | S86W | | 29.67 | 753.6 | 54 | 12.2 | 100 | NW | | | 5 | | k | | W | Rough | | Overcast | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

## NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Braunschweig, N. 49° 20′, W. 18° 45′ | N80E | 10.8 | 30.20 | 767.1 | 63.5 | 17.5 | 78 | SE | | | 3 | | 4k | | SE | Smooth | | Blue sky | Capt. C. Pohle. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Ohio, N. 48° 25′, W. 13° 20′ | W by S | 11.5 | 30.23 | 767.8 | 61.2 | 16.2 | | ESE | | | 4 | | k | | E | Rough | | Overcast | Capt. A. Jaeger. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | Up'er 0—10. | Lo'wr 0—10. | Upper. From— | Lower. From— | Character. | Direction From— | | |

### AMERICAN S. S. CO. MARINE SERIES.

Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

Note.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

### RED STAR LINE MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

### MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgenson. |

Note.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

Collated at the Office of the CHIEF SIGNAL OFFICER OF THE ARMY, Washington, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 25, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:58 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:18 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.15 | 765.7 | 75.2 | 24.0 | 66 | N | | | 2 | | 6 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.08 | 763.9 | 78.4 | 25.8 | 73 | N | | | 1 | | 4 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.08 | 764.1 | 73.4 | 23.0 | 76 | NE | | | 3 | | 3 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.10 | 764.6 | 98.6 | 37.0 | | NW | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.13 | 765.2 | 84.2 | 29.0 | | NW | | | 4 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.03 | 762.7 | 87.8 | 31.0 | | N | | | 2 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.15 | 765.7 | 78.3 | 25.7 | | N | | | 2 | | 2 | | | 0.472 | 12.0 | Clear | Bourgeois. |
| Geriville | | | 30.11 | 764.7 | 88.5 | 31.4 | | SE | | | 3 | | 2 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.13 | 765.2 | 89.6 | 32.0 | 20 | NE | | | 2 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.13 | 765.4 | 96.4 | 35.8 | | SE | | | 1 | | 4 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.00 | 761.9 | 73.0 | 22.8 | 61 | SW | | | 2 | | 8 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.01 | 762.2 | 61.5 | 16.4 | 64 | W | | | 1 | | 9 | | | 1.803 | 45.8 | | Dr. Wierzbiski. |
| Eperies | | | 30.00 | 762.0 | 57.2 | 14.0 | 74 | N | | | 3 | | 10k | | S | 0.471 | 11.95 | | Julius Mikolik. |
| Gratz | 28.79 | 731.2 | 30.00 | 761.9 | 69.3 | 20.7 | 59 | NW | | | 3 | | 8 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.49 | 723.6 | 29.87 | 758.6 | 68.4 | 20.2 | 76 | WNW | | | 5 | | 10 | | | Inap. | Inap. | | Prof. Reissenberger. |
| Kremsmünster | 28.71 | 729.1 | 30.02 | 762.5 | 64.0 | 17.8 | 55 | NE | | | 3 | | 10 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 29.93 | 760.3 | 56.5 | 13.6 | 88 | NW | | | 2 | | 10 | | | 0.335 | 8.5 | | Dr. T. Stanecki. |
| Pola | | | 29.97 | 761.2 | 71.2 | 21.8 | 54 | ENE | | | 4 | | 9s | | | 0.008 | 0.20 | | I.R. Hydrographic Office |
| Szegedin | | | 29.91 | 759.7 | 65.8 | 18.8 | 87 | W | | | 1 | | 10 | | | 0.002 | 0.05 | | Karl Stancel. |
| Trieste | | | 30.00 | 761.9 | 73.4 | 23.0 | 44 | ENE | | | 1 | | 3 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.02 | 762.5 | 68.2 | 20.1 | 45 | N | | | 2 | | 3 | | | 0.020 | 0.5 | | I. R. Central Met. Obs'y. |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.67 | 728.1 | 30.18 | 766.5 | 54.3 | 12.4 | 77 | W | | | 1 | | 10 | | | 0.024 | 0.6 | | |
| Brussels | | | 30.13 | 765.4 | 65.1 | 18.4 | 48 | W | | | 1 | 1c | 7k,n | WNW | WNW | 0 | 0 | | Royal Observatory |
| Furnes | | | 30.15 | 765.8 | 65.1 | 18.4 | 57 | WNW | | | 4 | | 3 | | | 0 | 0 | | |
| Maeseyck | | | 30.16 | 766.1 | 63.9 | 17.7 | 65 | WNW | | | 2 | | 3 | | | 0.024 | 0.6 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.92 | 760.0 | 57.6 | 14.2 | | SSE | 14 | 6.3 | | | 6 | | | 0.005 | 0.13 | D. clouds | William Boswell. |
| Ardrossan | | | 30.00 | 762.0 | 58 | 14.4 | | WNW | | | 1 | | 8 | | | | | Overcast | William McNell. |
| Armagh, Observatory | | | 30.08 | 764.0 | 58.8 | 14.9 | | W | 7 | 3.1 | | | 8 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.10 | 764.5 | 56.0 | 13.3 | | WSW | 9 | 4.0 | | | 10 | | | | | Overcast | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.12 | 765.0 | 64.6 | 18.1 | | W | | | 1 | | 10 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.08 | 764.0 | 55.9 | 13.3 | | W | | | 3 | | 10 | | | 0.04 | 1.0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 83.8 | 28.8 | | NE | | | 2 | | 2 | | | | | D. clouds | Pvt. G. W. Roberts, A. H. C. |
| Cambridge, Observatory | | | 30.11 | 764.8 | 66.4 | 19.1 | | WSW | | | 1 | | 7 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.14 | 765.5 | 71.0 | 21.7 | | NW | | | 1 | | 8 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.19 | 766.8 | 69.2 | 20.7 | | W | | | 2 | | 4 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 22.78 | 731.0 | 30.22 | 767.6 | 69.4 | 20.8 | | NW | | | 5 | | 2 | | | | | D. clouds | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.02 | 762.5 | 62 | 16.7 | | W | | | 4 | | 10 | | | | | Overcast | J. Mac Gowan. |
| Dover | | | 30.17 | 766.3 | 63 | 17.2 | | WSW | | | 3 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.10 | 764.5 | 54.0 | 12.2 | | NW | 1.8 | 0.8 | | | 10 | | | | | Raining | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.25 | 768.3 | 63.2 | 17.3 | | WNW | | | 2 | | 6 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.91 | 708.9 | 30.14 | 765.5 | 73.7 | 23.2 | | NE | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.03 | 762.7 | 87 | 30.6 | | E | | | 0 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.95 | 760.7 | 66 | 18.9 | | W | | | 4 | | 10 | | | | | Hazy | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.02 | 762.5 | 76.0 | 24.4 | | NE | | | 3 | | 8 | | | | | Overcast | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.98 | 761.5 | 58.1 | 14.5 | | W | | | 7 | | 10 | | | | | Gloomy | D. G. Maclean. |
| Great Yarmouth | | | 30.10 | 764.5 | 62 | 16.7 | | W | | | 2 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.14 | 765.5 | 69.0 | 20.6 | | W | | | 1 | | 7 | | | | | D. clouds | The Staff, for G. B. Airy. |
| Guernsey | | | 30.23 | 767.8 | 60.5 | 15.8 | | WNW | | | 2 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.26 | 768.6 | 64 | 17.8 | | W | | | 4 | | 3c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.08 | 764.0 | 58 | 14.4 | | WSW | | | 5 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.15 | 765.8 | 65.7 | 18.7 | | WSW | 10 | 4.5 | | | 6k | | | | | D. clouds | The Staff. |
| Kingstown | | | 30.11 | 764.8 | 62 | 16.7 | | WNW | | | 5 | | 8 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.12 | 765.0 | 59.0 | 15.0 | | W | | | 1 | | 10 | | | | | Overcast | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 29.96 | 761.0 | 82.6 | 28.1 | | NW | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.90 | 759.4 | 57 | 13.9 | | WSW | | | 1 | | 8 | | | | | ¾ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.08 | 764.0 | 81.5 | 27.5 | | SE | | | 2 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.13 | 765.3 | 68.0 | 20.0 | | W | | | 1 | | 10d | | W | 0.020 | 0.51 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.11 | 764.8 | 61.3 | 16.3 | | WSW | | | 3 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.14 | 765.5 | 65 | 18.3 | | W | | | 1 | | 10 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.22 | 767.6 | 66.7 | 19.3 | | WSW | | | 2 | | 8 | | | | | D. clouds | John Merrifield. |
| Roche's Point | | | 30.19 | 766.8 | 63 | 17.2 | | WSW | | | 3 | | 8 | | | | | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.19 | 766.8 | 59 | 15.0 | | WSW | | | 3 | | 7 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.25 | 768.3 | 64.3 | 17.9 | | W | | | 4 | | 2 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.84 | 757.9 | 53 | 11.7 | | WSW | 25 | 11.2 | | | 10 | | | | | Overcast | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.85 | 758.2 | 76.6 | 24.8 | | SW | | | 1 | | 1 | | | Blank | Blank | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 30.09 | 764.3 | 60.8 | 16.0 | | WSW | | | 2 | | 0 | | | 0 | 0 | Overcast | W. F. Cooper. |
| Silloth, Rectory | | | 30.02 | 762.5 | 65.1 | 18.4 | 71 | SW | | | 4 | | 5 | | | 0.200 | 5.08 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.08 | 764.0 | 54.3 | 12.4 | | W | | | 3 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.88 | 758.9 | 52 | 11.1 | | WSW | | | 3 | | 10 | | | | | Showery | John Smith. |
| Stratfield Turgiss | | | 30.16 | 766.1 | 66.5 | 19.2 | | SW | | | 1 | | 1 | | | | | Blue sky | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 29.85 | 758.2 | 54 | 12.2 | | W | | | 4 | | 7 | | | | | Showery | John Trotter. |
| Truro, Royal Institution | | | 30.23 | 767.8 | 67 | 19.4 | | NW | | | 6 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.20 | 767.1 | 60.6 | 15.9 | | WSW | 19 | 8.5 | | | 10 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 53 | 11.7 | | SW | | | 4 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.07 | 763.8 | 63.9 | 17.7 | 46 | ESE | 1 | 0.4 | | 0 | 0 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.00 | 762.0 | 55.5 | 13.1 | 88 | N | | | 2 | | 3k | | | 0.02 | 0.5 | | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 29.96 | 761.0 | 60.9 | 16.1 | | W | | | 4 | | 8k | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.22 | 767.6 | 71.0 | 21.7 | 69 | SE | 15.4 | 6.9 | | 2 | 3 | | SE | 0 | 0 | Cloudy | C. Meldrum. |
| Melbourne, Observatory | | | 30.16 | 766.1 | 42.2 | 5.7 | 82 | NNW | 7 | 3.1 | | | 0 | | | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.93 | 760.2 | 56 | 13.3 | | W | | | 4 | | 10 | | | 0.5 | 13. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.68 | 753.9 | 47 | 8.3 | | W | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius. 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | Weather | Observer |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 50° 30′, W. 17° 15′ | | | | |
| Barque Celeste | 3 | S | Hazy | Capt. A. T. Miller. |
| S. S. Hibernia, N. 51° 50′, W. 12° 10′ | | | | Capt. D. F. McKechnie. |
| Barque Maroon | 2 | | Hazy | Capt. W. R. Cato. |
| Ship Mikado, N. 48′ 5°, W. 28° 55′ | | | | Capt. A. T. Brown. |
| S. S. Othello | 3 | NW | Rain and fog | Capt. C. C. Prehn. |
| S. S. Peruvian | | | | Capt. W. J. Bristow. |
| S. S. QuangLe | | | | Capt. W. H. Smith. |
| S. S. Seine, N. 52° 17′, W. 14° 19′ | | | | Capt. G. H. Jones. |
| Barque Sorata | 0 | | Overcast | Capt. H. Manning. |
| | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.19 | 665.2 | | | 68.9 | 20.5 | 92 | NE | | | 2 | | 6cs | | NE | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.04 | 762.9 | 59.5 | 15.3 | 59 | WSW | | | 2 | | 8 | | | | | | |
| Faröe | | | 30.00 | 762.0 | 60.6 | 15.9 | 78 | W | | | 4 | | 6 | | | | | | |
| Godthaab, (Greenland) | | | 29.52 | 749.7 | 65.8 | 18.8 | 25 | SE | | | 5 | | 7 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.91 | 759.6 | 47.8 | 8.8 | 80 | E | | | 4 | | 0 | | | | | | |
| Thorshavn, (Faröe) | | | 29.76 | 755.8 | 45.5 | 7.5 | 66 | NW | | | 4 | | 7 | | | | | Raining | |
| Vestervig | | | 29.94 | 760.4 | 58.3 | 14.6 | 70 | WSW | | | 6 | | 6 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.26 | 768.5 | 66.2 | 19 | 42 | N | | | 2 | | 5ck | | N | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 30.18 | 766.5 | 68.0 | 20.0 | 55 | WNW | | | 3 | | 5 | | W | 0 | 0 | Cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.05 | 763.2 | 77.0 | 25 | 20 | NNW | | | 4 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.18 | 766.5 | 54.5 | 12.5 | 41 | N | | | 2 | | 2n | N | W | 0 | 0 | Slightly cl'dy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.19 | 766.9 | 65.5 | 18.6 | 42 | N | 4.0 | 1.8 | | | | | N | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.21 | 767.2 | 65.1 | 18.4 | 48 | NW | | | 2 | | 8 | | NNW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.13 | 765.3 | 67.3 | 19.6 | 53 | S | | | 4 | | 5 | | S | 0.185 | 4.7 | Cloudy | Normal School. |
| Bourg-en-Bresse | | | 30.22 | 767.6 | 70.0 | 21.1 | 45 | N | | | 6 | | 5k | | S | 0 | 0 | Cloudy | Normal School. |
| Bourges, Normal School | | | 30.16 | 766.1 | 64.4 | 18 | 71 | W | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.19 | 766.9 | 66.0 | 18.9 | 67 | SW | | | 1 | | 9k | | | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.12 | 765.1 | 76.6 | 24.8 | 46 | NW | | | 2 | | 1 | | NW | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.23 | 767.8 | 64.6 | 18.1 | 49 | NW | | | 4 | | 5 | | W | 0 | 0 | Cloudy | Normal School. |
| Chartres, Normal School | | | 30.20 | 767.1 | 66.9 | 19.4 | 65 | N | | | 2 | | 8k | | SE | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.11 | 764.9 | 67.1 | 19.5 | 43 | WNW | | | 3 | | 8 | | WNW | 0 | 0 | Very cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.11 | 764.8 | 66.6 | 19.2 | 60 | NW | | | 2 | | 5 | | NW | 0.146 | 3.7 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.14 | 765.6 | 63.3 | 17.4 | 57 | WNW | | | 4 | | 8 | | WNW | 0 | 0 | Very cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.09 | 764.2 | 74.5 | 23.6 | 27 | NW | | | 4 | | 2 | | NW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.14 | 765.5 | 70.5 | 21.4 | 45 | WNW | | | 4 | | 2ck | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.21 | 767.2 | 70.9 | 21.6 | 45 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | Mouillot, Director. |
| Le Mans, Normal School | | | 30.22 | 767.5 | 64.9 | 18.3 | 47 | NE | | | 2 | | 5 | | N | 0 | 0 | Cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.11 | 764.7 | 66.7 | 19.3 | 58 | NE | | | 1 | | 5 | | SW | 0.24 | 6. | Cloudy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.27 | 768.8 | 69.8 | 21.0 | 36 | W | | | 2 | | 2 | | NE | 0 | 0 | ¼ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.09 | 764.2 | 67.8 | 19.9 | 89 | W | | | 2 | | 10 | | | 0 | 0 | Covered | M. Marchal, Director. |
| Metz | | | 30.21 | 767.2 | 64.6 | 18.1 | 46 | N | | | 2 | | 9k | | | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.12 | 765.0 | 64.9 | 18.3 | 51 | NW | | | 4 | | 5 | | ENE | 0 | 0 | Partly cov'd | Normal School. |
| Nismes, Normal School | | | 30.03 | 762.7 | 81.7 | 27.6 | | NW | | | 4 | | | | NW | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 30.17 | 766.2 | 65.5 | 18.6 | 59 | NNW | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Bernard, Director. |
| Paris, Observatory | | | 30.19 | 766.7 | 64.4 | 18.0 | 39 | NNW | | | 1 | | 8ck | | NNW | 0 | 0 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.19 | 766.9 | 73.0 | 22.8 | 40 | NE | | | 2 | | 2 | | W | 0 | 0 | ¼ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.21 | 767.4 | 63.1 | 17.3 | 55 | NNW | | | 2 | | 8 | | NW | 0 | 0 | Very cloudy | F. Lucard, Director. |
| Tarbes, Normal School | 29.02 | 737.1 | 30.07 | 763.8 | 69.3 | 20.7 | 75 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.17 | 766.4 | 72.1 | 22.3 | 58 | NNW | | | 3 | | 8 | | NW | 0 | 0 | Very cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 80.6 | 27 | | | | | | | | | | 0.28 | 7. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 77.5 | 25.3 | 32 | NW | | | 3-4 | | 0 | | | 0 | 0 | Clear | The Staff. |
| Mont-Louis | 25.00 | 635.0 | 30.32 | 770.0 | 60.6 | 15.9 | 71 | ESE | 11.2 | 5.00 | | | 4 | | W | 0.008 | 0.2 | | Mr. Falguère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 30.18 | 766.5 | 64.2 | 17.9 | 32 | NW | | | 2 | | 10 | | NNW | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.10 | 764.6 | 75.2 | 24.0 | 46 | NW | 9.3 | 4.17 | | | 1 | | W | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.41 | 543.7 | | | 35.6 | 2.0 | | SW | | | 2 | | 5 | | | | | Fair | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.67 | 575.7 | | | 50.9 | 10.5 | | NW | | | 3 | | 5 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.19 | 766.8 | 63.9 | 17.7 | 43 | NW | | | 1 | | 7 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.18 | 766.6 | 69.6 | 20.9 | 47 | NW | | | 2 | | 3 | | | 0 | 0 | | The Staff |
| Tours | | | 30.19 | 766.8 | 68.7 | 20.4 | 40 | N | | | 2 | | 7 | | W | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.20 | 767.0 | 68.4 | 20.2 | 31 | NW | | | 2 | | 7 | | | 0 | 0 | Cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.67 | 753.7 | 76.6 | 24.8 | 93 | SE | 7.4 | 3.3 | | 9ks | | | | 0 | 0 | Cloudy | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2.677 m., or 8,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10 | Clouds. Amount. Up'er 0–10 | Clouds. Amount. Low'r 0–10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.02 | 762.4 | 68.9 | 20.5 | 50 | NW | | | 6 | | 9 | NW | | 0.118 | 3.0 | | Prof. T. Hoh. |
| Berlin | | | 30.13 | 765.3 | 67.6 | 19.8 | 34 | W | | | 3 | | 4 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.12 | 765.0 | 65.8 | 18.8 | 43 | NNE | | | 1 | | 6 | | | 0.087 | 2.2 | | Royal University Obs'y. |
| Carlsruhe | | | 30.10 | 764.5 | 59.7 | 15.4 | 81 | NW | | | 1 | | 10 | | | 0.079 | 2.0 | | Albert Senz. |
| Cassel | | | 30.19 | 766.7 | 68.7 | 20.4 | 41 | ENE | | | 3 | | 7 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.13 | 765.4 | 62.4 | 16.9 | 56 | NW | | | 3 | | 8 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.11 | 764.7 | 52.3 | 11.3 | 97 | SE | | | 1 | | 10 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.16 | 766.0 | 68.5 | 20.3 | 33 | NNE | | | 2 | | 7 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.69 | 728.6 | 30.09 | 764.2 | 66.6 | 19.2 | 60 | SW | | | 2 | | 7 | W | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.12 | 765.0 | 62.6 | 17.0 | 58 | SW | | | 3 | | 9c,kn | | | 0 | 0 | Pleasant | Captain F. Hegemann. |
| Kiel | | | 30.08 | 763.9 | 64.0 | 17.8 | 52 | SW | | | 3 | | 7 | | | 0.067 | 1.7 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 30.04 | 763.1 | 61.7 | 16.5 | 49 | W | | | 5 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.12 | 765.1 | 68.4 | 20.2 | 55 | NNW | | | 1 | | 6 | NW | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.05 | 763.2 | 58.3 | 14.6 | 73 | WNW | | | 3 | | 7c | S | | | | Squally | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.09 | 764.3 | 58.3 | 14.6 | 69 | N | | | 1 | | 9 | | | 0.059 | 1.5 | Raining | A. Lothes. |
| Posen | | | 30.10 | 764.6 | 66.4 | 19.1 | 31 | NW | | | 7 | | 9 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.10 | 764.5 | 68.7 | 20.4 | 53 | Calm | | | 0 | | 10 | W | | 0.035 | 0.9 | | Dr. Schur. |
| Stuttgart | | | 30.07 | 763.6 | 65.8 | 18.8 | 60 | N | | | 1 | | 6 | W | | Inap. | Inap | | Prof. Schoder. |
| Treves, (Trier) | | | 29.99 | 761.8 | 64.0 | 17.8 | 57 | NW | | | 5 | | 10 | | | 0.004 | 0.1 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.58 | 725.8 | 30.05 | 763.3 | 64.4 | 18.0 | 60 | N | | | 1 | | 8 | | | 0.083 | 2.1 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.17 | 766.4 | 61.5 | 16.4 | 60 | W | | | 2 | | 7 | | | 0.020 | 0.5 | Thunder-storm | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.89 | 759.2 | 86.9 | 30.5 | | S | | | | | | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.32 | 744.6 | 29.36 | 745.9 | 89.2 | 31.8 | 73 | SW | 32.0? | 14.4? | | | 9 | | WSW | 0 | 0 | D. clouds | |
| Deesa | 28.97 | 735.9 | 29.42 | 747.4 | 99.7 | 37.6 | 42 | SW | | | | | 1 | | SSE | 0 | 0 | D. clouds | |
| Bombay | 29.59 | 751.7 | 29.63 | 752.6 | 83.6 | 28.7 | 87 | SW | 21.0 | 9.3 | | | 10 | | WSW | 2.47 | 62.7 | Dust-haze | |
| Poona | 27.62 | 701.6 | 29.62 | 752.4 | 75.5 | 24.2 | 84 | | | | | | | | E | 0.22 | 5.6 | Drizzling | |
| Lahore | 28.54 | 725.0 | 29.23 | 742.4 | 112.3 | 44.6 | 16 | W | 1.7 | 0.7 | | | 0 | | | 0 | 0 | Blue sky | |
| Belgaum | | | | | 71.0 | 21.7 | 95 | W | 20.0 | 8.9 | | | 10 | | W | 0.98 | 24.9 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.28 | 718.3 | 29.11 | 739.5 | 105.5 | 40.8 | | NW | 2.9 | 1.2 | | | | | | 0 | 0 | Hazy | |
| Agra | 28.73 | 729.8 | 29.26 | 743.2 | 106.7 | 41.5 | 26 | NW | 5.4 | 2.4 | | | | | | 0 | 0 | Hot wind | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.43 | 722.2 | 29.44 | 747.7 | 93.0 | 33.9 | 51 | W | 8.1 | 3.6 | | | 7 | | | 0.61 | 15.5 | D. clouds | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 28.92 | 734.6 | 29.27 | 743.4 | 105.7 | 40.9 | 25 | NNW | 2.5 | 1.1 | | | | | | 0 | 0 | Dust-haze | |
| Allahabad | 29.00 | 736.5 | 29.29 | 744.0 | 100.7 | 38.2 | 38 | E | 3.1 | 1.3 | | | 10 | | E | 0 | 0 | Overcast | |
| Patna | 29.21 | 741.8 | 29.39 | 746.4 | 84.2 | 29.0 | 89 | E | 1.6 | 0.7 | | | 10 | | | 0.21 | 5.3 | Overcast | |
| Hazaribagh | 27.43 | 696.8 | 29.42 | 747.3 | 77.0 | 25.0 | 91 | NW | 5.4 | 2.4 | | | 10 | | | 1.40 | 35.6 | Thunder-storm | |
| Cuttack | 29.32 | 744.7 | 29.40 | 746.7 | 80.9 | 27.2 | 80 | SSW | 4.8 | 2.1 | | | 10 | | | 1.00 | 25.4 | Overcast | |
| Calcutta (Alipore) | 29.29 | 743.9 | 29.31 | 744.5 | 82.5 | 28.1 | 91 | WSW | 9.0 | 4.0 | | | 9 | | | | | Drizzling | |
| Goalpara | 29.06 | 738.2 | 29.45 | 748.0 | 79.4 | 26.3 | 92 | N | 5.8 | 2.5 | | | 10 | | E | 0.47 | 11.9 | Thunder-storm | |
| Chittagong | 29.42 | 747.2 | 29.51 | 749.5 | 78.9 | 26.1 | 93 | SSE | 9.7 | 4.0 | | | 10 | | | 0.25 | 6.3 | Gloomy | |
| Sibsagar | 29.18 | 741.2 | 29.52 | 749.7 | 79.3 | 26.3 | 94 | SSE | 2.6 | 1.1 | | | 10 | | SSE | 1.34 | 43.2 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.10 | 713.6 | 29.44 | 747.8 | 81.0 | 27.2 | 91 | NE | 5.7 | 2.5 | | | 10 | | | 0 | 0 | Overcast | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.26 | 566.0 | 29.87 | 758.8 | 48.0 | 8.9 | 75 | W | | | 2 | | 9 | WNW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.23 | 564.6 | 29.85? | 758.1? | 49.8 | 9.9 | | S | | | 1 | | 6 | | | 0.106 | 2.7 | | Signora Ernesta Manfredi. |
| Udine | | | 29.98 | 761.4 | 66.6 | 19.2 | 76 | E | 3.8 | 1.7 | | | 10 | | | 0.004 | 0.1 | | Ab. Dom. Morgini. |
| Padua | | | 29.98 | 761.6 | 73.0 | 22.8 | 47 | ENE | 8.1 | 3.6 | | | 6 | NNW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 29.99 | 761.7 | 71.4 | 21.9 | 49 | NE | 0.7 | 0.3 | | | 2 | E | | 0.449 | 11.4 | | Conte Alm. Da Schio |
| Verona | | | 29.98 | 761.6 | 73.4 | 23.0 | 83 | E | | | 2 | | 10 | | | 0.622 | 15.8 | | Dott. B. Bertoncelli. |
| Bergamo | 28.69 | 728.8 | 29.96 | 761.0 | 70.2 | 21.2 | 65 | E | | | 1 | | 7 | | | 0.906 | 23.0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.91 | 759.7 | 71.6 | 22.0 | 53 | SW | | | 6 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.02 | 762.6 | 68.0 | 20.0 | 73 | S | | | 4 | | 9 | SW | | 0.280 | 7.1 | | Ab. Gio. Capelli. |
| Pavia | | | 29.97 | 761.2 | 72.1 | 22.3 | 52 | E | | | 4 | | 2 | SW | | 0.406 | 10.3 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.94 | 760.4 | 76.1 | 24.5 | 51 | SE | 7.4 | 3.3 | | | 4 | SW | | 0.020 | 0.5 | | Prof. P. F. Denza. |
| Mondovi | 28.08 | 713.2 | 29.90 | 759.4 | 73.9 | 23.3 | 46 | NNW | | | 4 | | 1 | | | 0.020 | 0.5 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.01? | 762.3? | 75.4 | 24.1 | 64 | ESE | | | 4 | | 8 | NE | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 29.97 | 761.2 | 75.4 | 24.1 | 58 | SE | 5.6 | 2.5 | | | 8 | NW | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 29.99 | 761.8 | 70.3 | 21.3 | 54 | E | 11.9 | 5.3 | | | 3 | NW | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 29.98 | 761.4 | 75.2 | 24.0 | 57 | ESE | | | 4 | | 2 | | | 0.087 | 2.2 | | Prof. P. Pigorini. |
| Florence | | | 29.98 | 761.5 | 73.8 | 23.2 | 77 | W | | | 2 | | 6 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 29.97 | 761.2 | 78.6 | 25.9 | 48 | E | 5.6 | 2.5 | | | 5 | NE | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.78 | 731.0 | 29.94 | 760.4 | 73.0 | 22.8 | 55 | NNW | 3.1 | 1.4 | | | 7 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.48 | 723.3 | 29.97 | 761.3 | 67.8 | 19.9 | 80 | NE | | | 4 | | 9 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.00 | 761.9 | 68.5 | 20.3 | 83 | N | 26.2 | 11.7 | | | 10 | NW | | 0.354 | 9.0 | | Prof. Luigi Guidi. |
| Ancona | | | 29.99 | 761.7 | 73.0 | 22.8 | 70 | NNW | | | 4 | | 10 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 29.97 | 761.3 | 82.8 | 28.2 | 25 | SSE | | | 2 | | 4 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 29.94 | 760.5 | 82.8 | 28.2 | 53 | SSE | 4.3 | 1.9 | | | 4 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi |
| Naples, O. U. | | | 30.00? | 762.0? | 79.7 | 26.5 | 55 | SSW | | | 4 | | 4 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 29.94 | 760.5 | 79.2 | 26.2 | 54 | ENE | 4.3 | 1.9 | | | 6 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.97 | 761.2 | 86.7 | 30.4 | 46 | NE | 16.1 | 7.2 | | | 4 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.02 | 762.4 | 81.5 | 27.5 | 66 | NW | | | 4 | | 3 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Biposto, (Sicily) | | | 29.98 | 761.6 | 77.4 | 25.2 | 68 | E | | | 4 | | 7 | SE | | 0.634 | 16.1 | | Prof. F. Cafiero. |
| Palermo | | | 29.97 | 761.3 | 78.1 | 25.6 | 38 | NW | 11.2 | 5.0 | | | 1 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.03 | 712.0 | 29.88 | 759.0 | 80.2 | 26.8 | 31 | WNW | | | 6 | | 3 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.89 | 759.3 | 79.9 | 26.6 | 70 | NNE | | | 6 | | 7 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.02 | 762.4 | 76.6 | 24.8 | 62 | SW | 1.3 | 0.6 | | | 5 | SW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.74 | 755.4 | 76.5 | 24.7 | 88 | SW | 12 | 5.4 | | | 9ks | | SW | 0 | 0 | Cloudy | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.17 | 588.4 | 30.17 | 766.4 | 55.4 | 13.0 | 83 | Calm | 0 | 0 | | 6ck | 0 | SW | | 0.008 | 0.2 | Cloudy | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.17 | 766.2 | 63.7 | 17.6 | | NW | | | 3 | | | | | 0 | 0 | | |
| Groningen | | | 30.05 | 763.2 | 61.2 | 16.2 | | NW | | | 2 | | | | | 0.055 | 1.4 | | |
| Helder | | | 30.11 | 764.9 | 62.6 | 17.0 | | SW | | | 2 | | | | | 0.012 | 0.3 | | |
| Utrecht | | | 30.11 | 764.7 | 63.9 | 17.7 | 57 | W | | | 2 | | 5 | | | 0.035 | 0.9 | Cloudy | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.81 | 757.2 | 55.0 | 12.8 | 75 | Calm | 0 | 0 | | | 3 | | | 0.787 | 20.0 | | |
| Drøbo | | | 29.68 | 753.9 | 45.3 | 7.4 | 91 | WSW | 18 | 8 | | | 10 | | | 0.157 | 4.0 | Raining | |
| Christiania | | | 29.74 | 755.4 | 63.1 | 17.3 | 51 | SW | 13 | 6 | | | 6 | | | 0.520 | 13.2 | | |
| Tromsö | | | 29.56 | 750.9 | 50.7 | 10.4 | 48 | SW | 9 | 4 | | | 9 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.27 | 768.9 | 66.9 | 19.4 | 67 | NNW | 8.1 | 3.6 | | | 4 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.99 | 761.7 | 81.0 | 27.2 | 30 | ESE | 3.8 | 1.7 | | | 8 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.04 | 763.0 | 73.2 | 22.9 | 53 | WSW | 11.9 | 5.3 | | | 3 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.04 | 762.9 | 71.8 | 22.1 | 66 | SW | 12.5 | 5.6 | | | 9 | SW | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.24 | 768.1 | 66.6 | 19.2 | 63 | NNE | 6.3 | 2.8 | | | 4 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0-9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.05 | 763.3 | 58.8 | 14.9 | 64 | NNW | 4 | 2 | | | 3 | | | | | | Astronomical Obs. |
| Wilna | | | 29.98 | 761.6 | 51.8 | 11.0 | 96 | NW | 2 | 1 | | | 10 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.98 | 761.4 | 63.0 | 17.2 | 49 | S | 2 | 1 | | | 10 | | | | | Raining | Physical Cabinet. |
| St. Petersburg | | | 29.98 | 761.6 | 58.6 | 14.8 | 62 | WNW | 4 | 2 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.87 | 758.8 | 63.3 | 17.4 | 57 | S | 13 | 6 | | | 3 | | | | | | Ch. Forsten. |
| Kieff | | | 29.85 | 758.1 | 80.4 | 26.9 | 42 | S | 16 | 7 | | | 7 | | | | | Dust-haze | Physical Cabinet. |
| Nikolaiev | | | 29.98 | 761.5 | 81.3 | 27.4 | 40 | SW | 18 | 8 | | | 0 | | | | | | Kurdakof. |
| Kertch | | | 30.00 | 761.9 | 79.2 | 26.2 | 58 | NNE | 7 | 3 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.98 | 761.4 | 72.9 | 22.7 | 69 | S | 9 | 4 | | | 7 | | | | | | Meteorological Obs. |
| Lugan | | | 30.02 | 762.6 | 74.5 | 23.6 | 44 | SE | 2 | 1 | | | 1 | | | | | | Meteorological Obs. |
| Archangel | | | 29.94 | 760.4 | 63.9 | 17.7 | 52 | NNW | 18 | 8 | | | 9 | | | | | | Ogorodnikof. |
| Tiflis | 28.63 | 727.3 | 29.99 | 761.7 | 79.0 | 26.1 | 37 | S | 4 | 2 | | | 0 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.99 | 761.7 | 75.4 | 24.1 | 23 | NW | 18 | 8 | | | 1 | | | | | | Sebastianof. |
| Kasan | | | 29.80 | 757.0 | 78.1 | 25.6 | 37 | NNW | 11 | 5 | | | 2 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.17 | 766.4 | 80.4 | 26.9 | 87 | NE | 13 | 6 | | | 0 | | | | | | Tschernischei. |
| Ekaterinburg | 28.83 | 732.3 | 29.75 | 755.6 | 63.9 | 17.7 | 88 | NE | 7 | 3 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.94 | 760.5 | 75.9 | 24.4 | 32 | NW | 7 | 3 | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Rohrof. |
| Tashkend | 28.26 | 717.8 | 29.85 | 758.3 | 80.0 | 30.0 | 31 | NW | 22 | 10 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.74 | 755.4 | 80.4 | 26.9 | 40 | NE | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.68 | 753.9 | 77.7 | 25.4 | 79 | SE | 2 | 1 | | | 4 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 56.7 | 13.7 | | NW | 4 | 2 | | | 10 | | | | | | Mossin. |
| Peking, (China) | | | 29.69 | 754.0 | 73.8 | 23.2 | 73 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.44 | 747.8 | 65.3 | 18.5 | 90 | NW | 9 | 4 | | | 10 | | | | | Raining | |
| Nikolaievsk, on the Amoor | | | | | 50.9 | 10.5 | 84 | Calm | 0 | 0 | | | 9 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Domingo Martin y Perez. |
| Madrid, Royal Observatory | | | 29.94 | 760.5 | 88.7 | 31.5 | 28 | W | 6.0 | 2.67 | | 3 | 4 | SW | | 0 | 0 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.11 | 764.7 | 85.3 | 29.6 | 77 | Calm | 0 | 0 | | 4c | 0 | | | 0 | 0 | | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.07 | 763.7 | 74.7 | 23.7 | 67 | W | 5.8 | 2.6 | | 4 | 6 | SE | W | 0 | 0 | | Capt. C. Pajazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.02 | 762.6 | 83.5 | 28.6 | 83 | E | 2.7 | 1.20 | | 5cs | 1k | | E | 0.020 | 0.50 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.82 | 757.3 | 50.4 | 10.2 | 65 | SW | | | 4 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.82 | 757.5 | 55.8 | 13.2 | 43 | SW | | | 4 | | 6 | | | 0 | 0 | | |
| Hernosand | | | 29.79 | 756.6 | 58.3 | 14.6 | 78 | ESE | | | 2 | | 5 | | | 0 | 0 | | |
| Stockholm | | | 29.83 | 757.7 | 67.3 | 19.6 | 39 | W | | | 4 | | 5 | | | 0 | 0 | | |
| Wisby | | | 29.95 | 760.8 | 59.0 | 15.0 | 60 | W | | | 4 | | 3 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.84 | 758.0 | 65.5 | 18.0 | 31 | SW | 15.2 | 6.8 | | | 4 | SW | SW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS | Barometer. Corrected for instru-m'tal error and tem-perature. Inches. | Barometer. Corrected for instru-m'tal error and tem-perature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.69 | 728.6 | 30.08 | 764.0 | 65.7 | 18.7 | 46 | NNE | | | 2 | | 2 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.50 | 723.8 | 30.10 | 764.4 | 65.8 | 18.8 | 67 | S | | | 1 | | 9 | | | 0 | 0 | Cloudy | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +1.6 mm; Thermometer, —2.9 cent.; Relative Humidity, —8 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS | Barometer. Corrected for instru-m'tal error and tem-perature. Inches. | Barometer. Corrected for instru-m'tal error and tem-perature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.91 | 759.8 | 73.6 | 23.1 | 63 | ENE | 7 | 3.0 | | | 0 | | | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.85 | 758.3 | 82.9 | 28.3 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 29.93 | 760.3 | 83.7 | 28.7 | | S | | | 1 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.06 | 763.4 | 76.1 | 24.5 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.87 | 758.6 | 84.9 | 29.4 | 62 | WNW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instru-m'tal error and tem-perature. Inches. | Barometer. Corrected for instru-m'tal error and tem-perature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.54 | 750.3 | 56.9 | 13.8 | 84 | Calm | 0 | 0 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.72 | 754.9 | 77 | 25.0 | | SW | 7 | 3.1 | | 2c | 2s | SW | NW | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B | | | 29.57 | 751.1 | 56 | 13.3 | 87 | S | 10 | 4.5 | | 2ck | 8ks | SW | SW | 0.01 | 0.3 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.63 | 752.6 | 57 | 13.9 | 80 | SW | 3 | 1.3 | | | 10ks | | | 0.060 | 1.52 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.64 | 752.8 | 71.0 | 21.7 | 68 | SW | | | 6 | 2cs | 0 | W | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B | | | 29.56 | 750.8 | 53.8 | 12.1 | 89 | W | | | 1 | | | | | | | Raining | H. A. Johnson. |
| Esquimault, B. C | | | 29.99 | 761.7 | 49.8 | 9.9 | 96 | W | | | | 5cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 29.54 | 750.3 | 47 | 8.3 | 100 | NW | 5 | 2.2 | | | 10n | | | 0.03 | 0.8 | Light rain | J. McWilliams. |
| Fredericton, N. B | | | 29.62 | 752.3 | 62.1 | 16.7 | 82 | SE | 4 | 1.8 | | 8ck | 0 | W | | 0.045 | 1.14 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.66 | 753.4 | 55 | 12.8 | 87 | SW | 12 | 5.4 | | 5k | 5ks | SW | SW | 0.75 | 19.1 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.85 | 758.2 | 68.4 | 20.2 | | SW | | | 3 | 2k | 0 | W | | 0 | 0 | Fair | H. J. Strang, M. A |
| Granton, Ontario | 28.78 | 731.0 | 29.83 | 757.7 | 68 | 20.0 | 95 | SW | | | 1 | 1cs | 0 | E | | 0.29 | 7.4 | Clear | James Grant. |
| *Halifax, N. S | | | 29.68 | 753.9 | 52 | 11.1 | 96 | SW | 9 | 4.0 | | | 10n | | | Inap. | Inap. | Cloudy | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.82 | 757.4 | 73.7 | 23.2 | 81 | SW | | | 2 | 0 | 0 | | | 0 | 0 | Clear | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.72 | 754.9 | 48 | 8.9 | 85 | SW | | | 5 | | 10 | | | 0 | 0 | Foggy | E. Weedon. |
| *Kingston, Ontario | | | 29.78 | 756.4 | 66 | 18.9 | 85 | SW | 15 | 6.7 | | 2ks | 0 | SW | | 0 | 0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.61 | 752.1 | 65 | 18.3 | 79 | W | 15 | 6.7 | | 0 | 5ks | | NW | 0.05 | 1.3 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.77 | 756.1 | 65 | 18.3 | 81 | W | 7 | 3.1 | | 2k | 2ks | W | W | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 29.71 | 755.4 | 73.7 | 23.2 | 71 | W | | | 1 | 0 | 2k | | | 0 | 0 | Bright | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.85 | 758.2 | 64 | 17.8 | 94 | S | 8 | 3.6 | | 8k | 0 | NW | | 0.33 | 8.4 | Fair | H. Morgan. |
| Port Hastings, N. S | | | 29.66 | 753.4 | 58 0 | 14.4 | | Calm | 0 | 0 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.86 | 758.4 | 66 | 18.9 | 94 | SW | 4 | 1.8 | | | 10n | | W | 0.15 | 3.8 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 29.58 | 751.3 | 56 | 13.3 | 93 | Calm | 0 | 0 | | | 10n | | | 0.22 | 5.6 | Light rain | Capt. Ashe, R. N |
| *Rockliffe, Ontario | | | 29.68 | 753.9 | 64 | 17.8 | 78 | NW | 16 | 7.2 | | | 8s | | NW | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.75 | 755.6 | 68 | 20.0 | 83 | SW | 5 | 2.2 | | 0 | 0 | | | 0.04 | 1.0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 29.84 | 757.9 | 74 | 23.3 | 43 | NW | 8 | 3.6 | | 0 | 0 | | | Inap. | Inap. | Clear | R. J. Cole. |
| Stratford, Ontario | 28.57 | 725 7 | 29.79 | 756.7 | 66.8 | 19.3 | 75 | W | 8 | 3.6 | | | 7s | | | 0.242 | 6.15 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.65 | 753.1 | 56 | 13.3 | 92 | SW | 9 | 4.0 | | 2c | 5n | | SW | 0.08 | 2.0 | Cloudy | T. C. Hill. |
| *Toronto, Ontario | | | 29.80 | 756.9 | 70 | 21.1 | 78 | SW | 7 | 3.1 | | 0 | 0 | | | Inap. | Inap. | Clear | Magnetic Observatory. |
| Windsor, N. S | | | 29.67 | 753.6 | 62 | 16.7 | 83 | SW | 8 | 3.6 | | | 10k | | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.81 | 757.2 | 70.4 | 21.3 | 87 | E | 10 | 4.5 | | 0 | 1s | | | 0.60 | 15.2 | Clear | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.84 | 757.9 | 55.5 | 13.1 | 78 | S | | | | 10k | 10s | | | 0 | 0 | Threatening | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rainfall or melted snow in the past 24 hours. Inches. | Rainfall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.78 | 756.4 | 70 | 21.1 | 64 | S | 2 | 0.9 | | | 10ks | | | Inap. | Inap. | Cloudy | |
| Alpena, Mich | | | 29.78 | 756.4 | 70 | 21.1 | 66 | NW | 9 | 4.0 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Atlantic City, N. J. | | | 29.87 | 758.7 | 68 | 20.0 | 90 | SW | 8 | 3.6 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Augusta, Ga | | | 30.03 | 762.7 | 79 | 26.1 | 78 | NW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md | | | 29.88 | 758.9 | 72 | 22.2 | 80 | SW | 7 | 3.1 | | 5k | 2s | | SW | 0 | 0 | Fair | |
| Barnegat, N. J | | | 29.95 | 758.2 | 69 | 20.6 | 79 | S | 11 | 4.9 | | 0 | 8s | | W | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.94 | 709.7 | 29.52 | 749.8 | 56 | 13.3 | 68 | SE | 2 | 0.9 | | Haze | 2s | | SW | Inap. | Inap. | Clear | |
| Boston, Mass | | | 29.73 | 755.1 | 73 | 22.8 | 76 | SW | 12 | 5.4 | | 9cs | Haze | SW | | 0 | 0 | Cloudy | |
| Breckenridge, Minn | | | 29.66 | 753.4 | 59 | 15.0 | 81 | SE | 8 | 3.6 | | 8k | 0 | S | | Inap. | Inap. | Cloudy | |
| Brownsville, Texas | | | 29.88 | 758.9 | 82 | 27.8 | 87 | SE | 15 | 6.7 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Buffalo, N. Y | | | 29.85 | 757.7 | 64 | 17.8 | 94 | SW | 8 | 3.6 | | | 10s | | SW | 0.17 | 4.3 | Cloudy | |
| Burlington, Vt | | | 29.68 | 753.9 | 72 | 22.2 | 67 | W | 4 | 1.8 | | 2c | 5s | | W | 0 | 0 | Fair | |
| Cairo, Ill | | | 29.89 | 759.2 | 78 | 25.6 | 86 | S | 9 | 4.0 | | 2ck | 0 | S | | 0 | 0 | Fair | |
| Campo, Cal | 27.32 | 693.9 | 29.90 | 759.4 | 51 | 10.6 | 93 | Calm | 0 | 0 | | | 10ks | | | 0 | 0 | Cloudy | |
| Camp Verde, Arizona | | | | | 70 | 21.1 | | SW | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C | | | 29.93 | 760.2 | 77 | 25.0 | 76 | SW | 14 | 6.3 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va | | | 29.92 | 760.0 | 78 | 25.6 | 72 | W | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Lookout, N. C | | | 30.01 | 762.2 | 78 | 25.6 | 86 | SE | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear. | |
| Cape May, N. J | | | 29.86 | 758.4 | 70 | 21.1 | 79 | S | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C | | | 30.05 | 763.3 | 80 | 26.7 | 82 | W | 4 | 1.8 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Cheyenne, Wyoming | 23.88 | 606.5 | 29.82 | 757.4 | 48 | 8.9 | 48 | W | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill | | | 29.79 | 756.7 | 75 | 23.9 | 68 | NW | 3 | 1.3 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Cincinnati, Ohio | | | 29.89 | 759.2 | 72 | 22.2 | 85 | SE | 4 | 1.8 | | 0 | Sm'e | | | 0.07 | 1.8 | Clear | |
| Cleveland, Ohio | | | 29.91 | 759.7 | 69 | 20.6 | 79 | W | 5 | 2.2 | | 8k | 0 | W | | 0.91 | 23.1 | Clearing | |
| Corsicana, Tex | | | 29.84 | 757.9 | 80 | 26.7 | 78 | S | 12 | 5.4 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 29.75 | 755.6 | 73 | 22.8 | 76 | E | 12 | 5.4 | | 4k | 6s | S | | 0 | 0 | Cloudy | |
| Denison, Texas | | | 29.78 | 756.4 | 81 | 27.2 | 74 | S | 18 | 8.0 | | 2k | 0 | S | | 0 | 0 | Fair | |
| Denver, Col | 24.56 | 623.8 | 29.78 | 756.4 | 52 | 11.1 | 53 | W | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich | | | 29.84 | 757.9 | 65 | 18.3 | 89 | SW | 7 | 3.1 | | 0 | Fog | | | 0.41 | 10.4 | Clear | |
| Dodge City, Kan | 26.10 | 662.9 | 29.11 | 739.4 | 72 | 22.2 | 85 | S | 5 | 2.2 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Dubuque, Iowa | | | 29.76 | 755.9 | 71 | 21.7 | 80 | SE | 4 | 1.8 | | | 10s | | | 0.40 | 10.2 | Cloudy | |
| Duluth, Minn | | | 29.76 | 755.9 | 61 | 16.1 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eagle Pass, Tex | | | 29.73 | 755.1 | 82 | 27.8 | 83 | S | 6 | 2.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| Eastport, Me | | | 29.63 | 752.6 | 59 | 15.0 | 76 | S | 5 | 2.2 | | 5ck | 2s | W | W | 0.05 | 1.3 | Fair | |
| Erie, Pa | | | 29.85 | 758.2 | 66 | 18.9 | 100 | SW | 9 | 4.0 | | | 10n | | | 0.56 | 14.2 | Light rain | |
| Escanaba, Mich | | | 29.81 | 757.2 | 66 | 18.9 | 59 | W | 1 | 0.4 | | 0 | 0 | | | 0.05 | 1.3 | Clear | |
| Florence, Arizona | 28.25 | 717.5 | 29.85 | 758.2 | 85 | 29.4 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter | | | 29.71 | 754.6 | 79 | 26.1 | 73 | S | 16 | 7.2 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Fort Griffin, Tex | 28.51 | 724.1 | 29.70 | 754.4 | 80 | 26.7 | 78 | S | 8 | 3.6 | | 8k | 0 | S | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 30.05 | 763.3 | 52 | 11.1 | 86 | S | | | 4 | 8ck | 1ks | S | S | 0 | 0 | Fair | |
| Fort Sill, Indian Ter | 28.53 | 724.6 | 29.57 | 751.1 | 77 | 25.0 | 82 | S | 14 | 6.3 | | 8k | 0 | | | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 27.95 | 709.9 | 29.54 | 750.3 | 55 | 12.8 | 87 | NW | 4 | 1.8 | | 5c | 0 | | | 0 | 0 | Fair | |
| Galveston, Tex | | | 29.97 | 761.2 | 83 | 28.3 | 83 | S | 8 | 3.6 | | 2ck | 5ks | | S | 0 | 0 | Cloudy | |
| Grand Haven, Mich | | | 29.85 | 758.2 | 71 | 21.7 | 71 | W | 2 | 0.9 | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Indianapolis, Ind | | | 29.87 | 758.7 | 73 | 22.8 | 85 | SW | 1 | 0.4 | | 0 | 0 | | | 0.82 | 20.8 | Clear | |
| Indianola, Tex | | | 29.92 | 760.0 | 83 | 28.3 | 83 | S | 11 | 4.9 | | 0 | 8ks | | S | 0 | 0 | Fair | |
| Jacksonville, Fla | | | 30.07 | 763.8 | 85 | 29.4 | 71 | SW | 5 | 2.2 | | 0 | 0 | | | 0.83 | 21.1 | Clear | |
| Keokuk, Iowa | | | 29.61 | 752.1 | 73 | 22.8 | 76 | SE | 4 | 1.8 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Key West, Fla | | | 30.06 | 763.5 | 87.5 | 30.8 | 70 | Calm | 0 | 0 | | 5cs | 1ks | | | 0.02 | 0.5 | Fair | |
| Kittyhawk, N. C | | | 29.96 | 761.0 | 76 | 24.4 | 83 | SW | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Knoxville, Tenn | | | 30.00 | 762.0 | 75 | 23.9 | 85 | S | 6 | 2.7 | | 0 | 2ks | | SW | 0.02 | 0.5 | Fair | |
| La Crosse, Wis | | | 29.78 | 756.4 | 61 | 16.1 | 82 | NW | 2 | 0.9 | | 5c | 0 | | | 0 | 0 | Fair | |
| Leavenworth, Kan | | | 29.62 | 752.3 | 66 | 18.9 | 94 | SE | 10 | 4.5 | | | 10n | | S | 0.96 | 24.4 | Light rain | |
| Louisville, Ky | | | 29.92 | 760.0 | 78 | 25.6 | 77 | S | 3 | 1.3 | | 0 | Sm'e | | | 0.94 | 23.9 | Clear | |
| Lynchburg, Va | | | 29.85 | 758.9 | 75 | 23.9 | 76 | W | 4 | 1.8 | | 5k | 0 | W | | 0.03 | 0.8 | Fair | |
| Maricopa Wells, Arizona | | | | | 78 | 25.6 | | E | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich | | | 29.80 | 756.9 | 65 | 18.3 | 73 | W | 3 | 1.3 | | 0 | 0 | | | 0.25 | 6.3 | Clear | |
| Mason, Tex | 28.24 | 717.3 | 29.89 | 759.2 | 79 | 26.1 | 73 | SE | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Memphis, Tenn | | | 29.96 | 761.0 | 82 | 27.8 | 74 | SW | 8 | 3.6 | | 0 | 5ks | | SW | 0.23 | 5.8 | Fair | |
| Milwaukee, Wis | | | 29.86 | 758.4 | 70 | 21.1 | 61 | E | 5 | 2.2 | | 2ck | 0 | SW | | 0 | 0 | Clear | |
| Mobile, Ala | | | 30.09 | 764.3 | 84 | 28.9 | 74 | S | 1 | 0.4 | | 2c | 0 | W | | 0 | 0 | Clear | |
| Montgomery, Ala | | | 30.08 | 764.0 | 80.5 | 26.9 | 82 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Morgantown, W. Va | 28.89 | 733.8 | 29.89 | 759.2 | 73 | 22.8 | 76 | W | 5 | 2.2 | | | 10s | | W | 0.07 | 1.8 | Cloudy | |
| Mt. Washington, N. H | 23.55 | 598.2 | 29.91 | 759.7 | 49 | 9.4 | 100 | NW | 56 | 25.0 | | | Fog | | | 0 | 0 | Foggy | |
| Nashville, Tenn | | | 29.96 | 761.0 | 84 | 28.9 | 71 | S | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn | | | 29.81 | 757.2 | 73 | 22.8 | 71 | SW | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| New London, Conn | | | 29.80 | 756.9 | 68 | 20.0 | 84 | SW | 11 | 4.9 | | 2cs | 5s | | W | 0 | 0 | Fair | |
| New Orleans, La | | | 30.04 | 763.0 | 81 | 27.2 | 78 | S | 5 | 2.2 | | 8ck | 0 | SW | | 0 | 0 | Fair | |
| Newport, R. I | | | 29.79 | 756.7 | 64 | 17.8 | 83 | SW | 16 | 7.2 | | 9k | 0 | SW | | 0 | 0 | Cloudy | |
| New York, N. Y | | | 29.82 | 757.4 | 69 | 20.6 | 84 | W | 13 | 5.8 | | 8cs,k | 0 | W | | 0 | 0 | Fair | |
| Norfolk, Va | | | 29.93 | 760.2 | 81 | 27.2 | 70 | SW | 11 | 4.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| North Platte, Neb | 26.77 | 698.9 | 29.20 | 741.7 | 62 | 16.7 | 78 | NE | 12 | 5.4 | | 0 | 0 | | | 1.09 | 27.7 | Clear | |
| Omaha, Neb | 28.57 | 725.7 | 29.59 | 751.6 | 62 | 16.7 | 94 | NW | 14 | 6.3 | | | 10n | | NW | 1.46 | 37.1 | Heavy rain | |
| Oswego, N. Y | | | 29.79 | 756.7 | 67 | 19.4 | 90 | SW | 12 | 5.4 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 29.65 | 753.1 | 56 | 13.3 | 87 | S | 1 | 0.4 | | 0 | 0 | | | 0.10 | 2.5 | Clear | |
| Philadelphia, Pa | | | 29.89 | 758.2 | 71 | 21.7 | 85 | W | 10 | 4.5 | | 2k | 8ks | W | W | 0 | 0 | Cloudy | |
| Phœnix, Arizona | | | | | 68 | 20.0 | 18 | W | | | | 0 | 0 | SW | | 0 | 0 | Clear | |
| Pike's Peak, Col | 17.74 | 450.6 | 29.96 | 761.0 | 26 | − 3.3 | 64 | NW | 28 | 12.5 | | 0 | 5ks | | | 0 | 0 | Fair | |
| Pittsburg, Pa | | | 29.87 | 758.7 | 69 | 20.6 | 90 | NW | 4 | 1.8 | | | 10s | | NW | 0.10 | 2.5 | Cloudy | |
| Port Huron, Mich | | | 29.81 | 757.2 | 65 | 18.3 | 94 | S | 8 | 3.6 | | 0 | 5s,fg | | SW | 0.53 | 13.5 | Fair | |
| Portland, Me | | | 29.65 | 753.1 | 68 | 20.0 | 84 | SW | 9 | 4.0 | | 5k | 5s | W | W | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.13 | 765.3 | 49 | 9.4 | 93 | SE | 2 | 0.9 | | 1c | 2s | | | 0.14 | 3.6 | Fair | |
| Prescott, Arizona | | | | | 57 | 13.9 | 34 | | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Punta Rassa, Fla | | | 30.10 | 764.5 | 83 | 28.3 | 70 | N | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y | | | 29.78 | 756.4 | 70 | 21.1 | 79 | W | 12 | 5.4 | | 5c | 0 | W | | Inap. | Inap. | Fair | |
| Salt Lake City, Utah | 25.63 | 651.0 | 29.96 | 761.0 | 49 | 9.4 | 37 | NE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J | | | 29.83 | 757.7 | 73 | 22.8 | 85 | SW | 20 | 8.9 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| San Antonio, Tex | | | 29.73 | 755.1 | 81 | 27.2 | 82 | S | 6 | 2.7 | | 8ck | 8ks | S | | 0 | 0 | Cloudy | |
| San Diego, Cal | | | 29.92 | 760.0 | 64 | 17.8 | 78 | SW | 3 | 1.3 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Francisco, Cal | | | 29.90 | 759.4 | 54 | 12.2 | 79 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fe, New Mexico | 23.22 | 589.8 | 29.76 | 755.9 | 52 | 11.1 | 23 | SE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Savannah, Ga | | | 30.06 | 763.5 | 83 | 28.3 | 70 | W | 2 | 0.9 | | 0 | 2ks | | SW | Inap. | Inap. | Fair | |
| Shreveport, La | | | 30.01 | 762.2 | 80 | 26.7 | 87 | S | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C | | | 30.02 | 762.5 | 77 | 25.0 | 82 | W | 1 | 0.4 | | 5k | 0 | W | | 0 | 0 | Fair | |
| Springfield, Mass | | | 29.76 | 755.9 | 71 | 21.7 | 82 | S | 6 | 2.7 | | 10ck | 0 | W | | 0 | 0 | Cloudy | |
| St. Louis, Mo | | | 29.79 | 756.7 | 76 | 24.4 | 81 | S | 10 | 4.5 | | | 10s | | | 0 | 0 | Cloudy | |
| St. Marks, Fla | | | 30.11 | 764.8 | 78 | 25.6 | 90 | Calm | 0 | 0 | | 0 | 8s | | NW | 0.07 | 1.8 | Fair | |
| St. Paul, Minn | | | 29.71 | 754.6 | 61 | 16.1 | 77 | SE | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |

## UNITED STATES SERIES.—Continued.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 71 | 21.7 | 45 | S | | | | 2c | 0 | NW | | 0 | 0 | Fair | |
| Stockton, Tex | 26.79 | 680.4 | 29.79 | 756.7 | 76 | 24.4 | 64 | S | 4 | 1.8 | | 0 | 1s | | SE | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 29.72 | 754.9 | 59 | 15.0 | 94 | SW | 12 | 5.4 | | 8cs,k | 2s | W | W | 0 | 0 | Cloudy | |
| Toledo, Ohio | | | 29.88 | 758 9 | 70 | 21.1 | 84 | S | 8 | 3.6 | | 5cs | 0 | S | | 0.64 | 16.3 | Fair | |
| Tucson, Arizona | 27.38 | 695.4 | 29.92 | 760.0 | 70 | 21.1 | | SE | | | | 2c | 0 | W | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.04 | 763.0 | 80 | 26.7 | 82 | NW | 4 | 1.8 | | 5k | 0 | NW | | Inap. | Inap. | Fair | |
| Vicksburg, Miss | | | 30.04 | 763.0 | 80 | 26.7 | 86 | S | 6 | 2.7 | | 2ck | 8s | | S | 0 | 0 | Cloudy | |
| Virginia City, Montana | 24 20 | 614.7 | 29.68 | 753.9 | 34 | 1.1 | 69 | Calm | 0 | 0 | | 0 | 2s | | W | 0.08 | 2 0 | Clear | |
| Washington, D. C | | | 29.88 | 758.9 | 72.5 | 22.5 | 85 | S | 3 | 1.3 | | 2ck | 1s | SW | SW | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | | | 74 | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.00 | 762.0 | 78 | 25.6 | 82 | W | 4 | 1.8 | | 0 | 5ks | | W | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 29.84 | 757.9 | 66 | 18.9 | 83 | SW | 13 | 5.8 | | 8ck | 0 | NW | | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.40 | 721.3 | 29.62 | 752.3 | 62 | 16.7 | 91 | SE | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | 29.78 | 756.4 | 69 | 20.6 | 38 | S | 2 | 0.9 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.20 | 767.1 | 82 | 27.8 | 74 | Calm | 0 | 0 | | 5k | 0 | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.01 | 762.2 | 83 | 28.3 | | E | | | 4 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.06 | 763.5 | 83 | 28.3 | 79 | E | | | 2 | 4c | 5k | E | | 0.980 | 24.89 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.19 | 639.8 | | | 70 0 | 21.1 | 72 | N | | | 1 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.95 | 760.7 | 39 | 3.9 | 95 | N | 4 | 1.8 | | 0 | 2s | | NE | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.15 | 765.8 | 72 | 22.2 | | NE | | | 5 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. J. Clarke. |

Note.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m., Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer: As reported.* Inches. | Barometer: As reported.* Millimeters. | Barometer: Attached Thermometer. Fahrenheit. | Barometer: Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 29.99 | 761.7 | 75 | 23.9 | 72 | 22.2 | 85 | S | | | 2 | | 3 | | W | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.90 | 759.4 | 58 | 14.4 | 56 | 13.3 | | SW | 14 | 6.3 | | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Pensacola, Fla. | 30.22 | 767.6 | | | 81 | 27.2 | 83 | W | 10 | 4.5 | | | 6 | | WSW | 1. | 25. | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.82 | 757.4 | 75 | 23.9 | 71 | 21.7 | 50 | WSW | 4 | 1.8 | | | | | | 0 | 0 | | | Cloudy | |
| Naval Hospital, Yokohama, Japan | 29.71 | 754.6 | 75 | 23.9 | 75 | 23.9 | 93 | SW | | | 6 | | 8k,s,d | | SW | 0 | 0 | | | Squally | |
| Alert, Pigott Point | 29.97† | 761.2† | 83 | 28.3 | 82 | 27.8 | 96 | SE | | | 2 | | 7 | | SE | | | Smooth | | D. clouds | |
| Alliance, Beirut, Syria | 30.01 | 762.2 | 82 | 27.8 | 80 | 26.7 | 82 | N&W | | | 0–1 | | 1 | | | | | Smooth | None | Clear | |
| Ashuelot, Ningpo, China | 29.74 | 755.4 | 84 | 28.9 | 82 | 27.8 | 67 | S | | | 0–1 | | 9 | | S | | | | | D. clouds | |
| Canonicus, New Orleans, La | 30.08 | 764.0 | 56 | 13.3 | 79 | 26.1 | 86 | S | | | 2 | | 8 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 29.96 | 761.0 | 65 | 18.3 | 71 | 21.7 | 80 | SW | 11 | 4.9 | | | 6 | | WSW | 0 | 0 | | | Hazy | |
| Despatch, Constantinople, Turkey | 30.13 | 765.3 | 73 | 22.8 | 72 | 22.2 | 62 | NNE | | | 3 | | 1 | | | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.07 | 763.8 | 77 | 25.0 | 77 | 25.0 | 99 | SSW | 10 | 4.5 | | | 0? | | SSW | 0 | 0 | | | Overcast? | |
| Frolic, Rio de Janeiro, Brazil | 30.34 | 770.6 | 70 | 21.1 | 71 | 21.7 | 95 | Var. | | | 0–1 | | 3k | | | 0 | 0 | | | Hazy | |
| ‡Gettysburg, Leghorn, Italy | 29.88 | 758.9 | | | 79 | 26.1 | 95 | NNW | | | 1 | | 5 | | | 0 | 0 | Light | SW | D. clouds | |
| Hartford, Hampton Roads, Va | 30.05 | 763.3 | 75 | 23.9 | 76 | 24.4 | 86 | SW | 8.4 | 3.8 | | | | | | | | | | Pleasant | |
| Huron, Aspinwall, Panama | 30.02 | 762.5 | 85 | 29.4 | 84 | 28.9 | 91 | NE | | | 0 | | 10 | | | 0.875 | 22.23 | Long | N&E | D. clouds | |
| Kearsarge, Nagasaki, Japan | 29.94 | 760.5 | 78 | 25.6 | 74 | 23.3 | 90 | WNW | | | 1 | | 10 | | ESE | 0 | 0 | Smooth | | Cloudy | |
| Marion, Smyrna, Turkey | 29.79† | 756.7† | 84 | 28.9 | 82 | 27.8 | 71 | WSW | | | 3 | | 1 | | WSW | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.46 | 748.3 | 71 | 21.7 | 68 | 20.0 | 84 | WSW | | | 1 | | 10 | | WSW | | | | | Cloudy | |
| Monocacy, Tientsin, China | 29.61 | 752.1 | 77 | 25.0 | 73 | 22.8 | 78 | SE | | | 1 | | 1 | | SE | Heavy | Heavy | | | D. clouds | |
| Monongahela, Off Sachem's Head, Conn. | 29.86 | 758.4 | 66 | 18.9 | 66 | 18.9 | 89 | SW | | | 2 | | 5ck | | | 0 | 0 | | | Hazy | |
| New Hampshire, Port Royal, S. C | 30.30 | 769.6 | | | 78 | 25.6 | 82 | W | 9 | 4.0 | | | 9 | | NW | 0.05 | 1.3 | | | D. clouds | |
| Omaha, Callao, Peru | 30.06 | 763.5 | 68 | 20.0 | 68 | 20.0 | 77 | SE | 2 | 0.9 | | | 10 | | | 0 | 0 | Slight | S | Overcast | |
| Ossipee, Norfolk, Va | 30.01 | 762.2 | 75 | 23.9 | 75 | 23.9 | 90 | SW | | | 2 | | | | | | | | | Blue sky | |
| Palos, Nankin, China | 29.69 | 754.1 | 89 | 31.7 | 88 | 31.1 | 88 | S | | | 2 | | 4 | | S&W | 0 | 0 | | | Hazy | |
| Pensacola, N. 34° 16′, W. 138° 31′ | 30.51 | 774.9 | | | 67 | 19.4 | 84 | N | | | 2–4 | | 9 | | NE | 0 | 0 | Moderate. | N&E | Cloudy | |
| Plymouth, Key West, Fla | 30.14 | 765.5 | 87 | 30.6 | 85 | 29.4 | 79 | ENE | | | 2 | | 7 | | | 0.1 | 3. | Smooth | | Clear | |
| Ranger, N. 14° 40′, E. 42° 03′ | 29.95 | 760.7 | | | 92 | 33.3 | 74 | NNW | | | 2 | | 8 | | | | | Smooth | | Cloudy | |
| Richmond, Rio de Janeiro, Brazil | 30.41 | 772.4 | 72.0 | 22.2 | 71.5 | 21.9 | 80 | Calm | | | 0 | | 1 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.77 | 756.1 | | | 77 | 25.0 | 86 | SE | | | 4 | | 9 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 29.98 | 761.5 | 74 | 23.3 | 72 | 22.2 | 85 | SW | | | 2 | | 6 | | | 0 | 0 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.16† | 766.1† | | | 69 | 20.6 | | WSW | | | 3 | | 6 | | ENE | 0 | 0 | | | Clear | |
| St. Louis, League Island, Pa | 29.84 | 757.9 | 72 | 22.2 | 72 | 22.2 | 80 | SW | 13 | 5.8 | | | 6 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, Key West, Fla | 30.04 | 763.0 | 84 | 28.9 | 85 | 29.4 | 79 | Calm | | | 0 | | 2ks | | | Blank | Blank | | | Fair | |
| Tennessee, Yokohama, Japan | 29.73 | 755.1 | 77 | 25.0 | 71 | 21.7 | ? | SSW | | | 6 | | 10 | | N&E | 0 | 0 | Moderate. | SSW | D. clouds | |
| Trenton, Smyrna, Turkey | 30.01† | 762.2† | 81 | 27.2 | 87 | 30.6 | 69 | W | 9 | 4.0 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.98 | 761.5 | 72 | 22.2 | 72 | 22.2 | 71 | NE | | | 1 | | 0 | | | | | | | Blue sky | |
| Wabash, Boston, Mass | 29.80 | 756.9 | 71 | 21.7 | 72 | 22.2 | 80 | SW | 11 | 4.9 | | | 7 | | S&W | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.08† | 764.0† | 72 | 22.2 | 73 | 22.8 | | SW | | | 1 | | 5 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ——————, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavariy. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 40° 22′, E. 159° 38′ | S77W | | 29.80 | 756.9 | 60 | 15.6 | 82 | SW | | | 4 | | d | | W | Smooth | | Drizzling | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | |
| S. S. Braunschweig, N. 49° 46′, W. 11° 32′ | N85E | 11.3 | 30.30 | 769.6 | 63.0 | 17.2 | 78 | SSW | | | 2–3 | | 4d | | SW | Tranq'l | | Blue sky | Capt. H. Andressen. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Ohio, N. 47° 36′, W. 19° 35′ | W by S | 11 | 30.25 | 768.3 | 62.4 | 16.9 | | SSW | | | 2 | | c | | SW | Light | | Threatening | Capt. K. Undütsch. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. Inches. | Barometer reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Lo'wr 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea-swell. Character. | Sea-swell. Direction From— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAN S. S. CO. MARINE SERIES.** Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller | | | | | | | | | | | | | | | | | | | Capt. James Jorgenson. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 26, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:48 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:18 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:28 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.93 | 760.3 | 78.4 | 25.8 | 65 | Calm | | | 0 | | 3 | | | 0 | 0 | Fair | Charnot. |
| Algiers | | | 30.07 | 763.6 | 77.0 | 25.0 | 77 | E | | | 3 | | 5 | | | 0.039 | 1.0 | Fair | Peter. |
| La Calle | | | 30.01 | 762.2 | 73.9 | 23.3 | 77 | E | | | 4 | | 7 | | | 0 | 0 | Cloudy | Fleury. |
| Tunis | | | 30.08 | 763.9 | 86.0 | 30.0 | | NW | | | 3 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.11 | 764.8 | 82.4 | 28 0 | | NW | | | 3 | | 2 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 29.96 | 760.9 | 95.9 | 35.5 | | SSE | | | 5 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.11 | 764.7 | 81.3 | 27.4 | | W | | | 2 | | 5 | | | 0.630 | 16.0 | Fair | Bourgeois. |
| Geriville | | | 30.03 | 762.7 | 89.2 | 31.8 | | SE | | | 4 | | 1 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.06 | 763.5 | 92.3 | 33.5 | 22 | S | | | 6 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.07 | 763.7 | 97.3 | 36.3 | | SE | | | 2 | | 6 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.07 | 763.8 | 73.6 | 23.1 | 40 | NE | | | 3 | | 8 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.12 | 765.0 | 69.4 | 20.8 | 51 | NE | | | 1 | | 0 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.05 | 763.3 | 67.8 | 19.9 | 47 | N | | | 2 | | 7cks | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.91 | 734.2 | 30.14 | 765.5 | 64.0 | 17.8 | 77 | NW | | | 4 | | 10 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.60 | 726.4 | 29.98 | 761.6 | 64.4 | 18.0 | 80 | NW | | | 1 | | 10 | | | 0.500 | 12.70 | Raining | Prof. Reissenberger. |
| Kremsmünster | 28.81 | 731.8 | 30.15 | 765.8 | 56.5 | 13.6 | 62 | NW | | | 3 | | 10 | | | 0.945 | 24.0 | | Prof. C. Wagner |
| Lemberg | | | 30.07 | 763.8 | 60.4 | 15.8 | 74 | E | | | 2 | | 7 | | | 0.055 | 1.4 | | Dr. T. Stanecki. |
| Pola | | | 30.05 | 763.2 | 75.4 | 24.1 | 51 | WNW | | | 2 | | 7cs | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.03 | 762.8 | 67.5 | 19.7 | 64 | NW | | | 2 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.08 | 764.1 | 74.8 | 23.8 | 43 | NE | | | 2 | | 7 | | | 0 | 0 | ½ Covered | P. Busin. |
| Vienna | | | 30.11 | 764.9 | 68.9 | 20.5 | 56 | NW | | | 1 | | 6 | | | 0 | 0 | | I. R. Central Met. Obs'y |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.72 | 729.4 | 30.20 | 767.0 | 64.9 | 18.3 | 44 | W | | | 1 | | 8 | | | 0 | 0 | | |
| Brussels | | | 30.15 | 765.7 | 66.6 | 19.2 | 59 | W | | | 3 | 9c | 1k | | W | 0.008 | 0.20 | Covered | Royal Observatory. |
| Furnes | | | 30.12 | 765.1 | 65.5 | 18.6 | 67 | SSW | | | 7 | | 9 | | | 0 | 0 | | |
| Maeseyck | | | 30.16 | 766.0 | 69.3 | 20.7 | 68 | SW | | | 4 | | 8 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E. Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.85 | 758.2 | 48.3 | 9.1 | | ENE | 6 | 2.7 | | | 9 | | | 0.035 | 0.89 | Raining | William Boswell. |
| Ardrossan | | | 29.86 | 758.4 | 58 | 14.4 | | NW | | | 3 | | 8 | | | | | Overcast | William McNeil. |
| Armagh, Observatory | | | 29.96 | 761.0 | 63.8 | 17.7 | | W | 9 | 4.0 | | | 5 | | | | | D. clouds | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 29.97 | 761.2 | 58.2 | 14.6 | | WSW | 32 | 14.3 | | | 10 | | | | | Raining | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.02 | 762.5 | 64.2 | 17.9 | | WSW | | | 1 | | 9 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 29.94 | 760.5 | 59.4 | 15.2 | | W | | | 2 | | 10 | | | 0.05 | 1.3 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 82.5 | 28.1 | | NE | | | 3 | | 2 | | | | | D. clouds | Pvt. G. W. Roberts, A. [H. C. |
| Cambridge, Observatory | | | 30.05 | 763.3 | 61.0 | 16.1 | | SW | | | 2 | | 10 | | | | | Raining | H. Todd. |
| Cardington | | | 30.07 | 763.8 | 66.0 | 18.9 | | W | | | 2 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.12 | 765.0 | 67.2 | 19.6 | | WSW | | | 2 | | 6 | | | | | Threatening | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.72 | 729.5 | 30.19 | 766.8 | 58.2 | 14.6 | | W | | | 4 | | 9 | | | | | Gloomy | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 29.92 | 760.0 | 66 | 18.9 | | WNW | | | 5 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.13 | 765.3 | 61 | 16.1 | | WSW | | | 5 | | 5 | | | | | ½ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 29.97 | 761.2 | 58.1 | 14.5 | | W | 9.8 | 4.4 | | | 10 | | | | | Raining | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.21 | 767.3 | 65.0 | 18.3 | | WSW | | | 3 | | 10 | | | | | Overcast | The Staff. |
| Fort Napier, (Natal) | 27.77 | 705.4 | 30.01 | 762.2 | 80.7 | 27.1 | | NW | | | 3 | | 0 | | | | | Blue sky | Pvt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.07 | 763.8 | 80 | 26.7 | | Calm? | | | 1? | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.02 | 762.5 | 68 | 20.0 | | W | | | 7 | | 10 | | | | | Raining | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.90 | 759.4 | 75.8 | 24.3 | | E | | | 1 | | 5 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 29.83 | 757.7 | 58.3 | 14.6 | | W | | | 8 | | 10 | | | | | Threatening | D. G. Maclean. |
| Great Yarmouth | | | 30.02 | 762.5 | 65 | 18.3 | | W | | | 5 | | 5 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.10 | 764.5 | 63.3 | 17.4 | | WSW | | | 3 | | 10 | | | | | Raining | The Staff, for G. B. Airy. |
| Guernsey | | | 30.22 | 767.6 | 62 | 16.7 | | SW | | | 2 | | 5 | | | | | D. clouds | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.23 | 767.8 | 64 | 17.8 | | SW | | | 4 | | 4k | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 29.99 | 761.7 | 59 | 15.0 | | SW | | | 5 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.11 | 764.8 | 61.8 | 16.6 | | WSW | 12 | 5.4 | | | 10kd | | | | | Raining | The Staff. |
| Kingstown | | | 29.98 | 761.5 | 65 | 18.3 | | W | | | 4 | | 8 | | | Blank | Blank | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.02 | 762.5 | 62.1 | 16.7 | | SW | | | 1 | | 10 | | | | | Overcast | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.03 | 762.7 | 79.4 | 26.3 | | NW | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | 29.81 | 757.2 | 53 | 11.7 | | Calm | | | 0 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.12 | 765.0 | 89.2 | 31.8 | | E | | | 2 | | 5 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.02 | 762.5 | 63.0 | 17.2 | | WSW | | | 5 | | 10d | | WSW | 0.010 | 0.25 | Raining | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.02 | 762.5 | 61.2 | 16.2 | | SW | | | 3–4 | | 10 | | | | | Drizzling | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.09 | 764.3 | 62 | 16.7 | | WSW | | | 1 | | 10 | | | | | Drizzling | F. Lucas. |
| Plymouth | | | 30.19 | 766.8 | 64.2 | 17.9 | | WSW | | | 3 | | 10 | | | | | Overcast | John Merrifield. |
| Roche's Point | | | 30.10 | 764.5 | 61 | 16.1 | | WSW | | | 4 | | 8 | | | Blank | Blank | Cloudy | W. Kennedy. |
| Saint Ann's Head | | | 30.11 | 764.8 | 59 | 15.0 | | WSW | | | 3 | | 10 | | | | | Raining | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.24 | 768.1 | 63.2 | 17.3 | | WSW | | | 4 | | 5 | | | | | ½ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.84 | 757.9 | 48.9 | 9.4 | | NW | 11 | 4.9 | | | 1 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.89 | 759.2 | 74.0 | 23.3 | | NE | | | 2 | | 1 | | | | | Blue sky | Sergt. W. H. Lyne. |
| Sheffield | | | 29.97 | 761.2 | 62.8 | 17.1 | | W | | | 3 | | 9 | | | 0.112 | 2.84 | Showery | W. F. Cooper. |
| Silloth, Rectory | | | 29.88 | 758.9 | 63.2 | 17.3 | 81 | SW | | | 2 | | 7 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 29.95 | 760.7 | 57.1 | 13.9 | | SW | | | 3 | | 10 | | | | | Raining | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.81 | 757.2 | 53 | 11.7 | | NE | | | 2 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.14 | 765.5 | 62.4 | 16.9 | | W | | | 2 | | 10 | | | | | Raining | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 29.81 | 757.2 | 54 | 12.2 | | NNW | | | 2 | | 4 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.23 | 767.8 | 69 | 20.6 | | W | | | 6 | | 6 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.10 | 764.5 | 61.4 | 16.3 | | SW | 19 | 8.5 | | | 10 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 54 | 12.2 | | W | | | 6 | | 3 | | | 0.10 | 2.5 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 29.98 | 761.5 | 58.3 | 14.6 | 80 | WNW | 7 | 3.1 | | 0 | 2 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.42 | 747.3 | 54.0 | 12.2 | 81 | NW | | | 3 | | 8k | | | 0 | 0 | | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 29.83 | 757.7 | 53.0 | 11.7 | | E | | | 2 | | 10k | | | 0.11 | 2.8 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.29 | 769.4 | 70.1 | 21.2 | 67 | SE | 20.1 | 9.0 | | 1 | 5 | | SE | 0.17 | 4.3 | Dull | C. Meldrum. |
| Melbourne, Observatory | | | 29.92 | 760.0 | 47.1 | 8.4 | 79 | NNW | 12 | 5.4 | | | 10 | | | 0 | 0 | Fine, dull | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.87 | 758.7 | 52 | 11.1 | | E | | | 3 | 5 | 5 | E | | 0.2 | 5. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.70 | 754.4 | 50 | 10.0 | | NW | | | 6 | 5 | 3 | NW | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria | | | | | | | | | | | | | | | | | | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 50° 55′, W. 13° 10′ | | | 30.18 | 766.6 | 60.5 | 15.8 | | SW | | 3 | | 10 | | | 3 | SW | Overcast | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 55′, W. 12° 30′ | | | 30.07 | 763.8 | 66.8 | 19.3 | | SW | | 2 | | 10 | | | 3 | | Hazy | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 47′ 35°, W. 25° 10′ | | | 30.21 | 767.3 | 58.0 | 14.4 | | N | | 4 | | 1 | | | 3 | NW | Hazy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 52° 11′, W. 14° 30′ | | | 30.16 | 766.1 | 64 | 17.8 | | NE | | 2 | | 4 | | | 0 | | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.22 | 666.0 | | | 67.1 | 19.5 | 95 | NE | | | 2 | | 10cs | | E | 0.9 | 23. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.89 | 759.2 | 59.4 | 15.2 | 82 | SW | | | 6 | | 10 | | | | | | |
| Faröe | | | 29.83 | 757.6 | 58.1 | 14.5 | 98 | WNW | | | 6 | | 10 | | | | | Raining | |
| Godthaab, (Greenland) | | | 29.77 | 756.2 | 49.3 | 9.6 | 74 | NNE | | | 2 | | 1 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.77 | 756.2 | 51.8 | 10.7 | 76 | SE | | | 4 | | 2 | | | | | | |
| Thorshavn, (Faröe) | | | 29.83 | 757.7 | 48.0 | 8.9 | 63 | N | | | 2 | | 7 | | | | | | |
| Vestervig | | | 29.75 | 755.7 | 55.0 | 12.8 | 96 | SW | | | 4 | | 10 | | | | | Raining | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.30 | 769.5 | 66.2 | 19 | 49 | SW | | | 1 | 5c | | SW | | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 30.16 | 766.0 | 74.1 | 23.4 | 59 | WNW | | | 2 | | 5 | | WNW | 0 | 0 | Cloudy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.07 | 763.8 | 81.9 | 27.7 | 30 | NNW | | | 3 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.21 | 767.2 | 69.3 | 20.7 | 36 | NNE | | | 2 | 5c | | NNE | | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.19 | 766.7 | 71.2 | 21.8 | 40 | N | 0 | 0 | | | | | SW | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.21 | 767.2 | 70.0 | 21.1 | 71 | WSW | | | 3 | | 8 | | WSW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.19 | 766.9 | 70.9 | 21.6 | 50 | SSE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.25 | 768.4 | 71.6 | 22 | 43 | N | | | 8 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.22 | 767.6 | 65.3 | 18.5 | 63 | N | | | 2 | | 0 | | | 0 | 0 | Clear | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.18 | 766.5 | 71.4 | 21.9 | 71 | SW | | | 2 | 4c | | SW | | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.11 | 764.7 | 81.7 | 27.6 | 29 | W | | | 2 | | 2 | | W | 0 | 0 | Slightly cl'dy | Vateau, Director. |
| Caen | | | 30.21 | 767.4 | 68.2 | 20.1 | 58 | WSW | | | 2 | | 8 | | W | 0 | 0 | Very cloudy | Normal School. |
| Chartres, Normal School | | | 30.21 | 767.4 | 68.7 | 20.4 | 66 | WNW | | | 1 | | 1 | | NE | 0 | 0 | | Dumouilé, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.20 | 767.0 | 72.5 | 22.5 | 41 | W | | | 3 | | 2ck | | W | 0 | 0 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.13 | 765.4 | 69.8 | 21.0 | 35 | NE | | | 2 | | 0 | | | 0 | 0 | Clear | Alluard, Director. |
| Commercy, Normal School | | | 30.22 | 767.6 | 66.2 | 19 | 64 | NW | | | 2 | | 5 | | NW | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.12 | 765.0 | 81.7 | 27.6 | 28 | W | | | 2 | | 2 | | W | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.19 | 766.7 | 71.8 | 22.1 | 53 | NNW | | | 4 | | 2ck | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. Schoo | | | 30.19 | 766.7 | 74.8 | 23.8 | 45 | NW | | | 1 | | 1 | | NW | 0 | 0 | Clear | Mouillot, Director. |
| Le Mans, Normal School | | | 30.22 | 767.5 | 67.1 | 19.5 | 51 | NE | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.13 | 765.3 | 68.0 | 20 | 59 | N | | | 6 | | 0 | | | 0 | 0 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 30.24 | 768.2 | 70.9 | 21.6 | 41 | SW | | | 3 | | 8 | | SW | 0 | 0 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.13 | 765.3 | 68.4 | 20.2 | 55 | N | | | 6 | | 0 | | | 0 | 0 | Clear | M. Marchal, Director. |
| Metz | | | 30.29 | 769.3 | 67.6 | 19.8 | 39 | NNW | | | 2 | | 3ck | | SW | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.15 | 765.9 | 66.4 | 19.1 | 47 | NW | | | 2 | | 2 | | ESE | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 30.08 | 763.9 | 83.1 | 28.4 | 67 | NE | | | 4 | | | | NE | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 30.15 | 765.7 | 69.8 | 21 | 43 | NW | | | 2 | | 2 | | N | 0 | 0 | Slightly cl'dy | Bernard, Director. |
| Paris, Observatory | | | 30.20 | 767.0 | 69.6 | 20.9 | 33 | W | | | 2 | | 0 | | | 0 | 0 | Clear | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.10 | 764.4 | 78.8 | 26.0 | 32 | ENE | | | 4 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.21 | 767.2 | 69.1 | 20.6 | 54 | W | | | 1 | | 8 | | S | 0 | 0 | Very cloudy | F. Lucard, Director. |
| Tarbes, Normal School | 29.06 | 738.2 | 30.12 | 765.1 | 65.7 | 18.7 | 83 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.20 | 767.0 | 73.4 | 23 | 47 | N | | | 4 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 80.6 | 27 | | | | | | | | | | 0.28 | 7. | | L'Abbé Marchésl. |
| Marseilles, Observatory | | | | | 68.4 | 20.2 | 52 | SW | | | 0-1 | | 1 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 25.02 | 635.6 | 30.34 | 770.6 | 63.3 | 17.4 | 67 | ESE | 16.8 | 7.50 | | | 4 | | NW | 0 | 0 | | Mr. Falgnère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 30.20 | 767.0 | 70.5 | 21.4 | 34 | W | | | 2 | | 3 | | | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.07 | 763.6 | 76.3 | 24.6 | 44 | S | 7.4 | 3.33 | | | 0 | | | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.46 | 545.2 | | | 49.3 | 9.6 | | SW | | | 1 | | 4 | | | | | Fair | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.71 | 576.9 | | | 56.3 | 13.5 | | SW | | | 2 | | 4 | | | 0 | 0 | Fair | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.20 | 767.1 | 70.7 | 21.5 | 39 | WSW | | | 1 | | 0 | | | 0 | 0 | Clear | E. Renou. |
| Toulouse, Observatory | | | 30.17 | 766.3 | 72.7 | 22.6 | 36 | N | | | 1 | | 0 | | | 0 | 0 | | The Staff |
| Tours | | | 30.20 | 767.1 | 72.7 | 22.6 | 37 | NE | | | 1 | | 0 | | | 0 | 0 | Clear | C. Marquet. |
| Versailles, (near Paris) | | | 30.22 | 767.5 | 68.7 | 20.4 | 32 | W | | | 2 | | 3 | | | 0 | 0 | Fair | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.70 | 754.4 | 77.4 | 25.2 | 93 | SE | 4.9 | 2.2 | | | 10k | | | 0 | 0 | Covered | Marc Dechevrens, S. J |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft. Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10 | Clouds. Amount. Up'er 0–10 | Clouds. Amount. Low'r 0–10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.13 | 765.2 | 69.8 | 21.0 | 43 | NW | | | 3 | | 3 | NW | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.11 | 764.8 | 73.6 | 23.1 | 55 | S | | | 4 | | 6 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.19 | 766.9 | 66.0 | 18.9 | 48 | NNE | | | 3 | | 9 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.17 | 766.4 | 69.1 | 20.6 | 36 | NW | | | 1 | | 2 | | | 0 | 0 | Foggy | Albert Senz. |
| Cassel | | | 30.19 | 766.7 | 72.5 | 22.5 | 38 | W | | | 4 | | 5 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.12 | 765.0 | 69.8 | 21.0 | 47 | W | | | 4 | | 7 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.00 | 762.0 | 65.5 | 18.6 | 67 | WSW | | | 7 | | 5 | | | 1.240 | 31.5 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.19 | 766.7 | 72 5 | 22.5 | 25 | W | | | 1 | | 3 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.77 | 730.8 | 30.18 | 766.5 | 66.6 | 19.2 | 56 | NW | | | 4 | | 4 | NNW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.05 | 763.2 | 60.1 | 15.6 | 73 | W | | | 5 | | 10n | | | 0.055 | 1.4 | Showery | Captain F. Hegemann. |
| Kiel | | | 29.96 | 760.9 | 63.9 | 17.7 | 92 | SW | | | 3 | | 10 | | | 0.051 | 1.3 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 30.10 | 764.6 | 67.8 | 19.9 | 32 | W | | | 2 | | 2 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.17 | 766.3 | 70.2 | 21.2 | 48 | SW | | | 1 | | 4 | WSW | | 0.354 | 9.0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.12 | 765.0 | 60.6 | 15.9 | 73 | WSW | | | 2 | | 1ck | | | | | Fine | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.10 | 764.4 | 66.6 | 19.2 | 47 | ESE | | | 1 | | 7 | WSW | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.17 | 766.4 | 64.2 | 17.9 | 53 | NW | | | 7 | | 8 | | | 0 | 0 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.20 | 767.1 | 68.5 | 20.3 | 35 | Calm | | | 0 | | 8 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.16 | 766.1 | 66.6 | 19.2 | 43 | NE | | | 1 | | 2 | W | | 0 | 0 | | Prof. Schoder. |
| Treves, (Trier) | | | 30.05 | 763.3 | 70.7 | 21.5 | 42 | W | | | 5 | | 4 | | | 0 | 0 | Foggy | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.68 | 728.5 | 30.16 | 766.1 | 63.9 | 17.7 | 51 | Calm | | | 0 | | 4 | | | 0 | 0 | Foggy | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.08 | 764.1 | 67.8 | 19.9 | 59 | SW | | | 4 | | 7 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355. 9 feet: Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.90 | 759.5 | 86.0 | 30.0 | | SW | | | | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.36 | 745.7 | 29.41 | 746.9 | 88.2 | 31.2 | 74 | SW | 37.0? | 16.5? | | | 9 | | SW | 0 | 0 | D. clouds | |
| Deesa | 29.02 | 737.2 | 29.48 | 748.7 | 96.5 | 35.8 | 42 | S | | | | | 4 | S | | 0 | 0 | Dust-haze | |
| Bombay | 29.64 | 752.9 | 29.68 | 753.9 | 84.2 | 29.0 | 86 | SW | 19.0 | 8.4 | | | 8 | | SW | 0.05 | 1.3 | Dust-haze | |
| Poona | 27.65 | 702.2 | 29.64 | 752.7 | 78.9 | 26.1 | 70 | | | | | | | | E | 0.02 | 1.5 | D. clouds | |
| Lahore | 28.52 | 724.5 | 29.22 | 742.1 | 106.3 | 41.3 | 25 | WSW | 2.5 | 1.1 | | | 4 | | E | 0 | 0 | Blue sky | |
| Belgaum | | | | | 73.6 | 23.1 | 88 | W | 18.0 | 8.0 | | | 7 | E | W | 0.07 | 1.8 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.42 | 721.9 | 29.27 | 743.5 | 98.3 | 36.8 | | SE | 7.4 | 3.3 | | | | | | 0 | 0 | | |
| Agra | 28.77 | 730.8 | 29.31 | 744.6 | 93.7 | 34.3 | 57 | S | 8.4 | 3.7 | | | 9 | | N | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.49 | 723.7 | 29.52 | 749.7 | 84.6 | 29.2 | 68 | NE | 10.9 | 4.8 | | | 9 | | | | | Thunder-storm | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 28.59 | 736.3 | 29.35 | 745.4 | 92.2 | 33.4 | 59 | ESE | 7.6 | 3.3 | | | 6 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.02 | 737.0 | 29.31 | 744.5 | 96.7 | 35.9 | 49 | ENE | 3.3 | 1.4 | | | 10 | S | | 0 | 0 | Overcast | |
| Patna | 29.17 | 740.9 | 29.34 | 745.3 | 95.4 | 35.2 | 54 | E | 3.4 | 1.5 | | | 8 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.41 | 696.2 | 29.40 | 746.8 | 76.8 | 24.9 | 92 | E | 6.6 | 2.9 | | | 10 | N | NE | 1.62 | 48.2 | Raining | |
| Cuttack | 29.33 | 744.9 | 29.41 | 747.0 | 79.0 | 26.1 | 85 | SSW | 11.4 | 5.0 | | | 9 | | | 0.63 | 16.0 | D. clouds | |
| Calcutta (Alipore) | 29.32 | 744.7 | 29.34 | 745.2 | 80.5 | 26.9 | 89 | S | 6.0 | 2.6 | | | 10 | | | 0.02 | 0.5 | Drizzling | |
| Goalpara | 29.02 | 737.0 | 29.40 | 746.8 | 82.2 | 27.9 | 87 | E | 3.6 | 1.6 | | | 6 | | | 0.51 | 15.2 | Thunder-storm | |
| Chittagong | 29.42 | 747.1 | 29.51 | 749.4 | 78.1 | 25.6 | 91 | SSE | 6.4 | 2.8 | | | 10 | | | 0.10 | 2.5 | Gloomy | |
| Sibsagar | 29.16 | 740.8 | 29.50 | 749.2 | 83.2 | 28.4 | 89 | WSW | 1.8 | 0.8 | | | 10 | SW | SW | 1.15 | 29.2 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.08 | 713.3 | 29.43 | 747.4 | 81.5 | 27.5 | 91 | NW | 1.4 | 0.6 | | | 10 | | | 0.65 | 16.5 | Overcast | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0 011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an tadditional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,026 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.37 | 568.1 | 29.96? | 761.0? | 48.6 | 9.2 | 82 | W | | | 4 | | 8 | NE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.32 | 566.8 | 29.93? | 760.3? | 46.9 | 8.3 | | NE | | | 1 | | 5 | | | 0.276 | 7.0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.08 | 763.9 | 68.2 | 20.1 | 53 | NE | 2.5 | 1.1 | | | 10 | | | 0.063 | 1.6 | | Ab. Dom. Morgini. |
| Padua | | | 30.08 | 764.0 | 70.0 | 21.1 | 51 | NE | 13.0 | 5.8 | | | 3 | NNW | | 0.276 | 7.0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.08 | 764.0 | 70.9 | 21.6 | 51 | NE | 3.1 | 1.4 | | | 2 | E | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.03 | 762.7 | 71.2 | 21.8 | 75 | E | | | 4 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.76 | 730.6 | 30.03 | 762.8 | 74.8 | 23.8 | 56 | S | | | 2 | | 5 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.99 | 761.8 | 75.2 | 24.0 | 44 | SW | | | 6 | | 2 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.06 | 763.5 | 77.5 | 25.3 | 56 | E | | | 2 | | 2 | E | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.04 | 763.1 | 76.3 | 24.6 | 48 | SE | | | 4 | | 2 | NE | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.04 | 763.0 | 75.2 | 24.0 | 57 | NNW | 1.3 | 0.6 | | | 5 | E | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.19 | 716.0 | 30.01 | 762.2 | 72.1 | 22.3 | 49 | NW | | | 4 | | 3 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.09? | 764.3? | 75.4 | 24.1 | 68 | SSE | | | 2 | | 3 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.04 | 763.0 | 77.0 | 25.0 | 53 | SE | 7.4 | 3.3 | | | 2 | NE | | 0.004 | 0.1 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.07 | 763.6 | 75.4 | 24.1 | 43 | N | 6.9 | 3.1 | | | 3 | E | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.06 | 763.5 | 77.4 | 25.2 | 47 | ESE | | | 4 | | 6 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.06 | 763.4 | 73.9 | 23.3 | 60 | N | | | 2 | | 10 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.04 | 762.9 | 74.3 | 23.5 | 71 | N | 3.1 | 1.4 | | | 9 | N | | 0.417 | 10.6 | | Prof. P. Monte. |
| Siena | 28.85 | 732.8 | 30.01 | 762.2 | 66.0 | 18.9 | 68 | ENE | 2.5 | 1.1 | | | 9 | E | | 1.520 | 38.6 | | Prof. L. Toscani. |
| Urbino | 28.55 | 725.2 | 30.05 | 763.2 | 66.6 | 19.2 | 61 | N | | | 2 | | 10 | | | 0.209 | 5.3 | | Prof. P. Serpieri. |
| Pesaro | | | 30.08 | 764.0 | 72.9 | 22.7 | 64 | N | 23.6 | 10.3 | | | 9 | N | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.07 | 763.7 | 75.6 | 24.2 | 48 | N | | | 4 | | 5 | | | 0.016 | 0.4 | | Prof. F. DeBosis. |
| Grosseto | | | 30.03 | 762.7 | 81.7 | 27.6 | 40 | NNW | | | 2 | | 6 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.06 | 763.5 | 78.3 | 25.7 | 63 | NNW | 8.1 | 3.6 | | | 10 | | | 0.591 | 15.0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.06 | 763.4 | 81.0 | 27.2 | 55 | SW | | | 4 | | 10 | SW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.03 | 762.7 | 77.9 | 25.5 | 54 | ENE | 15.4 | 6.9 | | | 8 | | | 0 | 0 | | Prof. O. Dechiorgi. |
| Cosenza | | | 30.02 | 762.6 | 84.6 | 29.2 | 46 | NNE | 3.8 | 1.7 | | | 6 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.01 | 762.2 | 83.3 | 28.5 | 72 | NW | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pachnotti. |
| Riposto, (Sicily) | | | 30.05? | 763.2? | 76.5 | 24.7 | 67 | ENE | | | 2 | | 8 | SE | | 0 | 0 | | Pref. F. Cafiero. |
| Palermo | | | 29.99 | 761.8 | 76.1 | 24.5 | 57 | NE | 6.3 | 2.8 | | | 9 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.08 | 713.2 | 29.93 | 760.2 | 79.3 | 26.3 | 24 | WNW | | | 1 | | 5 | E | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.95 | 760.8 | 79.0 | 26.1 | 56 | SE | | | 4 | | 8 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.08 | 763.9 | 76.3 | 24.6 | 66 | ESE | 1.3 | 0.6 | | | 8 | SW | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.76 | 755.9 | 78 | 25.6 | 78 | SW | 3 | 1.3 | | 4ck | | | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.18 | 588.8 | 30.79 | 766.8 | 59.0 | 15.0 | 72 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Fair | Mariano Bárcena<br>Vicente Reyes.<br>Miguel Perez.<br>(Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.13 | 765.3 | 68.4 | 20.2 | | WNW | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 29.96 | 761.0 | 65.8 | 18.8 | | SW | | | 5 | | | | | 0.016 | 0.4 | | |
| Helder | | | 30.01 | 762.3 | 63.3 | 17.4 | | SW | | | 5 | | | | | 0.130 | 3.3 | | |
| Utrecht | | | 30.05 | 763.3 | 71.8 | 22.1 | 56 | WSW | | | 5 | | 5 | | | 0.008 | 0.2 | Cloudy | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.62 | 752.4 | 48.6 | 9.2 | 71 | SW | 12.8 | 5.7 | | | 5 | | | 0.079 | 2.0 | Raining | |
| Brönö | | | 29.48 | 748.7 | 53.2 | 11.8 | 72 | N | 9 | 4 | | | 8 | | | 0.039 | 1.0 | | |
| Christiania | | | 29.52 | 749.9 | 50.4 | 10.2 | 84 | SSW | 4 | 2 | | | 10 | | | 0.205 | 5.2 | Raining | |
| Tromsö | | | 29.59 | 751.6 | 54.3 | 12.4 | 50 | NE | 4 | 2 | | | 2 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.34 | 770.5 | 67.3 | 19.6 | 72 | W | 4.3 | 1.9 | | | 3 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.92 | 760.0 | 83.1 | 28.4 | 31 | ENE | 6.3 | 2.8 | | | 9 | SSW | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.07 | 763.8 | 71.2 | 21.8 | 59 | W | 3.8 | 1.7 | | | 1 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.98 | 761.6 | 68.4 | 20.2 | 78 | SW | 7.4 | 3.3 | | | 10 | | | 0.004 | 0.1 | Raining | The Staff. |
| Ponta Delgada, (Azores) | | | 30.31 | 769.8 | 66.9 | 19.4 | 76 | NNE | 5.6 | 2.5 | | | 3 | | | 0 | 0 | | |

Note.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.11 | 764.8 | 67.8 | 19.9 | 43 | WSW | 4 | 2 | | | 6 | | | | | | Astronomical Obs. |
| Wilna | | | 30.10 | 764.5 | 64.4 | 18.0 | 45 | SW | 2 | 1 | | | 1 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.00 | 762.1 | 66.7 | 19.3 | 40 | SW | 9 | 4 | | | 3 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.98 | 761.4 | 64.2 | 17.9 | 52 | WNW | 4 | 2 | | | 8 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.82 | 757.3 | 66.4 | 19.1 | 62 | S | 18 | 8 | | | 8 | | | | | | Ch. Forsten. |
| Kieff | | | 29.93 | 760.3 | 68.7 | 20.4 | 73 | N | 9 | 4 | | | 8 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.98 | 761.4 | 86.0 | 30.0 | 35 | E | 13 | 6 | | | 0 | | | | | | Kurdakof. |
| Kertch | | | 29.98 | 761.6 | 79.5 | 26.4 | 54 | NNE | 9 | 4 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 29.96 | 760.9 | 73.9 | 23.3 | 74 | NE | 11 | 5 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.94 | 760.4 | 79.2 | 26.2 | 37 | N | 2 | 1 | | | 0 | | | | | | Meteorological Obs. |
| Archangel | | | 29.76 | 755.8 | 49.8 | 9.9 | 87 | NNE | 29 | 13 | | | 10 | | | | | Raining | Ogorodnikof. |
| Tiflis | 28.52 | 724.4 | 29.85 | 758.2 | 84.7 | 29.3 | 34 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.85 | 758.3 | 81.9 | 27.7 | 25 | N | 7 | 3 | | | 0 | | | | | | Sebastianof. |
| Kasan | | | 29.77 | 756.2 | 85.5 | 29.7 | 37 | NW | 4 | 2 | | | 5 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischef. |
| Ekaterinburg | 28.82 | 731.9 | 29.72 | 755.0 | 68.0 | 20.0 | 76 | NE | 13 | 6 | | | 9 | | | | | Thunder-storm | Meteorogical Obs. |
| Nukuss | | | 29.84 | 757.8 | 78.3 | 25.7 | 31 | WNW | | | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Robrof. |
| Tashkend | 28.34 | 719.8 | 29.98 | 761.4 | 74.3 | 23.5 | 70 | Calm | 0 | 0 | | | 10 | | | | | | Michelson. |
| Barnaul | | | 29.70 | 754.4 | 87.3 | 30.7 | 35 | NE | 0 | 0 | | | 5 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.64 | 752.8 | 84.2 | 29.0 | 62 | S | 2 | 1 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 54.1 | 11.3 | | Calm | 0 | 0 | | | 3 | | | | | | Mossin. |
| Peking, (China) | | | 29.70 | 754.4 | 75.9 | 24.4 | 47 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.76 | 756.0 | 55.8 | 13.2 | 96 | SE | 16 | 7 | | | 10 | | | | | Rain & fog | |
| Nikolaievsk, on the Amoor | | | | | 50.4 | 10.2 | 72 | Calm | 0 | 0 | | | 2 | | | | | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Domingo Martin y Perez. |
| Madrid, Royal Observatory | | | 29.93 | 760.2 | 84.9 | 29.4 | 30 | SE | 12.0 | 5.34 | | 2 | 3 | SE | | 0 | 0 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.10 | 764.4 | 84.9 | 29.4 | 81 | Calm | 0 | 0 | | 1c | 0 | | | 0.024 | 0.6 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y | | | 29.97 | 761.1 | 74.8 | 23.8 | 67 | NNW | 10.1 | 4.5 | | 0 | 10 | | NW | 0.012 | 0.3 | | Capt. C. Pajazoa, R. N., Dir. |
| San Juan de Porto Rico, W. I. | | | 30.02 | 762.6 | 83.5 | 28.6 | 79 | E | 10.4 | 4.65 | | 9cs | 1n | | E | 0.138 | 3.50 | Cloudy | Leonardo de Tejeda, Chief of Engineers. |

Note.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.74 | 755.5 | 56.5 | 13.6 | 69 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.72 | 755.0 | 53.2 | 11.8 | 72 | S | | | 4 | | 2 | | | 0 | 0 | | |
| Hernosand | | | 29.62 | 752.4 | 54.7 | 12.6 | 85 | SSW | | | 4 | | 5 | | | 0 | 0 | | |
| Stockholm | | | 29.75 | 755.6 | 62.6 | 17.0 | 50 | SW | | | 7 | | 10 | | | 0 | 0 | | |
| Wisby | | | 29.92 | 759.9 | 63.3 | 17.4 | 47 | WSW | | | 8 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.75 | 755.6 | 59.4 | 15.2 | 56 | S | 20.4 | 9.1 | | | 10 | | SW | 0.154 | 3.90 | | Dr. Hildebrandsson. |

Note.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimet-r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.74 | 729.9 | 30.12 | 765.1 | 68.4 | 20.2 | 51 | N | | | 3 | | 0 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.58 | 725.8 | 30.17 | 766.3 | 67.5 | 19.7 | 53 | N | | | 1 | | 1 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +2.9 mm; Thermometer, —1.5 cent.; Relative Humidity, —3 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimet-r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.95 | 760.8 | 73.4 | 23.0 | 63 | NE | 8 | 3.5 | | | 0 | | | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.78 | 756.4 | 82.8 | 28.2 | | NW | | | 4 | | 0 | | | | | | |
| Salonica | | | 30.01 | 762.2 | 90.3 | 32.4 | | NW | | | 2 | | 2 | | | Blank | Blank | | B. Stéfanidès. |
| Valona | | | 30.11 | 764.7 | 77.0 | 25.0 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.88 | 759.0 | 88.7 | 31.5 | 59 | SW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimet-r. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.77 | 756.1 | 58.8 | 14.9 | 48 | NW | 5 | 2.2 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.91 | 759.7 | 61 | 16.1 | | NE | 7 | 3.1 | | | 10s | | N | 0.68 | 2.0 | Cloudy | W. R. Bigg. |
| *Chatham, N. B | | | 29.75 | 755.6 | 55 | 12.8 | 62 | W | 15 | 6.7 | | 0 | 0 | | | 0.44 | 11.2 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.77 | 756.1 | 55 | 12.8 | 53 | N | 13 | 5.8 | | 2k | 0 | | | 0.115 | 2.92 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.90 | 759.4 | 58.1 | 14.5 | 76 | N | | | 2 | | 10s | | | 0 | 0 | Dull | James Smith, M. A. |
| Dalhousie, N. B | | | 29.64 | 752.8 | | | | W | | | 1 | | | | | 0.14 | 3.6 | Bright | H. A. Johnson. |
| Esquimault, B. C | | | 29.94 | 760.5 | 47.3 | 8.5 | 100 | Calm | | | | 2cs | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 29.88 | 758.9 | 50 | 10.0 | 82 | SW | 3 | 1.3 | | 0 | 2ks | | | 0.02 | 0.5 | Clear | J. McWilliams. |
| Fredericton, N. B | | | 29.88 | 758.9 | 56.2 | 13.4 | 61 | NW | 12 | 5.4 | | 5c | 0 | W | | Inap. | Inap. | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.78 | 756.4 | 57 | 13.9 | 100 | N | 4 | 1.8 | | 5k | 8n | N | N | 0.32 | 8.1 | Light rain | James Stewart. |
| Goderich, Ontario | | | 29.84 | 757.9 | 63.2 | 17.3 | | Calm | | | 0 | | 10n | | | 0:344 | 8.74 | Threatening | H. J. Strang, M. A. |
| Granton, Ontario | 28.80 | 731.5 | 29.86 | 758.4 | 64 | 17.8 | 100 | SW | | | 1 | | 10n | | | 0.10 | 2.5 | Raining | James Grant. |
| *Halifax, N. S | | | 29.78 | 756.4 | 59 | 15.0 | 66 | NW | 12 | 5.4 | | 5ck | 0 | NW | | 0.010 | 0.25 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.91 | 759.7 | 67.9 | 19.9 | 77 | SE | | | 1 | 10ck | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.41 | 747.0 | 47 | 8.3 | 85 | NW | | | 3 | 0 | 2s | | | 0.54 | 13.7 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.93 | 760.2 | 63 | 17.2 | 78 | NE | 11 | 4.9 | | 10ck | 0 | SW | | 0 | 0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.95 | 760.7 | 56 | 13.3 | 71 | E | 6 | 2.7 | | | 10n | | NE | 0 | 0 | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.91 | 759.7 | 64 | 17.8 | 70 | W | 11 | 4.9 | | 2c | 2ks | W | W | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 29.90 | 759.4 | 67.7 | 19.8 | 69 | N | | | 1 | 0 | 9k | | | 0 | 0 | Cloudy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.92 | 760.0 | 62 | 16.7 | 100 | SW | 7 | 3.1 | | | 10n | | SW | 0.35 | 8.9 | Threatening | H. Morgan. |
| Port Hastings, N. S | | | 29.74 | 755.4 | 55.3 | 12.9 | | NW | 12 | 5.4 | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 29.91 | 759.7 | 63 | 17.2 | 97 | SE | 3 | 1.3 | | | Fog | | | 0.14 | 3.6 | Light rain | M. Payne. |
| *Quebec, Quebec | | | 29.94 | 760.5 | 61 | 16.1 | 61 | Calm | 0 | 0 | | | 10ks | | | 0.02 | 0.5 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.98 | 761.5 | 60 | 15.6 | 60 | NE | 4 | 1.8 | | 5c | 0 | | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | | | | | | | | | | | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.86 | 758.4 | 61 | 16.1 | 83 | Calm | 0 | 0 | | | 10n | | | Inap. | Inap. | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.87 | 758.7 | 60 | 15.6 | 88 | Calm | 0 | 0 | | | 10n | | W | Inap. | Inap. | Light rain | R. J. Cole. |
| Stratford, Ontario | 28.61 | 726.7 | 29.84 | 757.9 | 63.3 | 17.4 | 77 | SW | 6 | 2.7 | | | 10n | | | Inap. | Inap. | Raining | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 29.67 | 753.6 | 57 | 13.9 | 68 | NW | 7 | 3.1 | | 0 | 5ks | | NW | 0.11 | 2.8 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.91 | 759.7 | 66 | 18.9 | 77 | SE | 3 | 1.3 | | | 10ks | | W | 0 | 0 | Cloudy | Magnetic Observatory |
| Windsor, N. S | | | 29.82 | 757.4 | 55.5 | 13.1 | 65 | NW | 6 | 2.7 | | 2cs | 0 | NW | | 0.10 | 2.5 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.87 | 758.7 | 65.0 | 18.3 | 96 | S | 10 | 4.5 | | | 10n | | | 0.22 | 5.6 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.50 | 749.3 | 50.0 | 10.0 | 100 | SW | | | | 10k | 10s | | | 0.50 | 12.7 | Cloudy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.85 | 758.2 | 65 | 18.3 | 94 | SW | 5 | 2.2 | | | 10n | | | 0.03 | 0.8 | Light rain | |
| Alpena, Mich | | | 29.92 | 760.0 | 56 | 13.3 | 74 | NE | 12 | 5.4 | | 8ck | 0 | SW | | 0 | 0 | Fair | |
| Atlantic City, N. J. | | | 29.94 | 760.5 | 74 | 23.3 | 85 | SW | 6 | 2.7 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Augusta, Ga. | | | 30.06 | 763.5 | 82 | 27.8 | 75 | W | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.96 | 761.0 | 79 | 26.1 | 65 | W | 8 | 3.6 | | 2ck | 2s | NW | W | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 29.92 | 760.0 | 79 | 26.1 | 73 | W | 10 | 4.5 | | 8k | 0 | W | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.16 | 715.3 | 29.77 | 756.1 | 53 | 11.7 | 86 | W | 9 | 4.0 | | 0 | 0 | | | 0.43 | 10.9 | Clear | |
| Boston, Mass. | | | 29.91 | 759.7 | 65 | 18.3 | 63 | NE | 13 | 5.8 | | 2ck | 5s | W | W | 0 | 0 | Fair | |
| Breckenridge, Minn | | | 29.82 | 757.4 | 55 | 12.8 | 87 | W | 12 | 5.4 | | 0 | 2ks | | NW | 1.83 | 46.5 | Fair | |
| Brownsville, Texas | | | 29.97 | 761.2 | 82 | 27.8 | 87 | SE | 12 | 5.4 | | 2c | 5ks | | SE | 0 | 0 | Fair | |
| Buffalo, N. Y. | | | 29.88 | 758.9 | 64 | 17.8 | 94 | SW | 3 | 1.3 | | | 10n | | | 0.81 | 20.6 | Light rain | |
| Burlington, Vt. | | | 29.93 | 760.2 | 59 | 15.0 | 71 | N | 4 | 1.8 | | | 10s | | N | 0.09 | 2.3 | Cloudy | |
| Cairo, Ill. | | | 29.96 | 761.0 | 68 | 20.0 | 90 | E | 14 | 6.3 | | | 10s | | S | 9.11 | 2.8 | Cloudy | |
| Campo, Cal. | 27.40 | 696.0 | 29.97 | 761.2 | 47 | 8.3 | 85 | N | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 63 | 17.2 | | Calm | | | | 2ck | Haze | W | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.92 | 760.0 | 62 | 27.8 | 78 | NW | 4 | 1.8 | | 0 | 0 | | | 0.45 | 11.4 | Clear | |
| Cape Henry, Va. | | | 29.99 | 761.7 | 82 | 27.8 | 74 | W | 8 | 3.6 | | 0 | 0 | | | 0.30 | 7.6 | Clear | |
| Cape Lookout, N. C. | | | 30.00 | 762.0 | 80 | 26.7 | 87 | SW | 10 | 4.5 | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape May, N. J. | | | 29.96 | 761.0 | 73 | 12.8 | 85 | W | 6 | 2.7 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Charleston, S. C. | | | 30.06 | 763.5 | 84 | 28.9 | 79 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.07 | 611.4 | 30.01 | 762.2 | 49 | 9.4 | 59 | S | 8 | 3.6 | | 5c | 1s | W | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 29.76 | 755.9 | 71 | 21.7 | 80 | W | 12 | 5.4 | | 0 | 0 | | | 2.65 | 67.3 | Clear | |
| Cincinnati, Ohio | | | 29.82 | 757.4 | 73 | 22.8 | 81 | SE | 7 | 3.1 | | 5cs | 0 | | | 1.39 | 35.3 | Fair | |
| Cleveland, Ohio | | | 29.84 | 757.9 | 66 | 18.9 | 90 | S | 8 | 3.6 | | | 10s | | | 1.05 | 26.7 | Cloudy | |
| Corsicana, Tex. | | | 29.95 | 760.7 | 78 | 25.6 | 90 | S | 8 | 3.6 | | Haze | 5s | | | 0.70 | 17.8 | Fair | |
| Davenport, Iowa | | | 29.83 | 757.7 | 67 | 19.4 | 90 | W | 8 | 3.6 | | | 10s | | | 1.77 | 45.0 | Cloudy | |
| Denison, Texas | | | 29.91 | 759.7 | 75 | 23.9 | 81 | SE | 9 | 4.0 | | 0 | 0 | | | 0.58 | 14.7 | Clear | |
| Denver, Col. | 24.86 | 631.4 | 30.08 | 764.0 | 52 | 11.1 | 47 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.77 | 756.1 | 67 | 19.4 | 94 | SW | 6 | 2.7 | | | 10s | | SW | 1.50 | 38.1 | Threatening | |
| Dodge City, Kan | 27.34 | 694.4 | 29.53 | 750.0 | 67 | 19.4 | 79 | NE | 12 | 5.4 | | 2ck | 2s | W | W | 0.01 | 0.3 | Fair | |
| Dubuque, Iowa | | | 29.80 | 756.9 | 63 | 17.2 | 88 | N | 3 | 1.3 | | | 10s | | | 0.70 | 17.8 | Cloudy | |
| Duluth, Minn. | | | 29.87 | 758.7 | 54 | 12.2 | 86 | NE | 14 | 6.3 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| Eagle Pass, Tex. | | | 29.80 | 756.9 | 84 | 28.9 | 75 | SE | 10 | 4.5 | | 1c | 1ks | SE | SE | 0 | 0 | Fair | |
| Eastport, Me. | | | 29.87 | 758.7 | 60 | 15.6 | 54 | N | 8 | 3.6 | | 8c | 0 | SW | | 0.06 | 1.5 | Fair | |
| Erie, Pa. | | | 29.89 | 759.2 | 68 | 20.0 | 84 | SW | 4 | 1.8 | | | 10n | | SW | 0.09 | 2.3 | Light rain | |
| Escanaba, Mich | | | 29.88 | 758.9 | 58 | 14.4 | 76 | N | 5 | 2.2 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Florence, Arizona | 28.32 | 719.3 | 29.92 | 760.0 | 86 | 29.4 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 30.00 | 762.0 | 67 | 19.4 | 94 | N | 21 | 9.4 | | | 10n | | | 0.12 | 3.0 | Light rain | |
| Fort Griffin, Tex. | 28.60 | 726.4 | 29.82 | 757.4 | 81 | 27.2 | 74 | Calm | 0 | 0 | | 0 | 8ks | | S | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.92 | 760.0 | 52 | 11.1 | 79 | E | | | 7 | 1ck | 8ks | S | NE | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.65 | 727.7 | 29.70 | 754.4 | 73 | 22.8 | 76 | S | 22 | 9.8 | | 2k | 5s | | S | 0.46 | 11.7 | Cloudy | |
| Fort Sully, Dakota | 28.27 | 718.0 | 29.89 | 759.2 | 57 | 13.9 | 69 | NW | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.04 | 763.0 | 82 | 27.8 | 83 | S | 12 | 5.4 | | 2k | 0 | S | | 0 | 0 | Fair | |
| Grand Haven, Mich | | | 29.79 | 756.7 | 63 | 17.2 | 94 | E | 3 | 1.3 | | | 10s | | | 0.35 | 8.9 | Cloudy | |
| Indianapolis, Ind | | | 29.89 | 759.2 | 70 | 21.1 | 84 | SW | 6 | 2.7 | | 8cs | 2s | | SW | 0.80 | 20.3 | Fair | |
| Indianola, Tex. | | | 30.00 | 762.0 | 83 | 28.3 | 79 | S | 12 | 5.4 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.11 | 764.8 | 85 | 29.4 | 85 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.78 | 756.4 | 68 | 20.0 | 84 | W | 11 | 4.9 | | 8c | 0 | W | | 1.56 | 39.6 | Fair | |
| Key West, Fla. | | | 30.08 | 764.0 | 85.0 | 29.4 | 73 | E | 4 | 1.8 | | 0 | 5ks | | E | 0.65 | 16.5 | Fair | |
| Kittyhawk, N. C. | | | 30.00 | 762.0 | 74 | 23.3 | 100 | SW | 2 | 0.9 | | 0 | 0 | | | 1.77 | 45.0 | Clear | |
| Knoxville, Tenn. | | | 30.04 | 763.0 | 76 | 24.4 | 81 | S | 4 | 1.8 | | 2k | 0 | SW | | 0 | 0 | Fair | |
| La Crosse, Wis | | | 29.78 | 756.4 | 62 | 16.7 | 77 | Calm | 0 | 0 | | | 10s | | | 0.86 | 21.8 | Cloudy | |
| Leavenworth, Kan. | | | 29.87 | 758.7 | 69 | 20.6 | 95 | NW | 2 | 0.9 | | | 10s | | | 0.44 | 11.2 | Cloudy | |
| Louisville, Ky. | | | 29.88 | 758.9 | 74 | 23.3 | 81 | S | 10 | 4.5 | | 5c | 2s | SW | | 0.03 | 0.8 | Fair | |
| Lynchburg, Va. | | | 30.00 | 762.0 | 77 | 25.0 | 57 | W | 4 | 1.8 | | 1c | 0 | | | 0 | 0 | Clear | |
| Maricopa Wells, Arizona | | | | | 79 | 26.1 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.92 | 760.0 | 55 | 12.8 | 68 | NW | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Tex. | 28.32 | 719.3 | 29.98 | 761.5 | 80 | 26.7 | 78 | SE | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Memphis, Tenn. | | | 30.05 | 763.3 | 75 | 23.9 | 72 | NE | 10 | 4.5 | | 5cs | 5ks | SW | NE | Inap. | Inap. | Cloudy | |
| Milwaukee, Wis. | | | 29.84 | 757.9 | 55 | 12.8 | 100 | NE | 5 | 2.2 | | | Fog | | | 0.26 | 6.6 | Dense fog | |
| Mobile, Ala. | | | 30.12 | 765.0 | 84 | 28.9 | 75 | S | 3 | 1.3 | | 2c | 0 | W | | 0 | 0 | Clear | |
| Montgomery, Ala | | | 30.12 | 765.0 | 76.5 | 24.7 | 88 | W | 5 | 2.2 | | | 10s | | W | 0 | 0 | Threatening | |
| Morgantown, W. Va. | 28.92 | 734.6 | 29.92 | 760.0 | 75 | 23.9 | 59 | SW | 3 | 1.3 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 23.76 | 603.5 | 30.12 | 765.0 | 39 | 3.9 | 91 | N | 28 | 12.5 | | 10s | 0 | N | | 0.04 | 1.0 | Cloudy | |
| Nashville, Tenn. | | | 29.98 | 761.5 | 84 | 28.9 | 67 | W | 6 | 2.7 | | 5k | 0 | SW | | 0 | 0 | Fair | |
| New Haven, Conn. | | | 29.88 | 758.9 | 78 | 25.6 | 65 | W | 2 | 0.9 | | 8k | Haze | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 29.89 | 759.2 | 70 | 21.1 | 79 | Calm | 0 | 0 | | 8ck;cs | 0 | N,NW | | 0 | 0 | Fair | |
| New Orleans, La. | | | 30.10 | 764.5 | 81 | 27.2 | 82 | S | 4 | 1.8 | | 8k | 0 | SW | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.89 | 759.2 | 74 | 23.3 | 67 | E | 4 | 1.8 | | 9k | 0 | W | | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 29.92 | 760.0 | 72 | 22.2 | 75 | W | 4 | 1.8 | | | 10ks | | | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 30.02 | 762.5 | 78 | 25.6 | 82 | NW | 5 | 2.2 | | 0 | Haze | | | 0.55 | 14.0 | Clear | |
| North Platte, Neb. | 27.12 | 688.8 | 29.65 | 753.1 | 55 | 12.8 | 68 | E | 5 | 2.2 | | 2cs | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.86 | 733.0 | 29.91 | 759.7 | 62 | 16.7 | 77 | NW | 6 | 2.7 | | 2c | 2s | | NW | 0.05 | 1.3 | Fair | |
| Oswego, N. Y. | | | 29.88 | 758.9 | 62 | 16.7 | 77 | W | 4 | 1.8 | | 10cs | 0 | | | 0.04 | 1.0 | Cloudy | |
| Pembina, Dakota | | | 29.75 | 755.6 | 56 | 13.3 | 100 | NW | 2 | 0.9 | | | 10n | | | 0.96 | 24.4 | Light rain | |
| Philadelphia, Pa. | | | 29.95 | 760.7 | 73 | 22.8 | 76 | NW | 6 | 2.7 | | 2k | 8ks;sm' | W | W | 0 | 0 | Cloudy | |
| Phœnix, Arizona | | | | | 70 | 21.1 | 20 | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.86 | 453.6 | 30.07 | 763.8 | 28 | — 2.2 | 100 | S | 20 | 8.9 | | | Fog | | | 0 | 0 | Foggy | |
| Pittsburg, Pa. | | | 29.90 | 759.4 | 68 | 20.0 | 84 | SE | 5 | 2.2 | | 2k | Sm'e | W | | 0.11 | 2.8 | Fair | |
| Port Huron, Mich. | | | 29.78 | 756.4 | 64 | 17.8 | 94 | Calm | 0 | 0 | | | 10n | | SW | 0.55 | 14.0 | Light rain | |
| Portland, Me. | | | 29.91 | 759.7 | 65 | 18.3 | 58 | E | 6 | 2.7 | | 8k | Haze | W | | Inap. | Inap. | Cloudy | |
| Portland, Oregon | | | 29.98 | 761.5 | 52 | 11.1 | 86 | N | 1 | 0.4 | | | 8s | | | 0.03 | 0.8 | Cloudy | |
| Prescott, Arizona | | | | | 57 | 13.9 | 34 | | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.12 | 765.0 | 85 | 29.4 | 64 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.87 | 758.7 | 65 | 18.3 | 78 | W | 4 | 1.8 | | 5ck | 5s | W | | 0.20 | 5.1 | Cloudy | |
| Salt Lake City, Utah | 25.44 | 646.2 | 29.77 | 756.1 | 55 | 12.8 | 38 | E | 1 | 0.4 | | | 10ks | | S | 0 | 0 | Cloudy | |
| Sandy Hook, N. J. | | | 29.92 | 760.0 | 72 | 22.2 | 90 | W | 11 | 4.9 | | 10k | 0 | W | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.82 | 757.4 | 83 | 28.3 | 74 | SE | 8 | 3.6 | | 5cs | 0 | | S | 0 | 0 | Fair | |
| San Diego, Cal. | | | 30.02 | 762.5 | 64 | 17.8 | 73 | S | 2 | 0.9 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 29.99 | 761.7 | 54 | 12.2 | 86 | W | 18 | 8.0 | | 0 | 1s | | W | 0 | 0 | Clear | |
| Santa Fe, New Mexico | 23.31 | 592.1 | 29.85 | 758.2 | 52 | 11.1 | 17 | E | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Savannah, Ga. | | | 30.09 | 764.3 | 87 | 30.6 | 62 | NW | 5 | 2.2 | | 1c | 2ck | W | SW | 0 | 0 | Hazy | |
| Shreveport, La. | | | 30.10 | 764.5 | 79 | 26.1 | 91 | S | 6 | 2.7 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Smithville, N. C. | | | 30.08 | 762.7 | 80 | 26.7 | 82 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.88 | 758.9 | 74.5 | 23.6 | 68 | NW | 1 | 0.4 | | 9ck | 0 | W | | 0 | 0 | Cloudy | |
| St. Louis, Mo. | | | 29.88 | 758.9 | 73 | 22.8 | 76 | S | 12 | 5.4 | | 0 | 5s | | | 0.97 | 24.6 | Fair | |
| St. Marks, Fla. | | | 30.12 | 765.0 | 78 | 25.6 | 86 | NW | 8 | 3.6 | | 0 | 5s | | NW | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.76 | 755.9 | 62 | 16.7 | 72 | SE | 1 | 0.4 | | | 10s | | | 0 | 0 | Cloudy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 68 | 20.0 | 55 | NW | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.85 | 682.0 | 29.85 | 758.2 | 75 | 23.9 | 81 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 29.90 | 759.4 | 62 | 16.7 | 71 | NE | 8 | 3.6 | | 8ck,cs | 0 | NW | | 0.02 | 0.5 | Fair | |
| Toledo, Ohio | | | 29.78 | 756.4 | 70 | 21.1 | 84 | SE | 8 | 3.6 | | 5ck | 2ks | SW | S | 1.72 | 43.7 | Fair | |
| Tucson, Arizona | 27.57 | 700.3 | 30.11 | 764.8 | 74 | 23.3 | | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.07 | 763.8 | 86 | 30.0 | 72 | NW | 12 | 5.4 | | 1c | 2k | | NW | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.11 | 764.8 | 83 | 28.3 | 83 | Calm | 0 | 0 | | 8k | 0 | S | | 0 | 0 | Fair | |
| Virginia City, Montana | 24.21 | 614.9 | 29.69 | 754.1 | 41 | 5.0 | 83 | SE | 8 | 3.6 | | 0 | 5s | | E | 0.01 | 0.5 | Fair | |
| Washington, D. C | | | 29.97 | 761.2 | 80 | 26.7 | 71 | SW | 7 | 3.1 | | 1ck | 1s | W | W | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 80 | 26.7 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.03 | 762.7 | 81 | 27.2 | 82 | W | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Wood's Holl, Mass | | | 29.92 | 760.0 | 72 | 22.2 | 75 | E | 3 | 1.3 | | 10c | 0 | NW | | 0 | 0 | Cloudy | |
| Yankton, Dakota | 28.74 | 730 0 | 30.00 | 762.0 | 62 | 16.7 | 77 | W | 6 | 2.7 | | 8c | 0 | SW | | 0.09 | 2.3 | Fair | |
| Yuma, Arizona | | | 29.84 | 757.9 | 72 | 22.2 | 45 | SE | 2 | 0.9 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I. | | | 30.21 | 767.3 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 2c | 0 | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.05 | 763.3 | 83 | 28.3 | | E | | | 2 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.06 | 763.5 | 81 | 27.2 | 83 | E | | | 1 | 3c | 6k | E | | 1.190 | 30.23 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.22 | 640.6 | | | 68.8 | 20.4 | 75 | Calm | | | 0 | 2cs | 0 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.10 | 764.5 | 41 | 5.0 | 96 | NE | 1 | 0.4 | | 0 | 2s | | NE | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.16 | 766.1 | 72 | 22.2 | | NE | | | 6 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m., Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

## UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

*Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.*

| Stations and Vessels. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.07 | 763.8 | 78 | 25.6 | 78 | 25.6 | 69 | SW | | | 3 | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 29.96 | 761.0 | 56 | 13.3 | 54 | 12.2 | | WSW | 19 | 8.5 | | | 2 | | WSW | 0 | 0 | | | Pleasant | |
| Navy Yard, Pensacola, Fla. | 30.25 | 768.3 | | | 80 | 26.7 | 87 | W | 9 | 4.0 | | | 4 | | W | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 29.99 | 761.7 | 74 | 23.3 | 67 | 19.4 | 68 | ENE | 2 | 0.9 | | | | | | 0.05 | 1.3 | | | Cloudy | |
| Naval Hospital, Yokohama, Japan | 29.67 | 753.6 | 76 | 24.4 | 76.5 | 24.7 | 93 | SW | | | 6 | | 4ck | | SW | 0 | 0 | | | Clearing | |
| Alert, Boe Island | 29.94† | 760.5† | 83 | 28.3 | 83 | 28.3 | 91 | SE | | | 3 | | 1 | | SE | | | Long | SE | D. clouds | |
| Alliance, Beirut, Syria | 30.02 | 762.5 | 84 | 28.9 | 82 | 27.8 | 79 | W | | | 0–1 | | 1 | | | | | Smooth | None | Clear. | |
| Ashuelot, Ningpo, China | 29.70 | 754.4 | 84 | 28.9 | 82 | 27.8 | 83 | S | | | 1 | | 8 | | | | | | | D. clouds | |
| Canonicus, New Orleans, La | 30.13 | 765.3 | 55 | 12.8 | 78 | 25.6 | 91 | SSE | | | 1 | | 8 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 29.98 | 761.5 | 69 | 20.6 | 74 | 23.3 | 86 | W | 7 | 3.1 | | | 3 | | W | 0 | 0 | | | D. clouds | |
| Despatch, Constantinople, Turkey | 30.03 | 762.7 | 74 | 23.3 | 73 | 22.8 | 59 | NNE | | | 2 | | 1 | | | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.15 | 765.8 | 78 | 25.6 | 77 | 25.0 | 95 | W | 6 | 2.7 | | | 1 | | W | 0.25 | 6.3 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.33 | 770.4 | 70 | 21.1 | 71 | 21.7 | 95 | N | | | 1 | | 2k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Leghorn, Italy | 29.90 | 759.4 | | | 73 | 22.8 | 95 | ENE | | | 3 | | 9 | | NNE | Blank | Blank | Light | SW | D. clouds | |
| Hartford, Hampton Roads, Va | 30.27 | 768.8 | 80 | 26.7 | 80 | 26.7 | 91 | WSW | 2 | 0.9 | | | | | | | | | | Pleasant | |
| Huron, N. 10° 58′, W. 74° 57′ | 30.05 | 763.3 | 85 | 29.4 | 84 | 28.9 | 91 | ENE | | | 1 | | 5 | | | 0 | 0 | Ground | NE | Misty | |
| Kearsarge, Nagasaki, Japan | 29.99 | 761.7 | 79 | 26.1 | 77 | 25.0 | 95 | S | | | 1–3 | | 10 | | S | ¶0.6 | 15.¶ | Smooth | | Misty | |
| Marion, Smyrna, Turkey | 29.78† | 756.4† | 84 | 28.9 | 84 | 28.9 | 64 | WSW | | | 2 | | 2 | | | 0 | 0 | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.46 | 748.3 | 71 | 21.7 | 68 | 20.0 | 84 | WSW | | | 1 | | 10 | | WSW | | | | | Raining | |
| Monocacy, Tientsin, China | 29.66 | 753.4 | 76 | 24.4 | 75 | 23.9 | | WSW | | | 3 | | 2 | | W | 0 | 0 | | | D. clouds | |
| Monongahela, Off Sachem's Head, Conn. | 29.94 | 760.5 | 67 | 19.4 | 67 | 19.4 | 89 | SSW | | | 1 | | 2ck | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.34 | 770.6 | | | 83 | 28.3 | 83 | NW | 14 | 6.3 | | | 5 | | NW | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.04 | 763.0 | 68.5 | 20.3 | 68 | 20.0 | 74 | SE | 2 | 0.9 | | | 10 | | | 0 | 0 | Slight | S | Overcast | |
| Ossipee, Norfolk, Va | 30.05 | 763.3 | 76 | 24.4 | 77 | 25.0 | 91 | Calm | | | 0 | | 1 | | | | | | | D. clouds | |
| Palos, Nankin, China | 29.77 | 756.1 | 80 | 26.7 | 83 | 28.3 | 91 | SE | | | 2 | | 4 | | N&W | Blank | Blank | | | Cloudy | |
| Pensacola, N. 35° 22′, W. 136° 18′ | 30.38 | 771.6 | | | 67 | 19.4 | 69 | N | | | 2 | | 6 | | N | Light | Light | Moderate. | N&W | Pleasant | |
| Plymouth, Key West, Fla | 30.15 | 765.8 | 86 | 30.0 | 84 | 28.9 | 79 | E | | | 2 | | 4 | | ESE | 0.5 | 13. | Smooth | | Clear. | |
| Ranger, N. 12° 50′, E. 44° 25′ | 29.80 | 756.9 | | | 91 | 32.8 | 77 | WSW | | | 5 | | 0 | | | | | Moderate. | E | Hazy | |
| Richmond, Rio de Janeiro, Brazil | 30.36 | 771.1 | 71.0 | 21.7 | 70.0 | 21.1 | 85 | NNW | | | 2 | | 1 | | | 0 | 0 | | | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.85 | 758.2 | | | 76 | 24.4 | 91 | SE | | | 5 | | 5 | | SSE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.06 | 763.5 | 79 | 26.1 | 79 | 26.1 | 70 | W | | | 2 | | 4 | | | 0 | 0 | | | Clear. | |
| Saratoga, Boston, Mass | 30.28 | 769.1 | | | 70 | 21.1 | | E | | | 2 | | 7 | | E | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 29.86 | 758.4 | 72 | 22.2 | 71 | 21.7 | 95 | SW | 5 | 2.2 | | | 8 | | SW | 0 | 0 | | | Cloudy | |
| Swatara, Key West, Fla | 30.08 | 764.0 | 86 | 30.0 | 84 | 28.9 | 83 | E | | | 1 | | 3k | | | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.74 | 755.4 | 79 | 26.1 | 72 | 22.2 | 100 | SW | | | 3–5 | | 4 | | N&E | 0 | 0 | Moderate. | W | Squally | |
| Trenton, Smyrna, Turkey | 30.06† | 763.5† | 85 | 29.4 | 86 | 30.0 | 68 | NW | 3 | 1.3 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Vandalia, Constantinople, Turkey | 30.03 | 762.7 | 72 | 22.2 | 70 | 21.1 | 70 | NNE | | | 2 | | 1 | | | | | | | D. clouds | |
| Wabash, Boston, Mass | 29.98 | 761.5 | 68 | 20.0 | 66 | 18.9 | 84 | NNE | 12 | 5.4 | | | 8 | | NNE | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D.C | 30.08† | 764.0† | 78 | 25.6 | 77 | 25.0 | | W | | | 1 | | 0 | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 39° 11′, E. 155° 05′ | S60W | | 29.72 | 754.9 | 65 | 18.3 | 84 | WSW | | | 3 | | Fog | | | Smooth | | Foggy | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Baltimore | | | | | | | | | | | | | | | | | | | |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Braunschweig, N. 50° 4′, W. 4° 23′ | N87E | 11.7 | 30.27 | 768.8 | 60.5 | 15.8 | 80 | W | | | 2 | | k | | W | Smooth | | Overcast | Capt. C. Pohle. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Ohio, N. 47° 0′, W. 25° 56′ | W by S | 11.5 | 30.20 | 767.1 | 59.0 | 15.0 | | | | | 4–5 | | 0 | | | Rough | | Blue sky | Capt. A. Jaeger. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |
| | | | | | | | | | | | | | | | | | | | Capt. W. Richardson |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of Vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction From— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| *Furnished by the coöperation of the Observer named.* | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, off Cape Porpoise, Me. | NNE | 2 | 29.84 | 757.9 | 57 | 13.9 | ..... | E | 5 | 2.2 | ..... | 2ck | 0 | ..... | ..... | Smooth | ..... | Clear | Capt. James Jorgenson. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 27, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 29.97 | 761.1 | 68.7 | 20.4 | 76 | NW | | | 2 | | 6 | | | 0.260 | 6.6 | Fair | Charnot. |
| Algiers | | | 29.93 | 760.2 | 79.9 | 26.6 | 65 | N | | | 2 | | 5 | | | Inap. | Inap. | Fair | Peter. |
| La Calle | | | 29.93 | 760.2 | 79.3 | 26.3 | 76 | E | | | 3 | | 4 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.03 | 762.7 | 84.2 | 29.0 | | E | | | 3 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.07 | 763.6 | 82.4 | 28.0 | | SE | | | 2 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.02 | 762.4 | 79.9 | 26.6 | | NNW | | | 3 | | 2 | | | Inap. | Inap. | Clear | Millot. |
| Tebessa | | | 30.07 | 763.8 | 85.1 | 29.5 | | S | | | 3 | | 0 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.01 | 762.3 | 86.5 | 30.3 | | SSW | | | 4 | | 0 | | | 0 | 0 | Clear | Lemaillot. |
| Laghouat | | | 30.02 | 762.5 | 94.1 | 34.5 | 23 | E | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 29.99 | 761.7 | 103 6 | 39.8 | | SE | | | 4 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.07 | 763.8 | 76.3 | 24.6 | 48 | SW | | | 3 | | 4 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.08 | 764.0 | 72.0 | 22.2 | 50 | NE | | | 1 | | 7 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.05 | 763.3 | 70.3 | 21.3 | 46 | N | | | 2 | | 3cs,s | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.86 | 733.1 | 30.08 | 763.9 | 71.4 | 21.9 | 59 | S | | | 2 | | 0 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.63 | 727.2 | 30.00 | 761.9 | 71.8 | 22.1 | 57 | W | | | 1 | | 4 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.75 | 730 2 | 30.05 | 763.3 | 68.4 | 20.2 | 46 | NNE | | | 1 | | 1 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.06 | 763.4 | 68.2 | 20.1 | 60 | NE | | | 1 | | 4 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.07 | 763.8 | 75.9 | 24.4 | 49 | WNW | | | 2 | | 0 | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.06 | 763.4 | 67.6 | 19.8 | 47 | N | | | 1 | | 0 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.10 | 764.4 | 76.3 | 24.6 | 56 | NW | | | 1 | | 1 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.07 | 763.7 | 73.4 | 23.0 | 41 | NNE | | | 1 | | 1 | | | 0 | 0 | | I. R. Central Met. Obs'y |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.68 | 728.5 | 30.27? | 768.8? | 68.5 | 20.3 | 48 | W | | | 2 | | 5 | | | 0 | 0 | | |
| Brussels | | | 30.12 | 765.1 | 66.0 | 18.9 | 65 | W | | | 2 | 1c | 8k | W | WNW | 0.031 | 0.80 | | Royal Observatory. |
| Furnes | | | 30.13 | 765.3 | 63.5 | 17.5 | 83 | WNW | | | 4 | | 10 | | | 0 | 0 | | |
| Maeseyck | | | 30.13 | 765.2 | 64.8 | 18.2 | 81 | SW | | | 4 | | 10 | | | 0.130 | 3.3 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E. Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.06 | 763.5 | 54.7 | 12.6 | | SE | 12 | 5.4 | | | 6 | | | 0.070 | 1.78 | D. clouds | William Boswell. |
| Ardrossan | | | 30.12 | 765.0 | 58 | 14.4 | | WNW | | | 3 | | 8 | | | | | Overcast | William McNeil. |
| Armagh, Observatory | | | 30.20 | 767.1 | 61.2 | 16.2 | | WSW | 7 | 3.1 | | | 9 | | | | | Overcast | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.20 | 767.1 | 58.2 | 14.6 | | WNW | 23 | 10.3 | | | 3 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.23 | 767.8 | 63.0 | 17.7 | | W | | | 1 | | 9 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.15 | 765.8 | 61.6 | 16.4 | | W | | | 3 | | 4 | | | 0.09 | 2.3 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.02 | 762.5 | 83 | 28.3 | | NE | | | 2 | | 3 | | | | | D. clouds | Pvt. G. W. Roberts, A. [H.C. |
| Cambridge, Observatory | | | 30.15 | 765.8 | 67.0 | 19.4 | | NNW | | | 2 | | 10 | | | | | Overcast | H. Todd. |
| Cardington | | | 30.17 | 766.3 | 67.0 | 19.4 | | NW | | | 1 | | 9 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.27 | 768.8 | 66.2 | 19.0 | | NW | | | 2 | | 6 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.77 | 730.7 | 30.23 | 767.8 | 62.0 | 16.7 | | NW | | | 4 | | 4 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.15 | 765.8 | 64 | 17.8 | | WNW | | | 5 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.16 | 766.1 | 61 | 16.1 | | ENE | | | 3 | | 7 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.18 | 766.6 | 61.2 | 16.2 | | NW | 3.8 | 1.7 | | | 5 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.25 | 768.3 | 64.8 | 18.2 | | NNW | | | 2 | | 5 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.74 | 704.6 | 29.98 | 761.5 | 76.0 | 24.4 | | NE | | | 1 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.08 | 764.0 | 77 | 25.0 | | Calm? | | | 1? | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.03 | 762.7 | 65 | 18.3 | | SW | | | 3 | | 3 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 29.96 | 761.0 | 74.0 | 23.3 | | W | | | 4 | | 7 | | | Blank | Blank | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 30.10 | 764.5 | 59.3 | 15.2 | | WNW | | | 6 | | 10 | | | | | Gloomy | D. G. Maclean. |
| Great Yarmouth | | | 30.13 | 765.3 | 62 | 16.7 | | NNE | | | 3 | | 4 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.14 | 765.5 | 71.5 | 21.9 | | NNW | | | 1 | | 10 | | | Blank | Blank | Overcast | The Staff, for G. B. Airy. |
| Guernsey | | | 30.19 | 766.8 | 65.5 | 18.6 | | WNW | | | 1 | | 5 | | | | | D. clouds | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.26 | 768.6 | 67 | 19.4 | | N | | | 2 | | 1ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.21 | 767.3 | 62 | 16.7 | | SW | | | 3 | | 2 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.16 | 766.1 | 66.1 | 18.9 | | NW | 10 | 4.5 | | | 8cs | | | | | D. clouds | The Staff. |
| Kingstown | | | 30.22 | 767.6 | 62 | 16.7 | | NW | | | 4 | | 6 | | | | | D. clouds | George Mitchell. |
| Leicester, Museum | | | 30.17 | 766.3 | 62.7 | 17.1 | | NW | | | 3 | | 10 | | | | | Overcast | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 29.98 | 761.5 | 78 | 25.6 | | NE | | | 1 | | 2k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 30.00 | 762.0 | 59 | 15.0 | | Calm | | | 0 | | 10 | | | | | Overcast | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.11 | 764.8 | 88.5 | 31.4 | | E | | | 2 | | 4 | | W] | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.17 | 766.3 | 66.2 | 19.0 | | NW | | | 5 | | 9c,k | | NW, WN | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.18 | 766.6 | 61.0 | 16.1 | | NW | | | 3 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.18 | 766.6 | 65 | 18.3 | | NW | | | 1 | | 10 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.19 | 766.8 | 71.0 | 21.7 | | NW | | | 2 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.25 | 768.3 | 62 | 16.7 | | SSW | | | 4 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 30.25 | 768.3 | 58 | 14.4 | | WNW | | | 1 | | 2 | | | | | Blue sky | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.22 | 767.6 | 68.5 | 20.3 | | W | | | 3 | | 5 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.04 | 763.0 | 52.8 | 11.6 | | W | 12 | 5.4 | | | 8 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.88 | 758.9 | 73.4 | 23.0 | | NE | | | 2 | | 8 | | | Blank | Blank | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.15 | 765.8 | 63.8 | 17.7 | | W | | | 3 | | 5 | | | 0 | 0 | D. clouds | W. F. Cooper. |
| Stiloth, Rectory | | | 30.13 | 765.3 | 65.7 | 18.7 | 52 | SE | | | 1 | | 4 | | | 0.025 | 0.63 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.17 | 766.3 | 58.9 | 14.9 | | W | | | 3 | | 8 | | | Blank | Blank | Squally | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.98 | 761.5 | 57 | 13.9 | | SSW | | | 3 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.17 | 766.3 | 68.2 | 20.1 | | NW | | | 1 | | 5 | | | | | D. clouds | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 30.00 | 762.0 | 56 | 13.3 | | NW | | | 2 | | 7 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.22 | 767.6 | 69 | 20.6 | | N | | | 6 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.26 | 768.6 | 60.9 | 16.1 | | WSW | 12 | 5.4 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 55 | 12.8 | | W | | | 3 | | 5 | | | 0.20 | 5.1 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.08 | 764.0 | 57.5 | 14.2 | 92 | W | 16 | 7.2 | | 10 | 10 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 29.74 | 755.4 | 48.0 | 8.9 | 93 | SW | | | 6 | | 10n | | | 0.02 | 0.5 | Rain-squalls | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.09 | 764.3 | 60.0 | 15.6 | | W | | | 4 | | 8k | | | 0.10 | 2.5 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.28 | 769.1 | 67.3 | 19.6 | 86 | ESE | 22.4 | 10.0 | | 1 | 8 | | SE | 0 | 0 | Raining | C. Meldrum. |
| Melbourne, Observatory | | | 30.26 | 768.6 | 42.9 | 6.1 | 79 | W | 14 | 6.3 | | | 8 | | SW | 0.06 | 1.5 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 30.02 | 762.5 | 56 | 13.3 | | SW | | | 6 | | 10 | | | 0.2 | 5. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.93 | 760.2 | 48 | 8.9 | | W | | | 4 | 6 | 4 | NW | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|
| S. S. Algeria | | | | Capt. W. Watson. |
| S. S. Batavia | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 50° 25′, W. 10° 40′ | 2 | W | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 55′, W. 12° 30′ | 2 | | D. clouds | Capt. W. R. Cato. |
| Barque Maroon | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 47° 50°, W. 21° 45′ | 3 | SE | Blue sky | Capt. C. C. Prehn. |
| S. S. Othello | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | Capt. W. H. Smith. |
| S. S. QuangLe | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 52° 15′, W. 14° 25′ | | SW | D. clouds | Capt. H. Manning. |
| Barque Sorata | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.19 | 665.2 | | | 69.4 | 20.8 | 95 | NE | | | 1 | | 9ck | | SW | | | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 29.97 | 761.3 | 59.4 | 15.2 | 52 | NNW | | | 2 | | 4 | | | | | | |
| Fanöe | | | 29.96 | 760.9 | 60.1 | 15.6 | 74 | WNW | | | 4 | | 8 | | | | | | |
| Godthaab, (Greenland) | | | 29.37 | 745.9 | 41.0 | 5.0 | 92 | N | | | 2 | | 0 | | | | | Foggy | |
| Stykkisholm, (Iceland) | | | 29.77 | 756.1 | 55.6 | 13.1 | 64 | S | | | 6 | | 5 | | | | | | |
| Thorshavn, (Faröe) | | | 29.91 | 759.7 | 50.9 | 10.5 | 82 | S | | | 2 | | 10 | | | | | Raining | |
| Vestervig | | | 29.97 | 761.2 | 55.2 | 12.9 | 73 | WNW | | | 4 | | 3 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.28 | 769.1 | 66.2 | 19 | 51 | NE | | | 1 | | 5k | | NE | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 30.13 | 765.4 | 73.4 | 23.0 | 60 | WSW | | | 3 | | 2 | | W | 0 | 0 | Slightly cl'dy | Bonvarne, Director. |
| Avignon, Normal School | | | 30.10 | 764.6 | 84.2 | 29 | 35 | NNW | | | 1 | | | | | 0 | 0 | Lightly cov. | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.14 | 765.6 | 73.0 | 22.8 | 41 | NE | | | 2 | 5c | | | | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.15 | 765.8 | 72.0 | 22.2 | 53 | NE | 4.0 | 1.8 | | | | | SW | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.19 | 766.7 | 70.3 | 21.3 | 48 | NNW | | | 3 | | 8 | | WNW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.12 | 765.1 | 77.4 | 25.2 | 48 | E | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.23 | 767.8 | 80.8 | 27.1 | 56 | W | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.12 | 765.1 | 71.6 | 22 | 58 | NW | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.17 | 766.3 | 68.9 | 20.5 | 76 | N | | | 3 | | 4k | | N | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.06 | 763.5 | 82.0 | 27.8 | 44 | E | | | 4 | | 1 | | E | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.20 | 767.1 | 70.3 | 21.3 | 61 | NW | | | 2 | | 8 | | WNW | 0 | 0 | Very cloudy | Normal School. |
| Chartres, Normal School | | | 30.17 | 766.3 | 72.7 | 22.6 | 82 | NW | | | 2 | | 2 | | S | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.15 | 765.7 | 75.9 | 24.4 | 43 | NNW | | | 3 | | 5ck | | NW | 0 | 0 | Cloudy | T. Leloup, Director. |
| Clermont-F'd., Puy de D. Obs. | | | 30.07 | 763.8 | 77.0 | 25.0 | 42 | NE | | | 1 | | 1 | | | 0 | 0 | Almost clear | Allnard, Director. |
| Commercy, Normal School | | | 30.15 | 765.9 | 69.8 | 21 | 49 | W | | | 2 | | 5 | | W | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.17 | 766.4 | 81.0 | 27.2 | *41 | W | | | 2 | | 8 | | W | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.10 | 764.6 | 77.0 | 25 | 51 | W | | | 2 | | 2cs | | SW | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.13 | 765.4 | 78.4 | 25.8 | 45 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | Mouillot, Director. |
| Le Mans, Normal School | | | 30.20 | 767.0 | 71.1 | 21.7 | 46 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.11 | 764.8 | 71.6 | 22 | 50 | SE | | | 4 | | 0 | | | 0 | 0 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 30.24 | 768.0 | 73.8 | 23.2 | 52 | E | | | 2 | | 2 | | E | 0 | 0 | ¼ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.06 | 763.4 | 77.2 | 25.1 | 90 | N | | | 2 | | 0 | | | 0 | 0 | Clear | M. Marchal, Director. |
| Metz | | | 30.21 | 767.4 | 69.4 | 20.8 | 43 | WNW | | | 1 | | 3k | | SW | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.08 | 764.0 | 68.5 | 20.3 | 54 | NNW | | | 1 | | 2 | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 30.09 | 764.2 | 90.0 | 32.2 | 38 | NW | | | 2 | | | | W | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 30.13 | 765.2 | 72.0 | 22.2 | 47 | N | | | 2 | | 5 | | N | 0 | 0 | Cloudy | Bernard, Director. |
| Paris, Observatory | | | 30.17 | 766.4 | 72.7 | 22.6 | 44 | WNW | | | 2 | | 8k | | WNW | 0 | 0 | Very cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.12 | 765.1 | 79.2 | 26.2 | 36 | NE | | | 3 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.19 | 766.9 | 71.1 | 21.7 | 51 | NNW | | | 2 | | 8 | | W | 0 | 0 | Very cloudy | F. Lucard, Director. |
| Tarbes, Normal School | 29.12 | 739.7 | 30.18 | 766.5 | 69.8 | 21 | 82 | NW | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.15 | 765.8 | 81.7 | 27.6 | 53 | SE | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 80.6 | 27 | | | | | | | | | | 0.63 | 16. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 77.2 | 25.1 | 60 | W | | | 1–2 | | 8 | | | 0 | 0 | Cloudy | The Staff. |
| Mont-Louis | 25.03 | 635.7 | 30.34 | 770.7 | 61.5 | 16.4 | 68 | ESE | 14.9 | 6.66 | | | 8 | | SSW | 0 | 0 | | Mr. Falguère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 30.17 | 766.3 | 71.8 | 22.1 | 47 | W | | | 1 | | 4 | | NW | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.10 | 764.6 | 74.5 | 23.6 | 58 | SE | 7.4 | 3.33 | | | 6 | | SW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.46 | 545.0 | | | 45.5 | 7.5 | | N | | | 2 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.70 | 576.6 | | | 50.5 | 10.3 | | N | | | 2 | | 10 | | | 0.165 | 4.2 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.17 | 766.4 | 73.8 | 23.2 | 45 | W | | | 1 | | 4 | | | 0 | 0 | Cloudy | E. Renou. |
| Toulouse, Observatory | | | 30.12 | 765.0 | 79.3 | 26.3 | 42 | SSE | | | 1 | | 4 | | | 0 | 0 | | The Staff |
| Tours | | | 30.16 | 766.0 | 77.0 | 25.0 | 40 | E | | | 1 | | 6 | | NE | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.19 | 766.9 | 72.3 | 22.4 | 48 | NW | | | 2 | | 8 | | | 0 | 0 | Very cloudy | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.74 | 755.4 | 76.6 | 24.8 | 95 | S | 6.0 | 2.7 | | | 10n | | | 0.339 | 8.6 | Raining | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 398 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft.; Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10 | Clouds. Amount. Up'er 0–10 | Clouds. Amount. Low'r 0–10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.09 | 764.3 | 71.6 | 22.0 | 43 | W | | | 5 | | 6 | W | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.07 | 763.6 | 69.1 | 20.6 | 55 | S | | | 2 | | 7 | | | 0.024 | 0.6 | | Prof. Arndt. |
| Breslau | | | 30.09 | 764.3 | 75.0 | 23.9 | 32 | WSW | | | 2 | | 8 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.08 | 764.1 | 73.8 | 23.2 | 47 | SW | | | 2 | | 8 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.18 | 766.6 | 62.8 | 17.1 | 81 | WSW | | | 1 | | 8 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.08 | 764.1 | 67.6 | 19.8 | 68 | W | | | 4 | | 9 | | | | | Raining | Director Lose. |
| Emden | | | 30.02 | 762.4 | 62.8 | 17.1 | 99 | WNW | | | 1 | | 5 | | | 0.709 | 18.0 | | Pr. f. Prestel. |
| Frankfort on the Main | | | 30.13 | 765.2 | 76.6 | 24.8 | 37 | WNW | | | 1 | | 7 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.71 | 729.3 | 30.10 | 764.5 | 70.9 | 21.6 | 57 | SSW | | | 4 | | 5 | SW | | 0 * | 0 | | M. Wilhelm. |
| Hamburg | | | 30.08 | 764.0 | 56.5 | 13.6 | 96 | WSW | | | 5 | | 10n | NW | | 0.492 | 12.5 | Thunder-storm | Captain F. Hegemann. |
| Kiel | | | 29.99 | 761.8 | 63.5 | 17.5 | 74 | W | | | 3 | | 10 | | | 0.614 | 15.6 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 30.01 | 762.3 | 63.5 | 17.5 | 85 | W | | | 2 | | 9 | | | 0 | 0 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.13 | 765.2 | 65.5 | 18.6 | 66 | NW | | | 3 | | 10 | W | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.98 | 761.6 | 56.8 | 13.8 | 95 | SW | | | 4 | | 10n | | | | | Raining | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.02 | 762.5 | 63.5 | 17.5 | 73 | SW | | | 2 | | 9 | | | 0.075 | 1.9 | | A. Lothes. |
| Posen | | | 30.06 | 763.4 | 66.9 | 19.4 | 58 | NW | | | 7 | | 10 | | | 0.016 | 0.4 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.13 | 765.2 | 74.3 | 23.5 | 34 | Calm | | | 0 | | 10 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.08 | 763.9 | 74.3 | 23.5 | 39 | N | | | 1 | | 4 | W | | 0 | 0 | | Prof. Schoder. |
| Treves, (Trier) | | | 29.99? | 761.8? | 73.2 | 22.9 | 48 | W | | | 4 | | 6 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.61 | 726.6 | 30.06 | 763.5 | 71.6 | 22.0 | 39 | NW | | | 1 | | 5 | SW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.07 | 763.8 | 61.7 | 16.5 | 60 | NNW | | | 1 | | 0 | | | 0.094 | 2.4 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355. 9 feet: Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.90 | 759.4 | 71.8 | 22.1 | | NE | | | Strong | | 10 | | | | | Thunder-storm | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.41 | 746.9 | 29.46 | 748.2 | 87.5 | 30.8 | 72 | SW | 40.0? | 17.8? | | | 9 | | SW | 0 | 0 | Dusty | |
| Deesa | 29.07 | 738.3 | 29.53 | 750.0 | 93.2 | 34.0 | 49 | S | | | | | 10 | S | | | | Drizzling | |
| Bombay | 29.69 | 754.1 | 29.72 | 755.0 | 85.1 | 29.5 | 83 | SW | 16.0 | 7.1 | | | 7 | | W | 0.24 | 6.1 | Dust-haze | |
| Poona | 27.68 | 703.2 | 29.67 | 753.7 | 79.2 | 26.2 | 70 | | | | | | | E | E | 0.02 | 0.5 | Dust-whirl | |
| Lahore | 28.57 | 725.6 | 29.26 | 743.1 | 108.3 | 42.4 | 28 | SW | 2.8 | 1.2 | | | 3 | | | 0 | 0 | Gloomy | |
| Belgaum | | | | | 72.9 | 22.8 | 91 | W | 19.0 | 8.4 | | | 8 | NW | W | 0.29 | 7.4 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.48 | 723.3 | 29.33 | 745.0 | 97.5 | 36.4 | | SE | 6.8 | 3.0 | | | 3 | | | 0 | 0 | | |
| Agra | 28.81 | 731.7 | 29.34 | 745.3 | 100.7 | 38.2 | 35 | NE | 7.2 | 3.2 | | | 3 | | NE | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.53 | 724.7 | 29.57 | 751.0 | 77.6 | 25.[illegible] | 86 | W | 6.8 | 3.0 | | | 10 | | | 0.44 | 11.2 | Overcast | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.03 | 737.3 | 29.38 | 746.4 | 93.3 | 34.1 | 66 | SSE | 3.7 | 1.6 | | | 4 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.10 | 739.0 | 29.40 | 746.6 | 92.7 | 33.7 | 64 | NW | 4.5 | 2.0 | | | 10 | | E | 0 | 0 | Overcast | |
| Patna | 29.23 | 742.4 | 29.40 | 746.8 | 95.3 | 35.2 | 53 | E | 2.1 | 0.9 | | | 5 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.41 | 696.2 | 29.38 | 746.1 | 82.6 | 28.1 | 72 | N | 8.0 | 3.5 | | | 10 | E | N | 0.05 | 1.3 | Thunder-storm | |
| Cuttack | 29.33 | 745.0 | 29.41 | 747.1 | 79.1 | 26.2 | 84 | SW | 9.1 | 4.0 | | | 10 | | | 0.83 | 21.1 | Overcast | |
| Calcutta (Alipore) | 29.37 | 746.1 | 29.39 | 746.6 | 79.9 | 26.6 | 91 | SE | 9.0 | 4.0 | | | 9 | | | 0.02 | 0.5 | Overcast | |
| Goalpara | 29.68 | 738.6 | 29.46 | 748.2 | 86.8 | 30.4 | 69 | SE | 5.5 | 2.4 | | | 9 | | SE | 0.23 | 5.8 | D. clouds | |
| Chittagong | 29.47 | 748.4 | 29.56 | 750.8 | 81.9 | 27.7 | 90 | SSE | 21.0 | 9.3 | | | 10 | | | 0 | 0 | Gloomy | |
| Sibsagar | 29.25 | 743.0 | 29.58 | 751.4 | 82.2 | 27.9 | 90 | E | 3.8 | 1.6 | | | 10 | WSW | | 0.72 | 18.3 | D. clouds | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.20 | 716.3 | 29.56 | 750.9 | 76.5 | 24.7 | 95 | NW | 9.2 | 4.1 | | | 10 | | | 1.67 | 42.2 | Overcast | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an tadditional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.41 | 569.2 | 30.00 | 762.1 | 48.6 | 9.2 | 91 | SW | | | 2 | | 9 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.37 | 568.2 | 29.99? | 761.7? | 50.2 | 10.1 | | ENE | | | 1 | | 4 | E | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.06 | 763.5 | 76.3 | 24.6 | 38 | SW | 1.3 | 0.6 | | | 1 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.08 | 763.9 | 74.7 | 23.7 | 46 | SW | 2.5 | 1.1 | | | 1 | NW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.07 | 763.8 | 77.9 | 25.5 | 41 | SW | 2.5 | 1.1 | | | 1 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.08 | 764.0 | 64.0 | 17.8 | 41 | E | | | 1 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.79 | 731 3 | 30.06 | 763.5 | 77.7 | 25.4 | 49 | S | | | 4 | | 2 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.03 | 762.7 | 76.5 | 24.7 | 44 | S | | | 6 | | 2 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.09 | 764.2 | 82.0 | 27.8 | 49 | ENE | | | 2 | | 2 | E | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.08 | 763.9 | 77.2 | 25.1 | 41 | NE | | | 2 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.11 | 764.8 | 77.5 | 25.3 | 45 | WSW | 1.3 | 0.6 | | | 4 | S | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.22 | 716.8 | 30.04 | 763.0 | 74.8 | 23.8 | 41 | SE | | | 2 | | 1 | WNW | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.14? | 765.5? | 77.4 | 25.2 | 55 | SSW | | | 2 | | 4 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.09 | 764.3 | 77.4 | 25.2 | 56 | SW | 7.4 | 3.3 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.09 | 764.2 | 76.6 | 24.8 | 43 | NE | 4.9 | 2.2 | | | 0 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 30.06 | 763.4 | 80.6 | 27.0 | 52 | SE | | | 4 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.08 | 764.0 | 78.8 | 26.0 | 31 | NE | | | 4 | | 4 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.10 | 764.5 | 75.6 | 24.2 | 57 | NNW | 6.9 | 3.1 | | | 0 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.89 | 733.8 | 30.05 | 763.2 | 74.3 | 23.5 | 43 | ENE | 1.3 | 0.6 | | | 3 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.61 | 726.6 | 30.10 | 764.6 | 69.4 | 20.8 | 53 | NE | | | 6 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.11 | 764.8 | 72.9 | 22.7 | 52 | N | 16.1 | 7.2 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.10 | 764.5 | 77.7 | 25.4 | 46 | N | | | 4 | | 0 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.06 | 763.5 | 82.0 | 27.8 | 29 | NNE | | | 4 | | 3 | NE | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.06 | 763 5 | 79.2 | 26.2 | 42 | N | 0 | 0 | | | 0 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.05 | 763.3 | 78.8 | 26.0 | 38 | W | | | .4 | | 7 | NW | | 0.008 | 0.2 | | Prof. L. Palmieri. |
| Lecce | | | 29.97 | 761.1 | 75.2 | 24.0 | 54 | NNE | 18.6 | 8.3 | | | 5 | | | 0.012 | 0.3 | | Prof. C. DeGiorgi. |
| Cosenza | | | 29.96 | 761.0 | 83.3 | 28.5 | 54 | NE | 4.3 | 1.9 | | | 8 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.98 | 761.4 | 85.1 | 29.5 | 64 | SE | | | 2 | | 3 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.03? | 762.8? | 79.5 | 26.4 | 54 | S | | | 2 | | 6 | SE | | 0. | 0 | | Prof. F. Caffero. |
| Palermo | | | | | | | | | | | | | | | | | | | Prof. G. Cacciatore. |
| Caltanissetta | 28.07 | 712.9 | 29.93 | 759.9 | 78.4 | 25.8 | 31 | N | | | 4 | | 2 | SE | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29 93 | 760.3 | 78.8 | 26.0 | 62 | E | | | 4 | | 5 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.08 | 763.9 | 78.3 | 25.7 | 45 | WSW | 4.3 | 1.9 | | | 3 | W | | 0.043 | 1.1 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.91 | 759.7 | 78.5 | 25.8 | 74 | S | 7 | 3.1 | | 4ck | 5s | W | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals give the rain-fall as measured at 7 a. m., local time, of following day; they do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.22 | 589.8 | 30.24 | 768.1 | 56.3 | 13.5 | 76 | SW | 0.5 | 0.23 | | 4k | 4k | | | 0.004 | 0.1 | Smoky | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.15 | 765.8 | 65.8 | 18.8 | | NNW | | | 4 | | | | | 0.008 | 0.2 | | |
| Groningen | | | 29.99 | 761.7 | 60.1 | 15.6 | | NW | | | 2 | | | | | 0.350 | 8.9 | | |
| Helder | | | 30.08 | 763.9 | 59.0 | 15.0 | | W | | | 4 | | | | | 0.185 | 4.7 | | |
| Utrecht | | | 30.07 | 763.6 | 62.8 | 17.1 | 83 | WNW | | | 4 | | 10 | | | 0.024 | 0.6 | Dull | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.98 | 760.3 | 50.4 | 10.2 | 62 | SSW | | | | | 5 | | | 0.059 | 1.5 | Raining | |
| Brönö | | | 29.64 | 752.9 | 48.6 | 9.2 | 79 | W | 18 | 8 | | | 9 | | | 0 | 0 | | |
| Christiania | | | 29.80 | 757.0 | 59.4 | 15.2 | 49 | SW | 13 | 6 | | | 9 | | | 0 | 0 | | |
| Tromsö | | | 29.43 | 747.4 | 60.8 | 16.0 | 46 | NE | 7 | 3 | | | 5 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.34 | 770.7 | 67.6 | 19.8 | 81 | WSW | 5.6 | 2.5 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 29.95 | 760.8 | 69.3 | 20.7 | 69 | SSW | 4.3 | 1.9 | | | 9 | NE | | 0.087 | 2.2 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.14 | 765.5 | 71.4 | 21.9 | 67 | WSW | 3.1 | 1.4 | | | 9 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 29.98 | 761.6 | 67.5 | 19.7 | 76 | SSE | 9.8 | 4.4 | | | 10 | | | 0.484 | 12.3 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.35 | 770.9 | 70.9 | 21.6 | 61 | SW | 3.1 | 1.4 | | | 6 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Direction from— | | |
|---|---|---|---|---|
| S. S. India | | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.05 | 763.3 | 71.8 | 22.1 | 54 | SSW | 9 | 4 | | | 9 | | | | | | Astronomical Obs. |
| Wilna | | | 30.01 | 762.3 | 73.4 | 23.0 | 43 | S | 4 | 2 | | | 8 | | | | | | Astronomical Obs. |
| Dorpat | | | 29.93 | 760.1 | 66.0 | 18.9 | 55 | SSW | 11 | 5 | | | 10 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.91 | 759.8 | 65.8 | 18.8 | 54 | WSW | 16 | 7 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.61 | 752.0 | 57.9 | 14.4 | 74 | S | 27 | 12 | | | 5 | | | | | | Ch. Forsten. |
| Kieff | | | 30.03 | 762.7 | 63.3 | 17.4 | 79 | N | 7 | 3 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.99 | 761.7 | 84.9 | 29.4 | 35 | NW | 7 | 3 | | | 4 | | | | | | Kurdakof. |
| Kertch | | | 29.98 | 761.5 | 81.7 | 27.6 | 60 | NE | 7 | 3 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.04 | 763.1 | 68.4 | 20.2 | 55 | NW | 7 | 3 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.91 | 759.8 | 83.7 | 28.7 | 47 | N | 4 | 2 | | | 3 | | | | | | Meteorological Obs. |
| Archangel | | | 29.89 | 759.1 | 70.9 | 21.6 | 40 | Calm | 0 | 0 | | | 1 | | | | | | Ogorodnikof. |
| Tiflis | 28.55 | 725.2 | 29.89 | 759.1 | 85.3 | 29.6 | 37 | SE | 9 | 4 | | | 1 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.83 | 757.6 | 86.7 | 30.4 | 36 | NNW | 7 | 3 | | | 7 | | | | | | Sebastianof. |
| Kasan | | | 29.78 | 756.5 | 81.5 | 27.5 | 42 | W | 9 | 4 | | | 6 | | | | | | Physical Cabinet. |
| Orenburg | | | | | | | | | | | | | | | | | | | Tschernischei. |
| Ekaterinburg | 28.83 | 732.2 | 29.75 | 755.6 | 60.8 | 16.0 | 93 | NNE | 4 | 2 | | | 9 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.78 | 756.3 | 80.1 | 26.7 | 44 | WNW | 4 | 2 | | | 7 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.29 | 718.6 | 29.94 | 760.4 | 79.7 | 26.5 | 61 | Calm | 0 | 0 | | | 6 | | | | | | Michelson. |
| Barnaul | | | 29.67 | 753.6 | 73.9 | 23.3 | 75 | NW | 11 | 5 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.63 | 752.5 | 85.3 | 29.6 | 67 | Calm | 0 | 0 | | | 1 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 66.7 | 19.3 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.87 | 758.7 | 76.8 | 24.9 | 47 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.79 | 756.6 | 54.9 | 12.7 | 95 | SE | 7 | 3 | | | 10 | | | | | Raining | |
| Nikolaievsk, on the Amoor | | | | | 50.0 | 10.0 | 80 | E | 4 | 2 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Domingo Martin y Perez. |
| Madrid, Royal Observatory | | | 29.82 | 757.5 | 86.2 | 30.1 | 34 | SE | 6.7 | 3.00 | | 3 | 3 | NW | | 0 | 0 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.10 | 764.6 | 84.2 | 29.0 | 78 | ESE | 1.1 | 0.5 | | 0 | 0 | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y | | | 30.01 | 762.3 | 70.3 | 21.3 | 77 | SSW | 5.8 | 2.6 | | 0 | 9 | | S | 0.113 | 7.9 | | Capt. C. Pujazon, R. N., Dir. |
| San Juan de Porto Rico, W.I. | | | 30.01 | 762.2 | 82.0 | 27.8 | 89 | E | 8.8 | 3.96 | | 6cs | 1k | | E | 0.418 | 10.50 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Millimeters. | Reduced to sea-level. Inches. | Millimeters. | Temperature of the Air. Fahrenheit. | Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Velocity. Miles per hour. | Meters per second. | Force. 0—10. | Clouds. Amount. Up'er 0—10. | Low'r 0—10. | Direction. Upper. From— | Lower. From— | Rain-fall. Inches. | Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.87 | 758.7 | 50.0 | 10.0 | 83 | SSW | | | 2 | | 10 | | | 0 | 0 | | |
| Umea | | | 29.32 | 744.6 | 52.9 | 11.6 | 76 | SW | | | 2 | | 10 | | | 0.189 | 4.8 | | |
| Hernosand | | | 29.54 | 750.3 | 54.0 | 12.2 | 70 | W | | | 7 | | 8 | | | 0.129 | 3.2 | Raining | |
| Stockholm | | | 29.81 | 757.1 | 60.8 | 16.0 | 64 | WNW | | | 4 | | 1 | | | 0.177 | 4.5 | | |
| Wisby | | | 29.89 | 759.1 | 57.6 | 14.2 | 63 | W | | | 4 | | 0 | | | 0.256 | 6.5 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.78 | 756.5 | 62.2 | 16.8 | 33 | W | 12.1 | 5.4 | | | 1 | | WSW | 0 | 0 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.72 | 729.4 | 30.09 | 764.2 | 73.4 | 23.0 | 45 | N | | | 1 | | 3c | | | 0 | 0 | Solar halo | The Observatory. |
| Zurich | 28.51 | 724.2 | 30.08 | 764.0 | 76.1 | 24.5 | 45 | N | | | 1 | | 2 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +2.3 mm; Thermometer, +1.3 cent.; Relative Humidity, —9 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.95 | 760.8 | 71.6 | 22.0 | 69 | NNE | 17 | 7.5 | | | 7 | | NNE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.72 | 755.0 | 86.4 | 30.2 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.03 | 762.7 | 76.3 | 24.6 | | NW | | | 2 | | 10 | | | Blank | Blank | | B. Stéfanidès. |
| Valona | | | 30.03 | 762.7 | 73.0 | 22.8 | | NW | | | 2 | | 10 | | | 0.39 | 10. | Covered | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.85 | 758.1 | 89.4 | 31.9 | 57 | WSW | | | 2 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B. | | | 29.75 | 755.6 | 60.9 | 16.1 | 60 | NE | 5 | 2.2 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.99 | 761.7 | 68 | 20.0 | | NE | 3 | 1.3 | | 8c | 0 | W | | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B. | | | 29.94 | 760.5 | 61 | 16.1 | 63 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | G. A. Blair. |
| Charlottetown, P. E. Island | | | 29.96 | 761.0 | 57 | 13.9 | 72 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.99 | 761.7 | 61.0 | 16.1 | 78 | N | | | 3 | 7cs | 0 | W | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B. | | | 29.98 | 761.5 | 61.0 | 16.1 | 57 | NW | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C. | | | 29.97 | 761.2 | 54.2 | 12.3 | 100 | N | | | | | 10 | | | 0.06 | 1.5 | Rainy | W. H. Rewis. |
| *Father Point, Quebec | | | 30.01 | 762.2 | 48 | 8.9 | 89 | W | 3 | 1.3 | | 0 | 2s | | | 0 | 0 | Clear | J. McWilliams. |
| Fredericton, N. B. | | | 30.00 | 762.0 | 63.0 | 17.2 | 43 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.98 | 761.5 | 58 | 14.4 | 97 | W | 4 | 1.8 | | 5k | 5ks | W | W | 0.11 | 2.8 | Cloudy | James Stewart. |
| Goderich, Ontario | | | 29.99 | 761.7 | 70.1 | 21.2 | | Calm | | | 0 | 2k | 0 | W | | 0 | 0 | Fair | H. J. Strang, M. A. |
| Granton, Ontario | 28.95 | 735.3 | 30.02 | 762.5 | 65 | 18.3 | 84 | SE | | | 1 | 0 | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S. | | | 29.92 | 760.0 | 60 | 15.6 | 64 | SE | 2 | 0.9 | | 0 | 2ks | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.03 | 762.7 | 63.7 | 17.6 | 83 | E | | | 3 | 8k | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F. | | | 29.82 | 757.4 | 48 | 8.9 | 78 | NW | | | 1 | 0 | 0 | | | 0.14 | 3.6 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.02 | 762.5 | 64 | 17.8 | 67 | NE | 6 | 2.7 | | 2c | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.02 | 762.5 | 61 | 16.1 | 67 | NE | 5 | 2.2 | | 2cs | 0 | | | 0 | 0 | Clear | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.98 | 761.5 | 66 | 18.9 | 84 | N | 5 | 2.2 | | 2cs | 0 | SE | | 0 | 0 | Fair | Rev. R. Mosley |
| Peterboro, Ontario | | | 30.01 | 762.2 | 62.2 | 16.8 | 69 | W | | | 1 | | 10k | | | 0 | 0 | Cloudy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.99 | 761.7 | 61 | 16.1 | 83 | NE | 8 | 3.6 | | 5k | 0 | N | | 0.06 | 1.5 | Fair | H. Morgan. |
| Port Hastings, N. S. | | | 29.94 | 760.5 | 56.8 | 13.8 | | Calm | 0 | 0 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 29.99 | 761.7 | 63 | 17.2 | 82 | NE | 2 | 0.9 | | | 10ks | | N | 0.11 | 2.8 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 30.03 | 762.7 | 64 | 17.8 | 58 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 30.05 | 763.3 | 58 | 14.4 | 66 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | W. H. McIntyre. |
| St. John, N. B. | | | | | | | | SW | | | | | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.94 | 760.5 | 68 | 20.0 | 84 | Calm | 0 | 0 | | 0 | Haze | | | 0 | 0 | Clear | K. Stewart. |
| Stayner, Ontario | | | 29.94 | 760.5 | 69 | 20.6 | 74 | N | 2 | 0.9 | | 2ck | Haze | NW | | Inap. | Inap. | Hazy | R. J. Cole. |
| Stratford, Ontario | 28.72 | 729.5 | 29.97 | 761.2 | 60.9 | 16.1 | 86 | E | 6 | 2.7 | | 2c | 0 | NW | | 0.535 | 13.59 | Fair | C. J. MacGregor, M. A. |
| *Sydney, C. B. | | | 29.95 | 760.7 | 60 | 15.6 | 57 | NW | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.01 | 762.2 | 68 | 20.0 | 72 | E | 6 | 2.7 | | 5ck | Haze | W | | 0.19 | 4.8 | Fair | Magnetic Observatory |
| Windsor, N. S. | | | 29.96 | 761.0 | 55 | 12.8 | 84 | NW | 7 | 3.1 | | cs | 2k | NW | | 0 | 0 | Clear | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.97 | 761.2 | 63.8 | 17.7 | 80 | E | 11 | 4.9 | | 0 | 1s | | | 0 | 0 | Clear | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 29.94 | 760.5 | 50.5 | 10.3 | 82 | NE | | | | 10k | 10s | | | 0.09 | 2.3 | Cloudy | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.**

## UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrumental error and temperature. Inches. | Barometer. Corrected for instrumental error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 29.97 | 761.2 | 60 | 15.6 | 70 | NW | 8 | 3.6 | | | 10s | | | 0.28 | 7.1 | Cloudy | |
| Alpena, Mich. | | | 30.00 | 762.0 | 64 | 17.8 | 72 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Atlantic City, N. J. | | | 29.92 | 760.0 | 62 | 16.7 | 94 | NE | 12 | 5.4 | | | 10s | | NE | 0.20 | 5.1 | Cloudy | |
| Augusta, Ga. | | | 30.01 | 762.2 | 81 | 27.2 | 74 | NW | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Baltimore, Md. | | | 29.92 | 760.0 | 78 | 25.6 | 69 | NW | 8 | 3.6 | | 2c | Sm'e | | | 0.84 | 21.3 | Fair | |
| Barnegat, N. J. | | | 29.92 | 760.0 | 60 | 15.6 | 94 | N | 12 | 5.4 | | | 10s | | N | 0.17 | 4.3 | Cloudy | |
| Bismarck, Dakota | 28.21 | 716.5 | 29.82 | 757.4 | 56 | 13.3 | 80 | NE | 5 | 2.2 | | | 10s | | S | 0.03 | 0.8 | Cloudy | |
| Boston, Mass. | | | 29.96 | 761.0 | 59 | 15.0 | 70 | NE | 12 | 5.4 | | | 10s | | NE | Inap. | Inap. | Cloudy | |
| Breckenridge, Minn. | | | 30.01 | 762.2 | 56 | 13.3 | 93 | S | 2 | 0.9 | | 10k | 0 | SW | | 0 | 0 | Cloudy | |
| Brownsville, Texas | | | 30.16 | 766.1 | 83 | 28.3 | 83 | S | 12 | 5.4 | | 2c | 0 | E | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 29.93 | 760.2 | 65 | 18.3 | 68 | E | 5 | 2.2 | | 1k | 0 | | | 0.01 | 0.3 | Clear | |
| Burlington, Vt. | | | 30.02 | 762.5 | 59 | 15.0 | 76 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.03 | 762.7 | 72 | 22.2 | 90 | S | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Campo, Cal. | 27.44 | 697.0 | 30.00 | 762.0 | 43 | 6.1 | 91 | E | 2 | 0.9 | | 10cs | 0 | | | 0 | 0 | Cloudy | |
| Camp Verde, Arizona | | | | | 66 | 18.9 | | S | | | | 5c | Haze | SW | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.87 | 758.7 | 79 | 26.1 | 69 | NW | 14 | 6.3 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Cape Henry, Va. | | | 29.92 | 760.0 | 77 | 25.0 | 77 | NW | 10 | 4.5 | | 5c;ck | 0 | NW | | 0.02 | 0.5 | Fair | |
| Cape Lookout, N. C. | | | 29.96 | 761.0 | 79 | 26.1 | 86 | NW | 9 | 4.0 | | 1c | 0 | NW | | 0.12 | 3.0 | Clear | |
| Cape May, N. J. | | | 29.90 | 759.4 | 70 | 21.1 | 85 | E | 10 | 4.5 | | | 10s | | W | 0.32 | 8.1 | Cloudy | |
| Charleston, S. C. | | | 30.01 | 762.2 | 86 | 30.0 | 65 | SW | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.11 | 612.4 | 30.05 | 763.3 | 46 | 7.8 | 85 | NW | 1 | 0.4 | | 0 | Fog | | | 0 | 0 | Foggy | |
| Chicago, Ill. | | | 30.00 | 762.0 | 68 | 20.0 | 69 | N | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.93 | 760.2 | 74 | 23.3 | 76 | N | 5 | 2.2 | | Haze | Haze | | | 0 | 0 | Dense haze | |
| Cleveland, Ohio | | | 29.96 | 761.0 | 66 | 18.9 | 90 | N | 4 | 1.8 | | | 10s | | N | 0.40 | 10.2 | Cloudy | |
| Corsicana, Tex. | | | 29.98 | 761.5 | 78 | 25.6 | 90 | S | 12 | 5.4 | | 2cs | 8s | | S | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 30.05 | 763.3 | 67 | 19.4 | 73 | NE | 1 | 0.4 | | 1c | 0 | | | 0 | 0 | Clear | |
| Denison, Texas | | | 30.01 | 762.2 | 78 | 25.6 | 86 | SE | 4 | 1.8 | | | 10s | | S | 0.08 | 2.0 | Cloudy | |
| Denver, Col. | 24.88 | 631.9 | 30.10 | 764.5 | 49 | 9.4 | 71 | S | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Detroit, Mich. | | | 29.93 | 760.2 | 66 | 18.9 | 90 | NE | 4 | 1.8 | | | Fog | | | Inap. | Inap. | Foggy | |
| Dodge City, Kan. | 27.41 | 696.2 | 29.60 | 751.8 | 68 | 20.0 | 84 | E | 8 | 3.6 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Dubuque, Iowa | | | 30.04 | 763.0 | 63 | 17.2 | 78 | NW | 2 | 0.9 | | 2cs | Fog | | | 0 | 0 | Fair | |
| Duluth, Minn. | | | 30.04 | 763.0 | 56 | 13.3 | 87 | SW | 2 | 0.9 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Eagle Pass, Tex. | | | 29.92 | 760.0 | 83 | 28.3 | 74 | S | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 29.98 | 761.5 | 62 | 16.7 | 50 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Erie, Pa. | | | 29.94 | 760.5 | 63 | 17.2 | 88 | NE | 4 | 1.8 | | | 10s | | | 0.36 | 9.1 | Cloudy | |
| Escanaba, Mich. | | | 30.01 | 762.2 | 58 | 14.4 | 70 | N | 5 | 2.2 | | 5k | 0 | N | | 0 | 0 | Fair | |
| Florence, Arizona | 28.35 | 720.1 | 29.95 | 760.7 | 85 | 29.4 | | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.96 | 761.0 | 68 | 20.0 | 84 | SW | 10 | 4.5 | | | 10n | | | 2.24 | 62.0 | Light rain | |
| Fort Griffin, Tex. | 28.68 | 728.5 | 29.86 | 758.4 | 80 | 26.7 | 78 | S | 14 | 6.3 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Ft. St. Michael, Alaska | | | 29.55 | 750.6 | 53 | 11.7 | 86 | S | | | 7 | | 10s | | | Inap. | Inap. | Cloudy | |
| Fort Sill, Indian Ter. | 28.75 | 730.2 | 29.80 | 756.9 | 76 | 24.4 | 76 | SE | 6 | 2.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| Fort Sully, Dakota | 28.26 | 717.8 | 29.86 | 758.4 | 64 | 17.8 | 78 | SE | 10 | 4.5 | | 0 | 0 | | | 0 | 0 | Clear | |
| Galveston, Tex. | | | 30.10 | 764.5 | 83 | 28.3 | 83 | S | 6 | 2.7 | | 3c,k | 0 | S | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 29.99 | 761.7 | 67 | 19.4 | 64 | NW | 2 | 0.9 | | 1c | 0 | | | 0.03 | 0.8 | Clear | |
| Indianapolis, Ind. | | | 29.98 | 761.5 | 72 | 22.2 | 80 | W | 3 | 1.3 | | 1ck | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.08 | 764.0 | 83 | 28.3 | 83 | S | 10 | 4.5 | | 2c | 5ks | | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.08 | 764.0 | 59 | 31.7 | 60 | SW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.97 | 761.2 | 71 | 21.7 | 65 | E | 6 | 2.7 | | 10c | 0 | E | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.08 | 764.0 | 86.0 | 30.0 | 72 | E | 4 | 1.8 | | 2k | Haze | E | E | 0 | 0 | Dense haze | |
| Kittyhawk, N. C. | | | 29.97 | 761.2 | 79 | 26.1 | 69 | W | 10 | 4.5 | | 8c | 0 | NE | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.03 | 762.7 | 70 | 21.1 | 90 | SE | 3 | 1.3 | | | 10s;fg | | SW | 0.26 | 6.6 | Cloudy | |
| La Crosse, Wis. | | | 30.04 | 763.0 | 60 | 15.6 | 100 | S | 4 | 1.8 | | | Fog | | | 0 | 0 | Foggy | |
| Leavenworth, Kan. | | | 29.89 | 759.2 | 68 | 20.0 | 90 | NE | 4 | 1.8 | | 2c | 5ks | | NE | 0.08 | 2.0 | Cloudy | |
| Louisville, Ky. | | | 29.98 | 761.5 | 77 | 25.0 | 69 | N | 4 | 1.8 | | 2c | 0 | NW | | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 29.93 | 760.2 | 80 | 26.7 | 61 | NW | 4 | 1.8 | | 0 | 0 | | | 0.04 | 1.0 | Clear | |
| Maricopa Wells, Arizona | | | | | 90 | 32.2 | | NW | | | | 2c | 0 | | | 0 | 0 | Fair | |
| Marquette, Mich. | | | 30.03 | 762.7 | 50 | 10.0 | 64 | NW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mason, Tex. | 28.41 | 721.6 | 30.08 | 764.0 | 80 | 26.7 | 70 | SE | 8 | 3.6 | | 0 | 5s | | S | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.14 | 765.5 | 69 | 20.6 | 95 | NW | 2 | 0.9 | | | 10n | | W | 0.47 | 11.9 | Heavy rain | |
| Milwaukee, Wis. | | | 30.04 | 763.0 | 64 | 17.8 | 78 | NW | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.11 | 764.8 | 83 | 28.3 | 79 | W | 10 | 4.5 | | 2k | 0 | W | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.09 | 764.3 | 82 | 27.8 | 76 | SW | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.92 | 734.6 | 29.92 | 760.0 | 74 | 23.3 | 76 | SW | 6 | 2.7 | | | 10s | | SW | Inap. | Inap. | Cloudy | |
| Mt. Washington, N. H. | 23.83 | 605.3 | 30.19 | 766.8 | 41 | 5.0 | 83 | NE | 6 | 2.7 | | 0 | 2s | | NE | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 30.01 | 762.2 | 77 | 25.0 | 82 | W | 5 | 2.2 | | 8k | 0 | SW | | 0.21 | 5.3 | Fair | |
| New Haven, Conn. | | | 29.95 | 760.7 | 66 | 18.9 | 80 | NE | 10 | 4.5 | | | 10s | | NE | 1.65 | 41.9 | Cloudy | |
| New London, Conn. | | | 29.95 | 760.7 | 66 | 18.9 | 78 | NE | 4 | 1.8 | | 5cs | 2s | SW | NE | 1.92 | 48.8 | Fair | |
| New Orleans, La. | | | 30.11 | 764.8 | 82 | 27.8 | 78 | W | 4 | 1.8 | | 4k | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 29.94 | 760.5 | 62 | 16.7 | 83 | NE | 8 | 3.6 | | | 10ks | | N | 1.05 | 26.7 | Threatening | |
| New York, N. Y. | | | 29.94 | 760.5 | 65 | 18.3 | 73 | NE | 15 | 6.7 | | | 10ks | | | 0.08 | 2.0 | Cloudy | |
| Norfolk, Va. | | | 29.94 | 760.5 | 80 | 26.7 | 70 | W | 5 | 2.2 | | 5c | 0 | | | 0 | 0 | Fair | |
| North Platte, Neb. | 27.11 | 688.6 | 29.58 | 751.3 | 66 | 18.9 | 68 | SW | 10 | 4.5 | | 0 | 0 | | | 0.22 | 5.6 | Clear | |
| Omaha, Neb. | 28.82 | 732.0 | 29.86 | 758.4 | 64 | 17.8 | 89 | SE | 13 | 5.8 | | | 10n | | SE | 0.06 | 1.5 | Light rain | |
| Oswego, N. Y. | | | 29.97 | 761.2 | 61 | 16.1 | 82 | NE | 6 | 2.7 | | 2c | 0 | | | Inap. | Inap. | Clear | |
| Pembina, Dakota | | | 29.98 | 761.5 | 54 | 12.2 | 93 | NW | 4 | 1.8 | | 0 | 0 | | | 0.02 | 0.5 | Clear | |
| Philadelphia, Pa. | | | 29.93 | 760.2 | 69 | 20.6 | 84 | E | 9 | 4.0 | | | 10ks | | NE | 0.24 | 6.1 | Cloudy | |
| Phœnix, Arizona | | | | | 70 | 21.1 | 16 | S | | | | 10c | 0 | SW | | 0 | 0 | Cloudy | |
| Pike's Peak, Col. | 17.99 | 456.9 | 30.20 | 767.1 | 27 | — 2.8 | 77 | SW | 34 | 15.2 | | 0 | 2s | | | 0.01 | 0.3 | Fair | |
| Pittsburg, Pa. | | | 29.90 | 759.4 | 72 | 22.2 | 96 | W | 6 | 2.7 | | | 10s | | W | 0.23 | 5.8 | Cloudy | |
| Port Huron, Mich. | | | 29.96 | 761.0 | 58 | 14.4 | 100 | N | 6 | 2.7 | | | Fog | | | 0.34 | 8.6 | Foggy | |
| Portland, Me. | | | 29.97 | 761.2 | 61 | 16.1 | 71 | NE | 11 | 4.9 | | 8k | 2s | NW | NW | Inap. | Inap. | Cloudy | |
| Portland, Oregon | | | 30.07 | 763.8 | 53 | 11.7 | 79 | S | 2 | 0.9 | | 0 | 5s | | | 0 | 0 | Fair | |
| Prescott, Arizona | | | | | 53 | 11.7 | 38 | | | | | 5cs | 0 | | | 0 | 0 | Fair | |
| Punta Rassa, Fla. | | | 30.12 | 765.0 | 85 | 29.4 | 64 | W | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.95 | 760.7 | 64 | 17.8 | 87 | E | 4 | 1.8 | | 2c | 0 | | | 0.11 | 2.8 | Fair | |
| Salt Lake City, Utah | 25.65 | 651.5 | 29.98 | 761.5 | 57 | 13.9 | 41 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 29.94 | 760.5 | 64 | 17.8 | 89 | NE | 8 | 3.6 | | | 10s | | W | 1.07 | 27.2 | Cloudy | |
| San Antonio, Tex. | | | 29.92 | 760.0 | 80 | 26.7 | 82 | S | 7 | 3.1 | | 0 | 2ks | | | 0 | 0 | Fair | |
| San Diego, Cal. | | | 30.03 | 762.7 | 59 | 15.0 | 87 | NW | 4 | 1.8 | | 5c | 2s | | NW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.04 | 763.0 | 56 | 13.3 | 87 | SW | 6 | 2.7 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Santa Fe, New Mexico | 23.42 | 594.9 | 29.96 | 761.0 | 51 | 10.6 | 27 | E | 6 | 2.7 | | 8cs | Haze | | | 0 | 0 | Cloudy | |
| Savannah, Ga. | | | 30.05 | 763.3 | 91 | 32.8 | 57 | W | 6 | 2.7 | | 0 | Haze | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.13 | 765.3 | 80 | 26.7 | 82 | W | 3 | 1.3 | | | 10s | | W | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.00 | 762.0 | 82 | 27.8 | 74 | W | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 29.96 | 761.0 | 66 | 18.9 | 70 | N | 4 | 1.8 | | | 10ks | | NE | 0.01 | 0.3 | Cloudy | |
| St. Louis, Mo. | | | 30.00 | 762.0 | 74 | 23.3 | 76 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.10 | 764.5 | 78 | 25.6 | 90 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.97 | 761.2 | 63 | 17.2 | 83 | NW | 1 | 0.4 | | 8c | 2s | W | W | 0 | 0 | Cloudy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 68 | 20.0 | 18 | Calm | | | | 8c | 0 | W | | 0 | 0 | Fair | |
| Stockton, Tex | 29.91 | 683.5 | 29.91 | 759.7 | 76 | 24.4 | 76 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 29.98 | 761.5 | 58 | 14.4 | 81 | NE | 8 | 3.6 | | 2cs | 2s | W | W | 0 | 0 | Fair | |
| Toledo, Ohio | | | 29.96 | 761.0 | 66 | 18.9 | 90 | W | 5 | 2.2 | | | 10s | | W | Inap. | Inap. | Cloudy | |
| Tucson, Arizona | 27.59 | 700.8 | 30.14 | 765.5 | 67 | 19.4 | | S | | | | 8c | 0 | SW | | 0 | 0 | Cloudy | |
| Tybee Island, Ga | | | 30.02 | 762.5 | 85 | 29.4 | 67 | W | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.13 | 765.3 | 70 | 21.1 | 90 | SE | 2 | 0.9 | | | 10s | | | 0.01 | 0.3 | Cloudy | |
| Virginia City, Montana | 24.30 | 617.2 | 29.78 | 756.4 | 38 | 3.3 | 90 | SE | 8 | 3.6 | | 0 | 0 | | | 0.21 | 5.3 | Clear | |
| Washington, D. C | | | 29.93 | 760.2 | 76 | 24.4 | 81 | N | 7 | 3.1 | | 0 | 0 | | | 0.46 | 11.7 | Clear | |
| Wickenburg, Arizona | | | | | 80 | 26.7 | | Calm | | | | 5c | 0 | E | | 0 | 0 | Fair | |
| Wilmington, N. C | | | 29.97 | 761.2 | 83 | 28.3 | 67 | SW | 5 | 2.2 | | 2c | 0 | N | | 0 | 0 | Fair | |
| Wood's Holl, Mass | | | 29.95 | 760.7 | 59 | 15.0 | 94 | E | 4 | 1.8 | | | 10s | | E | 0.84 | 21.3 | Cloudy | |
| Yankton, Dakota | 28.73 | 729.7 | 29.98 | 761.5 | 61 | 16.1 | 82 | SE | 4 | 1.8 | | 5c | 8s | NW | NW | 0.36 | 9.1 | Clearing | |
| Yuma, Arizona | | | 29.92 | 760.0 | 70 | 21.1 | 52 | Calm | 0 | 0 | | 10c | 0 | SW | | 0 | 0 | Cloudy | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.18 | 766.6 | 82 | 27.8 | 70 | Calm | 0 | 0 | | 8c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.01 | 762.2 | 83 | 28.3 | | E | | | 3 | | | | | 0.14 | 3.6 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.07 | 763.8 | 84 | 27.2 | 87 | E | | | 2 | 4c | 0 | E | | 0 | 0 | Clear | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.20 | 640.1 | | | 70.0 | 21.1 | 67 | Calm | | | 0 | 2c | 0 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.13 | 765.3 | 47 | 8.3 | 85 | NE | 10 | 4.5 | | 3k | | | | 0 | 0 | Fair | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.15 | 765.8 | 72 | 22.2 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,195 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m., Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.04 | 763.0 | 79 | 26.1 | 75 | 23.9 | 81 | N | | | 2 | | 2 | | | 0.51 | 13.0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.04 | 763.0 | 58 | 14.4 | 56.5 | 13.6 | | SSW | 11 | 4.9 | | | 9 | | SSW | 0 | 0 | | | Cloudy | |
| Navy Yard, Pensacola, Fla. | 30.25 | 768.3 | | | 82 | 27.8 | 83 | W | 7 | 3.1 | | | 3 | | WNW | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.03 | 762.7 | 69 | 20.6 | 60 | 15.6 | 88 | SE | 8 | 3.6 | | | 10 | | | 0.15 | 3.8 | | | Foggy | |
| Naval Hospital, Yokohama, Japan | | | 75.5 | 24.2 | 75.5 | 24.2 | 82 | SW | | | 3 | | 8k,s | | SW | 0 | 0 | | | Cloudy | |
| Alert, Boe Island | 29.96† | 761.0† | 84 | 28.9 | 84 | 28.9 | 91 | SE | | | 4 | | 2 | | SE | | | Long | SE | D. clouds | |
| Alliance, Beirut, Syria | 29.99 | 761.7 | 83 | 28.3 | 81 | 27.2 | 87 | W | | | 1 | | 1 | | | | | Smooth | None | Clear | |
| Ashuelot, Ningpo, China | 29.86 | 758.4 | 82 | 27.8 | 82 | 27.8 | 75 | S | | | 2 | | 9 | | | | | | | D. clouds | |
| Canonicus, New Orleans, La | 30.13 | 765.3 | 55 | 12.8 | 79 | 26.1 | 86 | SW | | | 2 | | 8 | | | | | | | Cloudy | |
| Colorado, New York, N. Y | 29.99 | 761.7 | 60 | 15.6 | 64 | 17.8 | 100 | NNE | 10 | 4.5 | | | 9 | | W | 0.2 | 5. | | | D. clouds | |
| Despatch, Constantinople, Turkey | 30.09 | 764.3 | 76 | 24.4 | 77 | 25.0 | 65 | NE | | | 2 | | 2 | | NE | | | | | Clear | |
| Franklin, Norfolk, Va. | 30.06 | 763.5 | 79 | 26.1 | 77 | 25.0 | 100 | W | 6 | 2.7 | | | 4 | | W | 0 | 0 | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.33 | 770.4 | 69 | 20.6 | 70 | 21.1 | 95 | NNW | | | 1 | | 3k | | | 0 | 0 | | | Hazy | |
| ‡Gettysburg, Off Mouth of Arno, Italy | 29.93 | 760.2 | | | 76 | 24.4 | ? | NNW | | | 3 | | 1 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.08 | 764.0 | 78 | 25.6 | 78 | 25.6 | 86 | WSW | 6.0 | 2.7 | | | | | | | | | | Pleasant | |
| Huron, N. 13° 05′, W. 80° 17′ | 30.05 | 763.3 | 84 | 28.9 | 84 | 28.9 | 91 | E | | | 4 | | 4 | | ESE | 0 | 0 | Long | NE | Squally | |
| Kearsarge, Nagasaki, Japan | 30.05 | 763.3 | 80 | 26.7 | 73 | 22.8 | 95 | SW | | | 3 | | 7 | | N&E | ¶4.5 | 114.¶ | Smooth | | Clearing | |
| Marion, Smyrna, Turkey | 29.74† | 755.4† | 83 | 28.3 | 82 | 27.8 | 63 | W | | | 3 | | 7 | | W | 0 | 0 | Chop'd | W | D. clouds | |
| Michigan, Erie, Pa | 29.48 | 748.8 | 71 | 21.7 | 65 | 18.3 | 89 | NE | | | 1 | | 10 | | NE | | | | | Cloudy | |
| Monocacy, Tientsin, China | 29.76 | 755.9 | 78 | 25.6 | 75 | 23.9 | | NW | | | 1 | | 3 | | W | 0 | 0 | | | D. clouds | |
| Monongahela, Off Sachem's Head, Conn. | 29.99 | 761.7 | 61 | 16.1 | 61 | 16.1 | 88 | N | | | | | s | | | Light | Light | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.30 | 769.6 | | | 83 | 28.3 | 71 | SW | 8 | 3.6 | | | 0 | | | 0 | 0 | | | Blue sky | |
| Omaha, Callao, Peru | 30.01 | 762.2 | 68 | 20.0 | 68 | 20.0 | 79 | N | 1 | 0.4 | | | 10 | | | 0 | 0 | Slight | S | Overcast | |
| Ossipee, Norfolk, Va | 29.99 | 761.7 | 77 | 25.0 | 77 | 25.0 | 82 | W | | | 1 | | 1 | | W | | | | | D. clouds | |
| Palos, Nankin, China | 29.83 | 757.7 | 77 | 25.0 | 77 | 25.0 | 91 | ESE | | | 1 | | 10 | | | Blank | Blank | | | Overcast | |
| Pensacola, N. 35° 53′, W. 133° 23′ | 30.18 | 766.6 | | | 64 | 17.8 | 73 | NNW | | | 6 | | 6 | | NW | Light | Light | Long | N&W | Pleasant | |
| Plymouth, Key West, Fla | 30.27 | 768.8 | 87 | 30.6 | 85 | 29.4 | 79 | E | | | 2 | | 4 | | S&E | 0 | 0 | Smooth | | Clear | |
| Ranger, Aden, Arabia | 29.89 | 759.2 | | | 90.5 | 32.5 | 62 | SSW | | | 2 | | 5 | | S&W | | | Smooth | | Clear | |
| Richmond, S. 24° 09′, W. 41° 34′ | 30.38 | 771.6 | 74.2 | 23.4 | 73.5 | 23.1 | 86 | NE | | | 4 | | 0 | | | 0 | 0 | Moderate. | ENE | Hazy | |
| Rio Bravo, Matamoras, Mexico | 29.92 | 760.0 | | | 77 | 25.0 | 86 | SE | | | 4 | | 6 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.02 | 762.5 | 79 | 26.1 | 75 | 23.9 | 86 | NW | | | 2 | | 3 | | | 0.54 | 13.7 | | | Clear | |
| Saratoga, Boston, Mass | 30.32 | 770.1 | | | 65 | 18.3 | | ENE | | | 3 | | 10 | | W | Light | Light | | | Cloudy | |
| St. Louis, League Island, Pa | 29.90 | 759.4 | 72 | 22.2 | 72 | 22.2 | 80 | NE | 6 | 2.7 | | | 10 | | NE | 0.11 | 2.8 | | | Overcast | |
| Swatara, N 26° 44′, W. 79° 31′ | 30.10 | 764.5 | 86 | 30.0 | 85 | 29.4 | 79 | N | | | 2 | | 1ck | | N | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.81 | 757.2 | 79 | 26.1 | 72 | 22.2 | 100 | SW | | | 3-4 | | 8 | | N&E | 0 | 0 | Moderate. | E | Squally | |
| Trenton, Smyrna, Turkey | 30.16† | 766.1† | 83 | 28.3 | 86 | 30.0 | 65 | SW | 15 | 6.7 | | | 2 | | S&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.01 | 762.2 | 72 | 22.2 | 74 | 23.3 | 59 | NE | | | 3-5 | | 10 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.00 | 762.0 | 61 | 16.1 | 59 | 15.0 | 76 | NE | 10 | 4.5 | | | 10 | | NE | 0 | 0 | | | D clouds | |
| Wyoming, Washington, D.C | 30.04† | 763.0† | 78 | 25.6 | 78 | 25.6 | | N | | | 2 | | | | | | | | | Blue sky | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | CHARACTER. | DIRECTION FROM— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 37° 54′, E. 150° 48′ | S60W | | 29.87 | 758.7 | 64 | 17.8 | 89 | W | | | 3 | | s | | W | Tranq'l | | Blue sky | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio, N. 48° 45′, W. 31° 30′ | WSW ½W | 9 | 29.91 | 759.7 | 64.6 | 18.1 | | SSW | | | 5 | | d | | | Short | | Overcast | Capt. G. Meyer. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. W. Richards |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—CONTINUED.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | TRUE COURSE TOWARD— | HOURLY RATE IN KNOTS. | BAROMETER REDUCED TO SEA-LEVEL. | | TEMPERATURE OF THE AIR. | | RELATIVE HUMIDITY. | WIND. | | | | CLOUDS. | | | | SEA-SWELL. | | WEATHER. | OBSERVER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | Up'er 0—10. | Lo'wr 0—10. | Upper. From— | Lower. From— | CHARACTER. | DIRECTION FROM— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

## RED STAR LINE MARINE SERIES.

Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |

## MARINE SERIES. (Miscellaneous.)

Furnished by the coöperation of the Observer named.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Schooner Addie Fuller, off Cape Porpoise, Me. | NNE | 3 | 29.91 | 759.7 | 58 | 14.4 | 82 | E | 6 | 2.7 | | 2k | 0 | | | Smooth | | Clear | Capt. James Jorgenson. |

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 28, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:48 P. M. GREENWICH mean time.
0:58 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.04 | 762.9 | 73.6 | 23.1 | 66 | N | | | 1 | | 2 | | | 0.039 | 1.0 | Clear | Charnot. |
| Algiers | | | 30.09 | 764.3 | 82.0 | 27.8 | 61 | W | | | 2 | | 1 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 29.99 | 761.8 | 82.0 | 27.8 | 67 | N | | | 2 | | 5 | | | Inap. | Inap | Fair | Fleury. |
| Tunis | | | 30.06 | 763.4 | 84.2 | 29.0 | | E | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.08 | 764.0 | 82.4 | 28.0 | | E | | | 2 | | 1 | | | 0 | 0 | Clear | Husson. |
| Saida | | | 30.06 | 763.5 | 76.3 | 24.6 | | N | | | 3 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.07 | 763.7 | 83.1 | 28.4 | | SW | | | 4 | | 8 | | | 0 | 0 | Cloudy | Bourgeois. |
| Geriville | | | 30.07 | 763.6 | 88.7 | 31.5 | | SSW | | | 3 | | 3 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.02 | 762.6 | 95.0 | 35.0 | 22 | W | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.00 | 762.0 | 98.2 | 36.8 | | SE | | | 5 | | 5 | | | 0 | 0 | Fair | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.03 | 762.8 | 80.4 | 26.9 | 43 | NE | | | 3 | | 2 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.07 | 763.6 | 68.7 | 20.4 | 54 | W | | | 3 | | 10 | | | 0.091 | 2.3 | | Dr. Wierzbiski. |
| Eperies | | | 29.99 | 761.8 | 70.3 | 21.3 | 66 | N | | | 2 | | 9k,s | | S | 0 | 0 | | Julius Mikolik. |
| Gratz | 28.82 | 731.9 | 30.02 | 762.5 | 75.6 | 24.2 | 55 | NW | | | 2 | | 1 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.63 | 727.1 | 29.98 | 761.6 | 75.9 | 24.4 | 50 | NE | | | 1 | | 3 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.72 | 729.5 | 30.01 | 762.3 | 71.6 | 22.0 | 58 | NNW | | | 2 | | 5 | | | 0.106 | 2.7 | | Prof. C. Wagner |
| Lemberg | | | 29.95 | 760.7 | 73.0 | 22.8 | 57 | NW | | | 1 | | 7 | | | 0.752 | 19.1 | | Dr. T. Stanecki. |
| Pola | | | 30.04 | 763.1 | 79.2 | 26.2 | 58 | WNW | | | 2 | | 6c | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.02 | 762.4 | 67.1 | 19.5 | 71 | N | | | 1 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.07 | 763.8 | 80.6 | 27.0 | 60 | W | | | 1 | | 2 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.02 | 762.6 | 69.1 | 20.6 | 53 | NW | | | 2 | | 8 | | | 0.031 | 0.8 | | I. R. Central Met. Obs'y |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.77 | 730.8 | 30.26 | 768.6 | 64.2 | 17.9 | 41 | WNW | | | 1 | | 9 | | | 0 | 0 | | Royal Observatory. |
| Brussels | | | 30.22 | 767.6 | 67.5 | 19.7 | 51 | WNW | | | 2 | | 5k | | NW | 0 | 0 | | |
| Furnes | | | 30.24 | 768.0 | 64.9 | 18.3 | 63 | WNW | | | 2 | | 7 | | | 0 | 0 | | |
| Maeseyck | | | 30.23 | 767.8 | 67.8 | 19.9 | 64 | WNW | | | 4 | | 7 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E. Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.12 | 765.0 | 57.0 | 13.9 | | S | 14 | 6.3 | | | 7 | | | 0.230 | 5.84 | D. clouds | William Boswell. |
| Ardrossan | | | 30.13 | 765.3 | 60 | 15.6 | | SSW | | | 1 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.14 | 765.5 | 67.9 | 19.9 | | SSW | 12 | 5.4 | | | 8 | | | | | Overcast | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.21 | 767.3 | 67.8 | 19.9 | | NW | 7 | 3.1 | | | 2 | | | | | Blue sky | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.17 | 766.3 | 66.3 | 19.1 | | WNW | | | 1 | | 10 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.19 | 766.8 | 69.4 | 20.8 | | W | | | 1 | | 1 | | | 0.01 | 0.3 | Blue sky | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.02 | 762.5 | 83.5 | 28.6 | | NE | | | 3 | | 3 | | | | | | A. Pvt. G. W. Roberts, [H. C. |
| Cambridge, Observatory | | | 30.22 | 767.6 | 76.8 | 24.9 | | WNW | | | 1 | | 5 | | | | | D. clouds | H. Todd. |
| Cardington | | | 30.24 | 768.1 | 76.0 | 24.4 | | NW | | | 1 | | 2 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.24 | 768.1 | 71.5 | 21.9 | | W | | | 0 | | 5 | | | | | Hazy | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.82 | 732.0 | 30.27 | 768.8 | 68.0 | 20.0 | | NE | | | 2 | | 1 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.16 | 766.1 | 68 | 20.0 | | WSW | | | 3 | | 5 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.25 | 768.3 | 67 | 19.4 | | WSW | | | 2 | | 1 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.20 | 767.1 | 70.8 | 21.6 | | W | 3.2 | 1.4 | | | | | | | | Blue sky | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.29 | 769.4 | 68.8 | 17.7 | | SSE | | | 1 | | 2 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.78 | 705.6 | 30.02 | 762.5 | 74.4 | 23.6 | | NE | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.00 | 762.0 | 82 | 27.8 | | SW | | | 0 | | 5 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.03 | 762.7 | 67 | 19.4 | | SW | | | 2 | | 4 | | | | | D. clouds | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.00 | 762.0 | 75.5 | 24.2 | | SW | | | 3 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.11 | 764.8 | 63.7 | 17.6 | | SW | | | 4 | | 10 | | | | | Gloomy | D. G. Maclean. |
| Great Yarmouth | | | 30.20 | 767.1 | 72 | 22.2 | | NNE | | | 2 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.23 | 767.8 | 75.1 | 23.9 | | NW | | | 1 | | 2 | | | | | Hazy | The Staff, for G. B. Airy. |
| Guernsey | | | 30.26 | 768.6 | 67.5 | 19.7 | | ESE | | | 1 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F. R. S. |
| Helston | | | 30.36 | 771.1 | 68 | 20.0 | | SW | | | 2 | | 1ck | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.21 | 767.3 | 63 | 17.2 | | SSW | | | 5 | | 2 | | | | | Blue sky | John Tilston. |
| Kew, Observatory | | | 30.24 | 768.1 | 69.9 | 21.1 | | WNW | 6 | 2.7 | | | 5 | | | | | D. clouds | The Staff. |
| Kingstown | | | 30.18 | 766.6 | 69 | 20.6 | | W | | | 4 | | 3 | | | | | Blue sky | George Mitchell. |
| Leicester, Museum | | | 30.20 | 767.1 | 70.1 | 21.2 | | W | | | 2 | | 7 | | | | | D. clouds | Wm. J. Harrison, F. G. S. |
| Malta, (Mediterranean) | | | 30.05 | 763.3 | 80.6 | 27.0 | | NE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A. H. C. |
| Nairn | | | | | | | | | | | | | | | | | | | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.10 | 764.5 | 86.5 | 30.3 | | E | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.2[illegible] | 767.6 | 76.2 | 24.6 | | W | | | 1 | | 4k | | W | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.20 | 767.1 | 72.5 | 22.5 | | SW | | | 2 | | 9 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.23 | 767.8 | 73 | 22.8 | | SW | | | 2 | | 7 | | | | | D. clouds | F. Lucas. |
| Plymouth | | | 30.27 | 768.8 | 68.3 | 20.2 | | SW | | | 1 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.24 | 768.1 | 63 | 17.2 | | SW | | | 4 | | 5 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 30.27 | 768.8 | 63 | 17.2 | | Calm | | | 0 | | 2 | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.26 | 768.6 | 70.0 | 21.1 | | SSE | | | 3 | | 2 | | | | | ¾ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 30.08 | 764.0 | 54.9 | 12.7 | | W | 7 | 3.1 | | | 10 | | | | | Light clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey | | | 29.86 | 758.4 | 80.0 | 26.7 | | NE | | | 2 | | 5 | | | | | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.20 | 767.1 | 71.0 | 21.7 | | WNW | | | 3 | | 3 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.16 | 766.1 | 66.3 | 19.1 | 58 | SW | | | 2 | | 5 | | | 0.460 | 11.43 | D. clouds | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.20 | 767.1 | 65.2 | 18.4 | | W | | | 2 | | 6 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C. (Hebr.) | | | 30.00 | 762.0 | 55 | 12.8 | | S | | | 3 | | 10 | | | | | Raining | John Smith. |
| Stratfield Turgiss | | | 30.26 | 768.6 | 70.8 | 21.6 | | W | | | 1 | | 3 | | | | | | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 30.04 | 763.0 | 56 | 13.3 | | N | | | 1 | | 8 | | | | | Overcast | John Trotter. |
| Truro, Royal Institution | | | 30.28 | 769.1 | 75 | 23.9 | | S | | | 4 | | 3 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.18 | 766.6 | 63.7 | 17.6 | | S | 37 | 16.5 | | | 10 | | | | | D. clouds | The Staff. |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 54 | 12.2 | | SW | | | 3 | | 5 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.30 | 769.6 | 55.7 | 13.2 | 70 | WNW | 18 | 8.0 | | 10 | 9 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.21 | 767.3 | 47.0 | 8.3 | 86 | NW | | | 2 | | 7k | | | 0.40 | 10.2 | Hazy | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.13 | 765.3 | 68.8 | 20.4 | | W | | | 2 | | 8k | | | 0.02 | 0.5 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.28 | 769.1 | 70.4 | 21.3 | 68 | ESE | 23.3 | 10.4 | | 4 | 2 | | ESE | 0 | 0 | Fine | C. Meldrum. |
| Melbourne, Observatory | | | 30.52 | 775.2 | 45.0 | 7.2 | 89 | W | 4 | 1.8 | | | 6 | | SW | 0 | 0 | Fine | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.89 | 759.2 | 55 | 12.8 | | S | | | 6 | | 10 | | | 0.2 | 5. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 30.04 | 763.0 | 54 | 12.2 | | E | | | 3 | 5 | 2 | W | | | | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | | | | | | | | | | | | | | | | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 40° 30′, W. 70° 35′ | | | 30.08 | 764.0 | 58.0 | 14.4 | | NE | | | 2 | | 4 | WNW | | | | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Moula[illegible] |
| Ship Camperdown, N. 50° 55′, W. 8° 30′ | | | 30.30 | 769.6 | 60.0 | 15.6 | | SSW | | | 3 | | 3 | | | 2 | W | D. clouds | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 55′, W. 12° 30′ | | | 30.08 | 764.0 | 64.3 | 17.9 | | S | | | 6 | | 9 | | | 6 | | Hazy | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 48′ 5°, W. 16° 10′ | | | 30.21 | 767.3 | 65.0 | 18.3 | | S | | | 4 | | 5 | | | 3 | SE | Hazy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Quang Le | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 52° 12′, W. 14° 31′ | | | 29.98 | 761.5 | 61 | 16.1 | | SSW | | | 6 | | 10 | | | | SW | Overcast | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Barometer. Corrected for instru-m'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 69.8 | 21.0 | 91 | SE | | | 1 | | 10s | | E | 0 | 0 | | Federico Maison. |

NOTE.—In the originals, the barometer is given, as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Barometer. Corrected for instru-m'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.04 | 763.0 | 58.6 | 14.8 | 55 | NW | | | 4 | | 5 | | | | | | |
| Fanöe | | | 30.07 | 763.6 | 57.0 | 13.9 | 80 | WSW | | | 4 | | 9 | | | | | | |
| Godthaab, (Greenland) | | | 29.27 | 743.5 | 52.5 | 11.4 | 70 | Calm | | | 0 | | 8 | | | | | | |
| Styrkisholm, (Iceland) | | | 29.39 | 746.6 | 51.3 | 10.7 | 87 | SE | | | 4 | | 10 | | | | | | |
| Thorshavn, (Faröe) | | | 29.97 | 761.1 | 54.5 | 12.5 | 81 | SE | | | 4 | | 7 | | | | | | |
| Westervig | | | 30.05 | 763.2 | 56.5 | 13.6 | 67 | SW | | | 4 | | 0 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| STATIONS. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Barometer. Corrected for instru-m'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.33 | 770.4 | 66.2 | 19 | 54 | E | | | 2 | | 5ck | | E | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 30.22 | 767.5 | 75.2 | 24.0 | 46 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | Bonvarne, Director. |
| Avignon, Normal School | | | 30.06 | 763 5 | 87.8 | 31 | 20 | NNW | | | 2 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.20 | 767.1 | 73.6 | 23.1 | 33 | ENE | | | 2 | 5c | | | | 0 | 0 | Cloudy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.19 | 766.8 | 73.6 | 23.1 | 53 | NE | 5.8 | 2.6 | | | | | E | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.30 | 769.7 | 70.5 | 21.4 | 44 | N | | | 2 | | 8 | | NNW | 0 | 0 | Very cloudy | Normal School. |
| Besançon | | | 30.16 | 766.1 | 76.3 | 24.6 | 50 | E | | | 6 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.24 | 768.2 | 77.9 | 25.5 | 51 | N | | | 6 | 2c | | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Bourges, Normal School | | | 30.17 | 766.3 | 71.6 | 22 | 67 | SE | | | 4 | | 5 | | SW | 0 | 0 | Cloudy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.20 | 767.0 | 78.3 | 25.7 | 53 | SW | | | 2 | | 1k | | | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.08 | 763.9 | 89.2 | 31.8 | 31 | E | | | 1 | | 1 | | E | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.26 | 768.7 | 69.8 | 21 | 46 | E | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Chartres, Normal School | | | 30.24 | 768.1 | 70.3 | 21.3 | 86 | ENE | | | 2 | | 7 | | S | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.23 | 767.7 | 72.3 | 22.4 | 40 | Calm | | | 0 | | 2ck | | | 0 | 0 | Slightly cl'dy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.10 | 764.4 | 78.3 | 25.7 | 42 | N | | | 2 | | 1 | | | 0 | 0 | Almost clear | Alluard, Director. |
| Commercy, Normal School | | | 30.22 | 767.6 | 66.9 | 19.4 | 50 | NE | | | 4 | | 5 | | NE | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.13 | 765.3 | 82.8 | 28.2 | 33 | SW | | | 4 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.14 | 765.6 | 78.1 | 25.6 | 48 | NW | | | 4 | | 2ks | | SE | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.21 | 767.2 | 70.0 | 26.1 | 50 | NE | | | 1 | | 0 | | | 0 | 0 | Clear | Mouillot, Director. |
| Le Mans, Normal School | | | 30.24 | 768.2 | 72.9 | 22.7 | 53 | E | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.14 | 765.6 | 73.6 | 23.1 | 62 | N | | | 4 | | 2 | | SW | 0 | 0 | Slightly cl'dy | Pin, Director. |
| Lorient, Naval Observatory | | | 30.20 | 768.7 | 74.5 | 23.6 | 50 | NNW | | | 1 | | 5 | | NE | 0 | 0 | ¾ covered | T. Carré, Director. |
| Mâcon, Normal School | | | 30.12 | 765.0 | 75.0 | 23.9 | 63 | NE | | | 2 | | 0 | | | 0 | 0 | Clear | M. Marchal, Director. |
| Metz | | | 30.23 | 767.7 | 66.9 | 19.4 | 30 | NNE | | | | | 3k | | NNE | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.13 | 765.3 | 66.7 | 19.3 | 48 | NNE | | | 2 | | 2 | | SSW | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 30.08 | 763.9 | 91.4 | 33 | 45 | N | | | 2 | | | | N | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 29.787 | 756.37 | 73.0 | 22.8 | 44 | NE | | | 4 | | 5 | | NE | 0 | 0 | Cloudy | Bernard, Director. |
| Paris, Observatory | | | 30.24 | 768.1 | 70.3 | 21.3 | 34 | NNE | | | 2 | | 2ck | | NNE | 0 | 0 | Slightly cl'dy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.15 | 765.9 | 80.6 | 27.0 | 39 | NE | | | 4 | | 8 | | NE | 0 | 0 | ¾ covered | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.26 | 768.6 | 73.2 | 22.9 | 44 | NNW | | | 1 | | 8 | | N | 0 | 0 | Very cloudy | F. Lucard, Director. |
| Tarbes, Normal School | 29.04 | 737.7 | 30.09 | 764.3 | 72.5 | 22.5 | 84 | SW | | | 1 | | 0 | | | 0 | 0 | Clear | T. Hugues, Director. |
| Villefranche | | | 30.17 | 766.4 | 81.1 | 27.3 | 64 | NE | | | 2 | | 5 | | N | 0 | 0 | Cloudy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.7 | 81.3 | 27.4 | | | | | | | | | | 0.08 | 2. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 82.0 | 27.8 | 47 | SSW | | | 1 | | 8 | | | 0 | 0 | Cloudy | The Staff. |
| Mont-Louis | 25.05 | 636.2 | 30.36 | 771.2 | 66.0 | 18.9 | 56 | ESE | 18.6 | 8.33 | | | 6 | | NNE | 0 | 0 | | Mr. Falguère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 30.24 | 768.0 | 72.1 | 22.3 | 37 | ENE | | | 2-3 | | 1 | | NNE | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.10 | 764.4 | 78.8 | 26.0 | 50 | E | 3.7 | 1.67 | | | 5 | | W | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.49 | 545.9 | | | 48.6 | 9.2 | | N | | | 2 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.73 | 577.4 | | | 51.3 | 10.7 | | N | | | 2 | | 8 | | | 0.228 | 5.8 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.24 | 768.1 | 71.8 | 22.1 | 43 | N | | | 1 | | 0 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.14 | 765.5 | 80.8 | 27.1 | 36 | NE | | | 1 | | 1 | | | 0 | 0 | | The Staff |
| Tours | | | 30.21 | 767.2 | 75.4 | 24.1 | 46 | E | | | 2 | | 4 | | ENE | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.25 | 768.4 | 73.0 | 22.8 | 39 | NE | | | 2 | | 3 | | | 0 | 0 | Fair | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.82 | 757.5 | 70.0 | 21.1 | 97 | NE | 12.3 | 5.5 | | | 10n | | | 0.063 | 1.6 | Covered | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft. Pic du Midi, (Summit,) 2.877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10 | Clouds. Amount. Up'er 0–10 | Clouds. Amount. Low'r 0–10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.12 | 765.0 | 66.7 | 19.3 | 47 | N | | | 5 | | 8 | N | | 0.059 | 1.5 | | Prof. T. Hoh. |
| Berlin | | | 30.14 | 765.6 | 65.3 | 18.5 | 52 | W | | | 1 | | 7 | | | 0.067 | 1.7 | | Prof. Arndt. |
| Breslau | | | 30.11 | 764.8 | 68.0 | 20.0 | 58 | NNW | | | 3 | | 9 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.17 | 766.3 | 69.8 | 21.0 | 45 | N | | | 3 | | 8 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.29 | 769.3 | 64.0 | 17.8 | 87 | NW | | | 2 | | 7 | SW | | 0.047 | 1.2 | | Dr. H. Möhl. |
| Crefeld | | | 30.19 | 766.8 | 70.3 | 21.3 | 47 | NW | | | 2 | | 6 | | | 0.51 | 13. | | Director Lose. |
| Emden | | | 30.11 | 764.7 | 63.3 | 17.4 | 68 | WNW | | | 4 | | 10 | | | 0.591 | 15.0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.21 | 767.2 | 72.7 | 22.6 | 35 | N | | | 2 | | 5 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.74 | 729.9 | 30.13 | 765.4 | 70.7 | 21.5 | 61 | SW | | | 5 | | 2 | S | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.15 | 765.7 | 62.4 | 16.9 | 58 | WSW | | | 4 | | 10ks | | | 0.260 | 6.6 | Pleasant | Captain F. Hegemann. |
| Kiel | | | 30.10 | 764.5 | 62.4 | 16.9 | 64 | W | | | 3 | | 10 | | | 0.008 | 0.2 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 30.01 | 762.3 | 58.8 | 14.9 | 51 | W | | | 5 | | 2 | | | 0.516 | 13.1 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.19 | 766.9 | 62.8 | 17.1 | 60 | NW | | | 3 | | 10 | NW | | 0.051 | 1.3 | | Prof. Bruhns. |
| Memel, Naval School | | | 29.98 | 761.6 | 54.7 | 12.6 | 74 | WNW | | | 3 | | 10ks | | | | | Clearing | Reinbrecht & Skalweit |
| Neufahrwasser | | | 30.03 | 762.8 | 60.6 | 15.9 | 58 | ENE | | | 2 | | 7 | | | 0.496 | 12.6 | | A. Lothes. |
| Posen | | | 30.08 | 764.1 | 69.4 | 20.8 | 41 | NW | | | 7 | | 10 | | | Inap. | Inap. | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.19 | 766.9 | 69.4 | 20.8 | 50 | NE | | | 3 | | 5 | NW | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.15 | 765.9 | 69.8 | 21.0 | 45 | N | | | 2 | | 4 | W | | 0 | 0 | | Prof. Schoder. |
| Treves, (Trier) | | | 30.09 | 764.3 | 68.7 | 20.4 | 40 | W | | | 4 | | 4 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.65 | 727.7 | 30.12 | 765.0 | 67.3 | 19.6 | 53 | NW | | | 2 | | 6 | WNW | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.17 | 766.4 | 59.2 | 15.1 | 56 | W | | | 3 | | 4 | | | 0.036 | 0.9 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet: Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 29.94 | 760.4 | 80.1 | 26.7 | | N | | | | | 5 | | | | | Sprinkling | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.46 | 748.2 | 29.50 | 749.4 | 87.5 | 30.8 | 72 | SW | 42.0? | 18.7? | | | 8 | | SW | 0 | 0 | Dust-haze | |
| Deesa | 29.11 | 739.3 | 29.56 | 750.9 | 95.4 | 35.2 | 45 | SSW | | | | | 7 | SSW | | | | Drizzling | |
| Bombay | 29.70 | 754.5 | 29.74 | 755.4 | 84.5 | 29.2 | 80 | WSW | 22.0 | 9.8 | | | 10 | | W | 0.02 | 0.5 | Dust-haze | |
| Poona | 27.72 | 704.0 | 29.72 | 754.8 | 77.5 | 25.3 | 76 | | | | | | | | E | 0.14 | 3.6 | D. clouds | |
| Lahore | 28.68 | 727.9 | 29.35 | 745.6 | 107.3 | 41.8 | 31 | W | 3.6 | 1.6 | | | 8 | | E | 0 | 0 | Cloudy | |
| Belgaum | 27.28 | 693.0 | 29.83 | 757.6 | 74.3 | 23.5 | 87 | W | 25.0 | 11.1 | | | 8 | | W | 0.05 | 1.3 | D. clouds | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.66 | 728.0 | 29.54 | 750.2 | 88.4 | 31.3 | | SE | 9.7 | 4.3 | | | | | | 0 | 0 | | |
| Agra | 28.92 | 734.6 | 29.46 | 748.3 | 97.7 | 36.5 | 50 | NE | 6.0 | 2.6 | | | 8 | | NE | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.59 | 726.3 | 29.64 | 752.8 | 74.8 | 23.8 | 98 | W | 8.3 | 3.7 | | | 10 | | | 4.05 | 102.9 | Overcast | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.14 | 740.1 | 29.50 | 749.2 | 97.8 | 36.6 | 50 | ESE | 4.0 | 1.7 | | | 5 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.17 | 740.9 | 29.47 | 748.2 | 91.7 | 33.2 | 69 | ENE | 3.9 | 1.7 | | | 10 | | NE | 0 | 0 | Overcast | |
| Patna | 29.35 | 745.4 | 29.52 | 749.9 | 89.7 | 32.1 | 63 | E | 4.9 | 2.1 | | | 10 | | | 0 | 0 | Overcast | |
| Hazaribagh | 27.52 | 699.1 | 29.50 | 749.4 | 80.6 | 27.0 | 83 | ESE | 15.8 | 7.0 | | | 5 | E | E | 0.37 | 9.4 | Raining | |
| Cuttack | 29.46 | 748.3 | 29.54 | 750.4 | 87.5 | 30.8 | 65 | S | 2.6 | 1.1 | | | 9 | | | 0.07 | 1.8 | Showery | |
| Calcutta (Alipore) | 29.56 | 753.4 | 29.58 | 751.4 | 84.4 | 29.1 | 79 | S | 6.0 | 2.6 | | | 1 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.22 | 742.1 | 29.60 | 751.8 | 85.9 | 29.9 | 82 | Calm | 3.3 | 1.4 | | | 3 | W | | 0.21 | 5.3 | D. clouds | |
| Chittagong | 29.60 | 751.7 | 29.69 | 754.0 | 83.9 | 28.8 | 87 | SE | 10.7 | 4.7 | | | 10 | | | 0 | 0 | Gloomy | |
| Sibsagar | 29.28 | 743.6 | 29.60 | 752.0 | 89.3 | 31.8 | 76 | WSW | 1.9 | 0.8 | | | 3 | | | 0 | 0 | Blue sky | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.16 | 715.2 | 29.51 | 749.6 | 78.0 | 25.6 | 98 | NW | 2.7 | 1.2 | | | 10 | | | 1.92 | 48.8 | Overcast | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an tadditional decimal, and all conversions are published as given ' ie weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elev on of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.43 | 569.7 | 30.02 | 762.6 | 52.3 | 11.3 | 84 | NW | | | 4 | | 9 | NE | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.37 | 568.1 | 29.987 | 761.67 | 52.7 | 11.5 | | SE | | | 1 | | 4 | E | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.03 | 762.7 | 80.2 | 26.8 | 41 | SW | 1.8 | 0.8 | | | 1 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.04 | 762.9 | 79.9 | 26.6 | 44 | S | 1.8 | 0.8 | | | 0 | | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.03 | 762.8 | 81.3 | 27.4 | 43 | SE | 3.1 | 1.4 | | | 1 | W | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.06 | 763.5 | 64.6 | 18.1 | 51 | SE | | | 2 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | | | | | | | | | | | | | | | | | | | Prof. Trionfini Carlo. |
| Domodossola | | | 29.99 | 761.7 | 79.3 | 26.3 | 50 | S | | | 6 | | 3 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.04 | 763.1 | 83.1 | 28.4 | 59 | S | | | 2 | | 3 | ESE | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.05 | 763.2 | 79.2 | 26.2 | 42 | NE | | | 2 | | 0 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.04 | 762.9 | 81.5 | 27.5 | 44 | WSW | 2.5 | 1.1 | | | 1 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.20 | 716.2 | 30.02 | 762.4 | 77.0 | 25.0 | 41 | SSE | | | 2 | | 0 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.10 | 764.5 | 75.4 | 24.1 | 69 | E | | | 4 | | 3 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.06 | 763.5 | 78.1 | 25.6 | 59 | SW | 6.3 | 2.8 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.07 | 763.6 | 80.1 | 26.7 | 37 | N | 2.5 | 1.1 | | | 0 | | | 0 | 0 | | Dott. G Manzi. |
| Parma | | | 30.05 | 763.3 | 83.7 | 28.7 | 47 | SE | | | 2 | | 1 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.06 | 763.5 | 84.2 | 29.0 | 32 | SW | | | 2 | | 0 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.05 | 763.2 | 80.2 | 26.8 | 57 | ENE | 7.4 | 3.3 | | | 4 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.87 | 733.2 | 30.02 | 762.6 | 77.5 | 25.3 | 31 | E | 0.7 | 0.3 | | | 2 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.59 | 726.1 | 30.08 | 764.1 | 73.0 | 22.8 | 51 | NE | | | 2 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.08 | 764.0 | 75.0 | 23.9 | 57 | NW | 19.2 | 8.6 | | | 3 | NW | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.08 | 763.9 | 77.5 | 25.3 | 59 | NNW | | | 4 | | 2 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.09 | 764.3 | 83.5 | 28.6 | 24 | NE | | | 2 | | 2 | NE | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.06 | 763.4 | 81.9 | 27.7 | 53 | W | 3.1 | 1.4 | | | 7 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.11 | 764.7 | 84.6 | 29.2 | 30 | S | | | 4 | | 6 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.04 | 762.9 | 77.2 | 25.1 | 49 | NNE | 18.6 | 8.3 | | | 1 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.02 | 762.4 | 85.3 | 29.6 | 46 | SE | 1.8 | 0.8 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 29.96 | 761.0 | 86.4 | 30.2 | 32 | SE | | | 2 | | 4 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.067 | 763.47 | 78.3 | 25.7 | 51 | SE | | | 2 | | 2 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.09 | 764.2 | 76.8 | 24.9 | 59 | NE | 4.9 | 2.2 | | | 5 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.10 | 713.7 | 29.95 | 760.7 | 78.8 | 26.0 | 34 | S | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 29.97 | 761.1 | 81.5 | 27.5 | 66 | SE | | | 6 | | 5 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.07 | 763.7 | 81.0 | 27.2 | 41 | SW | 4.9 | 2.2 | | | 1 | | | 0 | 0 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.82 | 757.4 | 78 | 25.6 | 82 | S | 7 | 3.1 | | 4cs | | | | 0 | 0 | Fair | Prof. P. V. Veeder. |

Note.—The originals do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.19 | 589.0 | 30.20 | 767.1 | 55.2 | 12.9 | 87 | NW | 3.1 | 1.39 | | 0 | 1k | | | 0.098 | 2.5 | Fair | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.26 | 768.6 | 64.2 | 17.9 | | NW | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 30.10 | 764.5 | 61.7 | 16.5 | | W | | | 4 | | | | | 0 | 0 | | |
| Helder | | | 30.17 | 766.4 | 61.2 | 16.2 | | W | | | 5 | | | | | 0.039 | 1.0 | | |
| Utrecht | | | 30.16 | 766.0 | 69.4 | 20.8 | 50 | WNW | | | 4 | | 2 | | | 0 | 0 | Light cloudy. | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 30.05 | 763.3 | 55.0 | 12.8 | 61 | WSW | 8.9 | 4.0 | | | 2 | | | 0 | 0 | | |
| Brönö | | | 29.87 | 758.7 | 48.6 | 9.2 | 74 | WNW | 18 | 8 | | | 9 | | | 0.189 | 4.8 | | |
| Christiania | | | 29.93 | 760.2 | 62.6 | 17.0 | 48 | WSW | 7 | 3 | | | 10 | | | 0 | 0 | | |
| Tromsö | | | 29.64 | 752.9 | 52.0 | 11.1 | 59 | SW | 9 | 4 | | | 8 | | | 0.031 | 0.8 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.36 | 771.1 | 70.2 | 21.2 | 86 | W | 5.6 | 2.5 | | | 5 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.00 | 762.1 | 75.7 | 24.3 | 51 | ENE | 4.3 | 1.9 | | | 8 | ENE | | 0.678 | 17.1 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.17 | 766.2 | 70.5 | 21.4 | 74 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.04 | 763.0 | 72.1 | 22.3 | 68 | NE | 7.4 | 3.3 | | | 3 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.38 | 771.6 | 75.2 | 24.0 | 60 | SW | 0 | 0 | | | 7 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.02 | 762.5 | 64.2 | 17.9 | 55 | NW | 18 | 6 | | | 9 | | | | | | Astronomical Obs. |
| Wilna | | | 29.87 | 758.8 | 61.9 | 16.6 | 95 | S | 4 | 2 | | | 10 | | | | | Raining. | Astronomical Obs. |
| Dorpat | | | 29.93 | 760.2 | 64.4 | 18.0 | 46 | S | 2 | 1 | | | 6 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 29.93 | 760.2 | 61.5 | 16.4 | 57 | WNW | 7 | 3 | | | 7 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.82 | 757.3 | 63.7 | 17.6 | 65 | SW | 13 | 6 | | | 5 | | | | | | Ch. Forsten. |
| Kieff | | | 29.95 | 760.7 | 73.8 | 23.2 | 50 | Calm | 0 | 0 | | | 8 | | | | | | Physical Cabinet. |
| Nikolaiev | | | 29.98 | 761.5 | 86.4 | 30.2 | 41 | Calm | 0 | 0 | | | 6 | | | | | | Kurdakof. |
| Kertch | | | 29.97 | 761.1 | 84.7 | 29.3 | 56 | NNE | 7 | 3 | | | 0 | | | | | | Lagorio. |
| Moscow | | | 30.00 | 761.9 | 65.7 | 18.7 | 77 | NW | 9 | 4 | | | 5 | | | | | | Meteorological Obs. |
| Lugan | | | 29.89 | 759.2 | 85.5 | 29.7 | 52 | S | 2 | 1 | | | 3 | | | | | | Meteorological Obs. |
| Archangel | | | 29.79 | 756.7 | 64.2 | 17.9 | 71 | SW | 7 | 3 | | | 9 | | | | | | Ogorodnikof. |
| Tiflis | 28.59 | 726.2 | 29.93 | 760.1 | 88.0 | 31.1 | 35 | S | 4 | 2 | | | 7 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.94 | 760.4 | 91.0 | 32.8 | 33 | WSW | 2 | 1 | | | 3 | | | | | | Sebastianof. |
| Kasan | | | 29.79 | 756.6 | 81.0 | 27.2 | 35 | WSW | 11 | 5 | | | 1 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.20 | 767.0 | 85.5 | 29.7 | 87 | E | 11 | 5 | | | 3 | | | | | | Tschernischef. |
| Ekaterinburg | 28.70 | 728.9 | 29.62 | 752.3 | 59.5 | 15.3 | 85 | E | 18 | 8 | | | 10 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.85 | 758.3 | 83.7 | 28.7 | 41 | NNE | 2 | 1 | | | 1 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.37 | 720.7 | 29.99 | 761.8 | 80.8 | 27.1 | 58 | Calm | 0 | 0 | | | 3 | | | | | | Michelson. |
| Barnaul | | | 29.76 | 755.8 | 80.1 | 26.7 | 49 | Calm | 0 | 0 | | | 5 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.59 | 751.5 | 88.2 | 31.2 | 70 | W | 2 | 1 | | | 3 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 69.3 | 20.7 | | Calm | 0 | 0 | | | 3 | | | | | | Mossin. |
| Peking, (China) | | | 29.87 | 758.6 | 79.2 | 26.2 | 44 | Calm | 0 | 0 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.76 | 755.9 | 60.4 | 15.8 | 85 | NE | 7 | 3 | | | 2 | | | | | Lunar corona | |
| Nikolaievsk, on the Amoor | | | | | 44.6 | 7.0 | 92 | ENE | 7 | 3 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Domingo Martin y Perez. |
| Madrid, Royal Observatory | | | 29.99 | 761.7 | 78.4 | 25.8 | 32 | E | 13.4 | 6.00 | | 3 | 4 | NE | | 0.039 | 1.0 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.09 | 764.2 | 85.3 | 29.6 | 78 | Calm | 0 | 0 | | 0 | 1k | | | 0 | 0 | C | Benito Vines, S. J. |
| San Fernando, Naval Obs'y | | | 30.06 | 763.4 | 72.1 | 22.3 | 72 | WSW | 8.1 | 3.6 | | 2 | 4 | W | WSW | 0.043 | 1.1 | | Capt. C. Pujazon, R. N., Dir. |
| San Juan de Porto Rico, W. I. | | | 29.97 | 761.3 | 83.8 | 28.8 | 83 | E | 7.3 | 3.26 | | 5cs | 1k | | E | 0.148 | 3.75 | Clc. | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published: wind-velocity for Madrid in kilometers per hour; rain-fall for San Ju... as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.75 | 755.7 | 51.8 | 11.0 | 73 | SW | | | 2 | | 5 | | | 0.472 | 12.0 | | |
| Umea | | | 29.82 | 757.4 | 62.2 | 16.8 | 42 | WSW | | | 2 | | 9 | | | 0.031 | 0.8 | | |
| Hernosand | | | 29.81 | 757.2 | 57.9 | 14.4 | 65 | NW | | | 2 | | 8 | | | 0 | 0 | | |
| Stockholm | | | 29.88 | 759.0 | 62.6 | 17.0 | 94 | NW | | | 2 | | 8 | | | 0 | 0 | | |
| Wisby | | | 29.91 | 759.8 | 55.4 | 13.0 | 57 | NW | | | 4 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.90 | 759.4 | 61.9 | 16.6 | 44 | ENE | 7.2 | 3.2 | | | 9 | | | 0.00 | 0.05 | | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna syr...ols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.72 | 729.4 | 30.09 | 764.2 | 73.8 | 23.2 | 47 | N | | | 2 | | 1 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.58 | 724.6 | 30.10 | 764.4 | 76.5 | 24.7 | 49 | W | | | 1 | | 2 | | | 0 | 0 | Bright | The Observatory. |

Note.—For Geneva the corresponding departures from the normal values are: Barometer, +2.3 mm; Thermometer, +1.4 cent.; Relative Humidity, —7 per cent.

Note.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.92 | 760.0 | 73.4 | 23.0 | 72 | NNE | 20 | 9.0 | | | 7 | | NE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.74 | 755.3 | 84.6 | 29.2 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.03 | 762.7 | 82.8 | 28.2 | | SW | | | 1 | | 0 | | | | | | B. Stéfanidès. |
| Valona | | | 30.11 | 764.8 | 79.5 | 26.4 | | NW | | | 2 | | 0 | | | 0 | 0 | Clear | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.88 | 759.0 | 87.4 | 30.8 | 56 | W | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

Note.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.99 | 761.7 | 60.9 | 16.1 | 68 | NE | 6 | 2.7 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.04 | 763.0 | 73 | 22.8 | | NE | 1 | 0.4 | | 5c | 0 | W | | 0 | 0 | Fair | W. R. Bigg. |
| *Chatham, N. B | | | 30.00 | 762.0 | 54 | 12.2 | 86 | W | 6 | 2.7 | | 5ck | 5ks | W | W | 0 | 0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.05 | 763.3 | 56 | 13.3 | 86 | Calm | 0 | 0 | | | 10ks | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.02 | 762.5 | 62.4 | 16.9 | 72 | N | | | 1 | 7cs | 0 | | | 0 | 0 | Fair | James Smith, M. A. |
| Dalhousie, N. B | | | | | 62.8 | 17.0 | 73 | W | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C | | | 29.87 | 758.7 | 49.3 | 9.6 | 100 | Calm | | | | 2cs | 0 | | | 0 | 0 | Clear | W. H. Bevis. |
| *Father Point, Quebec | | | 30.02 | 762.5 | 56 | 13.3 | 78 | S | 3 | 1.3 | | 5k | 2s | W | W | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B | | | 30.06 | 763.5 | 59.0 | 15.0 | 69 | S | 1 | 0.4 | | 10ck | 0 | W | | 0 | 0 | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.97 | 761.2 | 58 | 14.4 | 94 | NW | 4 | 1.8 | | 2ck | 2ks | W | W | 0.08 | 2.0 | Fair | James Stewart. |
| Goderich, Ontario | | | 30.06 | 763.5 | 61.3 | 16.3 | | Calm | | | 0 | | 10n | | | 0.038 | 0.97 | Threatening | H. J. Strang, M. A. |
| Granton, Ontario | 28.94 | 735.1 | 30.00 | 762.0 | 60 | 18.9 | 89 | Calm | | | 0 | 1cs | 0 | | | 0 | 0 | Clear | James Grant. |
| *Halifax, N. S | | | 30.05 | 763.3 | 54 | 12.2 | 84 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.05 | 763.3 | 63.9 | 17.7 | 78 | N | | | 1 | 0? | 0? | | | 0 | 0 | Cloudy ? | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 29.99 | 761.7 | 54 | 12.2 | 61 | W | | | 2 | 0 | 0 | | | 0.02 | 0.5 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.07 | 763.8 | 66 | 18.9 | 82 | E | 2 | 0.9 | | 10c | 0 | | | 0 | 0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.05 | 763.3 | 66 | 18.9 | 65 | E | 3 | 1.3 | | 0 | 2ks | | | 0 | 0 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 30.03 | 762.7 | 62 | 16.7 | 88 | W | 7 | 3.1 | | 2cs | 5ks | SE | SE | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | 30.04 | 763.0 | 66.2 | 19.0 | 71 | Calm | | | 0 | 4c | 3s | | | 0 | 0 | Cloudy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.01 | 762.2 | 62 | 16.7 | 83 | N | 6 | 2.7 | | 10ck | 0 | W | | 0 | 0 | Fair | H Morgan. |
| Port Hastings, N. S | | | 29.97 | 761.2 | 63.0 | 17.2 | | Calm | 0 | 0 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.02 | 762.5 | 64 | 17.8 | 85 | NW | 3 | 1.3 | | 5ck | 0 | W | | 0 | 0 | Fair | M. Payne. |
| *Quebec, Quebec | | | 30.07 | 763.8 | 65 | 18.3 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.98 | 761.5 | 61 | 16.1 | 85 | Calm | 0 | 0 | | | 8s | | | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | | | 57 | 13.9 | 72 | SW | | | | 10ck | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 30.01 | 762.2 | 63 | 17.2 | 82 | Calm | 0 | 0 | | 10cs | 0 | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 30.00 | 762.0 | 69 | 20.6 | 74 | Calm | 0 | 0 | | 2c | Haze | SW | | 0 | 0 | Hazy | R. J. Cole. |
| Stratford, Ontario | 28.76 | 730.5 | 30.00 | 762.0 | 62.0 | 16.7 | 89 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 30.07 | 763.8 | 62 | 16.7 | 70 | NW | 1 | 0.4 | | 2c | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 30.03 | 762.7 | 66 | 18.9 | 62 | NE | 1 | 0.4 | | 8cs | 0 | NW | | 0 | 0 | Cloudy | Magnetic Observatory |
| Windsor, N. S | | | 30.09 | 764.3 | 58 | 14.4 | 76 | NW | 4 | 1.8 | | 2c | 2k | NW | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 30.01 | 762.2 | 65.6 | 18.7 | 81 | Calm | 0 | 0 | | 8k | 0 | | | 0.07 | 1.8 | Cloudy | J. Montgomery. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.09 | 764.3 | 67.0 | 19.4 | 42 | SW | | | | 0 | 0 | | | 0.07 | 1.8 | Fair | John Delany |

Note.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m

By authority of the **SECRETARY OF WAR.** UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.04 | 763.0 | 65 | 18.3 | 73 | NW | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Alpena, Mich. | | | 30.08 | 764.0 | 60 | 15.6 | 70 | W | 2 | 0.9 | | | 10s | | W | 0 | 0 | Cloudy | |
| Atlantic City, N. J. | | | 30.06 | 763.5 | 65 | 18.3 | 78 | E | 7 | 3.1 | | Haze | 5s | | | 0 | 0 | Fair | |
| Augusta, Ga. | | | 29.92 | 760.0 | 77 | 25.0 | 82 | Calm | 0 | 0 | | 0 | 0 | | | 0.43 | 10.9 | Clear | |
| Baltimore, Md. | | | 30.06 | 763.5 | 66 | 18.9 | 90 | E | 12 | 5.4 | | | 10n | | E | 0.05 | 1.3 | Light rain | |
| Barnegat, N. J. | | | 30.07 | 763.8 | 65 | 18.3 | 78 | E | 8 | 3.6 | | 8ck | 0 | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 28.30 | 718.8 | 29.92 | 760.0 | 56 | 13.3 | 82 | W | 2 | 0.9 | | 0 | 0 | | | 0.46 | 11.7 | Clear | |
| Boston, Mass. | | | 30.08 | 764.0 | 63 | 17.2 | 69 | W | 3 | 1.3 | | 7cs | Haze | W | | 0 | 0 | Fair | |
| Breckenridge, Minn. | | | 30.00 | 762.0 | 54 | 12.2 | 93 | W | 10 | 4.5 | | | 10ks | | NW | Inap. | Inap. | Cloudy | |
| Brownsville, Texas | | | 30.04 | 763.0 | 83 | 28.3 | 79 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 29.98 | 761.5 | 67 | 19.4 | 64 | E | 3 | 1.3 | | 2c | Sm'e | | | 0 | 0 | Fair | |
| Burlington, Vt. | | | 30.06 | 763.5 | 62 | 16.7 | 71 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cairo, Ill. | | | 30.04 | 763.0 | 70 | 21.1 | 90 | N | 3 | 1.3 | | | 10s | | | 0 | 0 | Cloudy | |
| Campo, Cal. | 27.40 | 696.0 | 29.97 | 761.2 | 47 | 8.3 | 77 | E | 2 | 0.9 | | 5c | 2s | SW | SW | 0 | 0 | Fair | |
| Camp Verde, Arizona | | | | | 63 | 17.2 | | Calm | | | | 5c | 0 | S | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.86 | 758.4 | 75 | 23.9 | 85 | NE | 6 | 2.7 | | 8k | 0 | SW | | 1.56 | 39.6 | Fair | |
| Cape Henry, Va. | | | 29.97 | 761.2 | 71 | 21.7 | 85 | NE | 16 | 7.2 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Cape Lookout, N. C. | | | 29.92 | 760.0 | 78 | 25.6 | 86 | NW | 2 | 0.9 | | 4k | 0 | NW | | 0.05 | 1.3 | Fair | |
| Cape May, N. J. | | | 30.02 | 762.5 | 66 | 18.9 | 84 | E | 10 | 4.5 | | | 10s | | W | Inap. | Inap. | Cloudy | |
| Charleston, S. C. | | | 29.97 | 761.2 | 78 | 25.6 | 86 | SW | 4 | 1.8 | | 1c | 1ks | | W | 1.37 | 34.8 | Fair | |
| Cheyenne, Wyoming | 24.10 | 612.1 | 30.04 | 763.0 | 51 | 10.6 | 79 | N | 4 | 1.8 | | 8c | 0 | W | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 30.02 | 762.5 | 70 | 21.1 | 61 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.94 | 760.5 | 73 | 22.8 | 71 | E | 3 | 1.3 | | Haze | Fog | | | 0 | 0 | Clear. | |
| Cleveland, Ohio | | | 30.00 | 762.0 | 65.5 | 18.6 | 83 | Calm | 0 | 0 | | | 10s | | | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 30.03 | 762.7 | 74 | 23.3 | 90 | S | 8 | 3.6 | | 2k | 0 | S | | 0 | 0 | Fair | |
| Davenport, Iowa | | | 30.05 | 763.3 | 67 | 19.4 | 79 | Calm | 0 | 0 | | 8cs | Haze | | | 0 | 0 | Fair | |
| Denison, Texas | | | 30.02 | 762.5 | 76 | 24.4 | 81 | SE | 9 | 4.0 | | 5k | 5ks | SE | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.83 | 630.7 | 30.05 | 763.3 | 56 | 13.3 | 39 | S | 4 | 1.8 | | | 8s | | W | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 29.97 | 761.2 | 64 | 17.8 | 94 | E | 5 | 2.2 | | | Fog | | | 0 | 0 | Foggy | |
| Dodge City, Kan. | 27.39 | 695.7 | 29.56 | 750.8 | 72 | 22.2 | 95 | SE | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Dubuque, Iowa | | | 30.04 | 763.0 | 64 | 17.8 | 83 | NW | 1 | 0.4 | | 10k | 0 | NW | | 0 | 0 | Cloudy | |
| Duluth, Minn. | | | 29.91 | 759.7 | 59 | 15.0 | 87 | NE | 6 | 2.7 | | 5k | 0 | SW | | 0.13 | 3.3 | Fair | |
| Eagle Pass, Tex. | | | 29.94 | 760.5 | 77 | 25.0 | 82 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 30.06 | 763.5 | 62 | 16.7 | 61 | SW | 3 | 1.3 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.95 | 760.7 | 69 | 20.6 | 65 | E | 1 | 0.4 | | 10c | Sm'e | | | 0 | 0 | Cloudy | |
| Escanaba, Mich. | | | 30.03 | 762.7 | 64 | 17.5 | 73 | S | 2 | 0.9 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Florence, Arizona | 28.30 | 718.8 | 29.90 | 759.4 | 88 | 31.1 | 27 | W | | | | 2cs | 0 | | | 0 | 0 | Fair | |
| Fort Gibson, Indian Ter. | | | 29.98 | 761.5 | 75 | 23.9 | 85 | SE | 5 | 2.2 | | 0 | 5s | | | 0.28 | 7.1 | Fair | |
| Fort Griffin, Tex. | 28.68 | 728.5 | 29.88 | 758.9 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.93 | 760.2 | 44 | 6.7 | 92 | SW | | | 7 | | 10s | | | 0.63 | 16.0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.74 | 730.0 | 29.79 | 756.7 | 78 | 25.6 | 82 | SE | 4 | 1.8 | | 2k | 0 | S | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.39 | 720.8 | 30.00 | 762.0 | 58 | 14.4 | 87 | NW | 2 | 0.9 | | 8ck | 0 | NW | | 0 | 0 | Fair | |
| Galveston, Tex. | | | 30.11 | 764.8 | 83 | 28.3 | 74 | S | 4 | 1.8 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Grand Haven, Mich. | | | 30.01 | 762.2 | 69 | 20.6 | 70 | NW | 6 | 2.7 | | 1c | 1s | NW | NW | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.00 | 762.0 | 74 | 23.3 | 68 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.08 | 764.0 | 86 | 30.0 | 75 | S | 10 | 4.5 | | 2k | 0 | S | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.02 | 762.5 | 86 | 30.0 | 68 | W | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.94 | 760.5 | 70 | 21.1 | 79 | NE | 8 | 3.6 | | 8c | 0 | NE | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.07 | 763.8 | 86.0 | 30.0 | 68 | E | 6 | 2.7 | | 0 | 2ks | | E | 0 | 0 | Hazy | |
| Kittyhawk, N. C. | | | 29.94 | 760.5 | 72 | 22.2 | 97 | NE | 16 | 7.2 | | | 10n | | NE | 0.13 | 3.3 | Heavy rain | |
| Knoxville, Tenn. | | | 30.01 | 762.2 | 70 | 21.1 | 84 | NW | 2 | 0.9 | | | 8ks | | NE | 0.35 | 8.9 | Cloudy | |
| La Crosse, Wis. | | | 30.01 | 762.2 | 62 | 16.7 | 88 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Leavenworth, Kan. | | | 30.04 | 763.0 | 68 | 20.0 | 90 | NE | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Louisville, Ky. | | | 29.98 | 761.5 | 73 | 22.8 | 80 | N | 2 | 0.9 | | 2k | Sm'e | W | N | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 29.93 | 760.2 | 76 | 24.4 | 72 | NE | 4 | 1.8 | | | 10n | | | 0.01 | 0.3 | Light rain | |
| Maricopa Wells, Arizona | | | | | 70 | 21.1 | | NE | | | | 5c | 0 | | | 0 | 0 | Fair | |
| Marquette, Mich. | | | 30.02 | 762.5 | 62 | 16.7 | 71 | E | 8 | 3.6 | | | 10s | | | 0 | 0 | Cloudy | |
| Mason, Tex. | 28.39 | 721.1 | 30.05 | 763.3 | 78 | 25.6 | 65 | SE | 12 | 5.4 | | 2c | 2s | | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.06 | 763.5 | 76 | 24.4 | 81 | SW | 1 | 0.4 | | 2c | 2ks | SW | | 0.45 | 11.4 | Fair | |
| Milwaukee, Wis. | | | 30.06 | 763.5 | 67 | 19.4 | 69 | NE | 4 | 1.8 | | 0 | Haze | | | 0 | 0 | Clear | |
| Mobile, Ala. | | | 30.07 | 763.8 | 84 | 28.9 | 79 | E | 5 | 2.2 | | 0 | Haze | | | 0.11 | 2.8 | Clear | |
| Montgomery, Ala. | | | 30.06 | 763.5 | 79 | 26.1 | 75 | NW | 4 | 1.8 | | Haze | 2ks | | NW | 0 | 0 | Fair | |
| Morgantown, W. Va. | 28.90 | 734.0 | 29.90 | 759.4 | 74 | 23.3 | 72 | NW | 3 | 1.3 | | 2c | 8ks | W | NW | 0.02 | 0.5 | Cloudy | |
| Mt. Washington, N. H. | 23.93 | 607.8 | 30.29 | 769.4 | 42 | 5.6 | 75 | NW | 7 | 3.1 | | 2c | 2k | NW | NW | 0 | 0 | Fair | |
| Nashville, Tenn. | | | 30.02 | 762.5 | 75 | 23.9 | 81 | SE | 2 | 0.9 | | 2c | 0 | NW | | 0.06 | 1.5 | Clear | |
| New Haven, Conn. | | | 30.08 | 764.0 | 66 | 18.9 | 68 | Calm | 0 | 0 | | 10k | Haze | | | 0 | 0 | Cloudy | |
| New London, Conn. | | | 30.10 | 764.5 | 64 | 17.8 | 78 | N | 4 | 1.8 | | 5ck,cs | Fog | SW,NW | | 0 | 0 | Fair | |
| New Orleans, La. | | | 30.10 | 764.5 | 83 | 28.3 | 79 | NW | 4 | 1.8 | | 1k | 0 | NW | | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.10 | 764.5 | 64 | 17.8 | 68 | Calm | 0 | 0 | | 10ck | 0 | W | | 0 | 0 | Cloudy | |
| New York, N. Y. | | | 30.08 | 764.0 | 66 | 18.9 | 68 | SE | 6 | 2.7 | | 5ck | 5s | | | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 29.97 | 761.2 | 73 | 22.8 | 76 | E | 6 | 2.7 | | | 10s | | E | Inap. | Inap. | Cloudy | |
| North Platte, Neb. | 27.10 | 688.3 | 29.58 | 751.3 | 63 | 17.2 | 72 | SE | 14 | 6.3 | | 5c | 0 | SE | | 0.01 | 0.3 | Fair | |
| Omaha, Neb. | 28.87 | 733.3 | 29.92 | 760.0 | 64 | 17.8 | 89 | SE | 16 | 7.2 | | | 10s | | | 0.76 | 19.3 | Cloudy | |
| Oswego, N. Y. | | | 30.04 | 763.0 | 65 | 18.3 | 68 | SW | 1 | 0.4 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 29.96 | 761.0 | 58 | 14.4 | 87 | Calm | 0 | 0 | | 5c | 0 | | | 0.40 | 10.2 | Fair | |
| Philadelphia, Pa. | | | 30.07 | 763.8 | 63 | 17.2 | 83 | E | 8 | 3.6 | | | 10ks | | E | 0 | 0 | Cloudy | |
| Phœnix, Arizona | | | | | 72 | 22.2 | 26 | SE | | | | 5ck | 2ks | S | S | 0 | 0 | Cloudy | |
| Pike's Peak, Col. | 18.01 | 457.4 | 30.22 | 767.6 | 31 | — 0.6 | 79 | SW | 48 | 21.5 | | 8cs | 0 | SW | | 0 | 0 | Fair | |
| Pittsburg, Pa. | | | 29.91 | 759.7 | 71 | 21.7 | 75 | NE | 4 | 1.8 | | 8c,k | | NW,W | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 30.00 | 762.0 | 61 | 16.1 | 82 | N | 7 | 3.1 | | 10cs | Sm'e | NW | | 0 | 0 | Smoky | |
| Portland, Me. | | | 30.06 | 763.5 | 64 | 17.8 | 73 | W | 3 | 1.3 | | 8k | Haze | W | | Inap. | Inap. | Cloudy | |
| Portland, Oregon | | | 29.90 | 759.4 | 55 | 12.8 | 86 | S | 4 | 1.8 | | 0 | 5s | | | 0.50 | 12.7 | Fair | |
| Prescott, Arizona | | | | | 52 | 11.1 | 34 | | | | | 8cs | 0 | SE | | 0 | 0 | Fair | |
| Punta Rassa, Fla. | | | 30.09 | 764.3 | 84 | 28.9 | 75 | NW | 8 | 3.6 | | 0 | 0 | | | 0.04 | 1.0 | Clear | |
| Rochester, N. Y. | | | 30.00 | 762.0 | 67 | 19.4 | 59 | SW | 2 | 0.9 | | 5c | Haze | W | | 0 | 0 | Fair | |
| Salt Lake City, Utah | 25.54 | 648.7 | 29.87 | 758.7 | 67 | 19.4 | 20 | SE | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.08 | 764.0 | 65 | 18.3 | 90 | E | 9 | 4.0 | | 8cs | 0 | W | | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.82 | 757.4 | 79 | 26.1 | 81 | S | 4 | 1.8 | | 0 | 5ks | | S | 0 | 0 | Fair | |
| San Diego, Cal. | | | 30.01 | 762.2 | 63 | 17.2 | 88 | NW | 3 | 1.3 | | 5c | 2s | NW | NW | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.08 | 764.0 | 53 | 11.7 | 86 | W | 8 | 3.6 | | 0 | 0 | | | 0.01 | 0.3 | Clear. | |
| Santa Fe, New Mexico | 23.41 | 594.6 | 29.95 | 760.7 | 64.5 | 18.1 | 5 | E | 2 | 0.9 | | 10cs | 0 | SW | | 0 | 0 | Cloudy | |
| Savannah, Ga. | | | 29.97 | 761.2 | 84 | 28.9 | 64 | NW | 4 | 1.8 | | 1c | 0 | SW | | 0.11 | 2.8 | Clear | |
| Shreveport, La. | | | 30.18 | 766.6 | 78 | 25.6 | 91 | S | 3 | 1.3 | | | 10s | | S | Inap. | Inap. | Cloudy | |
| Smithville, N. C. | | | 29.94 | 760.5 | 78 | 25.6 | 78 | W | 2 | 0.9 | | 2k | 0 | W | | 0.04 | 1.0 | Fair | |
| Springfield, Mass. | | | 30.08 | 764.0 | 69 | 20.6 | 67 | S | 2 | 0.9 | | 8c | 0 | W | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 30.01 | 762.2 | 70 | 21.1 | 85 | NE | 4 | 1.8 | | 0 | 0 | | | 0.77 | 19.6 | Clear | |
| St. Marks, Fla. | | | 30.05 | 763.3 | 81 | 27.2 | 87 | NW | 6 | 2.7 | | 0 | 5s | | NW | 0 | 0 | Fair | |
| St. Paul, Minn. | | | 29.92 | 760.0 | 62 | 16.7 | 77 | E | 2 | 0.9 | | | 10s | | W | 0 | 0 | Cloudy | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | 8ck | 0 | W | | 0 | 0 | Fair | |
| Stanwix, Arizona | | | | | 63 | 17.2 | 52 | SW | | | | 8cs | 0 | | | 0 | 0 | Fair | |
| Stockton, Tex | 26.91 | 683.5 | 29.91 | 759.7 | 75 | 23.9 | 64 | SE | 12 | 5.4 | | 5c;k | 0 | W | | 0 | 0 | Fair | |
| Thatcher's Island, Mass | | | 30.06 | 763.5 | 59 | 15.0 | 81 | SW | 8 | 3.6 | | 2ck | 5ks | S | | 0 | 0 | Fair | |
| Toledo, Ohio | | | 29.99 | 761.7 | 69 | 20.6 | 90 | Calm | 0 | 0 | | 5k | 2ks | S | S | 0 | 0 | Cloudy | |
| Tucson, Arizona | 27.53 | 699.2 | 30.07 | 763.8 | 69 | 20.6 | | S | | | | 0 | 0 | | | 0.33 | 8.4 | Clear | |
| Tybee Island, Ga | | | 29.96 | 761.0 | 80 | 26.7 | 78 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Vicksburg, Miss | | | 30.09 | 764.3 | 85 | 29.4 | 75 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, Montana | 24.22 | 615.2 | 29.70 | 754.4 | 46 | 7.8 | 69 | W | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Washington, D. C | | | 30.03 | 762.7 | 65 | 18.3 | 94 | E | 8 | 3.6 | | | 10n | | E | 0.08 | 2.0 | Heavy rain | |
| Wickenburg, Arizona | | | | | 81 | 27.2 | | Calm | | | | 5c | 0 | S | | 0 | 0 | Fair | |
| Wilmington, N. C | | | 29.93 | 760.2 | 78 | 25.6 | 82 | W | 3 | 1.3 | | 2ck | 1k | W | | 0.74 | 18.8 | Fair | |
| Wood's Holl, Mass | | | 30.12 | 765.0 | 66 | 18.9 | 63 | NE | 1 | 0.4 | | 5c | 0 | NW | | 0 | 0 | Fair | |
| Yankton, Dakota | 28.76 | 730.5 | 30.00 | 762.0 | 68 | 20.0 | 79 | S | 1 | 0.4 | | 8c | 2s | W | W | 0.31 | 7.9 | Fair | |
| Yuma, Arizona | | | 29.84 | 757.9 | 71 | 21.7 | 45 | Calm | 0 | 0 | | 8cs | 0 | | | 0 | 0 | Fair | |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.19 | 766.8 | 80 | 26.7 | 74 | Calm | 0 | 0 | | 8c | 0 | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 30.00 | 762.0 | 83 | 28.3 | | E | | | 3 | | | | | 0.03 | 0.8 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.03 | 762.7 | 82 | 27.8 | 83 | NE | | | 2 | | 10n | | | 1.350 | 34.29 | Rainy | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.20 | 640.1 | | | 70.0 | 21.1 | 67 | Calm | | | 0 | 5cs | 0 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 30.06 | 763.5 | 42 | 5.6 | 96 | NE | 0 | 0 | | 0 | | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.15 | 765.8 | 72 | 22.2 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.8 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.5 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,878 ft., or 1,486.2 m., Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.: Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 38[illegible].5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.[illegible] in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, [illegible].59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin [illegible] observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.14 | 765.5 | 76 | 24.4 | 67 | 19.4 | 89 | ENE | | | 3 | | 10 | | ENE | 0.56 | 14.2 | | | Cloudy | |
| Navy Yard, Mare Island, Cal. | 30.05 | 763.3 | 55 | 12.8 | 53 | 11.7 | | W | 19 | 8.5 | | | 1 | | W | 0.01 | 0.3 | | | Clear | |
| Navy Yard, Pensacola, Fla. | 30.23 | 767.8 | | | 82 | 27.8 | 91 | WSW | 12 | 5.4 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.12 | 765.0 | 72 | 22.2 | 65 | 18.3 | 73 | SSE | 2 | 0.9 | | | | | | 0 | 0 | | | Misty | |
| Naval Hospital, Yokohama, Japan | 29.82 | 757.4 | 77 | 25.0 | 77.5 | 25.3 | 82 | SW | | | 6 | | 8k;s | | SW | 0 | 0 | | | Cloudy | |
| Alert, S. 1° 17′ 11″, E. 129° 05′ | 30.02† | 762.5† | 84 | 28.9 | 83 | 28.3 | 96 | S | | | 3 | | 1 | | S | | | Long | S | Squally | |
| Alliance, Beirut, Syria | 30.03 | 762.7 | 81 | 27.2 | 80 | 26.7 | 87 | WNW | | | 1 | | 1 | | | | | Smooth | None | Clear. | |
| Ashuelot, Ningpo, China | 29.87 | 758.7 | 83 | 28.3 | 80 | 26.7 | 87 | SE | | | 2 | | 10 | | S&E | | | | | Showery | |
| Canonicus, New Orleans, La | 30.12 | 765.0 | 56 | 13.3 | 80 | 26.7 | 87 | WNW | | | 2 | | 3 | | | | | | | Clear | |
| Colorado, New York, N. Y | 30.13 | 765.3 | 61 | 16.1 | 65 | 18.3 | 68 | NNE | 1 | 0.4 | | | 9 | | SSW | 0 | 0 | | | D. clouds | |
| Despatch, Constantinople, Turkey. | 30.08 | 764.0 | 76 | 24.4 | 76 | 24.4 | 64 | NE | | | 3 | | 7 | | NE | | | | | Cloudy | |
| Franklin, Norfolk, Va. | 30.09 | 764.3 | 74 | 23.3 | 73 | 22.8 | 100 | E | 8 | 3.6 | | | 10 | | E | 0 | 0 | | | Overcast | |
| Frolic, Rio de Janeiro, Brazil | 30.34 | 770.6 | 72 | 22.2 | 74 | 23.3 | 95 | N | | | 2 | | 2ck | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Off Leghorn, Italy | 29.92 | 760.0 | | | 80 | 26.7 | ? | WSW | | | 3 | | 3 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.15 | 765.8 | 74 | 23.3 | 73 | 22.8 | 85 | E | 12 | 5.4 | | | | | | | | | | Overcast | |
| Huron, N. 16° 00′, W. 81° 06′ | 30.10 | 764.5 | 84 | 28.9 | 84 | 28.9 | 91 | NE | | | 5 | | 8 | | E | 0 | 0 | Long & heavy. | NE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.10 | 764.5 | 81 | 27.2 | 80 | 26.7 | 91 | SSW | | | 3–6 | | 8 | | N | 0 | 0 | Smooth | | Squally | |
| Marion, Smyrna, Turkey | 29.87 | 758.7 | 80 | 26.7 | 82 | 27.8 | 67 | W | | | 2 | | 8 | | W | 0 | 0 | Chop | W | D. clouds | |
| Michigan, Erie, Pa | 29.52 | 749.8 | 70 | 21.1 | 70 | 21.1 | 75 | Calm | | | 0 | | 0 | | | | | | | | |
| Monocacy, Tientsin, China | 29.87 | 758.7 | 76 | 24.4 | 72 | 22.2 | 80 | S | | | 2 | | 2 | | S | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.14 | 765.5 | 62 | 16.7 | 62 | 16.7 | 88 | Calm | | | 0 | | 2ck | | | | | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.22 | 767.6 | | | 81 | 27.2 | 74 | SSW | 5 | 2.2 | | | 1 | | NE | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.00 | 762.0 | 69.5 | 20.8 | 69 | 20.6 | 85 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | Slight | S | Cloudy | |
| Ossipee, Norfolk, Va | 30.03 | 762.7 | 74 | 23.3 | 73 | 22.8 | 85 | E | | | 3 | | 4 | | E | | | | | D. clouds | |
| Palos, Nankin, China | 29.96 | 761.0 | 69 | 20.6 | 68 | 20.0 | 95 | NE | | | 5 | | 10 | | N&E | | | | | Raining | |
| Pensacola, N. 36° 43′, W. 130° 48′ | 30.36 | 771.1 | | | 62 | 16.7 | 72 | NNW | | | 3 | | 4 | | | 0 | 0 | Long | N&W | Pleasant | |
| Plymouth, Key West, Fla | 30.12 | 765.0 | 87 | 30.6 | 83 | 28.3 | 96 | NE | | | 1 | | 3 | | E | 0 | 0 | Smooth | | Clear. | |
| Ranger, Aden, Arabia | 29.80 | 756.9 | | | 90 | 32.2 | 80 | SSW | | | 3 | | 0 | | | | | Smooth | | Clear. | |
| Richmond, S. 25° 7′, W. 39° 4′ | | | | | | | | | | | | | | | | | | | | | |
| Rio Bravo, Matamoras, Mexico | 29.94 | 760.5 | | | 75 | 23.9 | 86 | SE | | | 1 | | 2 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.12 | 765.0 | 70 | 21.1 | 67 | 19.4 | 89 | E | | | 4 | | 10 | | | 0.51 | 13.0 | | | Cloudy | |
| Saratoga, Boston, Mass | 30.34 | 770.6 | | | 64 | 17.8 | | W | | | 1–2 | | 6 | | S&E | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 30.00 | 762.0 | 65 | 18.3 | 68 | 20.0 | 79 | NE | 6 | 2.7 | | | 10 | | NE | 0 | 0 | | | Overcast | |
| Swatara, N 31° 24′, W. 80° 03′ | 30.20 | 767.1 | 85 | 29.4 | 83 | 28.3 | 83 | SSE | | | 4 | | 1k | | SW | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.81 | 757.2 | 80 | 26.7 | 72 | 22.2 | ? | SW | | | 3–6 | | 9 | | ENE | 0 | 0 | Slight | SE | Squally | |
| Trenton, Smyrna, Turkey | 30.13† | 765.3† | 84 | 28.9 | 87 | 30.6 | 69 | W | 9 | 4.0 | | | 2 | | W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 29.99 | 761.7 | 74 | 23.3 | 73 | 22.8 | 72 | NE | | | 3–5 | | 4 | | NE | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.14 | 765.5 | 61 | 16.1 | 62 | 16.7 | 83 | W | 5 | 2.2 | | | 5 | | | 0 | 0 | | | Hazy | |
| Wyoming, Washington, D.C | 30.22† | 767.6† | 71 | 21.7 | 72 | 22.2 | | NE | | | 1 | | 10 | | SE | | | | | Thunder-storm. | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

Furnished by the coöperation of ————, President; Williams, Blanchard & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Glendell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

### OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.

Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 36° 26′, E. 146° 21′ | N69W | | 29.82 | 757.4 | 73 | 22.8 | | WSW | | | 6 | | Fog | | | Rough | | Foggy | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

Furnished by the coöperation of A. Schumacher & Co., Agents.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio, N. 44° 57′, W. 36° 0′ | WSW ½W | 9 | 30.19 | 766.8 | 61 2 | 16.2 | | WNW | | | 3 | | k | | | Irregular. | | Threatening | Capt. G. Meyer. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. W. Richards |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—CONTINUED.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Richmond, Me | | | 30.00 | 762.0 | 68 | 20.0 | 74 | S | 5 | 2.2 | | 5k | 0 | SW | | | | Clear | Capt. James Jorgenson. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.) Chief Signal Officer, U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 29, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:18 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.11 | 764.7 | 77.0 | 25.0 | 62 | NNW | | | 3 | | 2 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.12 | 765.0 | 77 0 | 25.0 | 80 | N | | | 1 | | 5 | | | 0 | 0 | Fair | Peter. |
| La Calle | | | 30.10 | 764.6 | 79.0 | 26.1 | 84 | NNE | | | 2 | | 9 | | | Inap. | Inap. | Hidden | Fleury. |
| Tunis | | | 30.15 | 765.7 | 89.6 | 32.0 | | ESE | | | 4 | | 1 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.17 | 766.2 | 84.2 | 29.0 | | E | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.10 | 764.6 | 89.6 | 32.0 | | SSE | | | 4 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.17 | 766.4 | 85.1 | 29.5 | | WSW | | | 2 | | 3 | | | 0 | 0 | Fair | Bourgeois. |
| Geriville | | | 30.14 | 765.6 | 80.8 | 27.1 | 38 | SSE | | | 4 | | 5 | | | 0 | 0 | Fair | Lemaillot. |
| Laghouat | | | 30.08 | 764.1 | 87.8 | 31.0 | 18 | W | | | 4 | | 6 | | | 0 | 0 | Fair | Guyot. |
| Biskra | | | 30.12 | 765.0 | 100.0 | 37.8 | | NW | | | 1 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2.919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.23 | 767.7 | 64.4 | 18.0 | 77 | NE | | | 5 | | 10 | | | 0.118 | 3.0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.17 | 766.2 | 60.4 | 15.8 | 75 | W | | | 2 | | 5 | | | 0.988 | 25.1 | | Dr. Wierzbiski. |
| Eperies | | | 30.10 | 764.5 | 62.2 | 16.8 | 73 | NW | | | 2 | | 9k;s | | | 0.259 | 6.57 | | Julius Mikolik. |
| Gratz | 28.99 | 736.3 | 30.21 | 767.2 | 69.6 | 20.9 | 66 | SW | | | 3 | | 6 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.63 | 727.2 | 30.00 | 762.0 | 69.4 | 20.8 | 56 | N | | | 4 | | 8 | | | 0.254 | 6.45 | Rainy | Prof. Reissenberger. |
| Kremsmünster | 28.90 | 734.1 | 30.22 | 767.5 | 65.5 | 18.6 | 54 | W | | | 3 | | 7 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.03 | 762.7 | 62.4 | 16.9 | 70 | NW | | | 4 | | 7 | | | 0.252 | 6.4 | | Dr. T. Stanecki. |
| Pola | | | 30.12 | 765.1 | 77.2 | 25.1 | 54 | E | | | 5 | | 9cks | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.10 | 764.5 | 70.2 | 21.2 | 76 | NW | | | 2 | | 5 | | | 0.030 | 0.75 | | Karl Stancel. |
| Trieste | | | 30.15 | 765.8 | 77.0 | 25.0 | 53 | ENE | | | 2 | | 9 | | | 0 | 0 | Cloudy | P. Busin. |
| Vienna | | | 30.20 | 767.0 | 67.5 | 19.7 | 60 | WNW | | | 1 | | 9 | | | 0.008 | 0.2 | | I. R. Central Met. Obs'y |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.85 | 732.9 | 30.33 | 770.3 | 69.4 | 20.8 | 47 | WSW | | | 1 | | 9 | | | 0 | 0 | | Royal Observatory |
| Brussels | | | 30.27 | 768.9 | 73.0 | 23.3 | 42 | SW | | | 1 | 2c | | NW | | 0 | 0 | | |
| Furnes | | | 30.25 | 768.4 | 74.3 | 23.5 | 52 | W | | | 4 | | 3 | | | 0 | 0 | | |
| Maeseyck | | | 30.28 | 769.2 | 75.9 | 24.3 | 59 | WNW | | | 4 | | 5 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E. Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 29.94 | 760.5 | 63.0 | 17.2 | | WNW | 9 | 4.0 | | | 8 | | | 0.760 | 19.30 | Overcast | William Boswell. |
| Ardrossan | | | 30.05 | 763.3 | 58 | 14.4 | | NW | | | 1 | | 8 | | | | | Overcast | William McNeil. |
| Armagh, Observatory | | | 30.13 | 765.3 | 57.0 | 13.9 | | WSW | 4 | 1.8 | | | 10 | | | | | Drizzling | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.13 | 765.3 | 67.9 | 19.9 | | WSW | 31 | 13.9 | | | 4 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.15 | 765.8 | 58.0 | 14.4 | | W | | | 1 | | 10 | | | | | Hazy | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.12 | 765.0 | 69.8 | 21.0 | | SW | | | 1 | | 10 | | | 0 | 0 | Overcast | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.01 | 762.2 | 83 | 28.3 | | NE | | | 2 | | 2 | | | | | | Pvt. G. W. Roberts, A. |
| Cambridge, Observatory | | | 30.19 | 766.8 | 80.0 | 26.7 | | WSW | | | 2 | | 1c | | | | | D. clouds | H. Todd. [H.C. |
| Cardington | | | 30.20 | 767.1 | 81.0 | 27.2 | | W | | | 3 | | 1 | | | | | Blue sky | John McLaren. |
| Chatham, School M. E. | | | 30.27 | 768.8 | 78.2 | 25.7 | | W | | | 2 | | 6 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.83 | 732.3 | 30.28 | 769.1 | 68.0 | 20.0 | | SW | | | 2 | | 0 | | | | | Fine | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.10 | 764.5 | 58 | 14.4 | | SW | | | 3 | | 10 | | | | | Overcast | J. Mac Gowan. |
| Dover | | | 30.27 | 768.8 | 67 | 19.4 | | WSW | | | 3 | | 2 | | | | | ¼ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.13 | 765.3 | 70.8 | 21.6 | | SW | 9.0 | 4.0 | | | 10 | | | | | Overcast | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.27 | 768.8 | 70.5 | 21.4 | | SSW | | | 1 | | 1 | | | | | D. clouds | The Staff. |
| Fort Napier, (Natal) | 27.91 | 708.9 | 30.14 | 765.5 | 66.3 | 19.1 | | SE | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.06 | 763.5 | 85 | 29.4 | | W | | | 1 | | 4 | | | | | D. clouds | |
| Galway, Queen's College | | | 30.01 | 762.2 | 66 | 18.9 | | W | | | 4 | | 8 | | | | | Hazy | R. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.05 | 763.3 | 75.0 | 23.9 | | NE | | | 3 | | 3 | | | | | D. clouds | Corpl. C. Aitken, A.H.C. |
| Glasgow, Observatory | | | 30.03 | 762.7 | 60.2 | 15.7 | | WNW | | | 5 | | 10 | | | | | Overcast | D. G. Maclean. |
| Great Yarmouth | | | 30.18 | 766.6 | 77 | 25.0 | | W | | | 3 | | 2 | | | | | Blue sky | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.21 | 767.3 | 81.3 | 27.4 | | SW | | | 2 | | 2 | | | | | Blue sky | The Staff, for G. B. Airy. |
| Guernsey | | | 30.27 | 768.8 | 70 | 21.1 | | NE | | | 1 | | 0 | | | | | Blue sky | Dr. S. E. Hoskins, F.R.S. |
| Helston | | | 30.30 | 769.6 | 68 | 20.0 | | S | | | 2 | | 1c | | | 0 | 0 | Fine | M. P. Moyle. |
| Holyhead | | | 30.15 | 765.8 | 58 | 14.4 | | SSW | | | 5 | | 10 | | | | | Hazy | John Tilston. |
| Kew, Observatory | | | 30.22 | 767.6 | 75.0 | 23.9 | | WSW | 15 | 6.7 | | | 3 | | | | | Hazy | The Staff. |
| Kingstown | | | 30.11 | 764.8 | 68 | 20.0 | | W | | | 4 | | 9 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.16 | 766.1 | 73.5 | 23.1 | | W | | | 3 | | 7 | | | | | D. clouds | Wm. J. Harrison, F.G.S. |
| Malta, (Mediterranean) | | | 30.12 | 765.0 | 82.2 | 27.9 | | SE | | | 1 | | 4k | | | | | D. clouds | Corp'l. P. Bravis, A.H.C. |
| Nairn | | | 29.94 | 760.5 | 62 | 16.7 | | W | | | 3 | | 0 | | | | | Clear | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.09 | 764.3 | 84.8 | 29.3 | | SE | | | 1 | | 4 | | | | | D. clouds | J. Belgrave. |
| Nottingham, Observatory | | | 30.16 | 766.1 | 79.3 | 26.3 | | WNW | | | 4 | | 5c;ck | | W | 0 | 0 | D. clouds | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.14 | 765.5 | 77.2 | 25.1 | | SSW | | | 4 | | 3 | | | | | D. clouds | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.20 | 767.1 | 78 | 25.6 | | WNW | | | 1 | | 2 | | | | | Blue sky | F. Lucas. |
| Plymouth | | | 30.26 | 768.6 | 69.2 | 20.7 | | S | | | 1 | | 0 | | | | | Blue sky | John Merrifield. |
| Roche's Point | | | 30.17 | 766.3 | 62 | 16.7 | | SW | | | 3 | | 10 | | | | | Misty | W. Kennedy. |
| Saint Ann's Head | | | 30.23 | 767.8 | 63 | 17.2 | | SSW | | | 2 | | 5 | | | | | D. clouds | John C. Walker. |
| Saint Helier, (Jersey) | | | 30.28 | 769.1 | 75.2 | 24.0 | | SE | | | 2 | | 2 | | | | | ¼ clouded | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.91 | 759.7 | 55.1 | 12.8 | | WSW | 27 | 12.1 | | | 0 | | | | | Blue sky | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 29.89 | 759.2 | 78.0 | 25.6 | | NE | | | 2 | | 8 | | | Blank | Blank | D. clouds | Sergt. W. H. Lyne. |
| Sheffield | | | 30.10 | 764.5 | 76.1 | 24.5 | | W | | | 2 | | 4 | | | 0 | 0 | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.07 | 763.8 | 59.4 | 15.2 | 92 | SW | | | 3 | | 10 | | | 0.220 | 5.59 | Overcast | Rev. F. Redford, M. A. |
| Stonyhurst, Observatory | | | 30.13 | 765.3 | 62.4 | 16.9 | | SW | | | 3 | | 10 | | | | | Overcast | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.92 | 760.0 | 60 | 15.6 | | W | | | 6 | | 2 | | | | | Blue sky | John Smith. |
| Stratfield Turgiss | | | 30.24 | 768.1 | 76.5 | 24.7 | | W | | | 2 | | 0 | | | | | Blue sky | Rev. C. H. Griffith, F.M.S. |
| Thurso | | | 29.88 | 758.9 | 62 | 16.7 | | WNW | | | 4 | | 5 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.28 | 769.1 | 76 | 24.4 | | S | | | 4 | | 4 | | | | | D. clouds | W. Newcombe. |
| Valencia, Observatory | | | 30.18 | 766.6 | 55.9 | 13.3 | | WNW | 6 | 2.7 | | | 10 | | | | | Misty | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 56 | 13.3 | | SW | | | 4 | | 10 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.48 | 774.2 | 61.4 | 16.3 | 70 | S | 4 | 1.8 | | 0 | 1 | | | | | | The Staff, for E. J. Stone. |
| Hobart Town, (Tasmania) | | | 30.42 | 772.7 | 52.5 | 11.4 | 81 | NW | | | 2 | | 3k | | | 0.01 | 0.3 | | Francis Abbott, F.R.A.S. |
| Leith, Restalrig Park | | | 30.05 | 763.3 | 65.0 | 18.3 | | W | | | 5 | | 10k | | | 0.10 | 2.5 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.23 | 767.8 | 70.7 | 21.5 | 73 | E | 18.7 | 8.4 | | 7 | 2 | NW | ESE | 0 | 0 | Dull | C. Meldrum. |
| Melbourne, Observatory | | | 30.65 | 778.5 | 49.7 | 9.8 | 87 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | Threatening | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.90 | 759.4 | 56 | 13.3 | | SW | | | 4 | 5 | 0 | SW | | 0.2 | 5. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.72 | 754.9 | 50 | 10.0 | | SSW | | | 6 | | 10 | | | Blank | Blank | | Robert Burnet. |

NOTE.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0? m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected. Inches. | Barometer. Corrected. Millimeters. | Barometer. Reduced. Inches. | Barometer. Reduced. Millimeters. | Temperature. Fahrenheit. | Temperature. Centigrade. | Relative Humidity. | Wind. Direction. | Wind. Velocity. | Wind. Velocity. | Wind. Force. | Clouds. Amount. Up'er | Clouds. Amount. Low'r | Clouds. Direction. Upper. | Clouds. Direction. Lower. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 40° 40′, W. 64° 35′ | | | 30.07 | 763.8 | 63.0 | 17.2 | | ENE | | | 3 | | 10 | | | 10* | E | Overcast | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown, N. 52° 20′, W. 5° 30′ | | | 30.23 | 767.8 | 59.0 | 15.0 | | SSW | | | 3 | | 10 | | | 2 | SSW | Hazy | Capt. A. T. Miller. |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. D. F. McKechnie. |
| S. S. Hibernia, N. 51° 55′, W. 12° 30′ | | | 30.16 | 766.1 | 60.2 | 15.7 | | W | | | 3 | | 7 | | | 3 | Confused. | D. clouds | Capt. W. R. Cato. |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. A. T. Brown. |
| Ship Mikado, N. 48° 20′, W. 12° 0′ | | | 30.23 | 767.8 | 68.5 | 20.3 | | SW | | | 3 | | 8 | | | 5 | WNW | Hazy | Capt. C. C. Prehn. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Quang Le | | | | | | | | | | | | | | | | | | | Capt. G. H. Jones. |
| S. S. Seine, N. 52° 14′, W. 14° 25′ | | | 30.16 | 766.1 | 63 | 17.2 | | WNW | | | 3 | | 3 | NW | | | WNW | D. Clouds | Capt. H. Manning. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

NOTE.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.22 | 666.0 | | | 70.2 | 21.2 | 89 | NE | | | 3 | | 9s | | NE | Inap. | Inap. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.19 | 766.8 | 63.0 | 17.2 | 52 | W | | | 2 | | 2 | | | | | | |
| Fanöe | | | 30.15 | 765.7 | 61.0 | 16.1 | 81 | WSW | | | 2 | | 5 | | | | | | |
| Godthaab, (Greenland) | | | 29.54 | 750.4 | 42.8 | 6.0 | 75 | N | | | 2 | | 1 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.15 | 740.4 | 53.1 | 11.7 | 98 | SE | | | 2 | | 10 | | | | | Raining | |
| Thorshavn, (Faröe) | | | 29.65 | 753.0 | 54.3 | 12.4 | 86 | WNW | | | 6 | | 5 | | | | | Raining | |
| Vestervig | | | 30.11 | 764.8 | 56.8 | 13.8 | 80 | SW | | | 4 | | 8 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds.

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.37 | 771.4 | 68.0 | 20 | 53 | NE | | | 1 | 2c | | NE | | 0 | 0 | Slightly cl'dy | Collignon, Director. |
| Amiens, Normal School | | | 30.25 | 768.3 | 82.4 | 28.0 | 45 | S | | | 2 | | 0 | | | 0 | 0 | Clear | Bonvarne, Director. |
| Avignon, Normal School | | | 30.13 | 765.3 | 89.2 | 31.8 | 34 | N | | | 1 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.28 | 767.8 | 77.2 | 25.1 | 26 | E | | | 2 | 2c | | | | 0 | 0 | Slightly cl'dy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.22 | 767.6 | 79.2 | 26.2 | 42 | E | 10.3 | 4.6 | | | | | NE | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.30 | 769.5 | 73.6 | 23.1 | 39 | SSE | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | Normal School. |
| Besançon | | | 30.24 | 768.1 | 77.4 | 25.2 | 42 | NE | | | 6 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.31 | 769.9 | 79.7 | 26.5 | 53 | SW | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.24 | 768.1 | 74.8 | 23.8 | 55 | NE | | | 4 | | 2 | | SW | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.21 | 767.3 | 81.9 | 27.7 | 50 | SW | | | 2 | | 1k | | | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.14 | 765.6 | 71.2 | 21.8 | 36 | E | | | 1 | | 1 | | E | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.28 | 769.1 | 76.5 | 24.7 | 50 | NE | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Chartres, Normal School | | | 30.28 | 769.0 | 76.3 | 24.6 | 84 | E | | | 1 | | 0 | | | 0 | 0 | Clear | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.28 | 769.2 | 78.8 | 26.0 | 35 | Calm | | | 0 | 5c | | | | 0 | 0 | Cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.19 | 766.9 | 75.9 | 24.4 | 45 | N | | | 1 | | 1 | | | 0 | 0 | Almost clear | Alluard, Director. |
| Commercy, Normal School | | | 30.31 | 769.8 | 71.2 | 21.8 | 37 | E | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.21 | 767.4 | 86.5 | 30.3 | 30 | SW | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.23 | 767.8 | 78.3 | 25.7 | 55 | N | | | 1 | | 2cs | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.20 | 767.1 | 82.4 | 28.0 | 40 | NE | | | 4 | | 0 | | | 0 | 0 | Clear | Mouillot, Director. |
| Le Mans, Normal School | | | 30.27 | 768.9 | 76.3 | 24.6 | 44 | E | | | 2 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.15 | 765.9 | 75.7 | 24.3 | 51 | NE | | | 6 | | 0 | | | 0 | 0 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 30.28 | 769.2 | 78.8 | 26.0 | 42 | S | | | 2 | | 1 | | SW | 0 | 0 | Clear | T. Carré, Director. |
| Mâcon, Normal School | | | 30.21 | 767.4 | 72.5 | 22.5 | 76 | N | | | 4 | | 0 | | | 0 | 0 | Clear | M. Marchal, Director. |
| Metz | | | 30.39 | 771.8 | 70.9 | 21.6 | 35 | ENE | | | 2 | | 2cs | | | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.21 | 767.4 | 70.0 | 21.1 | 36 | NNE | | | 4 | | 2 | | SSW | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 30.09 | 764.2 | 88.0 | 31.6 | 54 | NE | | | 4 | | | | NE | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 29.83? | 757.6? | 76.6 | 24.8 | 33 | NE | | | 4 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Bernard, Director. |
| Paris, Observatory | | | 30.28 | 769.0 | 78.1 | 25.6 | 34 | SE | | | 2 | 5c | | | | 0 | 0 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.19 | 766.9 | 83.8 | 28.8 | 30 | NE | | | 4 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.28 | 769.2 | 78.4 | 25.8 | 48 | WSW | | | 1 | | 0 | | | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 29.04 | 737.7 | 30.16 | 766.0 | 82.4 | 28 | 62 | WSW | | | 2 | | 5 | | W | 0.12 | 3. | Cloudy | T. Hugues, Director. |
| Villefranche | | | 30.26 | 768.5 | 80.8 | 27.1 | 64 | N | | | 3 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.91 | 759.8 | 81.0 | 27.2 | | | | | | | | | | 0.87 | 22. | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 79.3 | 26.3 | 63 | W | | | 1 | | 1 | | | 0 | 0 | Clear | The Staff. |
| Mont-Louis | 25.95 | 636.2 | 30.45 | 773.3 | 66.6 | 19.2 | 51 | ESE | 14.9 | 6.66 | | | 8 | | SE | 0 | 0 | | Mr. Falguère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 30.28 | 769.2 | 81.3 | 27.4 | 30 | ESE | | | 2 | | 4 | | | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.15 | 765.7 | 82.0 | 27.8 | 41 | SE | 9.3 | 4.17 | | | 0 | | | 0 | 0 | | Dr. Finos. |
| Pic du Midi, (Summit,) H. P. | 21.49 | 545.9 | | | 47.3 | 8.5 | | N | | | 1 | | 10 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.73 | 577.4 | | | 49.1 | 9.5 | | N | | | 2 | | 10 | | | 0.228 | 5.8 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.29 | 769.4 | 78.1 | 25.6 | 36 | NE | | | 1 | | 0 | | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.20 | 767.1 | 82.2 | 27.9 | 48 | NW | | | 1 | | 1 | | | 0 | 0 | | The Staff |
| Tours | | | 30.24 | 768.2 | 79.9 | 26.6 | 30 | ENE | | | 3 | | 1 | | E | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.30 | 769.7 | 78.4 | 25.8 | 30 | SE | | | 1 | | 0 | | | 0 | 0 | Clear. | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.89 | 759.1 | 68.0 | 20.0 | 100 | N | 7.8 | 3.5 | | | 10n | | | 0.181 | 4.6 | Raining | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4; the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft. Pic du Midi, (Summit,) 2,877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 135 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. *Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10 | Clouds. Amount. Up'er 0–10 | Clouds. Amount. Low'r 0–10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.17 | 766.4 | 68.5 | 20.3 | 50 | NW | | | 4 | | 4 | N | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.24 | 768.0 | 68.5 | 20.3 | 44 | N | | | 1 | | 6 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.23 | 767.9 | 63.5 | 17.5 | 53 | N | | | 3 | | 6 | | | 0.047 | 1.2 | | Royal University Obs'y. |
| Carlsruhe | | | 30.29 | 769.3 | 72.0 | 22.2 | 45 | E | | | 1 | | 9 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.38 | 771.6 | 66.9 | 19.4 | 56 | N | | | 4 | | 8 | WNW | | 0.106 | 2.7 | | Dr. H. Möhl. |
| Crefeld | | | 30.26 | 768.6 | 77.2 | 25.1 | 38 | W | | | 3 | | 8 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.21 | 767.4 | 67.3 | 19.6 | 74 | S | | | 3 | | 10 | | | 0 | 0 | | Pr. f. Prestel. |
| Frankfort on the Main | | | 30.32 | 770.2 | 74.8 | 23.8 | 42 | W | | | 2 | | 4 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.87 | 733.4 | 30.28 | 769.0 | 70.5 | 21.4 | 41 | NE | | | 4 | | 3 | NW | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.23 | 767.9 | 67.5 | 19.7 | 56 | WSW | | | 2 | | 10ks | | | 0.094 | 2.4 | Fair | Captain F. Hegemann. |
| Kiel | | | 30.21 | 767.3 | 66.4 | 19.1 | 58 | NW | | | 1 | | 8 | | | 0.008 | 0.2 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 30.12 | 765.1 | 63.3 | 17.4 | 48 | NW | | | 5 | | 2 | | | 0.071 | 1.8 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.31 | 769.9 | 66.7 | 19.3 | 52 | WNW | | | 3 | | 7 | W | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.11 | 764.7 | 54.5 | 12.5 | 82 | NW | | | 4 | | 1k | | | | | | Reinbrecht & Skalwe |
| Neufahrwasser | | | 30.16 | 766.1 | 62.2 | 16.8 | 61 | NNE | | | 4 | | 5 | | | 0 | 0 | | A. Lothes. |
| Posen | | | 30.20 | 767.1 | 64.9 | 18.3 | 51 | NW | | | 7 | | 10 | | | 0.091 | 2.3 | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.30 | 769.5 | 72.7 | 22.6 | 38 | NE | | | 3 | | 10 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.29 | 769.3 | 70.7 | 21.5 | 41 | NE | | | 1 | | 4 | W | | 0 | 0 | | Prof. Schoder. |
| Treves, (Trier) | | | 30.17 | 766.4 | 74.5 | 23.6 | 43 | NW | | | 2 | | 8 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.80 | 731.4 | 30.27 | 768.9 | 67.3 | 19.6 | 46 | NW | | | 1 | | 5 | | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.32 | 770.0 | 61.0 | 16.1 | 67 | W | | | 2 | | 4 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355.9 feet; Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.00 | 761.9 | 86.4 | 30.2 | | NE | | | | | k | | | | | Clear | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published. They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.47 | 748.6 | 29.52 | 749.8 | 89.0 | 31.7 | 77 | S | 29.0? | 12.9? | | | 10 | | S | 0 | 0 | Overcast | |
| Deesa | 29.17 | 740.8 | 29.63 | 752.7 | 88.9 | 31.6 | 61 | S | | | | | 10 | SW | | 0 | 0 | Overcast | |
| Bombay | 29.70 | 754.5 | 29.74 | 755.4 | 84.5 | 29.2 | 80 | WSW | 22.0 | 9.8 | | | 10 | | W | 0.02 | 0.5 | Dust-haze | |
| Poona | 27.72 | 704.1 | 29.72 | 754.8 | 78.8 | 26.0 | 74 | | | | | | | | E | 0.02 | 0.5 | D. clouds | |
| Lahore | 28.80 | 731.5 | 29.52 | 749.8 | 89.9 | 32.2 | 65 | S | 5.5 | 2.4 | | | 8 | | | 0 | 0 | Cloudy | |
| Belgaum | 27.30 | 693.5 | 29.86 | 758.6 | 70.9 | 21.1 | 94 | W | 9.0 | 4.0 | | | 8 | | W | 0.69 | 17.5 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.67 | 728.1 | 29.54 | 750.2 | 91.4 | 33.0 | | Calm | 2.9 | 1.2 | | | | | | 0.51 | 13.0 | | |
| Agra | 28.92 | 734.5 | 29.46 | 748.2 | 99.7 | 37.6 | 42 | NE | 7.2 | 3.2 | | | 7 | | NE | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.62 | 726.9 | 29.66 | 753.3 | 78.6 | 25.8 | 89 | Calm | 11.5 | 5.1 | | | 8 | | | 0.70 | 17.8 | Gloomy | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 29.15 | 740.5 | 29.51 | 749.5 | 98.1 | 36.7 | 48 | ESE | 8.9 | 3.9 | | | 7 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.19 | 741.4 | 29.49 | 749.1 | 92.7 | 33.7 | 67 | NE | 5.8 | 2.5 | | | 10 | | NE | 0 | 0 | Overcast | |
| Patna | 29.34 | 745.1 | 29.51 | 745.5 | 95.3 | 35.2 | 51 | E | 1.6 | 0.7 | | | 5 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.58 | 700.6 | 29.56 | 750.9 | 82.0 | 27.8 | 77 | SE | 13.5 | 6.0 | | | 3 | SE | E | | | Drizzling | |
| Cuttack | 29.56 | 750.7 | 29.64 | 752.8 | 85.0 | 29.4 | 74 | SW | 3.0 | 1.3 | | | 8 | | | | | Drizzling | |
| Calcutta (Alipore) | 29.59 | 751.7 | 29.62 | 752.2 | 87.5 | 30.8 | 71 | S | 4.0 | 1.7 | | | 2 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.20 | 741.8 | 29.59 | 751.5 | 84.3 | 29.1 | 83 | NW | 1.4 | 0.6 | | | 4 | SSW | | 0 | 0 | D. clouds | |
| Chittagong | 29.47 | 751.1 | 29.66 | 753.4 | 84.6 | 29.2 | 83 | SW | 7.6 | 3.3 | | | 4 | | | 0 | 0 | Dust-haze | |
| Sibsagar | 29.30 | 744.2 | 29.63 | 752.7 | 80.4 | 26.9 | 91 | ENE | 3.4 | 1.5 | | | 10 | NE | NE | 0.44 | 11.2 | Gloomy | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.26 | 717.9 | 29.63 | 752.7 | 74.5 | 23.6 | 90 | W | 8.1 | 3.6 | | | 10 | | | 12.49 | 317.2 | Overcast | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.51 | 571.8 | 30.11 | 764.7 | 51.4 | 10.8 | 78 | NW | | | 1 | | 9 | NW | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.44 | 569.9 | 30.06? | 763.4? | 51.8 | 11.0 | | SSE | | | 1 | | 7 | | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.12 | 765.1 | 73.8 | 23.2 | 56 | E | 4.9 | 2.2 | | | 10 | | | 0 | 0 | | Ab. Dom. Mongini. |
| Padua | | | 30.11 | 764.7 | 80.4 | 26.9 | 51 | SE | 7.4 | 3.3 | | | 8 | NNW | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.11 | 764.7 | 81.0 | 27.2 | 50 | SE | 2.5 | 1.1 | | | 6 | N | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.12 | 765.0 | 67.3 | 19.6 | 44 | E | | | 2 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | | | | | | | | | | | | | | | | | | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.05 | 763.2 | 82.2 | 27.9 | 49 | S | | | 6 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 29.98 | 761.4 | 84.6 | 29.2 | 60 | NNW | | | 1 | | 1 | WNW | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.09 | 764.2 | 85.3 | 29.6 | 34 | SW | | | 2 | | 8 | | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 30.08 | 764.0 | 84.7 | 29.3 | 42 | ESE | 1.3 | 0.6 | | | 7 | W | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.23 | 717.1 | 30.05 | 763.3 | 82.6 | 28.1 | 39 | NNW | | | 4 | | 4 | NNE | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.19? | 766.8? | 80.6 | 27.0 | 60 | SSW | | | 2 | | 4 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.15 | 765.8 | 78.8 | 26.0 | 51 | SW | 4.3 | 1.9 | | | 2 | N | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.10 | 764.6 | 83.7 | 28.7 | 46 | SE | 1.8 | 0.8 | | | 8 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.10 | 764.4 | 86.4 | 30.2 | 45 | ENE | | | 4 | | 0 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.14 | 765.5 | 86.4 | 30.2 | 34 | W | | | 2 | | 3 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.14 | 765.6 | 81.3 | 27.4 | 57 | WSW | 5.6 | 2.5 | | | 5 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 28.95 | 735.3 | 30.10 | 764.6 | 83.5 | 28.6 | 37 | NW | 2.5 | 1.1 | | | 4 | W | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.64 | 727.5 | 30.14 | 765.5 | 77.5 | 25.3 | 49 | NE | | | 4 | | 7 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.14 | 765.6 | 77.5 | 25.3 | 55 | NE | 19.9 | 8.9 | | | 9 | N | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.14 | 765.6 | 79.2 | 26.2 | 63 | ESE | | | 4 | | 3 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.11 | 764.9 | 81.7 | 27.6 | 45 | NNW | | | 4 | | 3 | NW | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.14 | 765.6 | 83.5 | 28.6 | 43 | W | 11.9 | 5.3 | | | 4 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.16 | 766.1 | 84.9 | 29.4 | 60 | SW | | | 2 | | 4 | NW | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.08 | 763.9 | 78.6 | 25.9 | 42 | ENE | 12.5 | 5.6 | | | 6 | N | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.08 | 764.0 | 88.3 | 31.3 | 43 | NE | 3.8 | 1.7 | | | 2 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.09 | 764.2 | 80.6 | 27.0 | 66 | SE | | | 2 | | 1 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.14? | 765.6? | 80.1 | 26.7 | 60 | E | | | 2 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.09 | 764.2 | 78.8 | 26.0 | 55 | NE | 4.3 | 1.9 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.18 | 715.7 | 30.03 | 762.7 | 80.6 | 27.0 | 78 | SSW | | | 4 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.03 | 762.8 | 84.7 | 29.3 | 59 | NNE | | | 8 | | 3 | NE | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.18 | 766.5 | 82.4 | 28.0 | 49 | WSW | 1.8 | 0.8 | | | 2 | E | | 0 | 0 | | Prof. F. Brioschi. |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.92 | 760.0 | 71 | 21.7 | 85 | NE | 5 | 2.2 | | 10cs | | W | | 0 | 0 | Cloudy | Prof. P. V. Veeder. |

Note.—The originals do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.20 | 589.4 | 30.22 | 767.6 | 57.0 | 13.9 | 80 | NW | 2.2 | 1.00 | | 1k | 3k | SW | | 0 | 0 | Clear | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.28 | 769.2 | 70.0 | 21.1 | | WNW | | | 4 | | | | | 0 | 0 | | |
| Groningen | | | 30.21 | 767.4 | 65.3 | 18.5 | | S | | | 2 | | | | | 0 | 0 | | |
| Helder | | | 30.21 | 767.3 | 66.0 | 18.9 | | SW | | | 4 | | | | | 0 | 0 | | |
| Utrecht | | | 30.21 | 767.2 | 76.5 | 24.7 | 74 | WSW | | | 4 | | 2 | | | 0 | 0 | Light cloudy | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.99 | 761.7 | 53.8 | 12.1 | 93 | S | 26.4 | 11.8 | | | 5 | | | 0.606 | 15.4 | Raining | |
| Brönø | | | 29.99 | 761.8 | 52.5 | 11.4 | 63 | N | 7 | 3 | | | 8 | | | 0 | 0 | | |
| Christiania | | | 29.99 | 761.8 | 67.5 | 19.7 | 53 | SSW | 13 | 6 | | | 4 | | | 0.272 | 6.9 | | |
| Tromsö | | | 29.84 | 758.0 | 45.3 | 7.4 | 80 | W | 4 | 2 | | | 10 | | | 0.004 | 0.1 | Raining | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.40 | 772.1 | 72.5 | 22.5 | 79 | W | 1.8 | 0.8 | | | 4 | | | 0 | 0 | | Dr. J. A. Sampaio. |
| Campo Major | | | 30.04 | 763.1 | 83.6 | 28.7 | 30 | ESE | 15.4 | 6.9 | | | 2 | | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.18 | 766.5 | 70.7 | 21.5 | 62 | WSW | 6.9 | 3.1 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.09 | 764.2 | 81.3 | 27.4 | 37 | ENE | 15.0 | 6.7 | | | 3 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.38 | 771.7 | 77.0 | 25.0 | 58 | NE | 3.8 | 1.7 | | | 5 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.12 | 765.0 | 63.0 | 17.2 | 49 | WNW | 11 | 5 | | | 5 | | | | | | Astronomical Obs. |
| Wilna | | | 30.03 | 762.8 | 62.6 | 17.0 | 59 | WNW | 4 | 2 | | | 6 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.01 | 762.2 | 59.9 | 15.5 | 50 | W | 2 | 1 | | | 10 | | | Blank | Blank | | Physical Cabinet. |
| St. Petersburg | | | 29.88 | 759.0 | 57.7 | 14.3 | 60 | NNW | 16 | 7 | | | 10 | | | | | | Central Physical Obs. |
| Kuopio | | | 29.87 | 758.8 | 60.6 | 15.9 | 60 | W | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.82 | 757.4 | 74.3 | 23.5 | 59 | NW | 4 | 2 | | | 10 | | | | | | Physical Cabinet. |
| Nikolaiev | | | | | | | | | | | | | | | | | | | Kurdakof. |
| Kertch | | | 29.87 | 758.7 | 86.0 | 30.0 | 53 | N | 9 | 4 | | | 3 | | | | | | Lagorio. |
| Moscow | | | 29.91 | 759.8 | 73.6 | 23.1 | 53 | SW | 11 | 5 | | | 6 | | | | | | Meteorological Obs. |
| Lugan | | | 29.80 | 757.0 | 83.7 | 28.7 | 58 | ESE | 4 | 2 | | | 6 | | | | | | Meteorological Obs. |
| Archangel | | | 29.84 | 757.8 | 67.1 | 19.5 | 47 | Calm | 0 | 0 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.58 | 725.8 | 29.90 | 759.5 | 73.8 | 23.2 | 28 | S | 4 | 2 | | | 0 | | | | | | Physical Observatory. |
| Astrakhan | | | 30.00 | 761.9 | 87.8 | 31.0 | 36 | S | 7 | 3 | | | 1 | | | | | | Sebastianof. |
| Kasan | | | 29.84 | 757.9 | 79.3 | 26.3 | 45 | W | 2 | 1 | | | 2 | | | | | | Physical Cabinet. |
| Orenburg | | | 30.19 | 766.8 | 83.1 | 28.4 | 87 | E | 13 | 6 | | | 2 | | | | | | Tschernischef. |
| Ekaterinburg | 28.74 | 730.0 | 29.63 | 752.7 | 17.4 | 24.1 | 51 | Calm | 0 | 0 | | | 7 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.97? | 761.3? | 87.6? | 30.9? | 36? | NNE? | 7? | 3? | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.37 | 720.5 | 29.97? | 761.1 | 86.7 | 30.4 | 37 | Calm | 0 | 0 | | | 1 | | | | | | Michelson. |
| Barnaul | | | 29.63 | 752.7 | 78.3 | 25.7 | 67 | SE | 0 | 0 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.55 | 750.6 | 77.7 | 25.4 | 82 | SW | 4 | 2 | | | 7 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 64.9 | 18.3 | | Calm | 0 | 0 | | | 3 | | | | | | Mossin. |
| Peking, (China) | | | 29.74 | 755.4 | 83.3 | 28.5 | 35 | SW | 13 | 6 | | | 0 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.76 | 755.9 | 59.0 | 15.0 | 94 | SE | 11 | 5 | | | 6 | | | | | | |
| Nikolaievsk, on the Amoor | | | | | 44.1 | 6.7 | 93 | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Domingo Martin y Perez. |
| Madrid, Royal Observatory | | | 30.06 | 763.4 | 82.6 | 28.1 | 32 | NE | 7.4 | 3.33 | | 0 | 5 | | | 0.071 | 1.8 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.09 | 764.3 | 84.7 | 29.3 | 75 | Calm | 0 | 0 | | 0 | 1k | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y | | | 30.07 | 763.6 | 78.8 | 26.0 | 59 | W | 7.2 | 3.2 | | 0 | 7 | | W | 0 | 0 | | Capt. C. Pujazon, R. N., Dir. |
| San Juan de Porto Rico, W. I. | | | 29.99 | 761.8 | 83.1 | 28.4 | 80 | E | 6.4 | 2.86 | | 5cs | 1k | | E | 0 | 0 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.91 | 759.7 | 56.8 | 13.8 | 57 | N | | | 2 | | 5 | | | 0 | 0 | | |
| Umea | | | 29.97 | 761.3 | 63.0 | 17.2 | 35 | NW | | | 4 | | 8 | | | 0 | 0 | | |
| Hernosand | | | 29.99 | 761.8 | 62.6 | 17.0 | 80 | SE | | | 2 | | 5 | | | 0 | 0 | | |
| Stockholm | | | 30.05 | 763.3 | 65.1 | 18.4 | 96 | Calm | | | 0 | | 5 | | | 0 | 0 | | |
| Wisby | | | 29.08 | 764.0 | 56.1 | 13.4 | 75 | N | | | 4 | | 0 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 30.05 | 763.5 | 60.1 | 15.6 | 52 | NW | 2.7 | 1.2 | | | 6 | WNW | NW | 0.094 | 2.40 | Raining | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.83 | 732.2 | 30.20 | 767.1 | 72.3 | 22.4 | 56 | N | | | 3 | | 2c | | | 0 | 0 | | The Observatory. |
| Zurich | 28.67 | 728.2 | 30.24 | 768.2 | 72.9 | 22.7 | 43 | NE | | | 1 | | 4 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +5.1 mm; Thermometer, +0.5 cent.; Relative Humidity, +2 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 29.96 | 760.9 | 75.2 | 24.0 | 10 | NE | 10 | 4.5 | | | 10 | | NNE | 0 | 0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.84 | 757.8 | 82.9 | 28.3 | | NW | | | 0 | | 0 | | | | | | |
| Salonica | | | 30.09 | 764.2 | 86.5 | 30.3 | | NW | | | 0 | | 5 | | | | | | B. Stéfanidès. |
| Valona | | | 30.20 | 767.0 | 77.0 | 25.0 | | NW | | | 1 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.94 | 760.4 | 84.9 | 29.4 | 61 | WNW | | | 1 | | 0 | | | 0 | 0 | Blue sky | Prof. C. V. A. Van Dyck. |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10. | Clouds. Amount. Up'er 0–10. | Clouds. Amount. Low'r 0–10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 29.90 | 759.4 | 67.9 | 19.9 | 70 | NE | 6 | 2.7 | | | 0 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 30.01 | 762.2 | 72 | 22.2 | | NE | 1 | 0.4 | | 5ck | 2s | W | W | 0.06 | 1.5 | Fair | W. R. Bigg. |
| *Chatham, N. B | | | 30.03 | 762.7 | 63 | 17.2 | 80 | W | 2 | 0.9 | | 8c | 0 | W | | 0 | 0 | Fair | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.10 | 764.5 | 60 | 15.6 | 77 | S | 3 | 1.3 | | 5c | 0 | | | 0 | 0 | Fair | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 30.00 | 762.0 | 64.8 | 18.2 | 83 | N | | | 2 | 5k | 0 | | | 0.061 | 1.55 | Fair | James Smith, M. A. |
| Dalhousie, N. B | | | | | 57.1 | 13.9 | 69 | W | | | 1 | | | | | 0 | 0 | Bright | H. A. Johnson. |
| Esquimault, B. C | | | 29.98 | 761.5 | 54.2 | 12.3 | 88 | SE | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.04 | 763.0 | 54 | 12.2 | 80 | W | 3 | 1.3 | | 5ck | 6s | W | W | 0 | 0 | Cloudy | J. McWilliams. |
| Fredericton, N. B | | | 30.12 | 765.0 | 62.0 | 16.7 | 72 | S | 1 | 0.4 | | 1c | 0 | | | Inap. | Inap. | Fair | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.87 | 758.7 | 62 | 16.7 | 88 | E | 3 | 1.3 | | Haze | 0 | | | 0 | 0 | Fair | James Stewart. |
| Goderich, Ontario | | | 29.98 | 761.5 | 63.9 | 17.7 | | SW | | | 3 | | 10n | | | 0.013 | 0.33 | Threatening | H. J. Strang, M. A |
| Granton, Ontario | 28.90 | 734.0 | 29.98 | 761.5 | 61 | 16.1 | 94 | S | | | 1 | | 10n | | | 0 | 0 | Cloudy | James Grant. |
| *Halifax, N. S | | | 30.11 | 764.8 | 60 | 15.6 | 67 | W | 4 | 1.8 | | Haze | Haze | | | 0 | 0 | Hazy | F. Allison, M. A. |
| Hamilton, Ontario | | | 30.02 | 762.5 | 64.2 | 17.9 | 84 | W | | | 1 | | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 30.05 | 763.3 | 54 | 12.2 | 67 | N | | | | | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 30.04 | 763.0 | 65 | 18.3 | 88 | S | 11 | 4.9 | | | Sm'e | | | 0 | 0 | Fair | S. Woods, M. A. |
| *Montreal, Quebec | | | 30.02 | 762.5 | 68 | 20.0 | 68 | Calm | 0 | 0 | | | 2ks | | | 0.05 | 1.3 | Fair | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.94 | 760.5 | 59 | 15.0 | 94 | SW | 4 | 1.8 | | | 8ks | SW | SW | Inap. | Inap. | Cloudy | Rev. R. Mosley. |
| Peterboro, Ontario | | | 29.99 | 761.7 | 65.6 | 18.7 | 75 | SE | | | 1 | | 0 | | | 0 | 0 | Hazy | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 30.03 | 762.7 | 63 | 17.2 | 94 | S | 4 | 1.8 | | | Haze | | S | Inap. | Inap. | Hazy | H Morgan. |
| Port Hastings, N. S | | | 30.10 | 764.5 | 63.5 | 17.5 | | W | 2 | 0.9 | | | | | | 0 | 0 | Fine | Peter Grant |
| Port Stanley, Ontario | | | 30.01 | 762.2 | 65 | 18.3 | 96 | E | 4 | 1.8 | | 0 | Haze | | | 0.08 | 2.0 | Hazy | M. Payne. |
| *Quebec, Quebec | | | 30.07 | 763.8 | 60 | 15.6 | 82 | Calm | 0 | 0 | | | 10n | | | 0 | 0 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.98 | 761.5 | 60 | 15.6 | 88 | E | 6 | 2.7 | | | 8s | | SE | 0 | 0 | Fair | W. H. McIntyre. |
| St. John, N. B | | | | | 56 | 13.3 | 87 | SW | | | | 3c | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.88 | 758.9 | 64 | 17.8 | 87 | Calm | 0 | 0 | | 2ck | 2ks | | | 0.13 | 3.3 | Fair | K. Stewart. |
| Stayner, Ontario | | | 29.89 | 759.2 | 60 | 15.6 | 88 | Calm | 0 | 0 | | | 10n | | W | Inap | Inap. | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.72 | 729.5 | 29.96 | 761.0 | 61.5 | 16.4 | 95 | SW | 5 | 2.2 | | | 10n | | | 0 | 0 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 30.12 | 765.0 | 61 | 16.1 | 77 | NW | 4 | 1.8 | | 5c | 0 | W | | 0.01 | 0.3 | Fair | T. C. Hill. |
| *Toronto, Ontario | | | 29.99 | 761.7 | 60 | 15.6 | 87 | SE | 8 | 3.6 | | | 8ks | | W | 0.05 | 1.3 | Cloudy | Magnetic Observatory |
| Windsor, N. S | | | 30.14 | 765.5 | 62 | 16.7 | 74 | NW | 3 | 1.3 | | 3c;cs | 1k | NW | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.99 | 761.7 | 64.3 | 17.9 | 85 | SW | 15 | 6.7 | | | 9s | | W | 0 | 0 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.14 | 765.5 | 64.0 | 17.8 | 48 | E | | | | 0 | 5s | | | 0 | 0 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

UNITED STATES SERIES.

By authority of the **SECRETARY OF WAR.**

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.05 | 763.3 | 67 | 19.4 | 68 | NW | 6 | 2.7 | | 2ck | 0 | | | 0 | 0 | Fair | |
| Alpena, Mich. | | | 29.89 | 759.2 | 65 | 18.3 | 83 | W | 10 | 4.5 | | 5ck | 0 | W | | 0.21 | 5.3 | Fair | |
| Atlantic City, N. J. | | | 30.12 | 765.0 | 68 | 20.0 | 69 | E | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Augusta, Ga. | | | 30.09 | 764.3 | 76 | 24.4 | 77 | E | 3 | 1.3 | | 2k | Haze | | | 0 | 0 | Fair | |
| Baltimore, Md. | | | 30.12 | 765.0 | 67 | 19.4 | 79 | NE | 4 | 1.8 | | 2c | 5s | | | 0.23 | 5.8 | Fair | |
| Barnegat, N. J. | | | 30.11 | 764.8 | 69 | 20.6 | 65 | E | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Bismarck, Dakota | 27.92 | 709.2 | 29.50 | 749.3 | 55 | 12.8 | 100 | N | 34 | 15.2 | | | 10n | | N | 0.05 | 1.3 | Light rain | |
| Boston, Mass. | | | 30.12 | 765.0 | 66.5 | 19.2 | 57 | S | 8 | 3.6 | | 7cs | 0 | W | | 0 | 0 | Fair | |
| Breckenridge, Minn. | | | 29.74 | 755.4 | 62 | 16.7 | 77 | SE | 16 | 7.2 | | | 10s | | SE | 0 | 0 | Cloudy | |
| Brownsville, Texas | | | 30.05 | 763.3 | 83 | 28.3 | 83 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 29.99 | 761.7 | 66 | 18.9 | 84 | SW | 5 | 2.2 | | 5c | 2s | W | W | 0 | 0 | Fair | |
| Burlington, Vt. | | | 30.04 | 763.0 | 67 | 19.4 | 74 | S | 7 | 3.1 | | 5k | 0 | | | 0 | 0 | Fair | |
| Cairo, Ill. | | | 30.04 | 763.0 | 76 | 24.4 | 76 | E | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Campo, Cal. | 27.42 | 696.5 | 29.99 | 761.7 | 37 | 2.8 | 100 | E | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 70 | 21.1 | | S | | | | 5c | 0 | S | | 0 | 0 | Fair | |
| Cape Hatteras, N. C. | | | 29.95 | 760.7 | 71 | 21.7 | 71 | NE | 24 | 10.7 | | 2cs | 0 | NE | | 0.09 | 2.3 | Fair | |
| Cape Henry, Va. | | | 30.03 | 762.7 | 70 | 21.1 | 70 | NE | 24 | 10.7 | | 2cs | 2s | SE | SE | 0.01 | 0.3 | Fair | |
| Cape Lookout, N. C. | | | 30.02 | 762.5 | 72 | 22.2 | 52 | NE | 22 | 9.8 | | 0 | 4s | | | 1.09 | 27.7 | Fair | |
| Cape May, N. J. | | | 30.11 | 764.8 | 65 | 18.3 | 73 | NE | | | | 0 | 0 | | | 0.01 | 0.3 | Clear | |
| Charleston, S. C. | | | 30.08 | 764.0 | 73 | 22.8 | 81 | NE | 8 | 3.6 | | 0 | 5s | | NE | 0.12 | 3.0 | Fair | |
| Cheyenne, Wyoming | 23.83 | 605.3 | 29.77 | 756.1 | 63 | 17.2 | 29 | S | 8 | 3.6 | | 2ck | 0 | SW | | 0 | 0 | Fair | |
| Chicago, Ill. | | | 29.97 | 761.2 | 73 | 22.8 | 67 | SW | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cincinnati, Ohio | | | 29.99 | 761.8 | 71 | 21.7 | 80 | SE | 3 | 1.3 | | Haze | Fog | | SE | 0 | 0 | Foggy | |
| Cleveland, Ohio | | | 30.03 | 762.7 | 70 | 21.1 | 61 | S | 5 | 2.2 | | Haze | 0 | | | 0 | 0 | Fair | |
| Corsicana, Tex. | | | 30.00 | 762.0 | 75 | 23.9 | 85 | S | 12 | 5.4 | | | 10s | | S | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.97 | 761.2 | 71 | 21.7 | 75 | SW | 1 | 0.4 | | 1c | Haze | W | | 0 | 0 | Fair | |
| Denison, Texas | | | 29.93 | 760.2 | 79 | 26.1 | 82 | S | 12 | 5.4 | | 10k | 0 | S | | 0 | 0 | Cloudy | |
| Denver, Col. | 24.65 | 626.1 | 29.87 | 758.7 | 72 | 22.2 | 12 | SW | 15 | 6.7 | | | 8s | | SW | 0 | 0 | Cloudy | |
| Detroit, Mich. | | | 29.97 | 761.2 | 67 | 19.4 | 79 | SW | 5 | 2.2 | | | 10s | | W | Inap. | Inap. | Cloudy | |
| Dodge City, Kan. | 27.20 | 690.9 | 29.34 | 745.2 | 73 | 22.8 | 76 | S | 5 | 2.2 | | | 10s | | | 0 | 0 | Cloudy | |
| Dubuque, Iowa | | | 29.94 | 760.5 | 71 | 21.7 | 80 | SW | 1 | 0.4 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Duluth, Minn. | | | 29.87 | 758.7 | 63 | 17.2 | 72 | SW | 3 | 1.3 | | 5ck | 0 | W | | 0 | 0 | Fair | |
| Eagle Pass, Tex. | | | 29.92 | 760.0 | 81 | 27.2 | 66 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 30.11 | 764.8 | 62 | 16.7 | 66 | S | 8 | 3.6 | | 5c | 2s | NW | | 0 | 0 | Fair | |
| Erie, Pa. | | | 30.00 | 762.0 | 67 | 19.4 | 79 | SE | 8 | 3.6 | | 2c | Haze | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.90 | 759.4 | 65 | 18.3 | 78 | W | 3 | 1.3 | | 5k | 0 | W | | 0.91 | 23.1 | Fair | |
| Florence, Arizona | 28.28 | 718.3 | 29.88 | 758.9 | 88 | 31.1 | 21 | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.88 | 758.9 | 80 | 26.7 | 78 | S | 16 | 7.2 | | 2c | 0 | SW | | 0 | 0 | Fair | |
| Fort Griffin, Tex. | 28.64 | 727.4 | 29.85 | 758.2 | 77 | 25.0 | 77 | Calm | 0 | 0 | | 5ck | 2s | W | | 0 | 0 | Cloudy | |
| Ft. St. Michael, Alaska | | | 29.54 | 750.3 | 51 | 10.6 | 86 | E | | | 7 | | 10ks | | SE | 0 | 0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.67 | 728.2 | 29.72 | 754.9 | 74 | 23.3 | 81 | S | 10 | 4.5 | | 2c | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.89 | 708.4 | 29.42 | 747.3 | 73 | 22.8 | 90 | SE | 16 | 7.2 | | | 10s | | SE | 0 | 0 | Threatening | |
| Galveston, Tex. | | | 30.08 | 764.0 | 82 | 27.8 | 74 | S | 6 | 2.7 | | 1k | 0 | | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 29.95 | 760.7 | 69 | 20.6 | 75 | SW | 7 | 3.1 | | 5k | 0 | NW | | 0 | 0 | Fair | |
| Indianapolis, Ind. | | | 30.02 | 762.5 | 73 | 22.8 | 71 | Calm | 0 | 0 | | 0 | Sm' | | | 0 | 0 | Clear | |
| Indianola, Tex. | | | 30.06 | 763.5 | 85 | 29.4 | 71 | S | 8 | 3.6 | | 2k | 0 | S | | 0 | 0 | Clear | |
| Jacksonville, Fla. | | | 30.03 | 762.7 | 88 | 31.1 | 62 | NW | 1 | 0.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Keokuk, Iowa | | | 29.85 | 758.2 | 74 | 23.3 | 72 | S | 8 | 3.6 | | 8c | 0 | S | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.07 | 763.8 | 82.5 | 28.1 | 74 | Calm | 0 | 0 | | 1c | 2ks | | | 0.14 | 3.6 | Fair | |
| Kittyhawk, N. C. | | | 30.05 | 763.3 | 69 | 20.6 | 79 | NE | 24 | 10.7 | | 5c | 0 | NE | | 0.62 | 15.7 | Fair | |
| Knoxville, Tenn. | | | 30.07 | 763.8 | 70 | 21.1 | 90 | N | 4 | 1.8 | | 3ck | 0 | W | | 0 | 0 | Fair | |
| La Crosse, Wis. | | | 29.88 | 758.9 | 71 | 21.7 | 85 | S | 4 | 1.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Leavenworth, Kan. | | | 29.79 | 756.7 | 78 | 25.6 | 79 | SE | 10 | 4.5 | | 2cs | 0 | | | Inap. | Inap. | Fair | |
| Louisville, Ky. | | | 30.02 | 762.5 | 74 | 23.3 | 81 | N | 1 | 0.4 | | 0 | Sm'e | | N | 0 | 0 | Clear | |
| Lynchburg, Va. | | | 30.10 | 764.5 | 69 | 20.6 | 79 | NE | 1 | 0.4 | | | 10n | | | 0.09 | 2.3 | Light rain | |
| Maricopa Wells, Arizona | | | | | 79 | 26.1 | | W | | | | 5c | 0 | | | 0 | 0 | Fair | |
| Marquette, Mich. | | | 29.89 | 759.2 | 63 | 17.2 | 72 | W | 4 | 1.8 | | 0 | 0 | | | 0.25 | 6.3 | Clear | |
| Mason, Tex. | 28.64 | 727.4 | 30.07 | 763.8 | 79 | 26.1 | 69 | SW | 12 | 5.4 | | 2cs | 2s | | | 0 | 0 | Fair | |
| Memphis, Tenn. | | | 30.04 | 763.0 | 80 | 26.7 | 74 | NE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Milwaukee, Wis. | | | 29.97 | 761.2 | 70 | 21.1 | 84 | NW | 8 | 3.6 | | | 8ks | | NW | 0 | 0 | Cloudy | |
| Mobile, Ala. | | | 30.08 | 764.0 | 81 | 27.2 | 74 | N | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.08 | 764.0 | 79 | 26.1 | 65 | NE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 29.05 | 737.9 | 30.07 | 763.8 | 67 | 19.4 | 79 | SW | 2 | 0.9 | | | 10s | | SW | 0.79 | 20.1 | Cloudy | |
| Mt. Washington, N. H. | 23.94 | 608.1 | 30.30 | 769.6 | 44 | 6.7 | 92 | SW | 30 | 13.4 | | 10s | 5s | | SW | 0 | 0 | Cloudy | |
| Nashville, Tenn. | | | 30.04 | 763.0 | 80 | 26.7 | 70 | NW | 1 | 0.4 | | 0 | Haze | | | Inap. | Inap. | Clear | |
| New Haven, Conn. | | | 30.13 | 765.3 | 71 | 21.7 | 63 | S | 2 | 0.9 | | 2k | Haze | | | 0 | 0 | Fair | |
| New London, Conn. | | | 30.14 | 765.5 | 66 | 18.9 | 63 | SE | 4 | 1.8 | | 1ck | 1s | W | | 0 | 0 | Clear | |
| New Orleans, La. | | | 30.08 | 764.0 | 82 | 27.8 | 78 | W | 4 | 1.8 | | 1k | 0 | NW | | 0 | 0 | Clear | |
| Newport, R. I. | | | 30.15 | 765.8 | 65 | 18.3 | 52 | SE | 2 | 0.9 | | 4k | 0 | W | | 0 | 0 | Fair | |
| New York, N. Y. | | | 30.13 | 765.3 | 64 | 17.8 | 73 | SW | 4 | 1.8 | | 2ck | Sm'e | | | 0 | 0 | Fair | |
| Norfolk, Va. | | | 30.09 | 764.3 | 69 | 20.6 | 75 | NE | 9 | 4.0 | | 5k | 0 | NE | | 0.06 | 1.5 | Fair | |
| North Platte, Neb. | 26.80 | 680.7 | 29.17 | 740.9 | 74 | 23.3 | 90 | S | 24 | 10.7 | | | 10s | | S | 0 | 0 | Cloudy | |
| Omaha, Neb. | 28.69 | 728.7 | 29.70 | 754.4 | 75 | 23.9 | 81 | SE | 12 | 5.4 | | 5cs | 2s | W | | 0 | 0 | Fair | |
| Oswego, N. Y. | | | 30.03 | 762.7 | 68 | 20.0 | 79 | S | 6 | 2.7 | | 5cs | 0 | | | 0 | 0 | Fair | |
| Pembina, Dakota | | | 29.83 | 757.7 | 61 | 16.1 | 88 | NW | 6 | 2.7 | | | 10s | | | Inap. | Inap. | Cloudy | |
| Philadelphia, Pa. | | | 30.14 | 765.5 | 66 | 18.9 | 68 | S | 4 | 1.8 | | 2ck | 5ks | W | W | Inap. | Inap. | Fair | |
| Phœnix, Arizona | | | | | 73 | 22.8 | 24 | SW | | | | 8k | 0 | SW | | 0 | 0 | Cloudy | |
| Pike's Peak, Col. | 17.87 | 453.9 | 30.08 | 764.0 | 29 | — 1.7 | 89 | SW | 32 | 14.3 | | | 8s | | SW | 0 | 0 | Cloudy | |
| Pittsburg, Pa. | | | 30.03 | 762.7 | 66 | 18.9 | 90 | W | 4 | 1.8 | | 0 | 5s | | SW | 0.23 | 5.8 | Fair | |
| Port Huron, Mich. | | | 29.94 | 760.5 | 63 | 17.2 | 94 | S | 10 | 4.5 | | | 10ks | | W | 0.05 | 1.3 | Cloudy | |
| Portland, Me. | | | 30.07 | 763.8 | 63 | 17.2 | 72 | S | 5 | 2.2 | | 8k | Haze | | | 0 | 0 | Cloudy | |
| Portland, Oregon | | | 30.12 | 765.0 | 55 | 12.8 | 80 | S | 8 | 3.6 | | | 10n | | | 0.28 | 7.1 | Light rain | |
| Prescott, Arizona | | | | | 54 | 12.2 | 28 | | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.08 | 764.0 | 85 | 29.4 | 64 | NW | 4 | 1.8 | | 0 | 5ks | | | 0 | 0 | Fair | |
| Rochester, N. Y. | | | 29.93 | 761.5 | 68 | 20.0 | 74 | W | 6 | 2.7 | | 5cs | 0 | W | | Inap. | Inap. | Fair | |
| Salt Lake City, Utah | 25.72 | 653.3 | 30.05 | 763.3 | 50 | 10.0 | 64 | N | 4 | 1.8 | | | 10s | | | 0.02 | 0.5 | Cloudy | |
| Sandy Hook, N. J. | | | 30.12 | 765.0 | 68 | 20.0 | 74 | NE | 5 | 2.2 | | 1c | 0 | W | | 0 | 0 | Clear | |
| San Antonio, Tex. | | | 29.93 | 760.2 | 80 | 26.7 | 78 | S | 5 | 2.2 | | 0 | 5ks | | S | 0 | 0 | Fair | |
| San Diego, Cal. | | | 30.00 | 762.0 | 64 | 17.8 | 83 | S | 2 | 0.9 | | | 10s | | S | 0 | 0 | Cloudy | |
| San Francisco, Cal. | | | 30.15 | 765.8 | 55 | 12.8 | 74 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Santa Fe, New Mexico | 23.32 | 592.3 | 29.86 | 758.4 | 65 | 18.3 | 34 | SE | 4 | 1.8 | | 5cs | 2s | W | SE | 0 | 0 | Cloudy | |
| Savannah, Ga. | | | 30.08 | 764.0 | 79 | 26.1 | 73 | E | 7 | 3.1 | | 0 | 0 | | | 0 | 0 | Clear | |
| Shreveport, La. | | | 30.12 | 765.0 | 81 | 27.2 | 87 | SW | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| Smithville, N. C. | | | 30.06 | 763.5 | 71 | 21.7 | 80 | N | 7 | 3.1 | | 0 | 0 | | | 0.49 | 12.4 | Clear | |
| Springfield, Mass. | | | 30.12 | 765.0 | 65 | 18.3 | 69 | S | 4 | 1.8 | | 9ck | 0 | SW | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.99 | 761.7 | 75 | 23.9 | 77 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Marks, Fla. | | | 30.04 | 763.0 | 80 | 26.7 | 74 | N | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.83 | 757.7 | 65 | 18.3 | 78 | E | 12 | 5.4 | | | 10n | | W | 0.26 | 6.6 | Heavy rain | |

## UNITED STATES SERIES.—CONTINUED.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *St. Paul's Island* | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 72 | 22.2 | 39 | Calm | | | | 5ck | Haze | W | | 0 | 0 | Fair | |
| Stockton, Tex | 26.89 | 683.0 | 29.89 | 759.2 | 74 | 23.3 | 68 | S | 16 | 7.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 30.13 | 765.3 | 60 | 15.6 | 76 | SW | 12 | 5.4 | | 1k | 0 | W | | 0 | 0 | Clear | |
| Toledo, Ohio | | | 29.98 | 761.5 | 74 | 23.3 | 72 | Calm | 0 | 0 | | 5ck | Sm'e | | | 0.05 | 1.3 | Fair | |
| Tucson, Arizona | 27.51 | 698.7 | 30.06 | 763.5 | 69 | 20.6 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.06 | 763.5 | 70 | 26.1 | 82 | NE | 14 | 6.3 | | 5k | 0 | NE | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.09 | 764.3 | 85 | 29.4 | 74 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Virginia City, Montana | 24.16 | 613.6 | 29.64 | 752.8 | 42 | 5.6 | 74 | Calm | 0 | 0 | | | 10s | | NW | 0.06 | 1.5 | Cloudy | |
| Washington, D. C | | | 30.12 | 765.0 | 68 | 20.0 | 75 | NE | 1 | 0.4 | | 5ck | Haze | W;SW | | 0.16 | 4.1 | Hazy | |
| Wickenburg, Arizona | | | | | 79 | 26.1 | | Calm | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.07 | 763.8 | 70 | 21.1 | 75 | N | 15 | 6.7 | | 0 | 2ks | | N | 0.66 | 16.8 | Fair | |
| Wood's Holl, Mass | | | 30.14 | 765.5 | 65 | 18.3 | 48 | NE | 4 | 1.8 | | 2c | 0 | W | | 0 | 0 | Fair | |
| Yankton, Dakota | 28.47 | 723.1 | 29.67 | 753.6 | 72 | 22.2 | 92 | SE | 13 | 5.8 | | | 10s | | | 0 | 0 | Cloudy | |
| Yuma, Arizona | | | 29.87 | 758.7 | 71 | 21.7 | 42 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.20 | 767.1 | 82 | 27.8 | 74 | Calm | 0 | 0 | | 8c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 29.92 | 760.0 | 83 | 28.3 | | E | | | 3 | | | | | 0.02 | 0.5 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.06 | 763.5 | 81 | 27.2 | 83 | E | | | 2 | 6ck | 0 | E | | 0.420 | 10.67 | Fair | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.22 | 640.6 | | | 69.0 | 20.6 | 76 | Calm | | | 0 | 5cs | 0 | | | 0 | 0 | Fair | Thomas Herran. |
| York Factory, B. A | | | 29.87 | 758.7 | 42.5 | 5.8 | 92 | NE | 1 | 0.4 | | 0 | | | | 0 | 0 | Clear | J. Fortescue, W. Wood. |
| Honolulu, Oahu, H. I | | | 30.13 | 765.3 | 72 | 22.2 | | NE | | | 3 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

NOTE.—The originals give the amount of cloudiness by the tenths of sky covered, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters: Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,195 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.8 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m., Mt. Washington, 6,285 ft., or 1,916.6 m.; North Platte, [illegible] ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,282.2 ft., or 1,329.6 m.; Santa Fe, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.; Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fe, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 ft.; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| STATIONS AND VESSELS. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.18 | 766.6 | 73 | 22.8 | 67 | 19.4 | 79 | ENE | | | 2 | | 2 | | | 0.40 | 10.2 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.12 | 765.0 | 55 | 12.8 | 52.5 | 11.4 | | WNW | 6 | 2.7 | | | 0 | | | 0 | 0 | | | Clear | |
| Navy Yard, Pensacola, Fla. | 30.19 | 766.8 | | | 80 | 26.7 | 82 | N | 3 | 1.3 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.25 | 768.3 | 73 | 22.8 | 67 | 19.4 | 69 | SSE | 4 | 1.8 | | | | | | 0 | 0 | | | Clear. | |
| Naval Hospital, Yokohama, Japan | 29.80 | 756.9 | 74.5 | 23.6 | 72 | 22.2 | 85 | NW | | | 1 | | 8s; sm'c | | WNW | 0 | 0 | | | Cloudy | |
| Alert, S. 3° 10′ 11″, E. 127° 38′ | 30.02† | 762.5† | 79 | 26.1 | 79 | 26.1 | 95 | ESE | | | 4–6 | | 6 | | SE | | | Ground | S | Squally | |
| Alliance, Beirut, Syria | 30.08 | 764.0 | 82 | 27.8 | 81 | 27.2 | 91 | NW | | | 1 | | 2 | | | | | Smooth | N&W | Clear | |
| Ashuelot, Ningpo, China | 29.90 | 759.4 | 77 | 25.0 | 76 | 24.4 | 86 | NNE | | | 1 | | 10 | | | | | | | Raining | |
| Canonicus, New Orleans, La | 30.11 | 764.8 | 56 | 13.3 | 79 | 26.1 | 86 | WNW | | | 2 | | 6 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.19 | 766.8 | 61 | 16.1 | 67 | 19.4 | 64 | SE | 2 | 0.9 | | | 1 | | | 0 | 0 | | | Hazy | |
| Despatch, Constantinople, Turkey. | 30.05 | 763.3 | 76 | 24.4 | 78 | 25.6 | 65 | NE | | | 3 | | 7 | | NE | | | | | Cloudy | |
| Franklin, Norfolk, Va. | 30.18 | 766.6 | 73 | 22.8 | 70 | 21.1 | 100 | NE | 8 | 3.6 | | | 6 | | NE | 0.1 | 3. | | | D. clouds | |
| Frolic, Rio de Janeiro, Brazil | 30.35 | 770.9 | 72 | 22.2 | 74 | 23.3 | 95 | N | | | 1 | | 10k | | | 0 | 0 | | | D. clouds | |
| ‡Gettysburg, Off Leghorn, Italy | 29.98 | 761.5 | | | 80 | 26.7 | 100 | SW | | | 2 | | 3 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.23 | 767.8 | 71 | 21.7 | 71 | 21.7 | 80 | E | 4.8 | 2.1 | | | | | | | | | | Overcast | |
| Huron, N. 18° 48′, W. 83° 02′ | 30.17 | 766.3 | 84 | 28.9 | 82 | 27.8 | 91 | NE | | | 2 | | 4 | | NNE | 0 | 0 | Long | NE | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.10 | 764.5 | 80 | 26.7 | 79 | 26.1 | 95 | SSW | | | 1–4 | | 6 | | N | 0 | 0 | Smooth | | Cloudy | |
| Marion, Smyrna, Turkey | 29.96 | 761.0 | 80 | 26.7 | 82 | 27.8 | 67 | N | | | 2 | | 7 | | E | Heavy | Heavy | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.57 | 751.1 | 69 | 20.6 | 69 | 20.6 | 80 | S | | | 1 | | 0 | | | | | | | Clear | |
| Monocacy, Tientsin, China | 29.83 | 757.7 | 80 | 26.7 | 78 | 25.6 | 66 | SSW | | | 2 | | 4 | | SSW | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.19 | 766.8 | 65 | 18.3 | 64 | 17.8 | 68 | S | | | 0–1 | | 2ck | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.32 | 770.1 | | | 76 | 24.4 | 100 | NE | 13 | 5.8 | | | 2 | | SW | 0.05 | 1.3 | | | D clouds | |
| Omaha, Callao, Peru | 30.03 | 762.7 | 68 | 20.0 | 69 | 20.6 | 70 | SE | 2 | 0.9 | | | 10 | | | 0 | 0 | Slight | S | Cloudy | |
| Ossipee, Norfolk, Va | 30.15 | 765.8 | 74 | 23.3 | 74 | 23.3 | 81 | NE | | | 2 | | 2 | | NE | | | | | Hazy | |
| Palos, Nankin, China | 29.95 | 760.7 | 70 | 21.1 | 70 | 21.1 | 90 | E | | | 1–2 | | 7 | | E | Blank | Blank | | | Clearing | |
| Pensacola, N. 37° 52′, W. 127° 58′ | 30.37 | 771.4 | | | 62 | 16.7 | 61 | WSW | | | 5 | | 6 | | | 0 | 0 | Moderate. | N&W | Foggy | |
| Plymouth, N. 26° 36′, W. 79° 48′ | 30.15 | 765.8 | 85 | 29.4 | 83 | 28.3 | 96 | NNW | | | 2 | | 2 | | E | 0 | 0 | Smooth | | Clear | |
| Ranger, Aden, Arabia | 29.95 | 760.7 | | | 89 | 31.7 | 77 | SSW | | | 2 | | 0 | | | | | Smooth | | Clear | |
| Richmond, S. 25° 13′, W. 37° 2′ | 30.41 | 772.4 | 75.0 | 23.9 | 74.0 | 23.3 | 76 | N | | | 4 | | 1 | | | 0 | 0 | Moderate. | ENE | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.92 | 760.0 | | | 74 | 23.3 | 95 | SE | | | 1 | | 2 | | | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.17 | 766.3 | 71 | 21.7 | 67 | 19.4 | 79 | E | | | 2 | | 3 | | | 0.11 | 2.8 | | | Clear | |
| Saratoga, Boston, Mass | 30.46 | 773.7 | | | 66 | 18.9 | | WSW | | | 1–2 | | 5 | | ENE | 0 | 0 | | | Fair | |
| St. Louis, League Island, Pa | 30.08 | 764.0 | 69 | 20.6 | 64 | 17.8 | 89 | NE | 3 | 1.3 | | | 5 | | NE | 0 | 0 | | | Fair | |
| Swatara, Port Royal, S. C | 30.22 | 767.6 | 80 | 26.7 | 78 | 25.6 | 82 | S | | | 3 | | 4k | | S | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.89 | 759.2 | 78 | 25.6 | 78 | 25.6 | 80 | NNE | | | 1–2 | | 10 | | S&W | 0 | 0 | Slight | NE | D. clouds | |
| Trenton, Smyrna, Turkey | 30.20† | 767.1† | 82 | 27.8 | 86 | 30.0 | 76 | N | 2 | 0.9 | | | 4 | | N | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey. | 30.04 | 763.0 | 74 | 23.3 | 73 | 22.8 | 76 | NE | | | 1 | | 7 | | S | | | | | D. clouds | |
| Wabash, Boston, Mass | 30.17 | 766.3 | 64 | 17.8 | 67 | 19.4 | 55 | SW | 5 | 2.2 | | | 3 | | | 0 | 0 | | | D. clouds | |
| Wyoming, Washington, D. C | 30.34† | 770.6† | 66 | 18.9 | 69 | 20.6 | | Calm | | | 0 | | 6 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **PACIFIC MAIL S. S. CO. MARINE SERIES.** Furnished by the coöperation of ———, President; Williams, Blanchard & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |
| **WHITE STAR LINE MARINE SERIES.** Furnished by the coöperation of Ismay, Imrie & Co., Agents, Liverpool, and R. J. Cortis, Agent, New York. | | | | | | | | | | | | | | | | | | | |
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |
| **OCCIDENTAL AND ORIENTAL S. S. CO. MARINE SERIES.** Furnished by the coöperation of George H. Bradbury, President; T. H. Goodman, Agent. | | | | | | | | | | | | | | | | | | | |
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 35° 20′, E. 143° 40′ | N60W | | 29.87 | 758.7 | 77 | 25.0 | 91 | WSW | | | 4 | | d | | W | Short | | D. clouds | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |
| **NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.** Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N 37° 00′, W. 75° 13′ | E¼N | 11 | 30.07 | 763.8 | 70.0 | 21.1 | | NE | | | 4 | | 0 | | | Short | | Blue sky | Capt. A. Jaeger. |
| S. S. Ohio, N. 43° 37′, W. 41° 46′ | WSW ½W | 11 | 30.05 | 763.3 | 65 8 | 18.8 | | S | | | 6 | | d | | | Irregular. | | Foggy | Capt. G. Meyer. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. W. Richards |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig and Nürnberg; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—Continued.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| Names of vessels. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
| **AMERICAN S. S. CO. MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of H. D. Welsh, President; Peter Wright & Sons, General Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
| **RED STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of James A. Wright, President; Peter Wright & Sons, Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES.** (Miscellaneous.) | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Richmond, Me | | | 30.02 | 762.5 | 63 | 17.2 | 78 | SSW | 9 | 4.0 | | 5ck | 0 | SW | | | | Overcast | Capt. James Jorgenson. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assgd.) Chief Signal Officer. U. S. A.*

# BULLETIN

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## TAKEN SIMULTANEOUSLY ON JUNE 30, 1877.

**7:35 A. M. WASHINGTON mean time.**

6:7 A. M. MEXICO mean time.
7:7 A. M. SAN JOSE mean time.
7:25 A. M. TORONTO mean time.
0:6 P. M. LISBON mean time.
0:28 P. M. MADRID mean time.
0:43 P. M. GREENWICH mean time.
0:53 P. M. PARIS mean time.
1:1 P. M. BRUSSELS mean time.
1:4 P. M. UTRECHT mean time.
1:13 P. M. BERNE mean time.
1:26 P. M. CHRISTIANIA mean time.
1:33 P. M. COPENHAGEN mean time.
1:33 P. M. ROME mean time.
1:37 P. M. BERLIN mean time.
1:49 P. M. VIENNA mean time.
1:55 P. M. STOCKHOLM mean time.
2:18 P. M. ATHENS mean time.
2:39 P. M. CONSTANTINOPLE mean time.
2:44 P. M. ST. PETERSBURG mean time.
4:33 P. M. MAURITIUS mean time.
6:36 P. M. CALCUTTA mean time.
8:49 P. M. ZI-KA-WEI mean time.
10:2 P. M. TOKIO, (YEDDO,) mean time.
10:23 P. M. MELBOURNE mean time.

### ALGERIAN SERIES.

Furnished by the coöperation of General Teissier, Commandant Supérieur du Génie in Algeria.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nemours | | | 30.19 | 766.9 | 79.2 | 26.2 | 64 | NNE | | | 1 | | 1 | | | 0 | 0 | Clear | Charnot. |
| Algiers | | | 30.15 | 765.7 | 82.4 | 28.0 | 57 | NW | | | 3 | | 2 | | | 0 | 0 | Clear | Peter. |
| La Calle | | | 30.12 | 765.0 | 80.1 | 26.7 | 75 | NNE | | | 2 | | 6 | | | 0 | 0 | Fair | Fleury. |
| Tunis | | | 30.15 | 765.8 | 89.6 | 32.0 | | E | | | 4 | | 2 | | | 0 | 0 | Clear | Jacques. |
| Sfax | | | 30.17 | 766.2 | 82.4 | 28.0 | | ESE | | | 3 | | 3 | | | 0 | 0 | Fair | Husson. |
| Saida | | | 30.17 | 766.2 | 83.7 | 28.7 | | NNE | | | 4 | | 2 | | | 0 | 0 | Clear | Millot. |
| Tebessa | | | 30.18 | 766.6 | 86.2 | 30.1 | | SW | | | 1 | | 2 | | | 0 | 0 | Clear | Bourgeois. |
| Geriville | | | 30.19 | 766.7 | 84.0 | 28.9 | 33 | S | | | 4 | | 5 | | | Inap. | Inap. | Fair | Lemaillot. |
| Laghouat | | | 30.12 | 765.1 | 95.9 | 35.5 | 23 | W | | | 4 | | 2 | | | 0 | 0 | Clear | Guyot. |
| Biskra | | | 30.17 | 766.2 | 103.8 | 39.9 | | SE | | | 1 | | 10 | | | 0 | 0 | Hidden | Kuntz. |

NOTE.—In the originals the distinction between the amount of upper and lower clouds is apparently not made. The weather is published as given. The rain-fall is measured at 7 a. m., local time. The elevation of Saida is 890? meters, or 2,919.9? feet; Tebessa, 1,088? m., or 3,569.4? ft.; Geriville, 1,360? m.; or 4,461.7? ft.

### AUSTRIAN SERIES.

Furnished by the coöperation of Professor Dr. Julius Hann, Director of the Imperial and Royal Central Meteorological Institute at Vienna.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agram | | | 30.25 | 768.4 | 77.5 | 25.3 | 51 | SW | | | 3 | | 3 | | | 0 | 0 | | Prof. Ivan Stozir. |
| Cracow, I. R. Observatory | | | 30.22 | 767.5 | 68.4 | 20.2 | 42 | W | | | 1 | | 9 | | | 0 | 0 | | Dr. Wierzbiski. |
| Eperies | | | 30.18 | 766.6 | 66.9 | 19.4 | 47 | N | | | 2 | | 8k;s | | S | 0.089 | 2.25 | | Julius Mikolik. |
| Gratz | 29.03 | 737.3 | 30.25 | 768.3 | 72.3 | 22.4 | 60 | ESE | | | 2 | | 2 | | | 0 | 0 | | Andreas Rospini. |
| Hermannstadt | 28.73 | 729.8 | 30.11 | 764.9 | 65.5 | 18.6 | 42 | NNW | | | 4 | | 3 | | | 0 | 0 | | Prof. Reissenberger. |
| Kremsmünster | 28.90 | 734.1 | 30.21 | 767.3 | 69.8 | 21.0 | 55 | NNE | | | 2 | | 0 | | | 0 | 0 | | Prof. C. Wagner |
| Lemberg | | | 30.14 | 765.6 | 63.0 | 17.2 | 60 | NE | | | 2 | | 4 | | | 0 | 0 | | Dr. T. Stanecki. |
| Pola | | | 30.25 | 768.3 | 81.0 | 27.2 | 36 | SE | | | 1 | | 2cs | | | 0 | 0 | | I.R.Hydrographic Office |
| Szegedin | | | 30.22 | 767.6 | 68.9 | 20.5 | 55 | N | | | 2 | | 6 | | | 0 | 0 | | Karl Stancel. |
| Trieste | | | 30.28 | 769.1 | 77.0 | 25.0 | 91 | NW | | | 1 | | 1 | | | 0 | 0 | Clear | P. Busin. |
| Vienna | | | 30.25 | 768.3 | 73.0 | 22.8 | 43 | NE | | | 1 | | 0 | | | 0 | 0 | | I. R. Central Met. Obs'y |

NOTE.—The originals give, occasionally, the weather by the Vienna symbols or in general terms, and it is not always certain that they refer to the exact moment of observation. The distinction between upper and lower clouds is not made. At Lemberg the rain-fall is measured at 7 p. m., local time, and at Trieste at 7 a. m, of the following day. The elevation of Gratz is 343.5 meters, or 1,126.9 feet; Hermannstadt, 407.8 m., or 1,337.9 ft.; Kremsmünster, 383.6 m., or 1,258.5 ft. At Eperies the observations have been taken at 2:0, instead of 2:8, p. m.; Gratz, at 2:0, instead of 1:45, p. m., local time.

### BELGIAN SERIES.

Furnished by the coöperation of J. C. Houzeau, Director of the Royal Observatory at Brussels.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arlon | 28.77 | 730.8 | 30.22 | 767.5 | 76.6 | 24.8 | 38 | SSE | | | 2 | | 1 | | | 0 | 0 | | |
| Brussels | | | 30.18 | 766.6 | 77.0 | 25.0 | 50 | W | | | 2 | 0 | 1k | | SW | 0 | 0 | Vapory | Royal Observatory |
| Furnes | | | 30.19 | 766.9 | 71.1 | 21.7 | 66 | WNW | | | 2 | | 3 | | | 0 | 0 | | |
| Maeseyck | | | 30.21 | 767.4 | 80.1 | 26.7 | 50 | SW | | | 2 | | 0 | | | 0 | 0 | | |

NOTE.—In the originals, the weather is occasionally given in general notes for Brussels. Except for Brussels, the distinction between upper and lower clouds is not made. The elevation of Arlon is 418 meters, or 1,371.4 feet. At Arlon the observations have been taken at 1.0, instead of 1.06, p. m.; Furnes, 1.0, instead of 0.54, p. m.; Maeseyck, 1.0, instead of 1.06, p. m., local time. Previous to June 17th the barometric readings for Arlon should be diminished 0.5 mm., or 0.02 inch.

## BRITISH SERIES

Furnished by the coöperation of Robert H. Scott, Esq., F. R. S., Secretary of the Meteorological Council London, Alexander Buchan, M. A., F. R. S. E., Secretary of the Scottish Meteorological Society, Edinburgh, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | | | 30.01 | 762.2 | 62.9 | 17.2 | | SW | 18 | 8.0 | | | 7 | | | 0 | 0 | D. clouds | William Boswell. |
| Ardrossan | | | 30.13 | 765.3 | 58 | 14.4 | | S | | | 3 | | 7 | | | | | D. clouds | William McNeil. |
| Armagh, Observatory | | | 30.20 | 767.1 | 58.8 | 14.9 | | SW | 7 | 3.1 | | | 10 | | | | | Overcast | S. Call, for Dr. Robinson. |
| Bidston, (Liverpool Obs.) | | | 30.21 | 767.3 | 62.0 | 16.7 | | WNW | 11 | 4.9 | | | 6 | | | | | D. clouds | John Hartnup. |
| Birr Castle, (Parsonstown) | | | 30.22 | 767.6 | 63.1 | 17.3 | | SW | | | 1 | | 10 | | | | | D. clouds | T. S. Mitchell. |
| Bradford, Yorkshire | | | 30.17 | 766.3 | 67.8 | 19.9 | | W | | | 2 | | 5 | | | 0.02 | 0.5 | D. clouds | J. McLandsborough. |
| Bridgetown, (Barbados) | | | 30.00 | 762.0 | 82 | 27.8 | | NE | | | 2 | | 4 | | | | | D. clouds | Pvt. G. W. Roberts, A. |
| Cambridge, Observatory | | | 30.19 | 766.8 | 70.0 | 21.1 | | N | | | 1 | | 10 | | | | | Overcast | H. Todd. [H. C. |
| Cardington | | | 30.21 | 767.3 | 72.4 | 22.4 | | NW | | | 1 | | 10 | | | | | Overcast | John McLaren. |
| Chatham, School M. E. | | | 30.22 | 767.6 | 75.2 | 24.0 | | Calm | | | 0 | | 8 | | | | | Fine | Maj. C. N. Martin, R. E. |
| Dartmoor | 28.80 | 731.5 | 30.36 | 771.1 | 63.6 | 17.6 | | NW | | | 1 | | 9 | | | | | Hazy | Alexander Watt. |
| Davos Platz, (Switzerland) | | | | | | | | | | | | | | | | | | | Francis Redford, M. A. |
| Donaghadee | | | 30.17 | 766.3 | 65 | 18.3 | | W | | | 4 | | 8 | | | | | D. clouds | J. Mac Gowan. |
| Dover | | | 30.21 | 767.3 | 67 | 19.4 | | WSW | | | 2 | | 1 | | | | | ¾ clouded | J. Costello. |
| Eccles, (near Manchester) | | | 30.18 | 766.6 | 68.5 | 20.3 | | WSW | 1.0 | 0.4 | | | 6 | | | | | D. clouds | Thomas Mackereth. |
| Falmouth, Observatory | | | 30.24 | 768.1 | 64.2 | 17.9 | | SSW | | | 0 | | 10 | | | | | Foggy | The Staff. |
| Fort Napier, (Natal) | 28.00 | 711.2 | 30.03 | 762.7 | 63.1 | 17.3 | | E | | | 2 | | 0 | | | | | Blue sky | P'vt. G. Salmon, A. H. C. |
| Free Town, (Sierra Leone) | | | 30.07 | 763.8 | 86.0 | 30.0 | | NW | | | 1 | | 3 | | | | | D. clouds | |
| Galway, Queen's College | | | 29.96 | 761.0 | 64 | 17.8 | | W | | | 3 | | 4 | | | | | D. clouds | B. G. Clare for Prof. Curtis. |
| Gibraltar, (Mediterranean) | | | 30.14 | 765.5 | 77.0 | 25.0 | | E | | | 1 | | 1 | | | | | D. clouds | Corpl. C. Aitken, A. H. C. |
| Glasgow, Observatory | | | 30.10 | 764.5 | 58.2 | 14.6 | | SSW | | | 6 | | 10 | | | | | Gloomy | D. G. Maclean. |
| Great Yarmouth | | | 30.21 | 767.3 | 63 | 17.2 | | NE | | | 2 | | 4 | | | | | D. clouds | G. T. Watson. |
| Greenwich, Royal Obs'y | | | 30.17 | 766.3 | 76.5 | 24.7 | | NNW | | | 1 | | 8 | | | | | Hazy | The Staff, for G. B. Airy |
| Guernsey | | | 30.20 | 767.1 | 68.5 | 20.3 | | NNE | | | 1 | | 3 | | | | | D. clouds | Dr. S. E. Hoskins, F. R. S |
| Helston | | | 30.27 | 768.8 | 66 | 18.9 | | SW | | | 2 | | 8k | | | 0 | 0 | Gloomy | M. P. Moyle. |
| Holyhead | | | 30.20 | 767.1 | 63 | 17.2 | | SW | | | 2 | | 3 | | | | | D. clouds | John Tilston. |
| Kew, Observatory | | | 30.19 | 766.8 | 73.3 | 22.9 | | WSW | 8 | 3.6 | | | 9k | | | | | Threatening | The Staff. |
| Kingstown | | | 30.24 | 768.1 | 62 | 16.7 | | W | | | 3 | | 10 | | | | | Overcast | George Mitchell. |
| Leicester, Museum | | | 30.17 | 766.3 | 70.0 | 21.1 | | NW | | | 1 | | 5 | | | | | D. clouds | Wm. J. Harrison, F. G. S |
| Malta, (Mediterranean) | | | 30.16 | 766.1 | 79.6 | 26.4 | | NE | | | 1 | | 0 | | | | | Fine | Corp'l. P. Bravis, A. H. C |
| Nairn | | | 29.97 | 761.2 | 59 | 15.0 | | W | | | 3 | | 5 | | | | | ½ clouded | W. D. Penny. |
| Nassau, (Bahamas) | | | 30.10 | 764.5 | 82.8 | 28.2 | | SE | | | 2 | | 8 | | | | | Overcast | J. Belgrave. |
| Nottingham, Observatory | | | 30.19 | 766.8 | 74.7 | 23.7 | | NW | | | 3 | | 1k | | SW | 0 | 0 | Blue sky | E. J. Lowe, F. R. S. |
| Oscott, St. Mary's College | | | 30.17 | 766.3 | 68.3 | 20.2 | | WNW | | | 2 | | 9 | | | | | Hazy | Rev. Stephen Whitty. |
| Oxford, Radcliffe Obs'y | | | 30.19 | 766.8 | 67 | 19.4 | | Calm | | | 0 | | 10 | | | | | Overcast | F. Lucas. |
| Plymouth | | | 30.22 | 767.6 | 66.6 | 19.2 | | Calm | | | 0 | | 4? | | | | | Overcast? | John Merrifield. |
| Roche's Point | | | 30.25 | 768.3 | 61 | 16.1 | | SW | | | 3 | | 2 | | | | | Fine | W. Kennedy. |
| Saint Ann's Head | | | 30.24 | 768.1 | 60 | 15.6 | | NW | | | 1 | | 2 | | | | | | John C. Walker. |
| Saint Helier, (Jersey) | | | | | | | | | | | | | | | | | | | A. P. Amy. |
| Sandwick Manse, (Orkneys) | | | 29.91 | 759.7 | 55.2 | 12.9 | | WSW | 22 | 9.8 | | | 9 | | | | | D. clouds | Rev. C. Clouston, LL. D. |
| Scutari, Cemetery, (Turkey) | | | 30.04 | 763.0 | 60.4 | 15.8 | | NE | | | 2 | | 10 | | | | | Raining | Sergt. W. H. Lyne. |
| Sheffield | | | 30.18 | 766.6 | 72.3 | 22.4 | | WNW | | | 1 | | 4 | | | Inap. | Inap. | Blue sky | W. F. Cooper. |
| Silloth, Rectory | | | 30.18 | 766.6 | 64.2 | 17.9 | 74 | SW | | | 2 | | 6 | | | 0 | 0 | D. clouds | Rev. F. Redford, M. A |
| Stonyhurst, Observatory | | | 30.19 | 766.8 | 62.9 | 17.2 | | SW | | | 3 | | 8 | | | | | D. clouds | Rev. S. J. Perry. |
| Stornoway, Lews C., (Hebr.) | | | 29.90 | 759.4 | 58 | 14.4 | | WSW | | | 5 | | 8 | | | | | D. clouds | John Smith. |
| Stratfield Turgiss | | | 30.22 | 767.6 | 69.8 | 21.0 | | SW | | | 1 | | 10 | | | | | Overcast | Rev. C. H. Griffith, F. M. S. |
| Thurso | | | 29.89 | 759.2 | 62 | 16.7 | | W | | | 4 | | 6 | | | | | D. clouds | John Trotter. |
| Truro, Royal Institution | | | 30.26 | 768.6 | 71 | 21.7 | | N | | | 2 | | 8 | | | | | Gloomy | W. Newcombe. |
| Valencia, Observatory | | | 30.26 | 768.6 | 61.1 | 16.2 | | SW | 16 | 7.2 | | | 6 | | | | | D. clouds | The Staff. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Calf of Man, (Isle of Man) | | | | | 55 | 12.8 | | W | | | 3 | | 0 | | | 0 | 0 | | Henry Mercer. |
| Cape Good Hope, Obs'y | | | 30.36 | 771.1 | 60.6 | 15.9 | 72 | SSE | 18 | 8.0 | | 0 | 0 | | | | | | The Staff, for E. J. Stone |
| Hobart Town, (Tasmania) | | | 30.54 | 775.7 | 51.5 | 10.8 | 87 | NW | | | 1 | | 4k | | | 0 | 0 | | Francis Abbott, F. R. A. S. |
| Leith, Restalrig Park | | | 30.12 | 765.0 | 59.9 | 15.5 | | W | | | 5 | | 10k | | | 0 | 0 | Cloudy | Andrew Gibb. |
| Mauritius, Observatory | | | 30.20 | 767.1 | | | | ESE | 8.0 | 3.6 | | | | | | 0.03 | 0.8 | | C. Meldrum. |
| Melbourne, Observatory | | | 30.68 | 779.3 | 44.0 | 6.7 | 96 | Calm | 0 | 0 | | | 10 | | | 0.02 | 0.5 | Dense fog | R. L. J. Ellery. |
| Monach L't-house, (Hebrides) | | | 29.93 | 760.2 | 56 | 13.3 | | SW | | | 6 | 5 | 3 | SW | | 0.2 | 5. | | J. Youngclause. |
| North Unst, (Shetland Is.) | | | 29.79 | 756.7 | 52 | 11.1 | | W | | | 6 | 10 | 10 | W | | Blank | Blank | | Robert Burnet. |

Note.—Generally, the originals do not give the relative humidity, rain-fall, or distinction between upper and lower clouds. They give the wind direction to 32 points; the weather by the Beaufort notation; the barometer for Cardington, Freetown, Galway, Oxford, St. Helier, Sandwick, Stonyhurst, Leith, Monach and North Unst as read off; the amount of cloudiness for Nairn, Roche's Point, St. Helier and Stornoway by the scale 0 to 4. The wind-force is given by the scale 0 to 12 in the official series; 0 to 6 in the sub-series; except in lbs. per square foot for Greenwich and Hobart Town. The rain-fall is measured at Aberdeen at 10 a. m.; Bradford, 9 a. m.; Hobart Town, 7:30 a. m.; Nottingham, 6 p. m.; Mauritius, 9 a. m.; Sheffield, 8 a. m. following day, local time. The elevation of Dartmoor is 1,400 feet, or 426.7 meters; Davos Platz, 5,105? ft., or 1,556.0 m.; Fort Napier, 2,200 ft., or 670.6 m.

| Marine Series. Vessels. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Algeria, N. 41° 10′, W. 58° 30′ | | | 30.15 | 765.8 | 63.0 | 17.2 | | ENE | | | 3 | | 6 | | | 5* | ENE | D. clouds | Capt. W. Watson. |
| S. S. Batavia | | | | | | | | | | | | | | | | | | | Capt. J. E. Mouland. |
| Ship Camperdown | | | | | | | | | | | | | | | | | | | |
| Barque Celeste | | | | | | | | | | | | | | | | | | | Capt. A. T. Miller. |
| S. S. Hibernia, N. 51° 55′, W. 12° 30′ | | | 30.24 | 768.1 | 62.7 | 17.1 | | W | | | 4 | | 3 | | | 4 | WNW | D. clouds | Capt. D. F. McKechni |
| Barque Maroon | | | | | | | | | | | | | | | | | | | Capt. W. R. Cato. |
| Ship Mikado, N. 48′ 35°, W. 10° 15′ | | | 30.25 | 768.3 | 61.0 | 16.1 | | NE | | | 2 | | 10 | | | 5 | WNW | Drizzling | Capt. A. T. Brown. |
| S. S. Othello | | | | | | | | | | | | | | | | | | | Capt. C. C. Prehn. |
| S. S. Peruvian | | | | | | | | | | | | | | | | | | | Capt. W. J. Bristow. |
| S. S. QuangLe | | | | | | | | | | | | | | | | | | | Capt. W. H. Smith. |
| S. S. Seine, N. 52° 12′, W. 14° 31′ | | | 30.22 | 767.6 | 60 | 15.6 | | WSW | | | 4 | | 7 | | | | NW | D. Clouds | Capt. G. H. Jones. |
| Barque Sorata | | | | | | | | | | | | | | | | | | | Capt. H. Manning. |
| | | | | | | | | | | | | | | | | | | | Capt. Jas. J. Price. |

Note.—The originals give wind-direction to 32 points; the force by Beaufort scale, 0 to 12; the distinction between upper and lower clouds is made as to direction, but not as to amount; the height of sea-disturbance on scale of 0 to 9, except for Steamship Algeria, (Captain Watson,) which gives estimated height of waves in feet; weather by the Beaufort notation. The barometers and thermometers used by these observers have been generally carefully compared and corrected. * Feet.

## COSTA RICA SERIES.

By authority of the MINISTER OF FOREIGN AFFAIRS.

Furnished by the coöperation of Senor Federico Maison, Director of the Central Office of Statistics and Meteorology.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| San José | 26.21 | 665.7 | | | 70.2 | 21.2 | 89 | NE | | | 1 | | 1c | | SE | 0.02 | 5. | | Federico Maison. |

NOTE.—In the originals, the barometer is given as read off, its instrumental error is not known; the elevation of San José is 1,145 meters, or 3,756.4 feet. The distinction between the upper and lower clouds is not made. The rain-fall is apparently measured at following midnight, and, in the originals, given in Spanish inches. It is not certain that the remarks in the weather column refer to the moment of observation.

## DANISH SERIES.

Furnished by the coöperation of Captain N. Hoffmeyer, Director of the Royal Danish Meteorological Institute at Copenhagen.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copenhagen | | | 30.03 | 762.7 | 65.3 | 18.5 | 79 | WNW | | | 2 | | 10 | | | | | | |
| Fanöe | | | 30.03 | 762.7 | 61.3 | 16.3 | 85 | W | | | 4 | | 4 | | | | | | |
| Godthaab, (Greenland) | | | 29.78 | 765.3 | 41.0 | 5.0 | 76 | SSW | | | 2 | | 6 | | | | | | |
| Stykkisholm, (Iceland) | | | 29.24 | 742.8 | 54.5 | 12.5 | 94 | E | | | 4 | | 8 | | | | | Raining | |
| Thorshavn, (Faröe) | | | 29.59 | 751.5 | 52.3 | 11.3 | 96 | SW | | | 6 | | 7 | | | | | Raining | |
| Vestervig | | | 30.01 | 762.3 | 57.7 | 14.3 | 94 | NW | | | 2 | | 8 | | | | | | |

NOTE.—The originals give the wind-force by the scale 0 to 6; occasionally, weather by Vienna symbols; no distinction between the amount of upper and lower clouds

## FRENCH SERIES.

Furnished by the coöperation of His Excellency, U. J. Le Verrier, Director of the Paris Observatory, and the respective observers.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alençon, Normal School | | | 30.29 | 769.4 | 69.8 | 21 | 49 | E | | | 2 | | 5cs | | E | 0 | 0 | Cloudy | Collignon, Director. |
| Amiens, Normal School | | | 30.15 | 765.9 | 83.5 | 28.6 | 54 | W | | | 2 | | 0 | | | 0 | 0 | Clear | Bonvarne, Director. |
| Avignon, Normal School | | | 30.21 | 767.4 | 89.6 | 32 | 33 | S | | | 1 | | 0 | | | 0 | 0 | Very clear | Mr. Giraud, Director. |
| Bar-sur-Seine | | | 30.17 | 766.3 | 81.1 | 27.3 | 38 | E | | | 1 | | 8ck | | | 0 | 0 | Very cloudy | C. Saillard. |
| Beaumette Obs'y (Angers) | | | 30.13 | 765.2 | 79.9 | 26.6 | 35 | E | 4.0 | 1.8 | | | | | E | 0 | 0 | | Albert Cheux. |
| Beauvais | | | 30.20 | 767.1 | 78.6 | 25.9 | 42 | SSE | | | 1 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Besançon | | | 30.16 | 766.1 | 81.5 | 27.5 | 47 | ENE | | | 4 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourg-en-Bresse | | | 30.30 | 769.6 | 86.9 | 30.5 | 63 | SW | | | 2 | | 0 | | | 0 | 0 | Clear | Normal School. |
| Bourges, Normal School | | | 30.23 | 767.7 | 77.4 | 25.2 | 76 | N | | | 2 | | 2 | | SW | 0 | 0 | Slightly cl'dy | A. Wagner, Director. |
| Brest, Naval Observatory | | | 30.15 | 765.8 | 73.9 | 23.3 | 65 | NNE | | | 2 | 2c | | | | 0 | 0 | | The Staff. |
| Carcassonne, Normal School | | | 30.10 | 764.6 | 82.0 | 27.8 | 54 | E | | | 1 | | 1 | | E | 0 | 0 | Clear | Vateau, Director. |
| Caen | | | 30.20 | 767.1 | 76.5 | 24.7 | 50 | NE | | | 4 | | 2 | | NE | 0 | 0 | Slightly cl'dy | Normal School. |
| Chartres, Normal School | | | 30.22 | 767.6 | 78.4 | 25.8 | 87 | E | | | 1 | | 9 | | E | 0 | 0 | | Dumoulié, Director. |
| Châlons-sur-Marne, N. Sch'l | | | 30.17 | 766.4 | 83.1 | 28.4 | 37 | NW | | | 1 | 5c | | NW | | 0 | 0 | Cloudy | T. Leloup, Director. |
| Clermont-Fd., Puy de D. Obs. | | | 30.08 | 763.9 | 87.1 | 30.6 | 40 | ENE | | | 2 | | 5 | | | 0 | 0 | Cloudy | Alluard, Director. |
| Commercy, Normal School | | | 30.21 | 767.2 | 75.6 | 24.2 | 46 | E | | | 2 | | 2 | | E | 0 | 0 | Slightly cl'dy | Dr. Goulet, Director. |
| Commune de Gréasque* | | | 30.28 | 769.1 | 87.8 | 31.0 | 33 | SW | | | 2 | | 2 | | SW | 0 | 0 | | M. Kina. |
| Grenoble | | | 30.21 | 767.3 | 82.6 | 28.1 | 51 | ESE | | | 2 | | 2ks | | S | 0 | 0 | Slightly cl'dy | Normal School. |
| La Roche-sur-Yon, N. School | | | 30.13 | 765.4 | 86.4 | 30.2 | 44 | NE | | | 1 | | 0 | | | 0 | 0 | Clear | Mouillot, Director. |
| Le Mans, Normal School | | | 30.23 | 767.8 | 78.4 | 25.8 | 49 | E | | | 2 | | 5 | | E | 0 | 0 | Cloudy | Poirrier, Director. |
| Lons-Le-Saulnier, N. School | | | 30.17 | 766.3 | 78.8 | 26 | 46 | NW | | | 2 | | 0 | | | 0 | 0 | Clear | Pin, Director. |
| Lorient, Naval Observatory | | | 30.28 | 769.1 | 82.4 | 28.0 | 51 | S | | | 2 | | 1 | | NW | 0 | 0 | Clear | T. Carré, Director. |
| Mâcon, Normal School | | | 30.16 | 766.1 | 78.3 | 25.7 | 69 | S | | | 2 | | 0 | | | 0 | 0 | Clear | M. Marchal, Director. |
| Metz | | | 30.28 | 769.1 | 76.1 | 24.5 | 40 | E | | | 2 | 1c | | | | 0 | 0 | | M. A. Schuster, Dir. |
| Mirecourt | | | 30.13 | 765.2 | 73.9 | 23.3 | 47 | NNE | | | 1 | | 2 | | SSW | 0 | 0 | Slightly cl'dy | Normal School. |
| Nismes, Normal School | | | 30.16 | 766.0 | 93.9 | 34.4 | 44 | SW | | | 2 | | | | SW | 0 | 0 | | Boyer, Director. |
| Orleans, Normal School | | | 30.13 | 765.2 | 81.0 | 27.2 | 36 | NE | | | 2 | | | | NE | 0 | 0 | Slightly cl'dy | Bernard, Director. |
| Paris, Observatory | | | 30.17 | 766.4 | 82.0 | 27.8 | 30 | ENE | | | 2 | 5c | | | | 0 | 0 | Cloudy | National Observatory. |
| Privas | | | | | | | | | | | | | | | | | | | Normal School |
| Rochefort, Naval Obs'y | | | 30.15 | 765.8 | 87.4 | 30.8 | 48 | E | | | 1 | | 0 | | | 0 | 0 | Clear | Lt. Decante, Director. |
| Rouen, Normal School | | | 30.23 | 767.9 | 83.7 | 28.7 | 41 | SSE | | | 1 | | 1 | | S | 0 | 0 | Clear | F. Lucard, Director. |
| Tarbes, Normal School | 29.08 | 738.6 | 30.10 | 764.4 | 85.6 | 29.8 | 52 | SW | | | 1 | | 5 | | W | 0.04 | 1. | Cloudy | T. Hugues, Director. |
| Villefranche | | | 30.24 | 768.0 | 89.6 | 32 | 58 | SE | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | Vilot, Director. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Fort de France, Martinique | | | 29.93 | 760.3 | 81.0 | 27.2 | | | | | | | | | | 0 | 0 | | L'Abbé Marchési. |
| Marseilles, Observatory | | | | | 86.5 | 30.3 | 39 | SW | | | 1 | | 1 | | | 0 | 0 | | The Staff. |
| Mont-Louis | 25.15 | 638.7 | 30.46 | 773.7 | 70.9 | 21.6 | 56 | ESE | 11.2 | 5.00 | | | 6 | | SSW | 0 | 0 | | Mr. Falguère. |
| Nice | | | | | | | | | | | | | | | | | | | Dr. A. Niepce. |
| Paris, Montsouris Obs'y | | | 30.18 | 766.5 | 86.4 | 30.2 | 33 | ESE | | | 2 | 6c | | SSW | | 0 | 0 | | Marié Davy, Director. |
| Perpignan | | | 30.19 | 766.9 | 76.6 | 24.8 | 66 | SE | 9.3 | 4.17 | | | 1 | | WSW | 0 | 0 | | Dr. Fines. |
| Pic du Midi, (Summit,) H. P. | 21.54 | 547.1 | | | 53.6 | 12.0 | | SW | | | 2 | | 9 | | | | | Stormy | M. Baylac. |
| Pic du Midi, (Plantade,) H. P. | 22.81 | 579.3 | | | 57.6 | 14.2 | | SW | | | 1 | | 9 | | | 0.154 | 3.9 | Stormy | Gen'l de Nansouty. |
| Saint Maur, (near Paris) | | | 30.19 | 766.7 | 81.7 | 27.6 | 35 | NNE | | | 1 | 3c | | SSE | | 0 | 0 | | E. Renou. |
| Toulouse, Observatory | | | 30.19 | 766.8 | 83.1 | 28.4 | 38 | SSE | | | 1 | | 1 | | | 0 | 0 | | The Staff |
| Tours | | | 30.16 | 766.0 | 82.8 | 28.2 | 35 | ENE | | | 2 | | 3 | | N | 0 | 0 | | C. Marquet. |
| Versailles, (near Paris) | | | 30.20 | 767.1 | 82.4 | 28.0 | 32 | SE | | | 2 | | 5 | | | 0 | 0 | Fair | Dr. A. Bérigny. |
| Zi-Ka-Wei, (near Shanghai) | | | 29.88 | 758.9 | 69.8 | 21.0 | 98 | NE | 0.4 | 0.2 | | | 10n | | | 2.504 | 63.6 | Raining | Marc Dechevrens, S. J. |

NOTE.—Generally, the originals give the wind-force by the scale 0 to 7; no distinction between upper and lower clouds, and, in the official series, the amount by the scale 0 to 4: the rain-fall as measured at 7, 8 or 9 a. m., except St. Maur 10 p. m., local time; at Clermont-Ferrand, 9 a. m. of the following day; the weather in general terms as published. The elevation of Clermont-Ferrand is 388 meters, or 1,272.9 feet; Commune de Gréasque, 322 m., or 1,056.4 ft.; Tarbes, 308 m., or 1,010 ft.; Mont-Louis, 1,586.40 m., or 5,204.8 ft. Pic du Midi, (Summit,) 2.877 m., or 9,439.1 ft.; Pic du Midi, (Plantade,) 2,366 m., or 7,762.6 ft. In correcting the Mont-Louis barometric observations for altitude, the constant 136 millimeters has been added. At Clermont-Ferrand the observations have been taken at 0:50, instead of 0:55, p. m.; Versailles, at 1:0, instead of 0:51, p. m., local time. * Bouches du-Rhône.

## GERMAN SERIES.

Furnished by the coöperation of Professor Dr. G. Neumayer, Director of the German Naval Observatory, Hamburg.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0–10 | Clouds. Amount. Up'er 0–10 | Clouds. Amount. Low'r 0–10 | Clouds. Direction. Upper From— | Clouds. Direction. Lower From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bamberg | | | 30.19 | 766.9 | 72.5 | 22.5 | 54 | Calm | | | 0 | | 0 | | | 0 | 0 | | Prof. T. Hoh. |
| Berlin | | | 30.15 | 765.9 | 78.8 | 26.0 | 46 | SW | | | 1 | | 3 | | | 0 | 0 | | Prof. Arndt. |
| Breslau | | | 30.26 | 768.6 | 74.8 | 23.8 | 36 | W | | | 3 | | 6 | | | 0 | 0 | | Royal University Obs'y. |
| Carlsruhe | | | 30.15 | 765.9 | 79.5 | 26.4 | 37 | NE | | | 1 | | 0 | | | 0 | 0 | | Albert Senz. |
| Cassel | | | 30.27 | 768.8 | 81.0 | 27.2 | 47 | SW | | | 3 | | 2 | SW | | 0 | 0 | | Dr. H. Möhl. |
| Crefeld | | | 30.17 | 766.3 | 83.3 | 28.5 | 39 | NW | | | 3 | | 1 | | | 0 | 0 | | Director Lose. |
| Emden | | | 30.11 | 764.9 | 66.7 | 19.3 | 73 | SW | | | 6 | | 1 | | | 0 | 0 | | Prof. Prestel. |
| Frankfort on the Main | | | 30.22 | 767.6 | 82 0 | 27.8 | 34 | S | | | 2 | | 1 | | | 0 | 0 | | Physical Society. |
| Friedrichshafen | 28.84 | 732.4 | 30.23 | 767.8 | 72.0 | 22.2 | 64 | SW | | | 3 | | 2 | W | | 0 | 0 | | M. Wilhelm. |
| Hamburg | | | 30.11 | 764.8 | 76.8 | 24.9 | 49 | W | | | 5 | | 2k | | | 0.008 | 0.2 | Very fine | Captain F. Hegemann. |
| Kiel | | | 30.07 | 763.6 | 73.6 | 23.1 | 67 | W | | | 3 | | 8 | | | 0 | 0 | | Prof. G. Karsten. |
| Königsberg, (Prussia) | | | 30.15 | 765.8 | 66.0 | 18.9 | 60 | SW | | | 2 | | 9 | | | 0.004 | 0.1 | | Prof. E. Luther. |
| Köslin | | | | | | | | | | | | | | | | | | | H. Müller. |
| Leipsic, Observatory | | | 30.23 | 767.7 | 81.7 | 27.6 | 32 | SW | | | 2 | | 3 | | | 0 | 0 | | Prof. Bruhns. |
| Memel, Naval School | | | 30.20 | 767.0 | 61.9 | 16.6 | 77 | SSW | | | 1 | | 10cs;ks | | | | | | Reinbrecht & Skalweit. |
| Neufahrwasser | | | 30.18 | 766.5 | 68.0 | 20.0 | 51 | SSW | | | 2 | | 10 | | | 0.035 | 0.9 | | A. Lothes. |
| Posen | | | 30.19 | 766.9 | 79.3 | 26.3 | 36 | NW | | | 7 | | 10 | | | Inap. | Inap. | | Dr. Magener. |
| Strassburg, (in Alsace) | | | 30.18 | 766.6 | 80.2 | 26.8 | 37 | Calm | | | 0 | | 5 | | | 0 | 0 | | Dr. Schur. |
| Stuttgart | | | 30.21 | 767.3 | 72.5 | 22.5 | 56 | NE | | | 1 | | 1 | W | | 0 | 0 | | Prof. Schoder. |
| Treves, (Trier) | | | 30.07 | 763.6 | 81.1 | 27.3 | 40 | WNW | | | 5 | | 1 | | | 0 | 0 | | Prof. Flesch. |
| Weissenburg, (Bavaria) | 28.74 | 729.9 | 30.18 | 766.6 | 76.3 | 24.6 | 40 | NE | | | 1 | | 1 | | | 0 | 0 | | T. V. Dicknether. |
| Wustrow, Naval School | | | 30.17 | 766 3 | 69.6 | 20.9 | 61 | WSW | | | 2 | | 10 | | | 0 | 0 | | E. F. Schütz. |
| German Naval Series. | | | | | | | | | | | | | | | | | | | |

Note.—The elevation of Friedrichshafen is 413.3 meters, or 1,355. 9 feet: Weissenberg, 431 m., or 1,414.0 ft. In the originals the distinction between the amount of upper and lower clouds is not made. It is not always certain that the rain-fall has been measured at, and the remarks in the weather column refer to, the moment of observation. At Königsberg the observations have been taken at 2:0, instead of 2:5, p. m.; Memel, 2:1, instead of 2:7, p. m.; Posen, 2:0, instead of 1:51, p. m., local time.

## GREEK SERIES.

Furnished by the coöperation of Professor Dr. J. F. Julius Schmidt, Director of the Royal Observatory at Athens.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athens | | | 30.02 | 762 4 | 83.3 | 28.5 | | NW | | | | | | | | | | Very cloudy | Dr. J. F. J. Schmidt. |

Note.—The originals give the barometer reduced to freezing but not to sea-level; occasionally the kind of clouds and wind-force as published; the weather as published They omit the humidity amount of cloudiness and rain-fall.

## INDIAN SERIES.

Furnished by the coöperation of H. F. Blanford, Meteorological Reporter to the Government of India.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kurrachee | 29.48 | 748.9 | 29.53 | 750.1 | 88.6 | 31.4 | 71 | SW | 28.0? | 12.5? | | | 9 | | SW | 0 | 0 | D. clouds | |
| Deesa | 29.12 | 739.7 | 29.59 | 751.5 | 86.5 | 30.3 | 69 | Calm | 0 | 0 | | | 10 | S | | 0.29 | 7.4 | D. clouds | |
| Bombay | 29.68 | 753.9 | 29.72 | 754.8 | 84.6 | 29.2 | 81 | SW | 24.0 | 10.7 | | | 4 | | | 0.10 | 2.5 | Dust-haze | |
| Poona | 27.72 | 704.0 | 29.71 | 754.7 | 77.6 | 25.3 | 76 | | | | | | | | SE | 0.02 | 0.5 | D. clouds | |
| Lahore | 28.98 | 736.1 | 29.70 | 754.2 | 100.1 | 37.8 | 38 | W | 4.2 | 1.8 | | | 5 | | | 0 | 0 | Cloudy | |
| Belgaum | 27.29 | 693.2 | 29.84 | 758.0 | 73.4 | 23.0 | 88 | W | 10.0 | 4.4 | | | 7 | | W | 0.46 | 11.7 | Showery | |
| Bangalore | | | | | | | | | | | | | | | | | | | |
| Roorkee | 28.57 | 725.7 | 29.43 | 747.4 | 97.9 | 36.6 | | SW | | | | | | | | 0.51 | 13.0 | | |
| Agra | 28.90 | 734.1 | 29.45 | 748.1 | 86.8 | 30.4 | 76 | SW | 5.4 | 2.4 | | | 8 | | W | 0 | 0 | | |
| Trichinopoly | | | | | | | | | | | | | | | | | | | |
| Nagpur | 28.57 | 725.7 | 29.59 | 751.5 | 89.5 | 31.9 | 55 | W | 8.1 | 3.6 | | | 8 | | | 0 | 0 | Gloomy | |
| Madras | | | | | | | | | | | | | | | | | | | |
| Lucknow | 28.09 | 738.9 | 29.44 | 747.9 | 99.6 | 37.6 | 49 | SSW | 3.8 | 1.6 | | | 5 | | | 0 | 0 | D. clouds | |
| Allahabad | 29.18 | 741.2 | 29.48 | 748.8 | 90.7 | 32.6 | 70 | SW | 2.5 | 1.1 | | | 7 | NE | | 0 | 0 | D. clouds | |
| Patna | 29.29 | 744.0 | 29.46 | 748.4 | 98.2 | 36.8 | 47 | E | 1.7 | 0.7 | | | 6 | | | 0 | 0 | D. clouds | |
| Hazaribagh | 27.56 | 699.9 | 29.51 | 749.5 | 84.0 | 28.9 | 79 | S | 6.7 | 2.9 | | | 5 | N | S | 0.13 | 3.3 | Raining | |
| Cuttack | 29.50 | 749.2 | 29.58 | 751.3 | 89.3 | 31.8 | 68 | Calm | 1.5 | 0.6 | | | 6 | | | 0.04 | 1.0 | D. clouds | |
| Calcutta (Alipore) | 29.55 | 750.6 | 29.57 | 751.1 | 86.5 | 30.3 | 74 | S | 7.0 | 3.1 | | | 4 | | | 0 | 0 | D. clouds | |
| Goalpara | 29.19 | 741.5 | 29.58 | 751.2 | 82.6 | 28.1 | 87 | ESE | 1.7 | 0.7 | | | 10 | | SW | 0 | 0 | Thunder, lightn'g | |
| Chittagong | 29.55 | 750.5 | 29.64 | 752.8 | 85.4 | 29.7 | 79 | W | 6.7 | 2.9 | | | 3 | | | 0 | 0 | D. clouds | |
| Sibsagar | 29.31 | 744.4 | 29.64 | 752.9 | 79.9 | 26.5 | 91 | ENE | 4.4 | 1.9 | | | 10 | SW | SW | 1.24 | 31.5 | Overcast | |
| Rangoon | | | | | | | | | | | | | | | | | | | |
| Jubbulpore | 28.26 | 717.7 | 29.62 | 752.2 | 79.0 | 26.1 | 87 | W | 8.1 | 3.6 | | | 9 | | | 0.22 | 5.6 | Overcast | |

Note.—The barometric observations refer to the Calcutta standard, which is believed to read 0.011 inch or 0.28 mm. higher than the Kew standard. In the originals the data are given to an additional decimal, and all conversions are published as given; the weather by the Beaufort notation, Vienna symbols, or special symbols; the distinction between the amount of upper and lower clouds is apparently not made. The elevation of Poona is 1,992.4 feet, or 606.3 meters; Bangalore, 2,989 ft., or 911.0 m.; Nagpur, 1,025 ft., or 312.4 m.; Hazaribagh, 2,010 ft., or 612.6 m.; Jubbulpore, 1,351 ft., or 411.8 m.

## ITALIAN SERIES.

Furnished by the coöperation of His Excellency the Minister of Agriculture, Industry and Commerce, and the respective Observers.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valdobbia | 22.57 | 573.2 | 30.16 | 766.1 | 52.3 | 11.3 | 96 | WNW | | | 1 | | 10 | | | 0 | 0 | | Prof. Giovanni Clodig. |
| Stelvio | 22.54 | 572.4 | 30.15? | 765.9? | 52.7 | 11.5 | | WSW | | | 1 | | 4 | ENE | | 0 | 0 | | Signora Ernesta Manfredi. |
| Udine | | | 30.24 | 768.1 | 77.9 | 25.5 | 41 | SW | 1.8 | 0.8 | | | 3 | | | 0 | 0 | | Ab. Dom. Morgini. |
| Padua | | | 30.24 | 768.1 | 79.2 | 26.2 | 49 | SE | 1.8 | 0.8 | | | 5 | SE | | 0 | 0 | | Prof. Dott. Lorenzoni. |
| Vicenza | | | 30.25 | 768.4 | 77.2 | 25.1 | 45 | E | 1.3 | 0.6 | | | 1 | E | | 0 | 0 | | Conte Alm. Da Schio. |
| Verona | | | 30.14? | 765.5? | 72.3 | 22.4 | 56 | E | | | 2 | | 0 | | | 0 | 0 | | Dott. B. Bertoncelli. |
| Bergamo | 28.98 | 736.1 | 30.25 | 768.3 | 79.7 | 26.5 | 42 | SW | | | 2 | | 7 | | | 0 | 0 | | Prof. Trionfini Carlo. |
| Domodossola | | | 30.18 | 766.6 | 78.4 | 25.8 | 52 | SW | | | 6 | | 4 | | | 0 | 0 | | Prof. Giuseppe Calza. |
| Milan | | | 30.26 | 768.6 | 82.9 | 28.3 | 56 | SE | | | 2 | | 3 | E | | 0 | 0 | | Ab. Gio. Capelli. |
| Pavia | | | 30.23 | 767.8 | 79.9 | 26.6 | 46 | E | | | 4 | | 6 | NNW | | 0 | 0 | | Prof. Gio. Cantoni. |
| Moncalieri | | | 29.22 | 767.6 | 79.0 | 26.1 | 56 | ESE | 3.1 | 1.4 | | | 6 | | | 0 | 0 | | Prof. P. F. Denza. |
| Mondovi | 28.37 | 720.6 | 30.19 | 766.8 | 77.2 | 25.1 | 56 | NNW | | | 6 | | 2 | | | 0 | 0 | | Prof. D. C. Bruno. |
| Porto Maurizio | | | 30.27? | 768.8? | 80.8 | 27.1 | 62 | SSE | | | 2 | | 1 | | | 0 | 0 | | Prof. L. Vassallo. |
| Genoa | | | 30.20 | 767.1 | 80.1 | 26.7 | 53 | SW | 6.9 | 3.1 | | | 0 | | | 0 | 0 | | Prof. G. M. Garibaldi. |
| Piacenza | | | 30.24 | 768.0 | 80.1 | 26.7 | 45 | NE | 6.3 | 2.8 | | | 6 | | | 0 | 0 | | Dott. G. Manzi. |
| Parma | | | 30.20 | 767.0 | 84.2 | 29.0 | 52 | ESE | | | 4 | | 2 | | | 0 | 0 | | Prof. P. Pigorini. |
| Florence | | | 30.20 | 767.0 | 88.7 | 31.5 | 36 | N | | | 4 | | 1 | | | 0 | 0 | | Cav. F. Meucci. |
| Leghorn | | | 30.20 | 767.1 | 81.3 | 27.4 | 63 | Calm | 0 | 0 | | | 5 | | | 0 | 0 | | Prof. P. Monte. |
| Siena | 29.02 | 737.0 | 30.17 | 766.4 | 81.9 | 27.7 | 42 | E | 0.7 | 0.3 | | | 6 | E | | 0 | 0 | | Prof. L. Toscani. |
| Urbino | 28.76 | 730.5 | 30.26 | 768.5 | 76.3 | 24.6 | 52 | SE | | | 1 | | 2 | | | 0 | 0 | | Prof. P. Serpieri. |
| Pesaro | | | 30.26 | 768.7 | 77.5 | 25.3 | 52 | ENE | 23.0 | 10.3 | | | 0 | | | 0 | 0 | | Prof. Luigi Guidi. |
| Ancona | | | 30.26 | 768.6 | 80.2 | 26.8 | 38 | SE | | | 4 | | 1 | | | 0 | 0 | | Prof. F. DeBosis. |
| Grosseto | | | 30.21 | 767.2 | 84.9 | 29.4 | 48 | NW | | | 4 | | 2 | | | 0 | 0 | | Avv. P. Ponticelli. |
| Rome | | | 30.20 | 767.0 | 87.1 | 30.6 | 48 | W | 4.3 | 1.9 | | | 7 | | | 0 | 0 | | Prof's. P. Secchi & L. Respighi. |
| Naples, O. U. | | | 30.24 | 768.1 | 87.1 | 30.6 | 34 | SW | | | 4 | | 2 | N | | 0 | 0 | | Prof. L. Palmieri. |
| Lecce | | | 30.16 | 766.0 | 77.7 | 25.4 | 36 | NE | 16.1 | 7.2 | | | 3 | | | 0 | 0 | | Prof. C. DeGiorgi. |
| Cosenza | | | 30.14 | 765.6 | 90.1 | 32.3 | 40 | ESE | 4.3 | 1.9 | | | 3 | | | 0 | 0 | | Prof. F. D. Conti. |
| Cagliari | | | 30.14 | 765.5 | 83.3 | 28.5 | 49 | S | | | 2 | | 3 | W | | 0 | 0 | | Prof. A. Pacinotti. |
| Riposto, (Sicily) | | | 30.19 | 766.8 | 79.2 | 26.2 | 60 | Calm | | | 0 | | 0 | | | 0 | 0 | | Prof. F. Cafiero. |
| Palermo | | | 30.14 | 765.6 | 77.9 | 25.5 | 51 | NE | 6.9 | 3.1 | | | 0 | | | 0 | 0 | | Prof. G. Cacciatore. |
| Caltanissetta | 28.21 | 716.5 | 30.06 | 763.5 | 84.4 | 29.1 | 15 | SW | | | 2 | | 0 | | | 0 | 0 | | Prof. A. Pagani. |
| Syracuse | | | 30.04 | 763.1 | 84.0 | 28.9 | 46 | SW | | | 6 | | 2 | SW | | 0 | 0 | | Prof. V. Giuliano. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Naples, S. R. | | | 30.23 | 767.9 | 85.5 | 29.7 | 37 | NW | 0 | 0 | | | 3 | W | | 0 | 0 | | Prof. F. Brioschi |

Note.—The originals give the wind-force by the scale 0 to 4, or the velocity in kilometers per hour; no distinction between the amount of upper and lower clouds; the elevation of Stelvio is 2,543.0 meters, or 8,342.9 feet; Valdobbia, 2,548.0 m., or 8,359.3 ft.; Bergamo, 379.6 m., or 1,245.3 ft.; Mondovi, 556 m., or 1,824.2 ft.; Siena, 348.5 m., or 1,143.3 ft.; Urbino, 451 m., or 1,479.7 ft.; Caltanissetta, 570.3 m., or 1,871.0 ft.

## JAPANESE SERIES.

Furnished by the coöperation of the Imperial University of Tokio, Japan.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tokio, (Yeddo) | | | 29.96 | 761.0 | 78 | 25.6 | 86 | ESE | 2 | 0.9 | | 9 | | | | 0 | 0 | Fair. | Prof. P. V. Veeder. |

Note.—The originals do not give the state of the weather at the moment of observation.

## MEXICAN SERIES.

By authority of the Secretary of Public Works.

Furnished by the coöperation of Senor Mariano Bárcena, Director of the Central Meteorological Observatory in the City of Mexico.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mexico, Central Obs'y | 23.19 | 589.1 | 30.21 | 767.2 | 58.1 | 14.5 | 81 | NW | 3.1 | 1.39 | | 10k | 10k | E | | 0.024 | 0.6 | Cloudy | Mariano Bárcena. Vicente Reyes. Miguel Perez. (Engineers in charge.) |

Note.—The elevation of Mexico is 2,290 meters, or 7,512.9 feet. The rain-fall is measured at 6 a. m., local time.

## NETHERLANDS' SERIES.

Furnished by the coöperation of Professor Buys Ballot, Director of the Royal Meteorological Institute of the Netherlands at Utrecht.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flushing | | | 30.23 | 767.7 | 69.8 | 21.0 | | NW | | | 3 | | | | | 0 | 0 | | |
| Groningen | | | 30.11 | 764.9 | 71.1 | 21.7 | | NNW | | | 4 | | | | | 0 | 0 | | |
| Helder | | | 30.18 | 766.6 | 63.7 | 17.6 | | NW | | | 2 | | | | | 0.012 | 0.3 | | |
| Utrecht | | | 30.15 | 765.8 | 77.7 | 25.4 | 55 | W | | | 4 | | 2 | | | 0 | 0 | Light cloudy. | H. v d Brink. |

Note.—The originals give the wind-pressure in kilograms per square meter; they do not give the humidity; for Utrecht, they give the weather as published, from which the amount of cloudiness is taken by the scale 0 to 4, without distinguishing between upper and lower clouds. It is assumed that the barometer readings have been reduced to sea-level.

## NORWEGIAN SERIES.

Furnished by the coöperation of Professor H. Mohn, Director of the Royal Norwegian Meteorological Institute at Christiania.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | | | 29.98 | 761.4 | 56.5 | 13.6 | 89 | Calm | 0 | 0 | | | 4 | | | 0.413 | 10.5 | | |
| Brönø | | | 29.82 | 757.5 | 51.8 | 11.0 | 87 | SW | 18 | 8 | | | 10 | | | 0.260 | 6.6 | Raining | |
| Christiania | | | 29.77 | 756.1 | 68.2 | 20.1 | 55 | WSW | 11 | 5 | | | 3 | | | 0 | 0 | | |
| Tromsö | | | 29.70 | 754.4 | 57.4 | 14.1 | 42 | SW | 9 | 4 | | | 10 | | | 0 | 0 | | |

Note.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols. The cloudiness and weather at Bergen refer to 2h., p. m., local time, instead of 1h., 4 min.

## PORTUGUESE SERIES.

Furnished by the coöperation of J. C. de Brito Capello, Director of the Meteorological Observatory of the Infante Don Luiz at Lisbon.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angra, (Azores) | | | 30.44 | 773.1 | 71.2 | 21.8 | 81 | W | 1.8 | 0.8 | | | 6 | | | 0 | 0 | | Dr. J. A. Sampaio |
| Campo Major | | | 30.08 | 763.9 | 83.7 | 28.7 | 35 | NW | 6.9 | 3.1 | | | 7 | ESE | | 0 | 0 | | Dr. A. M. R. dos Santos. |
| Funchal, (Madeira) | | | 30.26 | 768.5 | 73.4 | 23.0 | 64 | Calm | 0 | 0 | | | 10 | | | 0 | 0 | | Capt. D. A. de Cunha. |
| Lisbon, Observatory | | | 30.10 | 764.6 | 81.7 | 27.6 | 48 | ENE | 6.3 | 2.8 | | | 4 | | | 0 | 0 | | The Staff. |
| Ponta Delgada, (Azores) | | | 30.44 | 778.1 | 70.9 | 21.6 | 72 | NE | 4.9 | 2.2 | | | 3 | | | 0 | 0 | | |

NOTE.—The originals give the wind-velocity in kilometers for the hour preceding the observation; occasionally, the weather by the Vienna symbols; the amount of cloudiness without distinguishing between upper and lower clouds; the barometer reduced to freezing, except for Funchal to sea-level. The rain-fall at Lisbon is measured at noon, instead of 0 h. 6 m., p. m.

| Naval Series. Vessels. | Sea or swell. Height scale 0–9 | Sea or swell. Direction from— | Observer. |
|---|---|---|---|
| S. S. India | | | A. D. Pedroso, Com'd't. Lt. S. A. P. de Mirando. |

## RUSSIAN SERIES.

Furnished by the coöperation of Professor H. Wild, Director of the Imperial Central Physical Observatory of Russia, at St. Petersburg.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | | | 30.21 | 767.4 | 69.6 | 20.9 | 44 | WNW | 4 | 2 | | | 9 | | | | | | Astronomical Obs. |
| Wilna | | | 29.77 | 756.1 | 65.8 | 18.8 | 50 | N | 2 | 1 | | | 7 | | | | | | Astronomical Obs. |
| Dorpat | | | 30.11 | 764.8 | 67.8 | 19.9 | 36 | WSW | 7 | 3 | | | 6 | | | | | | Physical Cabinet. |
| St. Petersburg | | | 30.06 | 763.5 | 61.3 | 16.3 | 49 | WNW | 13 | 6 | | | 3 | | | | | | Central Physical Obs |
| Kuopio | | | 29.93 | 760.3 | 62.6 | 17.0 | 68 | W | 7 | 3 | | | 10 | | | | | | Ch. Forsten. |
| Kieff | | | 29.95 | 760.8 | 50.9 | 10.5 | 99 | NW | 9 | 4 | | | 10 | | | | | Light rain | Physical Cabinet. |
| Nikolaiev | | | 29.98 | 761.4 | 63.3 | 17.4 | 68 | N | 34 | 15 | | | 10 | | | | | | Kurdakof. |
| Kertch | | | 29.88 | 759.0 | 72.0 | 22.2 | 77 | WNW | 2 | 1 | | | 9 | | | | | | Lagorio. |
| Moscow | | | 29.98 | 761.6 | 68.2 | 20.1 | 53 | NW | 7 | 3 | | | 2 | | | | | | Meteorological Obs. |
| Lugan | | | 29.67 | 753.6 | 81.0 | 27.2 | 63 | ENE | 9 | 4 | | | 4 | | | | | | Meteorological Obs. |
| Archangel | | | 29.82 | 757.5 | 57.0 | 13.9 | 78 | W | 29 | 13 | | | 10 | | | | | | Ogorodnikof. |
| Tiflis | 28.41 | 721.6 | 29.72 | 754.9 | 92.7 | 33.7 | 28 | S | 9 | 4 | | | 3 | | | | | | Physical Observatory. |
| Astrakhan | | | 29.86 | 758.4 | 86.2 | 30.1 | 48 | ESE | 11 | 5 | | | 3 | | | | | | Sebastianof. |
| Kasan | | | 29.85 | 758.2 | 83.5 | 28.6 | 37 | WSW | 7 | 3 | | | | | | | | | Physical Cabinet. |
| Orenburg | | | 30.17 | 766.3 | 79.7 | 26.5 | 87 | E | 9 | 4 | | | 0 | | | | | | Tschernischef. |
| Ekaterinburg | 28.65 | 732.9 | 29.75 | 755.6 | 77.5 | 25.3 | 48 | NNW | 2 | 1 | | | 6 | | | | | | Meteorogical Obs. |
| Nukuss | | | 29.91 | 759.6 | 88.5 | 31.4 | 39 | NW | 7 | 3 | | | 0 | | | | | | |
| Kasaly | | | | | | | | | | | | | | | | | | | Bobrof. |
| Tashkend | 28.31 | 719.1 | 29.91 | 759.6 | 85.6 | 29.8 | 31 | S | 4 | 2 | | | 0 | | | | | | Michelson. |
| Barnaul | | | 29.58 | 751.4 | 71.1 | 21.7 | 71 | SE | 4 | 2 | | | 10 | | | | | | Meteorological Obs. |
| Yeniseisk | | | 29.44 | 747.8 | 75.6 | 24.2 | 82 | SSW | 4 | 2 | | | 9 | | | | | | Marks. |
| Irkutsk | | | | | | | | | | | | | | | | | | | Usolzef. |
| Oorga | | | | | 71.4 | 21.9 | | Calm | 0 | 0 | | | 2 | | | | | | Mossin. |
| Peking, (China) | | | 29.77 | 756.2 | 83.1 | 28.4 | 40 | Calm | 0 | 0 | | | 2 | | | | | | Physical Observatory. |
| Nertchinsk | | | | | | | | | | | | | | | | | | | Meteorological Obs. |
| Vladivostock | | | 29.77 | 756.2 | 59.2 | 15.1 | 99 | SE | 9 | 4 | | | 10 | | | | | Dense fog | |
| Nikolaievsk, on the Amoor | | | | | 50.9 | 10.5 | 76 | Calm | 0 | 0 | | | 10 | | | | | | |

NOTE.—The originals give the amount of cloudiness without distinguishing between upper and lower clouds; occasionally, the weather by the Vienna symbols; they omit the rain-fall. The elevation of Tiflis is 409 meters, or 1,341.8 feet; Ekaterinburg, 306.4? m., or 1,005.2? ft.; Tashkend, 494.2? m., or 1,621.3? ft.; Irkutsk, 392 m., or 1,286 ft.; Nertchinsk, 592.0? m., or 1,942.2? ft.; Oorga, 1,281.0? m., or 4,202.6? ft.

## SPANISH SERIES.

Furnished by the coöperation of Antonio Aguilar, Director of the Royal Observatory at Madrid, and the respective Observers.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcelona, Met. Obs'y | | | | | | | | | | | | | | | | | | | Antonio Rave, Director. |
| Bilbao, Met. Obs'y | | | | | | | | | | | | | | | | | | | Prof. Manuel de Naveran. |
| Burgos, Met. Obs'y | | | | | | | | | | | | | | | | | | | Domingo Martin y Perez. |
| Madrid, Royal Observatory | | | 30.02 | 762.4 | 82.4 | 28.0 | 38 | N | 6.7 | 3.00 | | 0 | 6 | | | 0 | 0 | Cloudy | The Staff. |
| Murcia, Met. Obs'y | | | | | | | | | | | | | | | | | | | Olayo Diaz, Director. |
| Santiago, Met. Obs'y | | | | | | | | | | | | | | | | | | | R. Gil Villanueva, Dir. |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Havana, Cuba, W. I. | | | 30.11 | 764.7 | 85.1 | 29.5 | 78 | Calm | 0 | 0 | | 0 | 1k | | | 0 | 0 | Clear | Benito Vines, S. J. |
| San Fernando, Naval Obs'y. | | | 30.18 | 766.5 | 75.7 | 24.3 | 67 | S | 6.5 | 2.9 | | 0 | 3 | | S | 0 | 0 | | Capt. C. Pujazon, R. N., Dir. |
| San Juan de Porto Rico, W. I. | | | 30.00 | 762.1 | 84.7 | 29.3 | 84 | E | 10.4 | 4.66 | | 4cs | 1k | | E | 0.020 | 0.50 | D. clouds | Leonardo de Tejeda, Chief of Engineers. |

NOTE.—The originals give the weather in general terms, as published; wind-velocity for Madrid in kilometers per hour; rain-fall for San Juan as measured at 4 p. m., instead of 8:19 a. m., local time, and for St. Fernando at midnight following. The elevation of Madrid is 655.5 meters, or 2,150.5 feet.

## SWEDISH SERIES.

Furnished by the coöperation of Professor R. Rubenson, Director of the Royal Swedish Meteorological Institute, at Stockholm, and of Dr. H. H. Hildebrandsson Chief of the Meteorological Division of the Upsala Observatory.

| Stations. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haparanda | | | 29.89 | 759.1 | 56.1 | 13.4 | 54 | S | | | 2 | | 0 | | | 0 | 0 | | |
| Umea | | | 29.85 | 758.1 | 51.4 | 10.8 | 81 | S | | | 4 | | 10 | | | 0 | 0 | | |
| Fernosand | | | 29.76 | 756.0 | 54.3 | 12.4 | 98 | SE | | | 2 | | 10 | | | | | Raining | |
| Stockholm | | | 29.85 | 758.2 | 57.2 | 14.0 | 82 | SW | | | 4 | | 10 | | | 0.008 | 0.2 | | |
| Wisby | | | 30.00 | 762.0 | 58.3 | 14.6 | 83 | SW | | | 6 | | 7 | | | 0 | 0 | | |
| Sub-Series. | | | | | | | | | | | | | | | | | | | |
| Upsala | | | 29.83 | 757.6 | 54.1 | 12.3 | 97 | S | 15.9 | 7.1 | | | 10 | | S | 0.139 | 3.52 | Raining | Dr. Hildebrandsson. |

NOTE.—The originals give the wind-force by the scale 0 to 6, except Upsala; occasionally, the weather by the Vienna symbols, or in general terms; no distinction between the amount of upper and lower clouds. The rain-fall is measured at 8 a. m., local time, and apparently on the following day.

## SWISS SERIES.

Furnished by the coöperation of Professor R. Wolf, Director of the Observatory at Zurich, and of Professor E. Plantamour, Director of the Observatory at Geneva.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0-10. | Clouds. Amount. Up'er 0-10. | Clouds. Amount. Low'r 0-10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeter. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Geneva | 28.81 | 731.7 | 30.17 | 766.4 | 74.8 | 23.8 | 55 | NNE | | | 1 | | 1 | | | 0 | 0 | Clear | The Observatory. |
| Zurich | 28.62 | 727.0 | 30.18 | 766.5 | 70.9 | 26.6 | 58 | SE | | | 1 | | 2 | | | 0 | 0 | Bright | The Observatory. |

NOTE.—For Geneva the corresponding departures from the normal values are: Barometer, +4.5 mm; Thermometer, +1.8 cent.; Relative Humidity, +1 per cent.

NOTE.—The rain-fall is measured at Zurich at 7 a. m. on the following day. The originals give the barometer reduced to freezing but not to sea-level; the wind-force by the scale 0 to 4 for Zurich; the amount of cloudiness without distinguishing between upper and lower clouds; the weather in general terms. The elevation of Geneva is 408 meters, or 1,339 feet, and that of Zurich 470 m., or 1,542 ft.

## TURKISH SERIES.

Furnished by the coöperation of A. Coumbary, Effendi, Director of the Central Observatory at Constantinople, and of Professor C. V. A. Van Dyck, Superintendent of the Lee Observatory at Beirut.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constantinople | | | 30.08 | 764.0 | 61.5 | 16.4 | 88 | N | 22 | 10.0 | | | 10 | | N | 0.630 | 16.0 | | The Observatory. |
| Fao, (Persian Gulf) | | | 29.84 | 757.8 | 89.4 | 31.9 | | NW | | | 3 | | 0 | | | | | | |
| Salonica | | | 30.17 | 766.2 | 77.2 | 25.1 | | N | | | 4 | | 2 | | | Blank | Blank | | B. Stéfanidès. |
| Valona | | | 30.23 | 767.8 | 75.0 | 23.9 | | NW | | | 2 | | 2 | | | 0 | 0 | Slightly cl'dy | A. Bertrand. |
| Varna | | | | | | | | | | | | | | | | | | | Imperial Observatory. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| Beirut, (Syria,) Lee Obs'y | | | 29.91 | 759.8 | 86.5 | 30.3 | 50 | WSW | | | 2 | | 2s | | SW | 0 | 0 | D. clouds | Prof. C. V. A. Van Dyck |

NOTE.—The originals give the wind-force by the scale 0 to 7, (except Beirut by the scale 0 to 12, and Constantinople velocity in meters per second;) the weather in general terms as published, except Beirut by the Beaufort notation; no distinction between upper and lower clouds, and, except Constantinople and Beirut, the amount by the scale 0 to 4. It is assumed, except for Constantinople, that the barometer is reduced to sea-level.

## CANADIAN SERIES.

Furnished by the coöperation of Professor G. T. Kingston, Director of the Magnetic Observatory at Toronto, and Superintendent of the Meteorological Office of the Dominion of Canada, and the respective Observers. Those marked with a star (*) are also telegraphed daily to the Office of the Chief Signal Officer, U. S. Army.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bathurst, N. B | | | 30.04 | 763.0 | 60.9 | 16.1 | 82 | SW | 9 | 4.0 | | | 10 | | | | | | Hon. J. Ferguson. |
| Brockville, Ontario | | | 29.93 | 760.2 | 64 | 17.8 | | W | 5 | 2.2 | | | 10s | | W | 0.23 | 5.8 | Cloudy | W. R. Bigg. |
| *Chatham, N. B | | | 30.09 | 764.3 | 57 | 13.9 | 78 | SW | 4 | 1.8 | | 2ck | 8ks | SW | SW | 0.08 | 2.0 | Cloudy | G. A. Blair. |
| Charlottetown, P. E. Island | | | 30.16 | 766.1 | 61 | 16.1 | 96 | Calm | 0 | 0 | | | 8ks | | | 0 | 0 | Cloudy | H. J. Cundall, C. E. |
| Cornwall, Ontario | | | 29.94 | 760.5 | 63.0 | 17.2 | 92 | S | | | 1 | | 10s | | | 0 | 0 | Dull | James Smith, M. A. |
| Dalhousie, N. B | | | 30.11 | 764.8 | 60.0 | 15.6 | 86 | SW | | | 2 | | | | | 0 | 0 | Threatening | H. A. Johnson. |
| Esquimault, B. C | | | 30.05 | 763.3 | 54.2 | 12.3 | 100 | SW | | | | 10cs | 0 | | | 0 | 0 | Cloudy | W. H. Bevis. |
| *Father Point, Quebec | | | 30.00 | 762.0 | 55 | 12.8 | 90 | NE | 2 | 0.9 | | 5k | 5n | S | S | 0 | 0 | Threatening | J. McWilliams. |
| Fredericton, N. B | | | 30.16 | 766.1 | 62.0 | 16.7 | 67 | S | 4 | 1.8 | | | 10s | | | 0.05 | 1.3 | Cloudy | Prof. Harrison. |
| *Fort Garry, Manitoba | | | 29.39 | 746.5 | 60 | 15.6 | 82 | NE | 16 | 7.2 | | 5k | 5n | NE | NE | Inap. | Inap. | Light rain | James Stewart. |
| Goderich, Ontario | | | 29.79 | 756.7 | 68.3 | 20.2 | | W | | | 2 | | 10n | | | 0.318 | 8.07 | Raining | H. J. Strang, M. A. |
| Granton, Ontario | 28.79 | 731.3 | 29.85 | 758.2 | 66 | 18.9 | 95 | S | | | 2 | | 10n | | | 0.44 | 11.2 | Cloudy | James Grant. |
| *Halifax, N. S | | | 30.12 | 765.0 | 61 | 16 1 | 67 | SE | 2 | 0.9 | | 2c | 0 | | | 0 | 0 | Fair | F. Allison, M. A. |
| Hamilton, Ontario | | | 29.92 | 760.0 | 68.7 | 20.4 | 84 | SW | | | 1 | 10ck | 0 | | | 0 | 0 | Cloudy | Geo. Dickson, M. A. |
| Heart's Content, N. F | | | 30.19 | 766.8 | 63 | 17.2 | 42 | N | | | 1 | 0 | 0 | | | 0 | 0 | Fine | E. Weedon. |
| *Kingston, Ontario | | | 29.99 | 761.7 | 65 | 18.3 | 88 | SW | 3 | 1.3 | | 2c | 0 | | | 0 | 0 | Clear | S. Woods, M. A. |
| *Montreal, Quebec | | | 29.95 | 760.7 | 64 | 17.8 | 87 | SW | 1 | 0.4 | | Haze | 5s | | | 0.18 | 4.6 | Cloudy | C. H. McLeod, C. E. |
| *Parry Sound, Ontario | | | 29.86 | 758.4 | 62 | 16.7 | 88 | S | 14 | 6.3 | | 2k | 5ks | W | W | 0 | 0 | Fair | Rev. R. Mosley. |
| Peterboro, Ontario | | | | | | | | | | | | | | | | | | | J. F. Jeffers, B. A. |
| Port Dover, Ontario | | | 29.91 | 759.7 | 67 | 19.4 | 95 | S | 4 | 1.8 | | 8ck | 0 | W | | 0.02 | 15.7 | Fair | H. Morgan. |
| Port Hastings, N. S | | | 30.19 | 766.8 | 56.0 | 13.3 | | SE | 5 | 2.2 | | | | | | 0 | 0 | Fine | Peter Grant. |
| Port Stanley, Ontario | | | 29.88 | 758.9 | 68 | 20.0 | 91 | E | 3 | 1.3 | | | 10ks | | W | 0.13 | 3.3 | Cloudy | M. Payne. |
| *Quebec, Quebec | | | 30.02 | 762.5 | 63 | 17.2 | 83 | Calm | 0 | 0 | | | 10n | | | 0.74 | 18.8 | Cloudy | Capt. Ashe, R. N. |
| *Rockliffe, Ontario | | | 29.92 | 760.0 | 56 | 13.3 | 97 | E | 3 | 1.3 | | | 10n | | | 0.19 | 4.8 | Foggy | W. H. McIntyre. |
| St. John, N. B | | | 30.18 | 766.6 | 57 | 13.9 | 78 | SW | | | | 7c | | | | | | | G. Murdock, C. E. |
| *Saugeen, Ontario | | | 29.79 | 756.7 | 66 | 18.9 | 85 | SE | 6 | 2.7 | | | 10ks | | | 0 | 0 | Cloudy | K. Stewart. |
| Stayner, Ontario | | | 29.84 | 757.9 | 68 | 20.0 | 84 | SE | 7 | 3.1 | | | 10ks | | W | 0 | 0 | Cloudy | R. J. Cole. |
| Stratford, Ontario | 28.60 | 726.4 | 29.84 | 757.9 | 63.9 | 17.7 | 98 | S | 4 | 1.8 | | | 10s | | | 0.331 | 8.41 | Cloudy | C. J. MacGregor, M. A. |
| *Sydney, C. B | | | 30.21 | 767.3 | 68 | 20.0 | 55 | SW | 7 | 3.1 | | 2c | 0 | | | 0 | 0 | Clear | T. C. Hill. |
| *Toronto, Ontario | | | 29.92 | 760.0 | 68 | 20.0 | 80 | SE | 6 | 2.7 | | | 8ks | | W | Inap. | Inap. | Cloudy | Magnetic Observatory |
| Windsor, N. S | | | 30.18 | 766.6 | 62 | 16.7 | 66 | S | 1 | 0.4 | | 2cs | 0 | S | | 0 | 0 | Fair | Prof. John E. Oram. |
| Woodstock, Ontario | | | 29.86 | 758.4 | 67.0 | 19.4 | 95 | S | 6 | 2.7 | | | 10ks | | W | 0.50 | 12.7 | Cloudy | J. Montgomery. |
| SUB-SERIES. | | | | | | | | | | | | | | | | | | | |
| St. Johns, Newfoundland | | | 30.27 | 768.8 | 75.0 | 23.9 | 40 | E | | | | 0 | 0 | | | 0 | 0 | Fair | John Delany |

NOTE.—The originals for Brockville, Charlottetown, Port Dover, Port Stanley, Stayner, St. Johns, N. F., and those telegraphed, give the amount of cloudiness by the scale 0 to 4; for Bathurst not any distinction between upper and lower clouds. The elevation of Granton is 1,015 feet, or 309.4 meters; Stratford, 1,182 ft, or 360.3 m.

By authority of the **SECRETARY OF WAR.** UNITED STATES SERIES.

Furnished by the coöperation of Bvt. Brig. Gen. Albert J. Myer, Chief Signal Officer, U. S. Army.

| STATIONS. | Barometer. Corrected for instrum'tal error and temperature. Inches. | Barometer. Corrected for instrum'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany, N. Y. | | | 30.02 | 762.5 | 67 | 19.4 | 64 | S | 8 | 3.6 | | 5k | 0 | SW | | 0.28 | 7.1 | Fair | |
| Alpena, Mich. | | | 29.58 | 751.3 | 62 | 16.7 | 94 | S | 16 | 7.2 | | | 10s | | S | 0.16 | 4.1 | Cloudy | |
| Atlantic City, N. J. | | | 30.11 | 764.8 | 68 | 20.0 | 79 | SW | 6 | 2.7 | | 2ck | 0 | W | | 0 | 0 | Clear | |
| Augusta, Ga. | | | 30.18 | 766.6 | 75 | 23.9 | 81 | Calm | 0 | 0 | | 0 | 0 | | | 0.16 | 4.1 | Clear | |
| Baltimore, Md. | | | 30.11 | 764.8 | 69 | 20.6 | 70 | SE | 5 | 2.2 | | 5ks | Sm'e | | | 0 | 0 | Fair | |
| Barnegat, N. J. | | | 30.09 | 764.3 | 70 | 21.1 | 71 | S | 10 | 4.5 | | 8ck | 0 | NW | | 0 | 0 | Fair | |
| Bismarck, Dakota | 27.81 | 706.4 | 29.37 | 746.0 | 57 | 13.9 | 100 | NW | 10 | 4.5 | | | 10n | | W | 0.83 | 21.1 | Light rain | |
| Boston, Mass. | | | 30.13 | 765.3 | 55 | 12.8 | 97 | SE | 6 | 2.7 | | | 10n | | | 0.07 | 1.8 | Light rain | |
| Breckenridge, Minn. | | | 29.32 | 744.7 | 58 | 14.4 | 100 | W | 20 | 8.9 | | | 10n | | | 3.46 | 87.9 | Light rain | |
| Brownsville, Texas | | | 30.03 | 762.7 | 83 | 28.3 | 79 | SE | 9 | 4.0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Buffalo, N. Y. | | | 29.89 | 759.2 | 70 | 21.1 | 79 | SW | 6 | 2.7 | | 2ck | 5s | W | W | 0.33 | 8.4 | Fair | |
| Burlington, Vt. | | | 30.00 | 762.0 | 65 | 18.3 | 73 | S | 8 | 3.6 | | | 10s | | S | 1.13 | 28.7 | Cloudy | |
| Cairo, Ill. | | | 29.92 | 760.0 | 80 | 26.7 | 78 | S | 12 | 5.4 | | 8c | 0 | E | | 0 | 0 | Fair | |
| Campo, Cal. | 27.36 | 694.9 | 29.93 | 760.2 | 38 | 3.3 | 80 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Camp Verde, Arizona | | | | | 62 | 16.7 | | Calm | | | | 0 | Haze | | | 0 | 0 | Clear | |
| Cape Hatteras, N. C. | | | 30.07 | 763.8 | 73 | 22.8 | 63 | NE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cape Henry, Va. | | | 30.11 | 764.8 | 69 | 20.6 | 69 | SW | 9 | 4.0 | | 5cs | Haze | | | 0 | 0 | Fair | |
| Cape Lookout, N. C. | | | 30.15 | 765.8 | 75 | 23.9 | 72 | Calm | 0 | 0 | | Haze | Haze | | | 0 | 0 | Fair | |
| Cape May, N. J. | | | 30.12 | 765.0 | 69 | 20.6 | 70 | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Charleston, S. C. | | | 30.17 | 766.3 | 81 | 27.2 | 70 | SE | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Cheyenne, Wyoming | 24.07 | 611.4 | 30.01 | 762.2 | 53 | 11.7 | 23 | SW | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Chicago, Ill. | | | 29.64 | 758.2 | 74 | 23.3 | 76 | SW | 10 | 4.5 | | | 10s | | | 0.12 | 3.0 | Cloudy | |
| Cincinnati, Ohio | | | 29.86 | 758.4 | 77 | 25.0 | 72 | S | 8 | 3.6 | | | 10ks | | W | 0 | 0 | Cloudy | |
| Cleveland, Ohio | | | 29.86 | 758.4 | 75 | 23.9 | 64 | S | 11 | 4.9 | | | 10s | | W | 0 | 0 | Cloudy | |
| Corsicana, Tex. | | | 29.95 | 760.7 | 77 | 25.0 | 82 | S | 16 | 7.2 | | | 10s | | S | 0 | 0 | Cloudy | |
| Davenport, Iowa | | | 29.66 | 753.4 | 75 | 23.9 | 81 | W | 6 | 2.7 | | 1cs | 0 | W | | 0.03 | 0.8 | Clear | |
| Denison, Texas | | | 29.93 | 760.2 | 77 | 25.0 | 81 | S | 12 | 5.4 | | 0 | 5s | | S | 0.01 | 0.3 | Fair | |
| Denver, Col. | 24.82 | 630.4 | 30.04 | 763.0 | 52 | 11.1 | 34 | S | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Detroit, Mich. | | | 29.78 | 756.4 | 72 | 22.2 | 75 | SW | 10 | 4.5 | | | 10ks | | SW | 0 | 0 | Threatening | |
| Dodge City, Kan. | 27.31 | 693.7 | 29.50 | 749.3 | 64 | 17.8 | 47 | N | 14 | 6.3 | | 0 | 2s | | NW | 0.01 | 0.3 | Clear | |
| Dubuque, Iowa | | | 29.60 | 751.8 | 71 | 21.7 | 57 | W | 10 | 4.5 | | 0 | 0 | | | 0.10 | 2.5 | Clear | |
| Duluth, Minn. | | | 29.28 | 743.7 | 51 | 10.6 | 93 | NE | 6 | 2.7 | | | 10s | | | 1.14 | 29.0 | Cloudy | |
| Eagle Pass, Tex. | | | 29.86 | 758.4 | 79 | 26.1 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| Eastport, Me. | | | 30.15 | 765.8 | 59 | 15.0 | 70 | S | 4 | 1.8 | | 8ck | 0 | SW | | 0 | 0 | Fair | |
| Erie, Pa. | | | 29.86 | 758.4 | 74 | 23.3 | 72 | SE | 15 | 6.7 | | 2c | 2s | | | 0 | 0 | Fair | |
| Escanaba, Mich. | | | 29.46 | 748.3 | 62 | 16.7 | 88 | S | 12 | 5.4 | | | 10s | | S | 0.90 | 22.9 | Cloudy | |
| Florence, Arizona | 28.33 | 719.6 | 29.93 | 760.2 | 69 | 20.6 | 13 | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Fort Gibson, Indian Ter. | | | 29.82 | 757.4 | 80 | 26.7 | 78 | S | 20 | 8.9 | | 2k | 0 | SW | | 0 | 0 | Clear | |
| Fort Griffin, Tex. | 28.54 | 724.9 | 29.73 | 755.1 | 77 | 25.0 | 76 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Ft. St. Michael, Alaska | | | 29.56 | 750.8 | 50 | 10.0 | 86 | S | | | 7 | | 10ks | | S | 0.12 | 3.0 | Cloudy | |
| Fort Sill, Indian Ter. | 28.65 | 727.7 | 29.70 | 754.4 | 76 | 24.4 | 76 | | | | | 1k | 0 | | | 0 | 0 | Fair | |
| Fort Sully, Dakota | 28.09 | 713.5 | 29.69 | 754.1 | 58 | 14.4 | 75 | NW | 20 | 8.9 | | 0 | 0 | | | 0.03 | 0.8 | Clear | |
| Galveston, Tex. | | | 30.06 | 763.5 | 82 | 27.8 | 74 | S | 8 | 3.6 | | 1k | 0 | S | | 0 | 0 | Clear | |
| Grand Haven, Mich. | | | 29.64 | 752.8 | 69 | 20.6 | 92 | S | 9 | 4.0 | | | 10s | | | 0.50 | 12.7 | Cloudy | |
| Indianapolis, Ind. | | | 29.84 | 757.9 | 76 | 24.4 | 76 | S | 4 | 1.8 | | | 10s | | SW | 0 | 0 | Cloudy | |
| Indianola, Tex. | | | 30.03 | 762.7 | 84 | 28.9 | 75 | S | 12 | 5.4 | | 5k | 2ks | S | S | 0 | 0 | Fair | |
| Jacksonville, Fla. | | | 30.13 | 765.3 | 84 | 28.9 | 71 | E | 3 | 1.3 | | 0 | 0 | | | 0.07 | 1.8 | Clear | |
| Keokuk, Iowa | | | 29.66 | 753.4 | 80 | 26.7 | 74 | W | 11 | 4.9 | | 10c | 0 | W | | 0 | 0 | Fair | |
| Key West, Fla. | | | 30.09 | 764.3 | 86.0 | 30.0 | 58 | E | 3 | 1.3 | | 0 | 2ks | | | 0.01 | 0.3 | Fair | |
| Kittyhawk, N. C. | | | 30.16 | 766.1 | 71 | 21.7 | 75 | NE | 4 | 1.8 | | 5cs | 0 | NE | | 0 | 0 | Fair | |
| Knoxville, Tenn. | | | 30.08 | 764.0 | 73 | 22.8 | 81 | SE | 2 | 0.9 | | 0 | 0 | | | 0 | 0 | Clear | |
| La Crosse, Wis. | | | 29.50 | 749.3 | 68 | 20.0 | 55 | SW | 12 | 5.4 | | 0 | 0 | | | 0.19 | 4.8 | Clear | |
| Leavenworth, Kan. | | | 29.74 | 755.4 | 76 | 24.4 | 76 | N | 3 | 1.3 | | 2cs | 0 | | | 0.02 | 0.5 | Fair | |
| Louisville, Ky. | | | 29.91 | 759.7 | 81 | 27.2 | 70 | SW | 9 | 4.0 | | 5c | 2s | W | SW | 0 | 0 | Fair | |
| Lynchburg, Va. | | | 30.08 | 764.0 | 75 | 23.9 | 72 | W | 4 | 1.8 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Maricopa Wells, Arizona | | | | | 80 | 26.7 | | N | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Marquette, Mich. | | | 29.38 | 746.2 | 63 | 17.2 | 83 | S | 8 | 3.6 | | | 10s | | | 1.08 | 27.4 | Cloudy | |
| Mason, Tex. | 28.63 | 727.2 | 30.00 | 762.0 | 78 | 25.6 | 69 | SE | 8 | 3.6 | | 0 | 0 | | | 0 | 0 | Clear | |
| Memphis, Tenn. | | | 30.00 | 762.0 | 83 | 28.3 | 74 | S | 4 | 1.8 | | 5c | 0 | SW | | 0 | 0 | Fair | |
| Milwaukee, Wis. | | | 29.63 | 752.6 | 71 | 21.7 | 80 | SW | 8 | 3.6 | | | 10s | | SW | 0.34 | 8.6 | Threatening | |
| Mobile, Ala. | | | 30.08 | 764.0 | 81 | 27.2 | 75 | N | 5 | 2.2 | | 0 | 0 | | | 0 | 0 | Clear | |
| Montgomery, Ala. | | | 30.11 | 764.8 | 82 | 27.8 | 59 | E | 8 | 3.6 | | 0 | Haze | | | 0 | 0 | Clear | |
| Morgantown, W. Va. | 28.98 | 736.1 | 29.99 | 761.7 | 75 | 23.9 | 64 | Calm | 0 | 0 | | 8c | 0 | W | | 0 | 0 | Fair | |
| Mt. Washington, N. H. | 23.90 | 607.0 | 30.26 | 768.6 | 43 | 6.1 | 100 | W | 15 | 6.7 | | | Fog | | | 1.58 | 40.1 | Foggy | |
| Nashville, Tenn. | | | 29.98 | 761.5 | 85 | 29.4 | 61 | SW | 8 | 3.6 | | 2c | 0 | | | 0 | 0 | Clear | |
| New Haven, Conn. | | | 30.09 | 764.3 | 66 | 18.9 | 78 | S | 5 | 2.2 | | 10ks | Haze | SW | | 0.05 | 1.3 | Cloudy | |
| New London, Conn. | | | 30.11 | 764.8 | 62 | 16.7 | 94 | SW | 8 | 3.6 | | 0 | 10s;ks | | W | Inap. | Inap. | Threatening | |
| New Orleans, La. | | | 30.09 | 764.3 | 82 | 27.8 | 74 | W | 6 | 2.7 | | 4c | 0 | W | | 0 | 0 | Fair | |
| Newport, R. I. | | | 30.10 | 764.5 | 63 | 17.2 | 83 | SE | 5 | 2.2 | | | 10ks | | W | 0 | 0 | Threatening | |
| New York, N. Y. | | | 30.11 | 764.8 | 64 | 17.8 | 68 | SW | 6 | 2.7 | | | 10s | | | 0 | 0 | Cloudy | |
| Norfolk, Va. | | | 30.15 | 765.8 | 76 | 24.4 | 56 | SW | 9 | 4.0 | | 5c | 0 | NE | | 0 | 0 | Fair | |
| North Platte, Neb. | 27.04 | 686.8 | 29.55 | 750.6 | 56 | 13.3 | 51 | NW | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Omaha, Neb. | 28.76 | 729.0 | 29.72 | 754.9 | 69 | 20.6 | 56 | W | 4 | 1.8 | | 0 | 0 | | | 0.08 | 2.0 | Clear | |
| Oswego, N. Y. | | | 29.98 | 761.5 | 70 | 21.1 | 75 | S | 4 | 1.8 | | 5k | 0 | W | | 0.33 | 8.4 | Fair | |
| Pembina, Dakota | | | 29.35 | 745.5 | 56 | 13.3 | 100 | N | 22 | 9.8 | | | 10n | | N | 1.10 | 27.9 | Light rain | |
| Philadelphia, Pa. | | | 30.10 | 764.5 | 66 | 18.9 | 73 | W | 8 | 3.6 | | 2ck | 5ks | NE | NE | 0 | 0 | Fair | |
| Phœnix, Arizona | | | | | 63 | 17.2 | 33 | SW | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Pike's Peak, Col. | 17.92 | 455.2 | 30.13 | 765.3 | 27 | — 2.8 | 66 | SW | 32 | 14.3 | | 0 | 0 | | | Inap. | Inap. | Clear | |
| Pittsburg, Pa. | | | 29.94 | 760.5 | 73 | 22.8 | 71 | SW | 6 | 2.7 | | 5c | 0 | W | | 0 | 0 | Fair | |
| Port Huron, Mich. | | | 29.75 | 755.6 | 70 | 21.1 | 84 | S | 10 | 4.5 | | | 10s | | W | 0.63 | 16.0 | Threatening | |
| Portland, Me. | | | 30.10 | 764.5 | 56 | 13.3 | 75 | SW | 9 | 4.0 | | 5k | 2s | SW | | 0.36 | 9.1 | Cloudy | |
| Portland, Oregon | | | 30.17 | 766.3 | 54 | 12.2 | 86 | SW | 3 | 1.3 | | | 10s | | | 0.09 | 2.3 | Cloudy | |
| Prescott, Arizona | | | | | 51 | 10.6 | 28 | | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Punta Rassa, Fla. | | | 30.11 | 764.8 | 81 | 27.2 | 62 | E | 6 | 2.7 | | 0 | 0 | | | 0 | 0 | Clear | |
| Rochester, N. Y. | | | 29.91 | 759.7 | 69 | 20.6 | 75 | SW | 7 | 3.1 | | 5ck | 0 | NW | | 0.15 | 3.8 | Fair | |
| Salt Lake City, Utah | 25.76 | 654.3 | 29.99 | 761.7 | 54 | 12.2 | 43 | SE | 4 | 1.8 | | 0 | 0 | | | 0 | 0 | Clear | |
| Sandy Hook, N. J. | | | 30.10 | 764.5 | 65 | 18.3 | 78 | SW | 12 | 5.4 | | | 10s | | SW | 0 | 0 | Cloudy | |
| San Antonio, Tex. | | | 29.87 | 758.7 | 80 | 26.7 | 78 | S | 5 | 2.2 | | 0 | 5ks | | S | 0 | 0 | Fair | |
| San Diego, Cal. | | | 29.94 | 760.5 | 59 | 15.0 | 94 | N | 3 | 1.3 | | 0 | Fog | | N | 0 | 0 | Clear | |
| San Francisco, Cal. | | | 30.04 | 763.0 | 55 | 12.8 | 87 | W | 12 | 5.4 | | 0 | 8s | | | 0 | 0 | Fair | |
| Santa Fe, New Mexico | 23.34 | 592.8 | 29.88 | 758.9 | 57 | 13.9 | 14 | E | 4 | 1.8 | | 0 | Sm'e | | | 0 | 0 | Smoky | |
| Savannah, Ga. | | | 30.17 | 766.3 | 87 | 30.6 | 62 | SE | 2 | 0.9 | | 0 | 1ks | | SE | 0 | 0 | Clear | |
| Shreveport, La. | | | 29.99 | 761.7 | 80 | 26.7 | 78 | S | 7 | 3.1 | | 10cs | 0 | S | | 0 | 0 | Cloudy | |
| Smithville, N. C. | | | 30.18 | 766.6 | 77 | 25.0 | 69 | SE | 3 | 1.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Springfield, Mass. | | | 30.08 | 764.0 | 66 | 18.9 | 70 | S | 2 | 0.9 | | 5ck | 0 | SW | | 0 | 0 | Fair | |
| St. Louis, Mo. | | | 29.99 | 761.7 | 79 | 26.1 | 82 | S | 12 | 5.4 | | 0 | 5s | | SW | Inap. | Inap. | Fair | |
| St. Marks, Fla. | | | 30.12 | 765.0 | 80 | 26.7 | 86 | SE | 8 | 3.6 | | 0 | 2s | | SE | 0 | 0 | Clear | |
| St. Paul, Minn. | | | 29.35 | 745.5 | 65 | 18.3 | 68 | SW | 20 | 8.9 | | | 10s | | SW | 0.22 | 5.6 | Cloudy | |

## UNITED STATES SERIES.—Continued.

| Stations. | Barometer. Corrected for instru-m'tal error and temperature. Inches. | Barometer. Corrected for instru-m'tal error and temperature. Millimeters. | Barometer. Reduced to sea-level. Inches. | Barometer. Reduced to sea-level. Millimeters. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Upper. From— | Clouds. Direction. Lower. From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. Paul's Island | | | | | | | | | | | | | | | | | | | |
| Stanwix, Arizona | | | | | 57 | 13.9 | 53 | W | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Stockton, Tex | 26.86 | 682.2 | 29.86 | 758.4 | 76 | 24.4 | 69 | S | 12 | 5.4 | | 0 | 0 | | | 0 | 0 | Clear | |
| Thatcher's Island, Mass | | | 30.10 | 764.5 | 55 | 12.8 | 100 | SE | 8 | 3.6 | | | 10n | | W | 0.30 | 7.6 | Light rain | |
| Toledo, Ohio | | | 29.85 | 758.2 | 73 | 22.8 | 81 | S | 16 | 7.2 | | | 10n | | SW | Inap. | Inap. | Light rain | |
| Tucson, Arizona | 27.54 | 699.5 | 30.08 | 764.0 | 67 | 19.4 | 35 | SE | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Tybee Island, Ga | | | 30.15 | 765.8 | 83 | 28.3 | 70 | SE | 6 | 2.7 | | 5k | 0 | S | | 0 | 0 | Fair | |
| Vicksburg, Miss | | | 30.08 | 764.0 | 82 | 27.8 | 78 | SW | 8 | 3.6 | | 0 | Sm'e | | SW | 0 | 0 | Clear | |
| Virginia City, Montana | 24.31 | 617.5 | 29.79 | 756.7 | 40 | 4.4 | 73 | Calm | 0 | 0 | | 0 | 0 | | | 0.09 | 2.3 | Clear | |
| Washington, D. C | | | 30.10 | 764.5 | 72 | 22.2 | 71 | SW | 8 | 3.6 | | 8c | 0 | NW | | 0 | 0 | Fair | |
| Wickenburg, Arizona | | | | | 79 | 26.1 | | S | | | | 0 | 0 | | | 0 | 0 | Clear | |
| Wilmington, N. C | | | 30.17 | 766.3 | 76 | 24.4 | 60 | SE | 3 | 1.3 | | 2c | 0 | NE | | 0 | 0 | Clear | |
| Wood's Holl, Mass | | | 30.14 | 765.5 | 60 | 15.6 | 94 | SE | 4 | 1.8 | | 0 | 5ks | | SW | 0 | 0 | Fair | |
| Yankton, Dakota | 28.47 | 723 1 | 29.69 | 754.1 | 66 | 18.9 | 59 | W | 14 | 6.3 | | 0 | 0 | | | 0 | 0 | Clear | |
| Yuma, Arizona | | | 29.80 | 756.9 | 70 | 21.1 | 45 | Calm | 0 | 0 | | 0 | 0 | | | 0 | 0 | Clear | |
| **Sub-Series.** | | | | | | | | | | | | | | | | | | | |
| Kingston, Jamaica, W. I | | | 30.22 | 767.6 | 81 | 27.2 | 74 | Calm | 0 | 0 | | 8c | 2s | | | 0 | 0 | | James Gall. |
| Navassa, W. I | | | 29.94 | 760.5 | 82 | 27.8 | | E | | | 3 | | | | | 0 | 0 | | Dr. G. H. Davison. |
| Clifton, Ja., W. I | | | | | | | | | | | | | | | | | | | C. Partridge. |
| Paramaribo, D. Guiana, S. A | | | 30.06 | 763.5 | 81 | 27.2 | 83 | SE | | | 2 | 3c | 0 | E | | 1.337 | 33.9 | Clear | C. J. Hering. |
| Batavia, Dutch Guiana, S. A | | | | | | | | | | | | | | | | | | | Dr. H. Groot. |
| Medellin, Colombia, S. A | 25.24 | 641.1 | | | 73.0 | 22.8 | 64 | Calm | | | 0 | 10cs | 0 | | | 0 | 0 | Cloudy | Thomas Herran. |
| York Factory, B. A | | | 29.79 | 756.7 | 49.5 | 9.7 | 86 | NE | 1 | 0.4 | | 0 | | | | 0 | 0 | Clear | J. Fortescue, W. Wood |
| Honolulu, Oahu, H. I | | | 30.13 | 765.3 | 72 | 22.2 | | NE | | | 4 | | | | | 0 | 0 | Clear | Daniel Smith. |
| Makawao, Maui, H. I | | | | | | | | | | | | | | | | | | | F. L. Clarke |

Note.—The originals give the amount of cloudiness by the scale 0 to 4, except York Factory, Makawao, Medellin and Paramaribo. The elevation of the barometer at Bismarck is 1,677 feet, or 511.1 meters; Camp Verde, 3,500 (?) ft., or 1,066.8 (?) m.; Campo, 2,486 (?) ft., or 757.8 (?) m.; Cheyenne, 6,057.3 ft., or 1,846.2 m.; Clifton, about 2,892 ft., or 881.5 m.; Denver, 5,135 ft., or 1,565.2 m.; Dodge City, 2,486 ft., or 757.5 m.; Fort Griffin, 1,270 (?) ft., or 387.0 (?) m.; Fort Sill, 1,100 (?) ft., or 335.3 (?) m.; Fort Sully, 1,678 (?) ft., or 511.4 (?) m., Florence, 1,550 (?) ft., or 472.5 (?) m.; Makawao, 2,205 ft., or 672.1 m.; Mason, 1,800 (?) ft., or 548.7 (?) m.; Morgantown, 1,027.9 ft., or 313.3 m.; Medellin, 4,876 ft., or 1,486.2 m., Mt. Washington, 6,285 ft., or 1,915.6 m.; North Platte, 2,846 ft., or 867.4 m.; Omaha, 1,054.6 ft., or 321.4 m.; Phœnix, 1,800 (?) ft., or 548.7 (?) m.; Pike's Peak, 14,150.7 ft., or 4,313.1 m.; Prescott, 5,580 (?) ft., or 1,700.9 (?) m.; Salt Lake City, 4,362.2 ft., or 1,329.6 m.; Santa Fé, 6,862.2 (?) ft., or 2,091.6 (?) m.; Stockton, 3,100 (?) ft., or 944.9 (?) m.; Tucson, 2,545 (?) ft., or 775.7 (?) m., Virginia City, 5,480 (?) ft., or 1,670.3 (?) m.: Wickenburg, 2,050 (?) ft., or 624.9 (?) m.; Yankton, 1,278 ft., or 389.5 m. The following constants are added in correcting the barometric observations for altitude: Camp Verde, 3.488 inches; Campo, 2.57 in.; Cheyenne, 5.94 in.; Denver, 5.22 in.; Florence, 1.60 in.; Makawao, 2.17 in.; Mt. Washington, 6.36 in.; Pike's Peak, 12.21 in.; Prescott, 5.36 in.; Salt Lake City, 4.33 in.; Santa Fé, 6.54 in.; Stockton, 3.00 in.; Tucson, 2.59 in.; Virginia City, 5.48 in.; Wickenburg, 2.09 in. The elevation of Batavia is about 6 feet; the barometric readings need the addition of 0.2 mm., or 0.01 in., for reduction to sea-level. The instrumental error of the barometer at Medellin is not known. It is not certain that the weather for Batavia refers to the moment of observation. At Fort Griffin the observations have been taken 7 minutes early. The rain-fall is measured at York Factory at 9 p. m., local time.

UNITED STATES NAVAL SERIES.

By authority of the **SECRETARY OF THE NAVY.**

Furnished by the coöperation of the Navy Department, through Rear Admiral Daniel Ammen, U. S. N., Chief of Bureau of Navigation.

| Stations and Vessels. | Barometer. As reported.* Inches. | Barometer. As reported.* Millimeters. | Barometer. Attached Thermometer. Fahrenheit. | Barometer. Attached Thermometer. Centigrade. | Temperature of the Air. Fahrenheit. | Temperature of the Air. Centigrade. | Relative Humidity. Per cent. | Wind. Direction. From— | Wind. Velocity. Miles per hour. | Wind. Velocity. Meters per second. | Wind. Force. 0—10. | Clouds. Amount. Up'er 0—10. | Clouds. Amount. Low'r 0—10. | Clouds. Direction. Up'er From— | Clouds. Direction. Low'r From— | Rain-fall or melted snow in the past 24 hours. Inches. | Rain-fall or melted snow in the past 24 hours. Millimeters. | Sea-swell. Character. | Sea-swell. Direction from— | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naval Hospital, Annapolis, Md | 30.18 | 766.6 | 74 | 23.3 | 74 | 23.3 | 90 | S | | | 2 | | 2 | | S | 0 | 0 | | | Clear | |
| Navy Yard, Mare Island, Cal. | 30.03 | 762.7 | 57 | 13.9 | 56 | 13.3 | | SW | 12 | 5.4 | | | 5 | | SW | 0 | 0 | | | Pleasant | |
| Navy Yard, Pensacola, Fla. | 30.22 | 767.6 | | | 84 | 28.9 | 83 | SW | 2 | 0.9 | | | 1 | | | 0 | 0 | | | D. clouds | |
| Navy Yard, Portsmouth, N.H. | 30.48 | 774.2 | 68 | 20.0 | 59 | 15.0 | 76 | SSW | 3 | 1.3 | | | 10 | | | 0.375 | 9.53 | | | Threatening | |
| Naval Hospital, Yokohama, Japan | 29.87 | 758.7 | 77 | 25.0 | 78 | 25.6 | 86 | Calm | | | 0 | | 8; sm'o | | | 0 | 0 | | | Cloudy | |
| Alert, Amboina, Indian Archipelago | 30.00† | 762.0† | 79 | 26.1 | 79 | 26.1 | 95 | SE | | | 2–4 | | 10 | | SE | | | Smooth | | Showery | |
| Alliance, Beirut, Syria | 30.05 | 763.3 | 80 | 26.7 | 78 | 25.6 | 91 | SW | | | 3 | | 2 | | N&W | | | Smooth | None | Clear | |
| Ashuelot, Ningpo, China | 29.90 | 759.4 | 78 | 25.6 | 76 | 24.4 | 91 | WSW | | | 1 | | 9 | | | | | | | Misty | |
| Canonicus, New Orleans, La | 30.12 | 765.0 | 56 | 13.3 | 79 | 26.1 | 82 | WNW | | | 2 | | 5 | | | | | | | Fair | |
| Colorado, New York, N. Y | 30.15 | 765.8 | 60 | 15.6 | 65 | 18.3 | 68 | SSE | 8 | 3.6 | | | 7 | | SSW | 0 | 0 | | | Hazy | |
| Despatch, Constantinople, Turkey | 30.09 | 764.3 | 74 | 23.3 | 76 | 24.4 | 60 | NE | | | 2 | | 7 | | NE | | | | | Cloudy | |
| Franklin, Norfolk, Va | 30.18 | 766.6 | 66 | 18.9 | 70 | 21.1 | 100 | SW | 6 | 2.7 | | | 0? | | | 0 | 0 | | | D. clouds? | |
| Frolic, Rio de Janeiro, Brazil | 30.39 | 771.9 | 74 | 23.3 | 75 | 23.9 | 90 | NNW | | | 1 | | 7kn | | | Light | Light | | | D. clouds | |
| ‡Gettysburg, South Coast of Elba | 30.09 | 764.3 | | | 78 | 25.6 | 100 | SW | | | 2 | | 1 | | | 0 | 0 | Calm | None | D. clouds | |
| Hartford, Hampton Roads, Va | 30.36 | 771.1 | 72 | 22.2 | 72 | 22.2 | 62 | SSW | 3 | 1.3 | | | | | | | | | | Overcast | |
| Huron, N. 21° 26′, W. 84° 42′ | 30.23 | 767.8 | 83 | 28.3 | 84 | 28.9 | 100 | NE | | | 3 | | 3 | | NE | 0 | 0 | Long & low. | N | D. clouds | |
| Kearsarge, Nagasaki, Japan | 30.16 | 766.1 | 81 | 27.2 | 80 | 26.7 | 91 | SSW | | | 3–4 | | 1 | | NNE | 0.02¶ | 0.5¶ | Smooth | | Pleasant | |
| Marion, Smyrna, Turkey | 29.99 | 761.7 | 82 | 27.8 | 82 | 27.8 | 67 | NW | | | 2 | | 8 | | NW | Light | Light | Smooth | | D. clouds | |
| Michigan, Erie, Pa | 29.46 | 748.3 | 75 | 23.9 | 75 | 23.9 | 56 | S | | | 1 | | 0 | | | | | | | Clear. | |
| Monocacy, Tientsin, China | 29.72 | 754.9 | 78 | 25.6 | 78 | 25.6 | 78 | S | | | 3 | | 6 | | S | 0 | 0 | | | D. clouds | |
| Monongahela, New London, Conn | 30.14 | 765.5 | 63 | 17.2 | 63 | 17.2 | 89 | S | | | 0–1 | | 10kn | | | 0 | 0 | | | D. clouds | |
| New Hampshire, Port Royal, S. C | 30.40 | 772.1 | | | 84 | 28.9 | 87 | E | 6 | 2.7 | | | 6 | | NW | 0 | 0 | | | D. clouds | |
| Omaha, Callao, Peru | 30.06 | 763.5 | 68 | 20.0 | 68 | 20.0 | 90 | NE | 1 | 0.4 | | | 10 | | | 0 | 0 | Slight | S | Cloudy | |
| Ossipee, Hampton Roads, Va | 30.19 | 766.8 | 71 | 21.7 | 72 | 22.2 | 80 | SW | | | 2 | | | | | | | | | Hazy | |
| Palos, Yangtse-Kiang, China | 29.94 | 760.5 | 72 | 22.2 | 70 | 21.1 | 90 | E | | | 3 | | 10 | | N&W | | | | | Raining | |
| Pensacola, N. 37° 54′, W. 123° 21′ | 30.21 | 767.3 | | | 59 | 15.0 | 76 | NNW | | | 5 | | 3 | | | 0 | 0 | Moderate | N&W | Foggy | |
| Plymouth, N. 30° 53′, W. 80° 12′ | 30.22 | 767.6 | 85 | 29.4 | 81 | 27.2 | 91 | NE | | | 2 | | 3 | | | 0 | 0 | Irregular. | | Clear. | |
| Ranger, Aden, Arabia | 29.95 | 760.7 | | | 89 | 31.7 | 73 | SSW | | | 3 | | 2 | | | | | Smooth | | Clear. | |
| Richmond, S. 24° 27′, W. 35° 44′ | 30.32 | 770.1 | 74.2 | 23.4 | 74.0 | 23.3 | 82 | WNW | | | 3–4 | | 1 | | | 0 | 0 | Moderate. | NE | D. clouds | |
| Rio Bravo, Matamoras, Mexico | 29.91 | 759.7 | | | 75 | 23.9 | 90 | SE | | | 2 | | 4 | | SE | | | | | D. clouds | |
| Santee, Annapolis, Md | 30.18 | 766.6 | 73 | 22.8 | 71 | 21.7 | 56 | SSW | | | 2 | | 2 | | | 0 | 0 | | | Clear. | |
| Saratoga, Boston, Mass | 30.46 | 773.7 | | | 65 | 18.3 | | SSE | | | 2–3 | | 10 | | N&W | Blank | Blank | | | | |
| St. Louis, League Island, Pa | 30.05 | 763.3 | 69 | 20.6 | 69 | 20.6 | 80 | W | 7 | 3.1 | | | 7 | | NW | 0 | 0 | | | Cloudy | |
| Swatara, Port Royal, S. C | 30.27 | 768.8 | 81 | 27.2 | 81 | 27.2 | 83 | E | | | 1 | | 4k | | | | | | | Fair | |
| Tennessee, Yokohama, Japan | 29.87 | 758.7 | 80 | 26.7 | 77 | 25.0 | 100 | Calm | | | 0 | | 6 | | | 0 | 0 | Smooth | | D. clouds | |
| Trenton, Smyrna, Turkey | 30.20† | 767.1† | 83 | 28.3 | 83 | 28.3 | 87 | SW | 8 | 3.6 | | | 5 | | S&W | 0 | 0 | | | D. clouds | |
| Vandalia, Constantinople, Turkey | 30.14 | 765.5 | 68 | 20.0 | 63 | 17.2 | 83 | NNE | | | 1–3 | | 10 | | E | | | | | Raining | |
| Wabash, Boston, Mass | 30.14 | 765.5 | 59 | 15.0 | 58 | 14.4 | 82 | ESE | 8 | 3.6 | | | 10 | | | 0.02 | 0.5 | | | D. clouds | |
| Wyoming, Washington, D. C | 30.28† | 769.1† | 70 | 21.1 | 72 | 22.2 | | SSW | | | 2 | | 3 | | | | | | | D. clouds | |

NOTE.—The originals generally give the wind-force by the scale 0 to 12, and the weather by the Beaufort notation; the distinction between the amount of upper and lower clouds is not made, and, apparently, the direction is frequently given as toward, instead of from; they do not give the humidity. * It is not known that the barometer is corrected for temperature, instrumental error or elevation. † Aneroid Barometer. ‡ Barometer corrected for instrumental error and reduced to sea-level. ¶ Approximated.

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |

### PACIFIC MAIL S. S. CO. MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking | | | | | | | | | | | | | | | | | | | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colima | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

### WHITE STAR LINE MARINE SERIES.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic, N. 34° 56′, E. 141° 00′ | | | 29.87 | 758.7 | 71 | 21.7 | | SW | | | 3 | | Fog | | | Smooth | | Foggy | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

NOTE.—For Gaelic the originals give the barometer, (aneroid,) as read off, which has been corrected, except for temperature; wind-force by scale 0 to 12; do not distinguish between upper and lower clouds, nor give the amount.

### NORTH GERMAN LLOYD OF BREMEN MARINE SERIES.

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| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin | | | | | | | | | | | | | | | | | | | Capt. C. Pohle. |
| S. S. Braunschweig | | | | | | | | | | | | | | | | | | | Capt. K. Undütsch. |
| S. S. Nürnberg, N 37° 15′, W. 69° 18′ | E¼N | 10.5 | 30.06 | 763.5 | 76.5 | 24.7 | | E | | | 5 | | k | | E | Short | | D. clouds | Capt. A. Jaeger. |
| S. S. Ohio, N. 42° 31′, W. 46° 37′ | WSW ½W | 11 | 30.11 | 764.8 | 68 0 | 20.0 | | WNW | | | 1 | | k | | | Moderate | | Clearing | Capt. G. Meyer. |
| S. S. Scandinavian | | | | | | | | | | | | | | | | | | | Capt. W. Richards |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig and Nürnberg; wind-force, by scale 0 to 12; weather, as published do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.

## UNITED STATES MARINE SERIES.—CONTINUED.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Lo'wr | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. Illinois | | | | | | | | | | | | | | | | | | | Captain Shackelford. |
| S. S. Indiana | | | | | | | | | | | | | | | | | | | Captain Sargent. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Captain Morrison. |
| S. S. Pennsylvania | | | | | | | | | | | | | | | | | | | Captain Harris. |
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| S. S. Nederland | | | | | | | | | | | | | | | | | | | Capt. Randle |
| S. S. Switzerland | | | | | | | | | | | | | | | | | | | Capt. Jackson. |
| S. S. Vaderland | | | | | | | | | | | | | | | | | | | Capt. Nichols. |
| **MARINE SERIES. (Miscellaneous.)** | | | | | | | | | | | | | | | | | | | |
| Furnished by the coöperation of the Observer named. | | | | | | | | | | | | | | | | | | | |
| Schooner Addie Fuller, Richmond, Me | | | 30.05 | 763.3 | 59 | 15.0 | 88 | SSW | 5 | 2.2 | | | 10s | | S | | | Cloudy | Capt. James Jorgenson. |

NOTE.—The originals give the barometer as read off; the wind-force by the scale 0 to 12.

NOTE.—The originals for the schooner Addie Fuller gives the amount of cloudiness by the scale 0 to 4; the barometer as read off.

COLLATED AT THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY, WASHINGTON, D. C.

The records which appear in this Bulletin are copied from the regular exchanges of this office, made in each instance in compliance with an especial request, and are published for the uses of the coöperating observers. The barometric readings in the first two columns are reduced to freezing and their respective standards; those in the second two also to mean sea-level. For United States Marine Series the correction for instrumental error and the reduction to sea-level have been applied whenever they could be ascertained by means of reliable comparisons, made when the vessel was at or near land stations. The "weather" is generally published as given; D. clouds for detached clouds. When the distinction between the upper and lower strata of clouds is not reported, the *kinds* or *types*, viz: cirrus, cumulus, stratus, nimbus, scud, fracto, pallio, haze, fog and smoke, as indicated, respectively, by the letters c, k, s, n, d, f, p, hz., fg. and sm'e, are generally published with the amount in the lower-cloud column. The distinction between the upper and lower strata is carefully made in the United States Series and a portion of the Canadian Series, and the types are indicated by the above letters or their combinations in the proper column.

Albert J. Myer

*Brig. Gen. (Bvt. Assg^d.,) Chief Signal Officer, U. S. A.*

## UNITED STATES MARINE SERIES.

REPORTED TO THE OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY.

| NAMES OF VESSELS. | True course toward— | Hourly rate in knots. | Barometer reduced to sea-level. | | Temperature of the air. | | Relative humidity. | Wind. | | | | Clouds. | | | | Sea-swell. | | Weather. | Observer. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Direction. | Velocity. | | Force. | Amount. | | Direction. | | | | | |
| | | | | | | | | | | | | Up'er | Low'r | Upper. | Lower. | | | | |
| | | | Inches. | Millimeters. | Fahrenheit. | Centigrade. | Per cent. | From— | Miles per hour. | Meters per second. | 0—10. | 0—10. | 0—10. | From— | From— | Character. | Direction from— | | |
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| S. S. Alaska | | | | | | | | | | | | | | | | | | | Capt. Seabury. |
| S. S. China | | | | | | | | | | | | | | | | | | | Capt. Berry. |
| S. S. City of New York | | | | | | | | | | | | | | | | | | | Capt. Cobb. |
| S. S. City of Panama | | | | | | | | | | | | | | | | | | | Capt. Howard. |
| S. S. City of Peking, N. 42° 59′, W. 148° 10′ | | | 29.04 | 760.5 | 56 | 13.3 | 100 | SSW | | | 5 | | 10ns | | | Moderate | SSW | Drizzling | Lt. Z. L. Tanner, U.S.N. |
| S. S. City of Sydney | | | | | | | | | | | | | | | | | | | Capt. Dearborn. |
| S. S. City of Tokio | | | | | | | | | | | | | | | | | | | Capt. Maury. |
| S. S. Colorado | | | | | | | | | | | | | | | | | | | Capt. Searle. |
| S. S. Costa Rica | | | | | | | | | | | | | | | | | | | Capt. Whitebury. |
| S. S. Dakota | | | | | | | | | | | | | | | | | | | Capt. Morse. |
| S. S. Georgia | | | | | | | | | | | | | | | | | | | Capt. Cavarly. |
| S. S. Grenada | | | | | | | | | | | | | | | | | | | Capt. Connolly. |
| S. S. Wilmington | | | | | | | | | | | | | | | | | | | Capt. Austin. |

NOTE.—The originals give the wind-force by the scale 0 to 12, and weather by the Beaufort notation; not any distinction between upper and lower clouds. It is not known that the barometer is corrected for temperature, instrumental error or elevation.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WHITE STAR LINE MARINE SERIES.** | | | | | | | | | | | | | | | | | | | |
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| S. S. Britannic | | | | | | | | | | | | | | | | | | | Capt. W. H. Thompson. |
| S. S. Germanic | | | | | | | | | | | | | | | | | | | Capt. C. W. Kennedy. |
| S. S. Celtic | | | | | | | | | | | | | | | | | | | Capt. B. Gleadell. |
| S. S. Adriatic | | | | | | | | | | | | | | | | | | | Capt. H. H. Perry. |
| S. S. Baltic | | | | | | | | | | | | | | | | | | | Capt. J. W. Jenning. |
| S. S. Republic | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| S. S. Belgic | | | | | | | | | | | | | | | | | | | Capt. John Metcalf. |
| S. S. Gaelic | | | | | | | | | | | | | | | | | | | Capt. W. H. Kidley. |
| S. S. Oceanic | | | | | | | | | | | | | | | | | | | Capt. H. Parsell. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| Furnished by the coöperation of A. Schumacher & Co., Agents. | | | | | | | | | | | | | | | | | | | |
| S. S. Baltimore | | | | | | | | | | | | | | | | | | | Capt. H. Andressen. |
| S. S. Berlin, N. 38° 54′, W. 63° 41′ | E by N ¼ N | 10 | 29.99 | 761.7 | 72.5 | 22.5 | | W | | | 1 | | c | | | Tranq'l | | Blue sky | Capt. C. Pohle. |
| S. S. Braunschweig, N. 39° 10′, W. 67° 31′ | S 76 W | 10.7 | 29.95 | 760.7 | 74 | 23.3 | | WSW | | | 3 | | 3c | | W | Smooth | | Blue sky | Capt. K. Undütsch. |
| S. S. Nürnberg | | | | | | | | | | | | | | | | | | | Capt. A. Jaeger. |
| S. S. Ohio | | | | | | | | | | | | | | | | | | | Capt. G. Meyer. |

NOTE.—The originals give the barometer as read off; temperature, by Réaumur scale, except for S. S. Braunschweig; wind-force, by scale 0 to 12; weather, as published; do not generally give amount of cloudiness, nor distinguish between upper and lower clouds.