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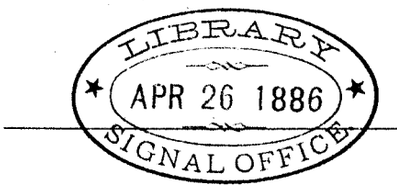
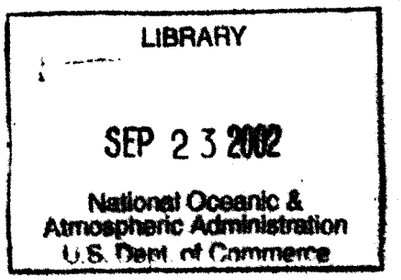
WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY OF THE UNITED STATES.




# BULLETIN




OF

# INTERNATIONAL METEOROLOGY

FOR THE MONTH OF JULY to December, 1884.

*PRINTED FOR EXCHANGE WITH CO-OPERATING OBSERVERS.*

10327

WASHINGTON, D. C.:
AUGUST, 1885–6.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## JULY, 1884.

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for July, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| AUSTRALIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Adelaide | S. 34 57 | E. 138 35 | 9.22 p.m. | 140 | 42 | ..... | ..... | 30.34 | 770.6 | 46.6 | 8.1 | 79.6 | 6 | ..... | ..... | 2 | 3 | 3 | 8 | 6 | 3 | ..... | ..... | 5 | 0.50 | 12.7 |
| Hobart Town*b* | S. 42 53 | E. 147 20 | 9.00 p.m. | 190 | 58 | 29.84 | 757.9 | 30.03 | 762.7 | 45.1 | 7.3 | 84 | 1 | 11 | 7 | 1 | 3 | ..... | ..... | 1 | 5 | ..... | ..... | 5 | 0.69 | 17.5 |
| Melbourne | S. 37 50 | E. 144 58 | 9.47 p.m. | 91 | 28 | 30.15 | 765.8 | 30.24 | 768.1 | 45.6 | 7.5 | 85 | 9 | 4 | 3 | 4 | 2 | 6 | 1 | 2 | ..... | ..... | ..... | 5 | 0.77 | 19.6 |
| AUSTRIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agram | N. 45 48 | E. 15 53 | 1.12 p.m. | 536 | 163 | 29.45 | 747.9 | 29.97 | 761.2 | 77.4 | 25.2 | 48.0 | 3 | 1 | 1 | 5 | 4 | 11 | 3 | 3 | ..... | ..... | ..... | 4 | 3.55 | 90.1 |
| Cracow | N. 50 04 | E. 20 00 | 1.28 p.m. | 722 | 220 | 29.23 | 742.4 | 29.97 | 761.2 | 73.2 | 22.9 | 60.2 | 6 | 2 | 9 | 3 | ..... | 1 | 8 | 2 | ..... | ..... | ..... | 7 | 3.04 | 77.2 |
| Eperies | N. 48 58 | E. 21 15 | 1.33 p.m. | 820 | 250 | 29.09 | 738.9 | 29.93 | 760.2 | 66.9 | 19.4 | 72.4 | 8 | ..... | ..... | ..... | 6 | ..... | ..... | ..... | 17 | ..... | ..... | 7 | 2.54 | 64.5 |
| Gratz | N. 47 04 | E. 15 28 | 1.10 p.m. | 1171 | 357 | 28.76 | 730.6 | 29.96 | 761.0 | 74.5 | 23.6 | 75.0 | ..... | 9 | 3 | 2 | 6 | 4 | 2 | 3 | 2 | ..... | ..... | 4 | 6.76 | 171.8 |
| Hermannstadt | N. 45 47 | E. 24 13 | 1.45 p.m. | 1352 | 412 | 28.53 | 724 7 | 29.90 | 759.5 | 73.9 | 23.3 | 61 | 1 | 7 | 7 | ..... | 4 | 9 | 3 | ..... | ..... | ..... | ..... | 6 | 9.49 | 241.1 |
| Kremsmunster | N. 48 03 | E. 14 08 | 1.04 p.m. | 1260 | 384 | 28.67 | 728.3 | 29.97 | 761.2 | 70.9 | 21.6 | 69.7 | 2 | 5 | 7 | 3 | 1 | ..... | 5 | 7 | 1 | ..... | ..... | 5 | 6.65 | 169.0 |
| Lemberg | N. 49 50 | E. 24 00 | 1.44 p.m. | 978 | 298 | 28.99 | 736 3 | 29.94 | 760.4 | 71.4 | 21.9 | 60.6 | 2 | 3 | 3 | 4 | 1 | 3 | 8 | 7 | ..... | ..... | ..... | 7 | 4.33 | 110.0 |
| Pola | N. 44 52 | E. 13 51 | 1.04 p.m. | 105 | 32 | 29.87 | 758.7 | 29.98 | 761.4 | 81.3 | 27.4 | 53.5 | 2 | 2 | 6 | 3 | 3 | 11 | 3 | 1 | ..... | ..... | ..... | 4 | 1.98 | 50.3 |
| Szathmar | N. 47 46 | E. 22 53 | 1.39 p.m. | 430 | 131 | 29.44 | 747.8 | 29.89 | 759.1 | 76.8 | 24.9 | 57 | 5 | 7 | 4 | 6 | ..... | 3 | 4 | 2 | ..... | ..... | ..... | 7 | 2.38 | 60.4 |
| Szegedin | N. 46 15 | E. 20 10 | 1.29 p.m. | 256 | 78 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Trieste | N. 45 39 | E. 13 46 | 1.04 p.m. | 85 | 26 | 29.88 | 758 9 | 29.99 | 761.7 | 78.1 | 25.6 | 50.5 | 2 | 5 | 9 | 9 | ..... | ..... | ..... | 5 | 1 | ..... | ..... | 4 | 1.78 | 45.2 |
| Vienna | N. 48 12 | E. 16 22 | 1.14 p.m. | 603 | 202 | 29.28 | 743.8 | 29.97 | 761.2 | 75.6 | 24.2 | 52.9 | 4 | 8 | 6 | 1 | 1 | 6 | 3 | 1 | 1 | ..... | ..... | 4 | 1.60 | 40.6 |
| BELGIAN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arlon | N. 49 40 | E. 5 48 | 0.32 p.m. | ? | ? | ..... | ..... | ..... | ..... | 72.1 | 22.3 | 65.9 | 1 | 2 | 2 | 15 | 3 | 3 | 3 | 2 | ..... | ..... | ..... | 3 | 0.79 | 20.0 |
| Brussels | N. 50 51 | E. 4 22 | 0.26 p.m. | 187 | 57 | 29.79 | 756.6 | 29.98 | 761.6 | 71.6 | 22.0 | 57.5 | 2 | 2 | 3 | 13 | 5 | 3 | 3 | ..... | ..... | ..... | ..... | 7 | 2.51 | 63.8 |
| Furnes*a* | N. 51 04 | E. 2 40 | 0.19 p.m. | 20 | 6 | 29.98 | 761.4 | 30.00 | 761.9 | 71.2 | 21.8 | 66.6 | 6 | 8 | 8 | 2 | 3 | 1 | 1 | 1 | ..... | ..... | ..... | 6 | 3.08 | 78.1 |
| Maeseyck | N. 51 06 | E. 5 48 | 0.32 p.m. | 115 | 35 | 29.88 | 759.0 | 30.01 | 762.2 | 75.6 | 24.2 | 64.4 | 1 | 6 | 9 | 6 | 3 | 1 | 4 | 1 | ..... | ..... | ..... | 5 | 3.62 | 91.9 |
| BRITISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aberdeen | N. 57 10 | W. 2 06 | 0.00 m. | 89 | 27 | 29.78 | 756.4 | 29.88 | 758.9 | 58.0 | 14.4 | 75.0 | 1 | 4 | 2 | 2 | 1 | 13 | 7 | 1 | ..... | ..... | ..... | 8 | 3.32 | 84.3 |
| Bidston | N. 53 24 | W. 3 04 | 11.56 a.m. | 197 | 60 | ..... | ..... | 29.90 | 759.4 | 63.5 | 17.5 | 69.6 | 4 | 2 | 8 | 4 | 1 | 10 | 2 | ..... | ..... | ..... | ..... | 8 | ..... | ..... |
| Bolton | N. 53 35 | W. 2 28 | 11.58 a.m. | 500 | 152 | 29.37 | 746.0 | 29.89 | 759.2 | 62.6 | 17.0 | 70.1 | 2 | 2 | 2 | 8 | 10 | 5 | 1 | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Bradford | N. 53 48 | W. 1 47 | 0.01 p.m. | 366 | 111 | 29.50 | 749.3 | 29.90 | 759.4 | 64.7 | 18.2 | 75.9 | 2 | 3 | 6 | 10 | 4 | 2 | 2 | 2 | ..... | ..... | ..... | 8 | 3.93 | 99.8 |
| Bridgetown | N. 13 04 | W. 59 37 | 8.10 a.m. | 28 | 9 | 29.99 | 761.7 | 30.02 | 762.5 | 82.7 | 28.2 | 75.2 | ..... | ..... | ..... | ..... | ..... | 4 | 24 | 3 | ..... | ..... | ..... | 3 | ..... | ..... |
| Cardington | N. 52 08 | W. 0 27 | 0.06 p.m. | 109 | 33 | ..... | ..... | ..... | ..... | 65.0 | 18.3 | 73.9 | 3 | 4 | 4 | 1 | 3 | ..... | 1 | ..... | ..... | ..... | ..... | 8 | ..... | ..... |
| Chatham | N. 51 25 | E. 0 33 | 0.10 p.m. | 160 | 49 | 29.79 | 756.7 | 29.96 | 761.0 | 69.9 | 21.1 | 62 0 | ..... | 1 | 6 | 10 | 4 | 1 | 2 | ..... | 7 | ..... | ..... | 8 | ..... | ..... |
| Falmouth | N. 50 09 | W. 5 04 | 11.48 a.m. | 211 | 64 | 29.75 | 755.6 | 29.97 | 761.2 | 63.8 | 17.7 | 75.9 | ..... | 3 | 6 | 6 | 6 | 8 | 2 | ..... | ..... | ..... | ..... | 7 | ..... | ..... |
| Fort Napier | S. 30 | E. 31 | 2.12 p.m. | 2205 | 672 | 27.81 | 706.4 | 30.12 | 765.0 | 67.6 | 19.8 | 28.8 | 10 | 1 | : | 4 | 2 | 4 | 3 | 6 | ..... | ..... | ..... | 7 | ..... | ..... |
| Freetown | N. 8 30 | W. 13 14 | 11.15 a.m. | 224 | 68 | 29.60 | 751.8 | 29.83 | 757.7 | 88.2 | 31.2 | 86.2 | 3 | ..... | 6 | 4 | 14 | 2 | 2 | ..... | ..... | ..... | ..... | 1 | ..... | ..... |
| Galway | N. 53 15 | W. 9 03 | 11.32 a.m. | 32 | 10 | 29.78 | 756.4 | 29.81 | 757.2 | 62.1 | 16.7 | 75.8 | ..... | 3 | 4 | 17 | ..... | 6 | 1 | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Gibraltar | N. 36 09 | W. 5 21 | 11.47 a.m. | 50 | 15 | 29.89 | 759.2 | 30.03 | 762.7 | 76.8 | 24.9 | 90.7 | ..... | ..... | 11 | 7 | ..... | ..... | 4 | 9 | ..... | ..... | ..... | 6 | 2.94 | 74.7 |
| Greenwich | N. 51 29 | 0 00 | 0.08 p.m. | 159 | 48 | 29.78 | 756.4 | 29.95 | 760.7 | 70.2 | 21.2 | 59.2 | 5 | 2 | 1 | 13 | 5 | 2 | 2 | 1 | ..... | ..... | ..... | 2 | ..... | ..... |
| Guernsey | N. 49 27 | W. 2 41 | 11.58 a.m. | 275 | 84 | 29.72 | 754.9 | 30.01 | 762.2 | 64.0 | 17.8 | 80.8 | 3 | 1 | 11 | 8 | 5 | 2 | ..... | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Kew | N. 51 28 | W. 0 19 | 0.07 p.m. | 34 | 10 | 29.92 | 760 0 | 29.96 | 761.0 | 68.5 | 20.3 | 61.9 | 1 | 4 | 2 | 14 | 6 | 3 | ..... | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Leicestera | N. 52 39 | W. 1 08 | 0.04 p.m. | 245 | 75 | 29.65 | 753.1 | 29.90 | 759.4 | 67.0 | 19.4 | 77.2 | 3 | 3 | 1 | 20 | 1 | 1 | ..... | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Malta | N. 36 00 | E. 14 30 | 1.06 p.m. | 70 | 21 | 29.87 | 758.7 | 29.94 | 760.5 | 79.4 | 26.3 | 69.7 | 1 | 8 | 2 | 3 | ..... | 3 | 1 | 13 | ..... | ..... | ..... | 1 | ..... | ..... |
| Nassau | N. 25 04 | W. 77 22 | 6.58 a.m. | 44 | 13 | 30.03 | 762.7 | 30.08 | 764.0 | 85.3 | 29.6 | 74.9 | ..... | ..... | ..... | 7 | 6 | 14 | 4 | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Oxford | N. 51 46 | W. 1 17 | 0.03 p.m. | 210 | 64 | 29.72 | 754.9 | 29.95 | 760.7 | 64.9 | 18.3 | 65.8 | ..... | 4 | 2 | 7 | 9 | 6 | 1 | 1 | 1 | ..... | ..... | 7 | ..... | ..... |
| Plymouth | N. 50 22 | W. 4 10 | 11.51 a.m. | 69 | 21 | 29.89 | 759.2 | 29.96 | 761.0 | 66.2 | 19.0 | 78.2 | ..... | 4 | 1 | 11 | 12 | 2 | ..... | ..... | 1 | ..... | ..... | 7 | ..... | ..... |
| Sandwick Manse | N. 59 05 | W. 3 20 | 11.54 a.m. | 94 | 29 | 29.74 | 755.4 | 29.84 | 757 9 | 57.9 | 14.4 | 76.7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| ScutariCemet'ry | N. 41 00 | E. 29 03 | 2.04 p.m. | 60 | 18 | 29.79 | 756.7 | 29.85 | 758.2 | 83.1 | 28.4 | 56.0 | 5 | ..... | ..... | 3 | 4 | ..... | ..... | 15 | 1 | ..... | ..... | 3 | ..... | ..... |
| Sheffield | N. 53 23 | W. 1 28 | 0 02 p.m. | 260 | 79 | 29.58 | 751.3 | 29.90 | 759.4 | 67.6 | 19.8 | 67.2 | 1 | ..... | 5 | 12 | 2 | 2 | ..... | 1 | 8 | ..... | ..... | 6 | ..... | ..... |
| Silloth Rectory | N. 54 52 | W. 3 22 | 11.54 a.m. | 28 | 9 | 29.84 | 757.9 | 29.87 | 758.7 | 64.7 | 18.2 | 74.9 | 2 | 3 | 11 | 9 | 1 | ..... | 5 | ..... | ..... | ..... | ..... | 7 | 8.00 | 203.2 |
| Stonyhurst | N. 53 51 | W. 2 28 | 11.58 a.m. | 361 | 110 | ..... | ..... | 29.92*a* | 760.0*a* | 62.6 | 17.0 | 71.7 | 2 | 1 | 5 | 14 | 5 | ..... | 2 | 2 | ..... | ..... | ..... | 8 | 5.21 | 132.3 |
| Strathfield*p* | N. 51 17 | W. 0 53 | 0.04 p.m. | 197 | 60 | ..... | ..... | ..... | ..... | 70.7 | 21.5 | 74.1 | ..... | ..... | 1 | 6 | 5 | 2 | ..... | ..... | 1 | ..... | ..... | 7 | ..... | ..... |
| Valencia | N. 51 55 | W. 10 18 | 11.27 a.m | 23 | 7 | 29.84 | 757 9 | 29.87 | 758.7 | 61.5 | 16.4 | 80.0 | ..... | 3 | 7 | 6 | 4 | 10 | 1 | ..... | ..... | ..... | ..... | 9 | ..... | ..... |
| *Sub-series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gozo | N. 36 01 | E. 14 16 | 1.05 p.m. | 364 | 111 | 29.65 | 753.1 | 30.03 | 762.7 | 80.6 | 27.0 | 56.9 | 2 | 9 | 6 | 8 | 1 | 2 | 1 | 2 | ..... | ..... | ..... | 1 | 0 | 0 |
| CANADIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bathurst | N. 47 39 | W. 65 43 | 7.45 a m. | 35 | 11 | 29.75 | 755 6 | 29.79 | 756.7 | 61.0 | 16.1 | ..... | 3 | ..... | ..... | 2 | 3 | 6 | ..... | 4 | 13 | ..... | ..... | 8 | 4.16 | 105.7 |
| Charlottetown | N. 46 14 | W. 63 10 | 7.55 a.m. | 38 | 12 | 29.74 | 755.4 | 29.78 | 756.4 | 59.7 | 15.4 | 87.7 | 3 | 4 | 1 | 0 | 5 | 6 | 4 | ..... | 2 | 5485 | 8827 | 8 | 8.98 | 228.1 |
| Chatham | N. 47 03 | W. 65 29 | 7.45 a.m. | 56 | 17 | 29.74 | 755.4 | 30.80 | 756 9 | 58.0 | 14.4 | 90.1 | 4 | 5 | 2 | 9 | 2 | 4 | 2 | 3 | ..... | 3107 | 5000 | 8 | 6.63 | 168.4 |
| Cornwall | N. 45 01 | W. 74 43 | 7.09 a.m. | 175 | 53 | 29.58 | 751 3 | 29.77 | 756.1 | 60.0 | 15.6 | 87.3 | 1 | 0 | 15 | 2 | 2 | 1 | 4 | ..... | ..... | ..... | ..... | 7 | 4.06 | 103.1 |
| Dalhousie*a* | N. 48 04 | W. 66 22 | 7.32 a m. | 45 | 14 | 29.75 | 755.6 | 29.80 | 756.9 | 59.2 | 15.1 | ..... | ..... | ..... | ..... | 10 | ..... | ..... | 10 | ..... | 4 | ..... | ..... | 7 | 5.86 | 148.8 |
| Father Point | N. 48 31 | W. 68 28 | 7.34 a.m. | 20 | 6 | 29.73 | 755.1 | 29.75 | 755.6 | 51.3 | 10.7 | 89.7 | 5 | 2 | 5 | 6 | 1 | 1 | 1 | 8 | 2 | ..... | ..... | 6 | 5.43 | 137.9 |
| Fort Garry | N. 49 51 | W. 97 07 | 5.39 a.m. | 754 | 230 | 29.08 | 738.6 | 29.86 | 758.4 | 52.7 | 11.5 | 93.4 | 5 | 11 | 3 | ..... | 3 | 2 | 2 | 2 | 1 | 6384 | 10274 | 6 | 1.22 | 31.0 |
| Fredericton | N. 45 57 | W. 66 38 | 7.41 a.m. | 59 | 18 | 29.75 | 755.6 | 29.81 | 757.2 | 59.0 | 15.0 | 82.4 | 2 | 7 | 1 | 2 | 3 | 6 | 1 | 4 | 5 | ..... | ..... | 7 | 7.81 | 198.4 |
| Grand Manan | N. 44 46 | W. 66 45 | 7.41 a.m. | 49 | 15 | 29.75 | 755.6 | 29.80 | 756.9 | 57.8 | 14.3 | 82.6 | 3 | 4 | 2 | 2 | 9 | 1 | ..... | 4 | 6 | 6795 | 10823 | 5 | 8.13 | 206.5 |
| Granton | N. 43 12 | W. 81 21 | 6.43 a.m. | 1015 | 309 | 28.82 | 732 0 | 29.90 | 759.4 | 57.6 | 14.2 | 94.1 | 2 | 6 | 1 | 4 | 2 | 1 | ..... | ..... | 15 | ..... | ..... | 5 | 3.85 | 97.8 |
| Halifax | N. 44 39 | W. 63 36 | 7.53 a.m. | 122 | 37 | 29.71 | 754.6 | 29.84 | 757.9 | 59.4 | 15.2 | 91.2 | 2 | 2 | 10 | 4 | 4 | 4 | 5 | ..... | ..... | ..... | ..... | 6 | 8.28 | 210.3 |
| Hamilton | N. 43 16 | W. 79 53 | 6.49 a.m. | 350 | 103 | 29.49 | 749.0 | 29.88 | 758.9 | 64.0 | 17.8 | 80.7 | 1 | 8 | 2 | 12 | ..... | ..... | 3 | 4 | 1 | ..... | ..... | 5 | 2.45 | 62.2 |
| Kingston | N. 44 14 | W. 76 30 | 7.02 a.m. | 307 | 94 | 29.50 | 749.3 | 29.82 | 757.4 | 61.4 | 16.3 | 85.7 | 1 | 5 | 9 | 8 | 2 | 1 | 1 | 3 | 1 | 4754 | 7651 | 6 | 4.19 | 106.4 |
| Little Glace Bay | N. 46 12 | W. 59 58 | 8.08 a.m. | 34 | 10 | 29.74 | 755.4 | 29.77 | 756.1 | 61.2 | 16.2 | 84.2 | 2 | 2 | 4 | 13 | 7 | 2 | 1 | ..... | ..... | ..... | ..... | 7 | ..... | ..... |
| London | N. 43 00 | W. 81 15 | 6.43 a.m. | 816 | 248 | 29.02 | 737.1 | 29.90 | 759.4 | 59.5 | 15.3 | 87.0 | 1 | 2 | ..... | 1 | ..... | ..... | ..... | ..... | 26 | ..... | ..... | ..... | 4.45 | 113.0 |
| Medicine Hat | N. 50 01 | W. 110 37 | 4.46 a.m. | 2136 | 651 | 27.61 | 701.3 | 29.83 | 757.7 | 54.2 | 12.3 | 81.4 | 4 | 4 | 1 | 4 | 3 | 9 | 3 | 3 | ..... | 5946 | 9569 | 5 | 2.64 | 67.1 |
| Minnedosa | N. 50 13 | W. 99 48 | 5.29 a.m. | 1796 | 545 | 28.01 | 711.4 | 29.93 | 760.2 | 50.5 | 10.3 | 91.4 | 2 | 9 | 5 | 1 | ..... | 3 | 2 | 2 | 7 | 5785 | 9310 | 5 | 3.17 | 80.5 |
| Montreal | N. 45 31 | W. 73 33 | 7.13 a.m. | 187 | 57 | 29.60 | 751.8 | 29.80 | 756.9 | 62.5 | 16.9 | 81.4 | 1 | 5 | 5 | 9 | 6 | 1 | 1 | 3 | ..... | ..... | ..... | 6 | 4.67 | 118.6 |
| Ottawa | N. 45 26 | W. 75 41 | 7.05 a.m. | 200 | 61 | 29.59 | 751.6 | 29.80 | 756 9 | 61.3 | 16.3 | 87.0 | 3 | 3 | 7 | 5 | 5 | 1 | 1 | 6 | ..... | ..... | ..... | 7 | 3.99 | 101.3 |
| Parry Sound | N. 45 19 | W. 80 01 | 6.48 a.m. | 635 | 194 | 29.16 | 740 7 | 29.82 | 757.4 | 58.9 | 14.9 | 90.6 | 3 | 7 | 6 | 0 | ..... | 5 | 1 | 1 | 2 | 5909 | 9510 | 5 | 3.61 | 91.7 |
| Peterboro | N. 44 17 | W. 78 18 | 6.54 a.m. | 688 | 210 | 29.12 | 739.6 | 29.84 | 757.9 | 62.7 | 17.1 | 79.6 | 1 | 3 | 12 | 8 | ..... | 2 | 1 | 1 | 3 | ..... | ..... | 6 | 3.66 | 93.0 |
| Port Arthur | N. 48 27 | W. 89 12 | 6.11 a.m. | 642 | 196 | 29.17 | 740.9 | 29.85 | 758.2 | 61.1 | 16.2 | 76.0 | 3 | 5 | 4 | 2 | 3 | ..... | 1 | 3 | 10 | 3624 | 5832 | 5 | 1.92 | 48.8 |
| Port Dover | N. 42 47 | W. 80 13 | 6.47 a.m. | 635 | 194 | 29.20 | 741.7 | 29.88 | 758.9 | 60.3 | 15.7 | 87.4 | 1 | 8 | 6 | 2 | 2 | ..... | 1 | 2 | 9 | 3911 | 6294 | 5 | 3.61 | 91.7 |
| Port Stanley | N. 42 40 | W. 81 13 | 6.43 a.m. | 592 | 180 | 29.26 | 743.2 | 29.89 | 759.2 | 60.0 | 15.6 | 87.2 | 8 | 2 | 9 | 1 | 1 | ..... | 4 | 3 | 3 | ..... | ..... | 5 | 3.56 | 90.4 |
| Qu Appelle | N. 50 44 | W. 103 42 | 5.13 a.m. | 2115 | 646 | 27 68 | 703.1 | 29.91 | 759.7 | 49.5 | 9.7 | 92.3 | ..... | 5 | 5 | 4 | 5 | 4 | 2 | 3 | 3 | 6843 | 11012 | 4 | 2.41 | 61.2 |
| Quebec | N. 46 48 | W. 71 12 | 7.23 a.m. | 293 | 89 | 29.43 | 747.5 | 29.77 | 756.1 | 60.0 | 15.6 | 91.8 | ..... | 1 | 3 | 1 | 5 | ..... | ..... | 5 | 16 | ..... | ..... | 7 | 5.92 | 150.4 |
| Rockliffe | N. 46 10 | W. 77 48 | 6.57 a.m. | 418 | 127 | 29.36 | 745.7 | 29.80 | 756.9 | 57.0 | 13.9 | 87.6 | 1 | 13 | 3 | ..... | ..... | 5 | 2 | ..... | 7 | ..... | ..... | 6 | 3.11 | 79.0 |
| Saint Andrews | N. 45 04 | W. 81 06 | 6.34 a.m. | 47 | 14 | 29.73 | 755.1 | 29.78 | 756.4 | 56.4 | 13.6 | 89.4 | ..... | 6 | 1 | 3 | 2 | 8 | 1 | 4 | 6 | ..... | ..... | 4 | 6.26 | 159.0 |
| Saint John, N.B | N. 45 17 | W. 66 03 | 7.44 a.m. | 116 | 35 | 29.69 | 754.1 | 29.83 | 757.7 | 57.0 | 13.9 | 89.9 | 2 | 3 | 2 | 2 | 8 | 3 | ..... | 1 | 10 | ..... | ..... | 7 | 7.85 | 199.4 |
| Saint Pierre | N. 46 47 | W. 56 08 | 8.24 a.m. | ? | ? | ..... | ..... | 29.90 | 759.4 | 53.2 | 11.8 | ..... | 1 | 3 | 4 | 10 | 4 | 5 | 3 | 1 | ..... | ..... | ..... | 6 | 5.47 | 139.0 |
| Saugeen | N. 44 30 | W. 81 21 | 6.42 a.m. | 656 | 200 | 29.18 | 741.2 | 29.87 | 758.7 | 58.4 | 14.7 | 85.1 | 2 | 5 | 3 | 5 | 4 | 3 | 3 | 1 | 5 | 4937 | 7945 | 6 | 1.43 | 36.3 |
| Stratford | N. 43 23 | W. 81 00 | 6.44 a.m. | 1186 | 361 | 28.63 | 727.2 | 29.88 | 758.9 | 61.5 | 16.4 | 83.6 | 1 | 1 | 7 | 2 | 5 | ..... | 2 | 1 | 12 | ..... | ..... | 4 | 2.48 | 63.0 |
| Sydney | N. 46 08 | W. 60 10 | 8.07 a.m. | 37 | 11 | 29.77 | 756.1 | 29.83 | 757.7 | 59.7 | 15.4 | 85.7 | ..... | 2 | 4 | 10 | 3 | 5 | 1 | 1 | 5 | 6294 | 10129 | 9 | 9.21 | 233.9 |
| Toronto | N. 43 39 | W. 79 23 | 6.50 a.m. | 350 | 107 | 29.50 | 749.3 | 29.87 | 758.7 | 61.2 | 16.2 | 75.8 | 4 | 9 | 6 | 3 | 3 | ..... | ..... | 3 | 3 | 6464 | 10403 | 5 | 1.52 | 38.6 |
| Woodstock | N. 43 08 | W. 80 47 | 6.48 a.m. | 980 | 299 | 28.86 | 733.0 | 29.89 | 759.2 | 60.8 | 16.0 | 83.5 | 2 | 5 | 10 | 2 | 5 | ..... | 1 | 2 | 4 | ..... | ..... | 5 | 4.18 | 106.2 |
| Yarmouth | N. 43 50 | W. 66 02 | 7.44 a.m. | 61 | 19 | 29.72 | 754.9 | 29.79 | 756.7 | 57.4 | 14.1 | 93.7 | 2 | 4 | 3 | 3 | 3 | 8 | 2 | 1 | 5 | ..... | ..... | 4 | 5.90 | 149.9 |
| CAPE COLONY. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape St. Francis | S. 34 10 | E. 24 50 | 1.47 p.m. | 25 | 7 | 30.21 | 767.3 | 30.24 | 768.1 | 61.4 | 16.3 | 94.7 | 2 | 5 | 1 | 22 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 5 | 2.57 | 65.3 |
| Cape Town | S. 34 02 | E. 18 29 | 1.22 p.m. | ? | ? | 30.18 | 766.6 | ..... | ..... | 58.9 | 14.9 | 69.9 | 2 | 22 | ..... | ..... | ..... | 1 | ..... | 3 | 3 | ..... | ..... | 5 | 3.90 | 99.1 |
| Springbok | S. 29 45 | E. 17 43 | 1.19 p.m. | ? | ? | 27 90 | 708.6 | ..... | ..... | 60.4 | 15.8 | 39.4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0.45 | 11.4 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for July, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| CHILIAN. | o / | o / | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coquimbo | S. 29 56 | W. 71 21 | 7.22 a.m | 72 | 22 | 30.01 | 762.3 | 30.09 | 764.3 | 50.5 | 10.3 | 91.6 | ..... | ..... | ..... | ..... | 9 | 10 | 9 | 3 | ..... | ..... | ..... | 7 | ..... | ..... |
| Iquique c. | S. 20 12 | W. 70 11 | 7.27 a.m | 26 | 8 | 29.99 | 761.7 | 30.02 | 762.4 | 58.5 | 14.7 | 75.4 | ..... | 3 | ..... | 10 | 4 | 1 | 4 | 6 | ..... | ..... | ..... | ..... | ..... | ..... |
| Niebla | S 39 53 | W. 73 25 | 7.14 a.m | 98 | 30 | 29.56 | 750.7 | 29.66 | 753 4 | 43.7 | 6.5 | 94.1 | 2 | 7 | 4 | 1 | ..... | ..... | 17 | ..... | ..... | ..... | ..... | 7 | 16.53 | 419.8 |
| Punta Caldera | S 27 03 | W. 70 53 | 7.25 a.m. | 82 | 25 | 29.95 | 760.6 | 30.04 | 762.9 | 53.1 | 11.7 | 80.3 | g | 3 | ..... | 4 | ..... | 6 | 1 | 10 | ... | ..... | ..... | 6 | ..... | ..... |
| Punta Corona | S. 41 47 | W. 73 53 | 7.12 a.m | 174 | 53 | 29.85 | 758.1 | 30.04 | 762.9 | ..... | ..... | ..... | 11 | 2 | 3 | 5 | 2 | 3 | 1 | 4 | ..... | ..... | ..... | 6 | ..... | ..... |
| Quiriquina | S. 36 37 | W. 73 03 | 7.25 a.m. | 187 | 57 | 29.89e | 759.1e | 30.09e | 764.3e | 48.0 | 8.9 | 80.5 | 4 | 1 | 4 | ..... | 6 | 11 | 2 | 3 | ..... | ..... | ..... | 6 | 1.32 | 33.4 |
| Valparaiso | S. 33 02 | W. 71 39 | 7.22 a.m. | 131 | 40 | 29.93 | 760.2 | 30.02 | 762.5 | 50.5 | 10.3 | 80.6 | 6 | 1 | 1 | 4 | 9 | 2 | 3 | 5 | ..... | ..... | ..... | 6 | 1.32 | 33.4 |
| CHINESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hong Kong | N. 22 18 | E. 114 04 | 7 45 p.m. | 110 | 33 | 29.58 | 751.3 | 29.69 | 754.1 | 81.5 | 27.5 | 85.0 | ..... | 1 | 1 | 3 | 7 | 1 | 11 | 4 | 3 | ..... | ..... | 6 | 13.09 | 332.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zi-Ka-Wei | N. 31 12 | E. 121 26 | 8.14 p.m. | 22 | 7 | 29.72 | 754.9 | 29.74 | 755.5 | 77.0 | 25.0 | 91 | ..... | ..... | ..... | ..... | 1 | 3 | 15 | 7 | 5 | ..... | ..... | 6 | 4.72 | 120.0 |
| DANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copenhagen | N. 55 41 | E. 12 36 | 0.58 p.m. | 43 | 13 | 29.90 | 759.5 | 29.95 | 760.7 | 68.2 | 20.1 | 62 | 1 | 6 | 3 | 7 | 4 | 8 | ..... | 2 | ..... | ..... | ..... | 6 | ..... | ..... |
| Fanöe | N. 55 27 | E. 8 24 | 0.42 p.m. | 20 | 6 | 29.92 | 760.0 | 29.94 | 760.5 | 67.5 | 19.7 | 69 | ..... | 5 | 11 | 8 | 2 | 3 | 1 | 1 | ..... | ..... | ..... | 6 | ..... | ..... |
| Ivigtut | N. 61 12 | W. 48 — | 8.56 a.m. | 16 | 5 | 29.90 | 759.4 | 29.92 | 759 9 | 47.7 | 8.7 | ..... | 7 | 2 | ..... | ..... | 1 | ..... | ..... | ..... | 21 | ..... | ..... | 6 | ..... | ..... |
| Stykkisholm | N. 65 05 | W. 22 46 | 10.37 a.m. | 36 | 11 | 29.84 | 758.0 | 29.89 | 759.1 | 52.3 | 11.3 | 78 | ..... | 3 | ..... | 1 | 2 | 7 | 9 | 4 | 5 | ..... | ..... | 6 | ..... | ..... |
| Thorshavn | N. 62 02 | W. 6 44 | 11.41 a.m. | 29 | 9 | 29.89 | 759.3 | 29.92 | 759.9 | 52.0 | 11.1 | 86 | 6 | ..... | ..... | ..... | ..... | 3 | 2 | 10 | 10 | ..... | ..... | 8 | ..... | ..... |
| Upernavik | N. 72 47 | W. 56 00 | 8.24 a.m. | 39 | 12 | 29.33 | 760.1 | 29.97 | 761.3 | 41.2 | 5.1 | ..... | 4 | 1 | ..... | 6 | 1 | 4 | 1 | 2 | 12 | ..... | ..... | 5 | ..... | ..... |
| Vestervig | N. 56 47 | E. 8 20 | 0.41 p.m. | 82 | 25 | 29.82 | 757.5 | 29.91 | 759.8 | 64.8 | 18.2 | 71 | 1 | 10 | 10 | 2 | ..... | 2 | 4 | 1 | 1 | ..... | ..... | 5 | ..... | ..... |
| Egyptian. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cairo | N. 30 03 | E. 31 21 | 2.14 p.m. | ? | ? | 29.71 | 754.5 | ..... | ..... | 90.9 | 32.7 | ..... | 13 | 5 | 1 | ..... | ..... | ..... | ..... | 12 | ..... | ..... | ..... | 0 | 0 | 0 |
| FRENCH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agen | N. 44 12 | E. 0 38 | 0.11 p.m. | 604 | 184 | 29.47 | 748.6 | 30.10 | 764 6 | 69.6 | 20.9 | 60.6 | 4 | 7 | 7 | 1 | 3 | 4 | 1 | 1 | 3 | ..... | ..... | ..... | 2.45 | 62.2 |
| Alençon | N. 48 26 | E. 0 05 | 0.09 p.m. | 476 | 145 | 29.52 | 749.9 | 30.08 | 763.9 | 71.2 | 21.8 | 75.3 | ..... | 3 | 1 | 6 | 17 | 1 | 2 | 1 | ..... | ..... | ..... | 5 | 2.36 | 60.0 |
| Arras | N. 50 18 | E. 2 46 | 0.19 p.m | 223 | 68 | 29.76 | 755.9 | 30.02 | 762.6 | 73.8 | 23.2 | 55.8 | 3 | 5 | 8 | 6 | 2 | 2 | 5 | . | ..... | ..... | ..... | 4 | 2.47 | 62.8 |
| Avignon | N. 43 57 | E. 4 48 | 0.27 p.m | 65 | 20 | 29.96 | 761.0 | 30.04 | 763 0 | 84.2 | 29.0 | 46.2 | 8 | 15 | 3 | 4 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.39 | 35.4 |
| Bar-sur-Seine | N. 48 07 | E. 4 22 | 0.25 p.m. | 518 | 158 | 29.50 | 749.2 | 30.03 | 762.7 | 75.0 | 23.9 | 52 | 1 | ..... | ..... | 3 | 3 | 10 | 9 | 4 | 1 | ..... | ..... | 5 | 3.72 | 94.6 |
| Beauvais | N. 49 26 | E. 2 05 | 0.16 p.m. | 246 | 75 | 29.75 | 755.7 | 30.01 | 762.2 | 73.9 | 23.3 | 55.3 | ..... | 1 | 1 | 5 | 7 | 4 | 9 | 4 | 1 | ..... | ..... | 3 | 3.58 | 90.9 |
| Besançon | N. 47 14 | E. 6 02 | 0.32 p.m. | 846 | 258 | 29.12 | 739.7 | 29.99 | 761.8 | 77.0 | 25.0 | 65.2 | 6 | 2 | 2 | 2 | 8 | 4 | 4 | 2 | 3 | ..... | ..... | ..... | 1.08 | 27.3 |
| Bordeaux | N. 44 50 | E. 0 32 | 0.06 p.m. | 243 | 74 | 29.80 | 756.8 | 30.05 | 763.2 | 75.6 | 24.2 | 57.6 | 3 | 7 | 6 | 5 | ..... | 5 | 4 | 1 | ..... | ..... | ..... | 4 | 2.21 | 56.1 |
| Bourges | N. 47 10 | E. 2 26 | 0.17 p.m. | 510 | 156 | 29.49 | 749.0 | 30.02 | 762.4 | 75.4 | 24.1 | 55.2 | 3 | 1 | 8 | 9 | 2 | 1 | 2 | 5 | ..... | ..... | ..... | ..... | 3.12 | 79.2 |
| Brest | N. 48 24 | W. 4 30 | 11.50 a.m. | 210 | 64 | 29.83 | 757.6 | 30.07 | 763.8 | 69.8 | 21.0 | 75.8 | ..... | 5 | 5 | 19 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 6 | 2.47 | 60.2 |
| Caen | N. 49 11 | W. 0 21 | 0.07 p.m. | 69 | 21 | 29.89 | 759.3 | 29.97 | 761.2 | 71.1 | 21.7 | 77.0 | 1 | 7 | 7 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 2.17 | 55.0 |
| Châlons sur Marnee | N. 48 57 | E. 4 21 | 0.25 p.m. | 292 | 89 | 29.62 | 752.4 | 29.96 | 761.0 | 73.2 | 22.9 | 67.0 | ..... | 1 | 2 | 7 | 15 | ..... | ..... | 1 | 2 | ..... | ..... | 4 | 1.37 | 34.7 |
| Charleville | N. 49 46 | E. 4 49 | 0.27 p.m. | 476 | 145 | 29.48 | 748.8 | 30.00 | 762.0 | 75.6 | 24.2 | 47.1 | ..... | 4 | 6 | 5 | 6 | 4 | 1 | 5 | ..... | ..... | ..... | 5 | 3.33 | 84.5 |
| Clermont-Fer'and | N. 45 46 | E. 3 05 | 0.20 p.m. | 1273 | 388 | 28.71 | 729.1 | 30.02 | 762.4 | 75.9 | 24.4 | 52.4 | 10 | 7 | 1 | 2 | 1 | 4 | 1 | 5 | ..... | ..... | ..... | 5 | 3.52 | 89.3 |
| Cluny | N. 46 26 | E. 4 39 | 0.27 p.m. | 787 | 240 | 29.21 | 741.9 | 30.06 | 763.4 | 76.6 | 24.8 | 55.7 | 4 | 1 | 3 | 7 | 5 | 1 | 4 | 6 | ..... | ..... | ..... | 5 | 2.96 | 75.1 |
| Commercy | N. 48.46 | E. 5 35 | 0.30 p.m. | 797 | 243 | 29.20 | 741.6 | 30.03 | 762.8 | 73.2 | 22.9 | 53.9 | 2 | 4 | 9 | 9 | 2 | 2 | 2 | 1 | ..... | ..... | ..... | 5 | 2.36 | 60.5 |
| Gap | N. 44 33 | E. 6 05 | 0.32 p.m. | 2424 | 739 | 27 54 | 699.6 | 29.97 | 761.1 | 78.1 | 25.6 | 40.3 | 4 | ..... | ..... | 13 | 4 | 3 | ..... | ..... | 7 | ..... | ..... | 2 | 1.50 | 38.2 |
| Gréasque | N. 43 25 | E. 5 37 | 0.31 p.m. | 1056 | 322 | 28.93 | 734.7 | 29.99 | 761 8 | 82.8 | 28.2 | 38.0 | 1 | 8 | 3 | 9 | 8 | 2 | ..... | ..... | ..... | ..... | ..... | 2 | 0.28 | 7.2 |
| Grenoble | N. 45 12 | E. 5 43 | 0.31 p.m. | 715 | 218 | 29.27 | 743.5 | 30.00 | 762.1 | 77.7 | 25.4 | 58.3 | 2 | 15 | 7 | 2 | ..... | 2 | ..... | ..... | 3 | ..... | ..... | ..... | 2.61 | 66.3 |
| Guéret | N. 46 10 | E. 1 52 | 0.16 p.m. | 1486 | 453 | 28.56 | 725.5 | 30.10 | 764.4 | 68.9 | 20.5 | 72.2 | 2 | 2 | 7 | 9 | 4 | 2 | 3 | 2 | ..... | ..... | ..... | ..... | 1.13 | 28.8 |
| Lambesle | N. 48 28 | W. 2 31 | 11.58 a.m. | 252 | 77 | 29.74 | 755.4 | 30.02 | 762.4 | 70.5 | 21.4 | 64.7 | 4 | 6 | 2 | 5 | 10 | 1 | 2 | 1 | ..... | ..... | ..... | 4 | 1.35 | 34.2 |
| Lescar | N. 43 20 | W. 0 26 | 0.06 p.m. | 525 | 160 | 29.51 | 749.5 | 30.05 | 763.2 | 78.6 | 25.9 | 52.4 | 2 | 4 | 14 | 3 | 2 | ..... | 1 | 5 | ..... | ..... | ..... | 4 | 1.94 | 49.2 |
| Lorient | N. 47 45 | W. 3 21 | 11.55 a.m. | 80 | 26 | 29.96 | 761.0 | 30.06 | 763.6 | 69.8 | 21.0 | 69.7 | ..... | 1 | 7 | 9 | 14 | ..... | ..... | ..... | ..... | ..... | ..... | 7 | 1.66 | 42.1 |
| Lyon | N. 45 41 | E. 2 30 | 0.25 p.m. | 981 | 299 | 29.01 | 736.9 | 30.04 | 762.9 | 75.0 | 23.9 | 51.4 | 7 | 4 | 2 | 1 | 5 | 6 | 5 | 1 | ..... | ..... | ..... | 4 | 4.15 | 105.4 |
| Mans | N. 48 01 | E. 0 12 | 0.09 p.m. | 285 | 87 | 29.73 | 755.1 | 30.02 | 762.6 | 72.3 | 22.4 | 66.4 | 2 | 6 | 6 | 9 | 2 | 1 | 1 | 4 | ..... | ..... | ..... | 5 | 2.72 | 69.2 |
| Marseille | N. 43 18 | E. 5 23 | 0.29 p.m. | 246 | 75 | 29.75 | 755.7 | 30.01 | 762.3 | 79.7 | 26.5 | 53.8 | ..... | 6 | 12 | 4 | 5 | 3 | 1 | ..... | ..... | ..... | ..... | 3 | 0.25 | 6.4 |
| Montlouis | N. 42 30 | E. 2 07 | 0.16 p.m. | 5203 | 1586 | 21.9 | 634.6 | 29.83 | 757.6 | 68.2 | 20.1 | 28 | 4 | 2 | 3 | 12 | 2 | 1 | 5 | 2 | ..... | ..... | ..... | 4 | 1.13 | 28.6 |
| Montpellier | N. 43 37 | E. 3 53 | 0.24 p.m. | 118 | 36 | 29.89 | 759.3 | 30.00 | 762.1 | 82.2 | 27.9 | 68.8 | 3 | 7 | 2 | 2 | 8 | 5 | 2 | 2 | ..... | ..... | ..... | 3 | 0.24 | 6.1 |
| Nancy | N. 48 42 | E. 6 11 | 0.33 p.m. | 725 | 221 | 29.26 | 743.3 | 30.02 | 762.5 | 75.6 | 24.2 | 49.2 | 2 | 2 | 6 | 5 | 8 | 2 | ..... | 6 | ..... | ..... | ..... | ..... | 1.20 | 30.6 |
| Nantes | N. 47 13 | W. 1 33 | 0.02 p.m. | 134 | 41 | 29.91 | 759 7 | 30.07 | 763.8 | 73.6 | 23.1 | 61.0 | 1 | 4 | 8 | 9 | 3 | 1 | 4 | 1 | ..... | ..... | ..... | 8 | 1.74 | 44.2 |
| Perpignan | N. 42 42 | E. 2 53 | 0.19 p.m. | 105 | 32 | 29.94 | 760.5 | 30.05 | 763.2 | 77.5 | 25.3 | 57 | 1 | 9 | 2 | ..... | 1 | 5 | 11 | 2 | ..... | ..... | ..... | 5 | 0.91 | 23.1 |
| Pic du Midi (Sum- | N. 42 56 | W. 0 08 | 0.08 p.m. | 9380 | 2859 | 21.43 | 544.4 | ..... | ..... | 47.7 | 8.7 | ..... | ..... | 5 | 12 | 1 | ..... | ..... | 3 | ..... | 10 | ..... | ..... | 4 | 2.48 | 62.9 |
| Privas. [mit.) | N. 44 45 | E. 4 36 | 0.26 p.m. | 997 | 304 | 29.00 | 736.7 | 30.01 | 762.2 | 78.6 | 25.9 | 48.0 | 8 | 4 | ..... | 2 | 6 | 1 | ..... | 3 | 7 | ..... | ..... | ..... | 3.94 | 100.0 |
| Puy de Dôme | N. 45 46 | E. 2 58 | 0.20 p.m. | 4813 | 1467 | 25.28 | 642.2 | ..... | ..... | 55.4 | 13.0 | 80.9 | 1 | 7 | 2 | 9 | 2 | 4 | 3 | 3 | ..... | ..... | ..... | 6 | 5.96 | 151.3 |
| Rochefort | N. 45 56 | W. 0 58 | 0.04 p.m. | 29 | 9 | 30.06 | 763.5 | 30.09 | 764.3 | 75.2 | 24.0 | 63.9 | ..... | 3 | 9 | 9 | 2 | 1 | 3 | 4 | ..... | ..... | ..... | 5 | 1.81 | 46.0 |
| Roche-sur-Yon | N. 46 40 | W. 1 26 | 0.02 p.m. | 198 | 60 | 29.77 | 756.2 | 29.98 | 751.4 | 75.2 | 24.0 | 66.1 | 3 | 5 | 6 | 5 | 5 | 3 | 3 | 1 | ..... | ..... | ..... | ..... | 1.83 | 46.4 |
| Rodez | N. 44 21 | E. 2 34 | 0.18 p.m. | 2050 | 625 | 27 98 | 710.6 | 30.04 | 763.0 | 75.0 | 23.9 | 63.6 | 4 | 11 | ..... | ..... | ..... | 5 | 2 | 4 | 5 | ..... | ..... | 3 | 2.69 | 68.4 |
| Ronen | N. 49 26 | E. 1 05 | 0.12 p.m. | 39 | 12 | 29.97 | 761.3 | 30.02 | 762.5 | 73.6 | 23.1 | 69.8 | 3 | 8 | 5 | 12 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 7.50 | 190.5 |
| Saint Maur | N. 48 48 | E. 2 21 | 0.17 p.m. | 162 | 49 | 29.86 | 758.5 | 30.03 | 762.7 | 74.1 | 23.4 | 52.2 | 3 | 2 | 7 | 7 | 6 | 4 | 1 | ..... | 1 | ..... | ..... | 7 | 1.61 | 41.0 |
| Toulouse | N. 43 37 | E. 1 27 | 0.14 p.m. | 636 | 194 | 29.39 | 746.4 | 30.11 | 764.8 | 78.8 | 26.0 | 58.4 | 3 | 10 | 2 | ..... | ..... | 9 | 3 | 4 | ..... | ..... | ..... | 4 | 1.96 | 49.7 |
| Tours | N. 47 24 | E. 0 41 | 0.11 p.m. | 167 | 51 | 29.86 | 758.4 | 30.04 | 762.9 | 74.8 | 23.8 | 58.3 | 3 | 5 | 4 | 7 | 4 | 5 | 1 | 2 | ..... | ..... | ..... | 5 | 1.84 | 46.7 |
| Versailles | N. 48 48 | E. 2 07 | 0.16 p.m. | 445 | 136 | 29.56 | 750.9 | 30.10 | 764.5 | 72.5 | 22.5 | 55.0 | 3 | 5 | 5 | 10 | 1 | 3 | 1 | 1 | 2 | ..... | ..... | 6 | 2.47 | 62.8 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| St. Martin du Hinx. | N. 43 35 | W. 1 16 | 0.03 p.m. | 131 | 40 | 29.94 | 760.4 | 30.09 | 764.2 | 77.7 | 25.4 | 59 | 3 | 10 | 6 | 2 | 1 | 1 | 5 | 3 | ..... | ..... | ..... | 5 | 3.44 | 87.4 |
| GERMAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ansbach | N. 49 18 | E. 10 36 | 0.50 p.m. | 1358 | 414 | 28.61 | 726.7 | 30.00 | 762.0 | 72.9 | 22.7 | 42.9 | 1 | 7 | 6 | 4 | 3 | 1 | 2 | 3 | 4 | ..... | ..... | 5 | 2.68 | 68.1 |
| Bamberg | N. 49 54 | E. 10 54 | 0.51 p.m. | 787 | 240 | 29.18 | 741.2 | 30.03 | 762.8 | 74.7 | 23.7 | 47.1 | ..... | 7 | 6 | 2 | 1 | 7 | ..... | ..... | 8 | ..... | ..... | 5 | 3.52 | 89.4 |
| Berlin | N. 52 30 | E. 13 19 | 1.02 p.m. | 131 | 40 | 29.81 | 757.1 | 29.95 | 760.6 | 73.9 | 23.3 | 52.2 | ..... | 3 | 7 | 7 | 6 | ..... | 5 | 3 | ..... | ..... | ..... | 7 | 2.28 | 57.9 |
| Breslau | N. 51 07 | E. 17 02 | 1.17 p.m. | 482 | 147 | 29.49 | 749.0 | 30.02 | 762.4 | 73.8 | 23.2 | 48.5 | ..... | 9 | 4 | 3 | 2 | 4 | 5 | 4 | ..... | ..... | ..... | 5 | 1.75 | 44.5 |
| Carlsruhe | N. 49 01 | E. 8 25 | 0.42 p.m. | 413 | 126 | 29.56 | 750.9 | 30.01 | 762 2 | 76.8 | 24.9 | 47.3 | ..... | 4 | 4 | 11 | 1 | 5 | 4 | 2 | ..... | ..... | ..... | 5 | 3.12 | 79.2 |
| Cassel | N. 51 19 | E 9 28 | 0.46 p.m. | 669 | 204 | 29.30 | 744.1 | 30.01 | 762.2 | 76.6 | 24.8 | 54.2 | 2 | 7 | 3 | 12 | 3 | ..... | 1 | 3 | ..... | ..... | ..... | 6 | 2.96 | 75.2 |
| Frankfort on M | N. 50 08 | E. 8 41 | 0.43 p.m. | 338 | 103 | ..... | ..... | 30.00 | 762 1 | 77.5 | 25.3 | 45.0 | 1 | 4 | 6 | 5 | 7 | 3 | 2 | 3 | ..... | ..... | ..... | 5 | 2.87 | 72.8 |
| Friedrichshafen | N. 47 39 | E. 9 29 | 0.46 p.m. | 1339 | 408 | 28.66 | 728.0 | 30.01 | 762.2 | 73.4 | 23.0 | 68.7 | 2 | 2 | 2 | 22 | 1 | 1 | 1 | ..... | ..... | ..... | ..... | 5 | 2.21 | 56.2 |
| Hamburg | N. 53 33 | E. 9 58 | 0.48 p.m. | 85 | 26 | 29.91 | 759.8 | 30.00 | 762.1 | 70.2 | 21.2 | 64.6 | ..... | 5 | 4 | 9 | 1 | 7 | 4 | 1 | ..... | ..... | ..... | 6 | 2.65 | 67.4 |
| Kiel | N. 54 19 | E. 10 04 | 0.48 p.m. | 13 | 4 | 29.94 | 760.5 | 29.96 | 760.9 | 70.3 | 21.3 | 65.6 | 3 | 2 | 7 | 5 | 1 | 3 | 2 | 7 | 1 | ..... | ..... | 6 | 5.18 | 131.5 |
| Leipsic | N. 51 20 | E. 12 24 | 0.58 p.m. | 390 | 119 | 29.59 | 751.6 | 29.99 | 761.8 | 68.9 | 20.5 | 58.9 | 2 | 1 | 6 | 9 | 7 | 2 | 3 | 1 | ..... | ..... | ..... | 6 | 2.85 | 72.4 |
| Magdeburg | N. 52 09 | E. 11 37 | 0.54 p.m. | 177 | 54 | 29.79 | 756.6 | 29.97 | 761.2 | 75.7 | 24.3 | 52.3 | 2 | 1 | 9 | 3 | 7 | 4 | 2 | 3 | ..... | ..... | ..... | 6 | 1.74 | 44.3 |
| Memel | N. 55 43 | E. 21 07 | 1.32 p.m. | 39 | 12 | 29.95 | 760.7 | 30.00 | 761.9 | 69.1 | 20.6 | 65.1 | 2 | 11 | 9 | 2 | 2 | ..... | 3 | 2 | ..... | ..... | ..... | ..... | ..... | ..... |
| Munich | N. 48 09 | E. 11 34 | 0.54 p.m. | 1732 | 528 | 28.24 | 717.2 | 30.10 | 764.5 | 72.3 | 22.4 | 53.1 | 3 | 7 | 6 | 3 | ..... | 5 | 7 | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| Neufahrwasser | N. 54 24 | E. 18 40 | 1.25 p.m. | 26 | 8 | 29.96 | 760.9 | 29.94 | 761.6 | 69.1 | 20.6 | 60.7 | 9 | 1 | 4 | 1 | 1 | 5 | 9 | ..... | ..... | ..... | ..... | 5 | 3.84 | 97.6 |
| Neustadt | N. 49 21 | E. 8 08 | 0.41 p.m. | 479 | 146 | 29.48 | 748.7 | 30.00 | 762.1 | 76.8 | 24.9 | 51 | 1 | 3 | 13 | 4 | 7 | ..... | ..... | ..... | 3 | ..... | ..... | 5 | 2.94 | 74.8 |
| Stuttgart | N. 48 47 | E. 9 11 | 0.45 p.m. | 833 | 254 | 29.13 | 739.9 | 29.99 | 761.7 | 75.4 | 24.1 | 52.1 | 1 | 9 | 3 | 4 | 4 | 5 | 1 | 4 | ..... | ..... | ..... | 6 | 3.33 | 84.6 |
| Wustrow | N. 54 21 | E. 12 24 | 0.58 p.m. | 23 | 7 | 29.94 | 760.5 | 29.97 | 761.1 | 68.0 | 20.0 | 74.8 | 7 | 3 | 6 | 5 | 1 | 2 | 2 | 5 | ..... | ..... | ..... | 6 | 2.38 | 60.4 |
| GREEK. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Athens | N. 37 58 | E. 23 44 | 1.43 p.m. | 361 | 110 | 29.54 | 750.2 | 29.90 | 759.5 | 85.6 | 29.8 | 44.4 | 11 | 1 | ..... | 1 | 13 | 1 | ..... | 4 | ..... | ..... | ..... | 2 | 0.61 | 15.4 |
| INDIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kurrachee | N. 24 47 | E. 67 04 | 4.36 p.m. | 49 | 15 | 29.42 | 747.4 | 29.47 | 748.6 | 86.7 | 30.4 | 77 | ..... | 1 | 9 | 19 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 3.50 | 88.9 |
| Deesa | N. 24 16 | E. 72 14 | 4.57 p.m. | 466 | 142 | 28.97 | 735.8 | 29.42 | 747.3 | 85.4 | 31.3 | 63.0 | b | ..... | 3 | 15 | 7 | 2 | 1 | 1 | ..... | ..... | ..... | 8 | 24.75 | 628.6 |
| Bombay | N. 18 54 | E. 72 49 | 5.00 p.m. | 37 | 11 | 29.63 | 752.7 | 29.67 | 753 6 | 81.4 | 27.4 | 83 | ..... | 1 | 16 | 13 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 25.80 | 655.3 |
| Poona | N. 18 28 | E. 74 10 | 5.05 p.m. | 1849 | 564 | 27.83 | 706.9 | 29.68 | 754 0 | 75.9 | 24.4 | 78 | b | ..... | 9 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 10.40 | 264.2 |
| Belgaum | N. 15 52 | E. 74 42 | 5.07 p.m. | 2550 | 777 | 27.20 | 691.0 | 29.76 | 755 8 | 71.0 | 21.7 | 88 | ..... | ..... | 12 | 18 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 22.43 | 569.7 |
| Lahore | N. 31 34 | E. 74 20 | 5.05 p.m. | 732 | 223 | 28.69 | 728.8 | 29.41 | 746.9 | 94.3 | 34.6 | 55 | 1 | ..... | 5 | 1 | ..... | 1 | 11 | 3 | 9 | ..... | ..... | 4 | 9.35 | 237.5 |
| Roorkee | N. 29 52 | E. 77 56 | 5.20 p.m. | 887 | 270 | 28.58 | 725.9 | 29.45 | 748.1 | 88.3 | 31.3 | 71 | 1 | ..... | 1 | ..... | 3 | 1 | 7 | 1 | 17 | ..... | ..... | 4 | 12.61 | 320.3 |
| Agra | N. 27 10 | E. 78 05 | 5.20 p.m. | 555 | 169 | 28.91 | 734.2 | 29.45 | 748.1 | 91.8 | 33.2 | 62 | 1 | 4 | ..... | 5 | 1 | 11 | 5 | 4 | ..... | ..... | ..... | 6 | 4.61 | 117.1 |
| Nagpur | N. 21 09 | E. 79 11 | 5.24 p.m. | 1025 | 312 | 28.51 | 724.1 | 29.54 | 750.3 | 80.4 | 26.9 | 79 | 1 | 9 | 8 | 6 | ..... | ..... | ..... | 1 | 6 | ..... | ..... | 9 | 18.99 | 482.3 |
| Jubbulpore | N. 23 09 | E. 79 59 | 5.28 p.m. | 1341 | 409 | 28.17 | 715.6 | 29.52 | 749 7 | 79.1 | 26.2 | 86 | 2 | 7 | 7 | 4 | 2 | 2 | ..... | 3 | 4 | ..... | ..... | 9 | 36.55 | 928.3 |
| Lucknow | N. 26 50 | E. 81 00 | 5.32 p.m. | 369 | 113 | 29.11 | 739.3 | 29.47 | 748.6 | 88.4 | 31.3 | 70 | 16 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 11 | ..... | ..... | 8 | 7.45 | 189.2 |
| Allahabad | N. 25 26 | E. 81 52 | 5.35 p.m | 307 | 94 | 29.16 | 740.6 | 29.46 | 748.3 | 85.9 | 29.9 | 80 | ..... | 2 | 1 | 4 | 1 | 1 | 3 | 8 | 11 | ..... | ..... | 8 | 10.99 | 279.1 |
| Patna | N. 25 37 | E. 85 08 | 5.49 p.m. | 183 | 56 | 29.31 | 744.4 | 29.49 | 749 0 | 86.7 | 30.4 | 76 | 2 | 1 | ..... | 1 | ..... | 5 | 14 | 6 | 2 | ..... | ..... | 7 | 6.49 | 164.8 |
| Hazaribagh | N. 24 00 | E. 85 24 | 5.50 p.m. | 2007 | 612 | 27.51 | 698.6 | 29.49 | 749.0 | 79.0 | 26.1 | 83 | 1 | 4 | 1 | 3 | 3 | 8 | 8 | 2 | 1 | ..... | ..... | 10 | 6.70 | 170.2 |
| Cuttack | N. 20 29 | E. 85 54 | 5.52 p.m. | 80 | 24 | 29.44 | 747.8 | 29.52 | 749.8 | 84.3 | 29.1 | 76 | 8 | 6 | ..... | 1 | 1 | ..... | ..... | 9 | 6 | ..... | ..... | 7 | 9.00 | 228.6 |
| Calcutta | N. 22 33 | E. 88 21 | 6.01 p.m. | 21 | 6 | 29.49 | 749.0 | 29.51 | 749.5 | 83.1 | 28.4 | 85 | ..... | 1 | 1 | 8 | 9 | 11 | ..... | 1 | ..... | ..... | ..... | 8 | 11.96 | 303.8 |

| STATIONS. | Latitude | Longitude | Local Time | Altitude of Barometer above sea. | | Result of Simultaneous Observations for July, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| INDIAN—Cont'd. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Chittagong | N. 22 21 | E. 91 50 | 6.15 p.m. | 87 | 26 | 29.52 | 749.9 | 29.62 | 752.2 | 80.6 | 27.0 | 88 | ..... | ..... | ..... | 1 | 12 | 14 | ..... | ..... | 4 | ..... | ..... | 8 | 3.09 | 78.5 |
| Sibsagar | N. 26 59 | E. 94 40 | 6.27 p.m. | 333 | 102 | 29.22 | 742.3 | 29.55 | 750.6 | 86.9 | 30.5 | 77 | 2 | 1 | ... | 16 | 1 | 1 | 1 | 9 | ..... | ..... | ..... | 6 | 9.40 | 238.8 |
| Jeypore | N. 26 55 | E. 75 50 | 5.05 p.m. | 1431 | 436 | 28.06 | 712.7 | 29.46 | 748.2 | 89.0 | 31.7 | 63 | . | 5 | 4 | 6 | ... | 4 | 8 | 1 | 3 | ..... | ..... | 7 | 3.45 | 87.6 |
| Zanzibar | S. 6 10 | E. 39 11 | 2.45 p.m. | 23 | 7 | 30.02 | 762.5 | ..... | ..... | 81.2 | 27.3 | 51.3 | ..... | ..... | ..... | 2 | 7 | 20 | 2 | ..... | ..... | ..... | ..... | 3 | 0 | 0 |
| Bellary | N. 15 09 | E. 76 57 | 5.16 p.m. | 1455 | 444 | 28.22 | 716.8 | ..... | ..... | 85.5 | 29.7 | 51 | ..... | ..... | 7 | 24 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 0.02 | 0.5 |
| Trichinopoly | N. 10 50 | E. 78 44 | 5.23 p.m. | 275 | 84 | 29.46 | 748.3 | ..... | ..... | 94.1 | 34.5 | 40 | ..... | 6 | 18 | 6 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 0 | 0.12 | 3.0 |
| ITALIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Udine | N. 46 04 | E. 13 13 | 1.01 p.m. | 381 | 116 | 29.59 | 751.6 | 29.98 | 761.5 | 80.1 | 26.7 | 50 | ..... | 2 | 1 | 9 | 6 | 1 | 2 | 3 | 7 | ..... | ..... | 5 | 2.97 | 75.4 |
| Milan | N. 45 28 | E. 9 11 | 0.45 p.m. | 482 | 147 | 29.50 | 749.2 | 29.99 | 761.7 | 81.7 | 27.6 | 44 | 2 | 1 | 3 | 8 | 3 | 10 | ..... | 4 | ..... | ..... | ..... | 3 | 3.36 | 85.3 |
| Padua | N. 45 24 | E. 11 53 | 0.56 p.m. | 102 | 31 | 29.88 | 758.9 | 29.98 | 761.6 | 79.3 | 26.3 | 53 | 3 | 1 | 1 | 3 | 5 | 7 | 6 | 2 | 3 | ..... | ..... | 4 | 1.87 | 47.0 |
| Moncalieri | N. 45 00 | E. 7 41 | 0.39 p.m. | 846 | 258 | 29.09 | 738.9 | 29.96 | 760.9 | 79.7 | 26.5 | 49 | 2 | 5 | ..... | 3 | 4 | 8 | 7 | 2 | ..... | ..... | ..... | 4 | 4.37 | 11.9 |
| Genoa | N. 44 24 | E. 8 55 | 0.44 p.m. | 157? | 48? | 29.82 | 757.5 | 30.01 | 762.2 | 78.3 | 25.7 | 58 | 1 | 1 | ..... | 18 | 5 | 5 | ..... | 1 | ..... | ..... | ..... | 2 | 2.68 | 68.0 |
| Pesaro | N. 43 55 | E. 12 53 | 1.00 p.m. | 46 | 14 | 29.95 | 760.6 | 29.99 | 761.8 | 77.4 | 25.2 | 61 | 5 | 5 | 1 | ..... | ..... | ..... | 1 | 11 | 8 | ..... | ..... | 2 | 4.86 | 123.4 |
| Florence | N. 43 46 | E. 11 15 | 0.53 p.m. | 240 | 73 | 29.72 | 755.0 | 29.97 | 761.3 | 82.8 | 28.2 | 33 | 5 | 6 | 7 | 5 | 1 | 1 | ..... | 6 | ..... | ..... | ..... | 3 | 0.55 | 14.0 |
| Leghorn | N. 43 33 | E. 10 18 | 0.49 p.m. | 79 | 24 | 29.86 | 758.4 | 29.94 | 760.5 | 80.6 | 27.0 | 57 | 1 | 8 | 10 | 7 | 4 | 1 | ..... | ... | ..... | ..... | ..... | 3 | 0.11 | 2.9 |
| Rome | N. 41 54 | E. 12 29 | 0.58 p.m. | 164 | 50 | 29.81 | 757.1 | 29.98 | 761.4 | 85.8 | 29.9 | 30 | 4 | 1 | 15 | 6 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 0.04 | 1.0 |
| Lecce | N. 40 22 | E. 18 12 | 1.21 p.m. | 236 | 72 | 29.70 | 754.4 | 29.94 | 760 5 | 81.1 | 27.3 | 42 | 10 | 5 | 5 | 2 | 1 | ..... | 1 | 7 | ..... | ..... | ..... | 2 | 0.36 | 9.2 |
| Cosenza | N. 39 19 | E. 16 17 | 1.13 p.m. | 840 | 256 | 29.11 | 739.4 | 29.97 | 761.1 | 81.3 | 27.4 | 67 | 1 | 4 | 10 | 1 | 6 | 7 | 2 | ..... | ..... | ..... | ..... | 2 | 0.85 | 21.5 |
| Palermo | N. 38 07 | E. 13 21 | 1.02 p.m. | 236 | 72 | 29.78 | 756.3 | 30.02 | 762.4 | 79.5 | 26.4 | 52 | ..... | 4 | 1 | 1 | ..... | ..... | ..... | ..... | 25 | ..... | ..... | 1 | 0.94 | 24.0 |
| Syracuse | N. 37 03 | E. 15 15 | 1.09 p.m. | 72 | 22 | 29.88 | 758.9 | 29.92 | 760.0 | 84.6 | 29.2 | 53 | 4 | 1 | 1 | 2 | 6 | ..... | 14 | 3 | ..... | ..... | ..... | 2 | 0 | 0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Naples | N. 40 52 | E. 14 15 | 1.05 p.m. | 489 | 149 | 29.47 | 748.6 | ..... | ..... | 80.1 | 26.7 | 60.8 | 1 | 1 | 3 | 15 | 2 | 3 | 5 | 1 | ..... | ..... | ..... | 2 | 0.62 | 15.8 |
| Stelvio | N. 46 32 | E. 10 25 | 0.50 p.m. | 8343 | 2543 | 22.32 | 567.0 | ..... | ..... | 50.2 | 10.1 | 59.6 | 1 | ..... | 11 | 5 | ..... | 2 | 5 | 7 | ..... | ..... | ..... | 6 | 4.96 | 125.9 |
| Valdobbia | N. 45 47 | E. 7 51 | 0.40 p.m. | 8360 | 2548 | 22.26 | 565.5 | ..... | ..... | 52.9 | 11.6 | 69.4 | 4 | 8 | 11 | 6 | ..... | 1 | ..... | 1 | ..... | ..... | ..... | 7 | 2.78 | 70.6 |
| JAPANESE. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nobiru | N. 38 23 | E. 141 11 | 9 32 p. m. | 15 | 5 | 29.87 | 758 7 | 29.89 | 759.1 | 68.7 | 20.4 | 90.7 | 1 | 1 | ..... | 1 | 15 | 3 | 4 | 3 | 3 | ..... | ..... | 8 | 2.72 | 69.2 |
| Tokei | N. 35 41 | E. 139 46 | 9.27 p.m. | 69 | 21 | 29.84 | 758.0 | 29.91 | 759.8 | 72.4 | 22.4 | 91.9 | 1 | ..... | 1 | 2 | 22 | 1 | 1 | 3 | ..... | ..... | ..... | 7 | 4.05 | 102.9 |
| MAURITIUS. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mauritius | S. 20 06 | E. 57 33 | 3.58 p.m. | 181 | 55 | 29.90 | 759.4 | 30.09 | 764.3 | 72.3 | 22.4 | 68.2 | 1 | ..... | 1 | ..... | 1 | 14 | 12 | 2 | ..... | ..... | ..... | 5 | 1.55 | 3.4 |
| MEXICAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leon *a* | N. 21 07 | W. 101 35 | 5.22 a.m. | 5901 | 1799 | 24.35 | 618 5 | 30.01 | 762 2 | 62.0 | 16 7 | 83 | 3 | 7 | 8 | 4 | 2 | ..... | 2 | 1 | 3 | ..... | ..... | 3 | 9.07 | 230.1 |
| Mazatlan | N. 23 11 | W. 106 17 | 5.03 a.m. | 249 | 76 | 29.66 | 753.4 | 29.92 | 759.9 | 78.9 | 26.1 | 87.1 | 5 | 2 | 2 | 1 | 5 | ..... | 12 | 4 | ..... | ..... | ..... | 7 | 0.30 | 7.6 |
| NETHERLANDS. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flushing | N. 51 24 | E. 3 35 | 0.22 p.m. | 0 | 0 | 30.00 | 762.0 | 30.00 | 762.0 | 70.3 | 21.3 | ..... | 2 | 3 | 11 | 8 | 3 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | 4.02 | 102.0 |
| Groningen | N. 53 12 | E. 6 34 | 0.34 p.m. | ? | ? | 29.91 | 759.8 | 29.97 | 761.2 | 68.4 | 20.2 | ..... | 2 | 7 | 7 | 2 | 6 | 2 | 4 | 1 | ..... | ..... | ..... | ..... | 3.41 | 86.7 |
| Helder | N. 52 58 | E. 4 45 | 0.27 p.m. | 0 | 0 | 29.97 | 761.1 | 29.97 | 761.1 | 66.4 | 19.1 | ..... | 1 | 3 | 2 | 11 | 3 | 2 | 8 | 1 | ... | ..... | ..... | ..... | 1.98 | 50.3 |
| Hellevoetsluis | N. 51 49 | E. 4 08 | 0.25 p.m. | 0 | 0 | 29.99 | 761.7 | 29.99 | 761.7 | 72.5 | 22.5 | 64.2 | ..... | 4 | 6 | 12 | 3 | 1 | 2 | 1 | 2 | ..... | ..... | ..... | 1.89 | 48.1 |
| Utrecht | N. 52 05 | E. 5 07 | 0.29 p.m. | 43 | 13 | 29.95 | 760.6 | 29.99 | 761.8 | 73.2 | 22.9 | 57.3 | 3 | 2 | 4 | 11 | 0 | 3 | 2 | ..... | ..... | ..... | ..... | 5 | 4.11 | 104.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Batavia | S. 6 11 | E. 106 48 | 7.15 p.m. | ? | ? | ..... | ..... | 29.87 | 758.7 | 79.0 | 26.1 | 79.0 | 12 | 1 | 1 | ..... | ..... | ..... | 3 | 14 | ..... | ..... | ..... | 4 | 3.58 | 90.9 |
| NORWEGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bergen | N. 60 24 | E. 5 20 | 0.29 p.m. | 56 | 17 | 29.80 | 756 9 | 29.86 | 758.5 | 62.8 | 17.1 | 67.5 | 1 | 13 | 4 | 4 | 5 | 1 | ..... | 1 | 2 | ..... | ..... | 6 | 5.91 | 150.2 |
| Brono | N. 65 28 | E. 12 14 | 0.57 p.m. | 34 | 10 | 29.83 | 757.6 | 29.87 | 758.6 | 60.3 | 15.7 | 69.8 | 16 | ..... | ..... | 5 | 4 | ..... | 2 | 3 | 1 | ..... | ..... | 4 | 2.00 | 50.7 |
| Christiania | N. 59 55 | E. 10 45 | 0.51 p.m. | 134 | 41 | 29.72 | 754.6 | 29.85 | 758.2 | 69.0 | 20.9 | 49.1 | ..... | 4 | 1 | 8 | 10 | 1 | 4 | 3 | ..... | ..... | ..... | 6 | 2.91 | 74.0 |
| Gjæsvær | N. 71 07 | E. 25 22 | 1.49 p.m. | 23 | 7 | 29.89 | 759.2 | 29.91 | 759.8 | 50.9 | 10.5 | ..... | 2 | 2 | 7 | 4 | ..... | 1 | 1 | 8 | 6 | ..... | ..... | 7 | 1.86 | 47.3 |
| PORTUGUESE. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Funchal | N. 32 38 | W. 16 55 | 11.00 a.m. | 82 | 25 | 30.06 | 763.5 | 30.15 | 765.7 | 74.1 | 23.4 | 69.0 | ..... | ..... | ..... | 26 | ..... | ..... | 2 | ..... | 3 | ..... | ..... | 5 | 0.04 | 1.0 |
| Lisbon | N. 38 42 | W. 9 08 | 11.31 a.m. | 312 | 95 | 29.74 | 755.5 | 30.07 | 763.7 | 75.6 | 24.2 | 52.6 | 7 | 7 | ..... | 8 | 6 | 1 | . | 2 | ..... | ..... | ..... | 2 | 0.31 | 7.8 |
| Ponta Delgada | N. 37 45 | W. 25 41 | 10.25 a.m. | 66 | 20 | 30.14 | 765.6 | 30.21 | 767.4 | 72.3 | 22.4 | 72.8 | 1 | 2 | 9 | 3 | ..... | 3 | 6 | 4 | 3 | ..... | ..... | 4 | 2.16 | 55.0 |
| Saint Paul de Loando | S. 8 49 | E. 13 07 | 1.10 p.m. | 193 | 59 | 29.84 | 758.0 | 30.04 | 763.1 | 71.4 | 21.9 | 80.8 | 8 | 8 | 1 | 2 | 6 | 1 | 1 | 4 | ..... | ..... | ..... | 4 | 0 | 0 |
| San Salvador | S. 6 17 | E. 14 53 | 1.07 p.m. | 1834 | 559 | 28 15 | 715.1 | 30.01 | 762 3 | 72.3 | 22.4 | 60.0 | ..... | ..... | 4 | 19 | 6 | 1 | ..... | 1 | ..... | ..... | ..... | 4 | 0 | 0 |
| Serra da Estrella | N. 40 25 | W. 7 35 | 11.37 a.m. | 4728 | 1441 | 25.42 | 645.7 | 30.02 | 762.4 | 63.9 | 17.7 | 54.3 | 2 | 4 | 3 | 3 | 2 | 4 | 12 | 1 | ..... | ..... | ..... | 4 | 0 | 0 |
| RUSSIAN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akmolinski *b* | N. 51 12 | E. 71 23 | 4.54 p.m. | 843? | 306? | 28.59 | 726.1 | 29.60 | 751.8 | 78.1 | 25.6 | 37.0 | 2 | 5 | 6 | 3 | 2 | 3 | 3 | 5 | ..... | ..... | ..... | 4 | 0.50 | 12.8 |
| Archangel | N. 64 33 | E. 40 32 | 2.50 p.m. | 16 | 5 | 29.84 | 757.9 | 29.86 | 758.4 | 61.7 | 16.5 | 61.3 | 2 | 9 | 6 | 2 | 4 | 2 | 3 | 2 | 1 | ..... | ..... | 8 | 2.73 | 69.3 |
| Ashurada | N. 36 54 | E. 53 55 | 3.44 p.m. | 79 | 24 | 29.58 | 758.9 | 29.78 | 756 5 | 83.5 | 28.6 | 68.1 | 3 | 16 | 9 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 2.25 | 57.2 |
| Astrakhan | N. 46 21 | E. 48 02 | 3.20 p.m. | 68 | 21 | 29.88 | 758.9 | 29.81 | 757.1 | 82.9 | 28.3 | 43.7 | 7 | 2 | 1 | 4 | 5 | 5 | 4 | 2 | 1 | ..... | ..... | 4 | 1.19 | 30.2 |
| Baku | N. 40 21 | E. 49 51 | 3.28 p.m. | 39 | 12 | 29.89 | 759.1 | 29.84 | 757.9 | 81.3 | 27.4 | 64.0 | 8 | ..... | ..... | ..... | 10 | 8 | 3 | 2 | ..... | ..... | ..... | 2 | 0.04 | 1.0 |
| Barnaul | N. 53 20 | E. 83 47 | 5.43 p.m. | 459? | 140? | 29.27 | 743.5 | 29.74 | 755.5 | 73.9 | 23.3 | 50.8 | 6 | 3 | 1 | 5 | 4 | 2 | 1 | 7 | 2 | ..... | ..... | 5 | 1.25 | 31.7 |
| Bielosersk | N. 60 02 | E. 37 47 | 2.39 p.m. | 430? | 131? | 29.43 | 747.5 | 29.88 | 758.9 | 67.3 | 19.6 | 66.2 | 6 | 10 | 2 | 4 | 4 | 1 | 1 | 2 | ..... | ..... | ..... | 6 | 2.24 | 56.9 |
| Dorpat | N. 58 23 | E. 26 43 | 1.55 p.m. | 223 | 68 | 29.70 | 754.3 | 29.93 | 760.3 | 70.0 | 21.1 | 54.2 | 4 | 2 | 8 | 6 | 4 | 1 | 1 | 5 | ..... | ..... | ..... | 6 | 1.58 | 40.1 |
| Ekaterinburg | N. 56 49 | E. 60 38 | 4.10 p.m. | 894? | 272? | 28.84 | 732.4 | 29.76 | 755.9 | 69.4 | 20.8 | 53.3 | 1 | 4 | 4 | 4 | 6 | 3 | 3 | 2 | ..... | ..... | ..... | 7 | 1.37 | 34.7 |
| Elisawetgrad | N. 48 31 | E. 32 17 | 2.17 p.m. | 417? | 127? | 29.44 | 747.8 | 29.87 | 758.6 | 81.0 | 27.2 | 44.3 | 4 | 7 | 8 | 4 | 1 | 2 | 4 | 1 | ..... | ..... | ..... | 6 | 0.55 | 14.0 |
| Kasalinsk *a* | N. 45 46 | E. 62 07 | 4.16 p.m. | 147 | 45 | 29.47 | 748.6 | 29.65 | 753.1 | 84.2 | 29.0 | 35.8 | 2 | 8 | 7 | 1 | 1 | 1 | 4 | 6 | ..... | ..... | ..... | 3 | ..... | ..... |
| Kasan | N. 55 47 | E. 49 08 | 3.34 p.m. | 249 | 76 | 29.53 | 750 0 | 29.78 | 756.4 | 75.0 | 23.9 | 47.5 | 3 | 8 | 6 | 4 | 5 | 4 | ..... | 1 | ... | ..... | ..... | 7 | ..... | ..... |
| Kem | N. 64 57 | E. 34 39 | 2.26 p.m. | 43 | 13 | 29.84 | 757.9 | 29.89 | 759.2 | 60.6 | 15.9 | 67.1 | 4 | 2 | 3 | 2 | 2 | 2 | 5 | 8 | 3 | ..... | ..... | 7 | 2.77 | 70.4 |
| Kertch | N. 45 21 | E. 36 29 | 2.34 p.m. | 18? | 6? | 29.85 | 758.2 | 29.88 | 758.8 | 79.9 | 26.6 | 58.1 | 4 | 3 | ..... | 1 | 4 | 3 | 2 | 5 | 9 | ..... | ..... | 4 | 0.09 | 2.3 |
| Kieff | N. 50 27 | E. 30 30 | 2.10 p.m. | 600 | 183 | 29.25 | 742.9 | 29.85 | 758.2 | 74.3 | 23.5 | 55.3 | 6 | 8 | 5 | 3 | 2 | 3 | 1 | 3 | ..... | ..... | ..... | 6 | 2.89 | 73.5 |
| Koslov | N. 52 53 | E. 40 31 | 2.50 p.m. | 466? | 142? | 29.31 | 744.4 | 29.79 | 756.6 | 75.4 | 24.1 | 55.9 | 5 | 7 | 3 | 1 | 2 | 4 | 3 | 5 | 1 | ..... | ..... | 6 | 1.28 | 32.4 |
| Lgov | N. 51 41 | E. 35 17 | 2.29 p.m. | 535? | 163? | 29.32 | 744.6 | 29.87 | 758 6 | 76.5 | 24.7 | 52.2 | 5 | 5 | 6 | 5 | 1 | 2 | 3 | 3 | 1 | ..... | ..... | 6 | 3.57 | 90.7 |
| Libau | N. 56 31 | E. 21 01 | 1.32 p.m. | 20 | 6 | 29.94 | 760.6 | 29.97 | 761.2 | 66.0 | 18.9 | 66.5 | ..... | 8 | 11 | 7 | 2 | 1 | 2 | ..... | ..... | ..... | ..... | 4 | 2.55 | 64.8 |
| Lugan | N. 48 35 | E. 39 20 | 2.45 p.m. | 188? | 57? | 29.61 | 752.0 | 29.80 | 756.9 | 82 8 | 28.2 | 39.2 | 3 | 7 | 5 | 5 | 4 | 4 | 1 | 2 | ... | ..... | ..... | 6 | 0.70 | 17.7 |
| Moscow | N. 55 46 | E. 37 40 | 2.39 p.m. | 448 | 136 | 29.39 | 746.6 | 29.85 | 758.1 | 70.7 | 21.5 | 63.2 | 10 | 3 | 1 | 2 | 6 | 4 | 1 | 4 | ..... | ..... | ..... | 5 | 4.31 | 109.4 |
| Nertchinsk | N. 51 19 | E. 119 37 | 8.07 p.m. | ? | ? | 27 53 | 699 2 | 29.72 | 754.8 | 64.2 | 17.9 | 70.6 | 3 | 1 | 3 | 7 | 2 | 1 | 1 | 12 | ..... | ..... | ..... | 6 | 3.14 | 79.8 |
| Nikolaiev | N. 46 58 | E. 31 58 | 2.16 p.m. | 62 | 19 | 29.80 | 756.9 | 29.87 | 758.7 | 83.5 | 28.6 | 46.7 | 5 | 4 | 4 | 3 | 3 | ..... | 3 | 5 | 4 | ..... | ..... | 2 | 1.11 | 28.1 |
| Nikolaievsk *b* | N. 53 08 | E. 140 45 | 9.31 p.m. | 59 | 18 | 29.69 | 754.1 | 29.78 | 756.3 | 59.4 | 15.2 | 84.6 | 1 | ..... | 1 | ..... | 1 | 6 | 7 | 2 | 11 | ..... | ..... | 5 | ..... | ..... |
| Pekin | N. 39 57 | E. 116 28 | 7.54 p.m. | 123? | 38? | 29 55 | 750 6 | 29.69 | 754.2 | 77.5 | 25.3 | 77.3 | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 1 | 26 | ..... | ..... | 5 | 9.15 | 232.4 |
| Petro-Alexandrovsk | N. 41 28 | E. 61 05 | 4.12 p.m. | 328 | 100 | 29.38 | 746.2 | 29.70 | 754.5 | 90.1 | 32.3 | 23.6 | 6 | 5 | 8 | 4 | ..... | ..... | ..... | 5 | 3 | ..... | ..... | 3 | ..... | ..... |
| Petrozavodsk | N. 61 47 | E. 34 23 | 2.26 p.m. | 180? | 55? | 29.69 | 754.0 | 29.88 | 758.8 | 65.3 | 18.5 | 63.5 | 5 | 5 | 1 | 3 | 1 | 7 | 3 | 5 | 1 | ..... | ..... | 6 | 4.07 | 103.3 |
| Pinsk | N. 52 07 | E. 26 06 | 1.52 p.m. | 459? | 140? | 29.47 | 748.5 | 29.95 | 760.7 | 73.0 | 23.1 | 54.5 | 6 | 6 | 1 | 4 | 3 | 1 | 5 | 2 | 3 | ..... | ..... | 5 | 2.97 | 75.4 |
| Poti | N. 42 09 | E. 41 37 | 2.54 p.m. | 466? | 142? | 29.82 | 757.4 | 29.85 | 758.2 | 79.3 | 26.3 | 80.0 | ..... | 8 | 7 | 15 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 4 | 5.20 | 133.5 |
| St. Petersburg | N. 59 56 | E. 30 16 | 2.09 p.m. | 20 | 6 | 29.89 | 759.1 | 29.91 | 759.7 | 67.3 | 19.6 | 56.0 | 3 | 10 | 8 | 1 | 1 | ..... | 4 | 4 | ..... | ..... | ..... | 5 | 2.29 | 58.1 |
| Samarkand | N. 39 39 | E. 66 57 | 4.36 p.m. | 2379? | 725? | 27.30 | 693.4 | 29.59 | 751.6 | 86.9 | 30.5 | 37.2 | ..... | 2 | 1 | ..... | ..... | ..... | 4 | ..... | 24 | ..... | ..... | 1 | ..... | ..... |
| Semipalatinsk | N. 50 24 | E. 80 13 | 5.29 p.m. | 607? | 185? | 29.08 | 738.7 | 29.69 | 754 2 | 81.0 | 27.2 | 26.3 | 8 | 5 | 1 | 3 | 3 | ..... | 4 | 3 | 4 | ..... | ..... | 4 | 0.04 | 1.0 |
| Sevastopol | N. 44 37 | E. 33 31 | 2.22 p.m. | 138? | 42? | 29.64 | 752.9 | 29.84 | 758.0 | 79.9 | 26.6 | 55.5 | 1 | 8 | 7 | 8 | 2 | ..... | 1 | 4 | ..... | ..... | ..... | 3 | 4.83 | 122.6 |
| Staroi Bykhov | N. 53 31 | E. 30 16 | 2.09 p.m. | 512 | 156 | 29.36 | 745.8 | 29.89 | 759.3 | 72.5 | 22.5 | 54.1 | 4 | 1 | 3 | ..... | 2 | 4 | 7 | 10 | ..... | ..... | ..... | 6 | 2.12 | 53.8 |
| Tashkend *d* | N. 41 20 | E. 69 18 | 4.45 p.m. | 1607? | 490? | 28.05 | 712.7 | 29.58 | 751.4 | 92.5 | 33.6 | 34.4 | 1 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 23 | ..... | ..... | 2 | ..... | ..... |
| Tiflis | N. 41 43 | E. 44 47 | 3.07 p.m. | 1343 | 409 | 28.44 | 722 5 | 29.78 | 756.4 | 84.9 | 29.4 | 33.4 | 2 | 5 | ..... | 2 | 8 | 12 | 2 | ..... | ..... | ..... | ..... | 3 | 0.51 | 12.9 |
| Vernoe | N. 43 16 | E. 76 53 | 5.16 p.m. | 2401? | 732? | 27.19 | 690 6 | 29.52 | 749.9 | 81.1 | 27.3 | 42.6 | ..... | 1 | 2 | ..... | 1 | ..... | 3 | 2 | 22 | ..... | ..... | 4 | ..... | ..... |
| Viatka *d* | N. 58 36 | E. 49 41 | 3.27 p.m. | 581? | 177? | 29.15 | 740.3 | 29.75 | 755 7 | 69.6 | 20.9 | 56.6 | 5 | 6 | 2 | 3 | 1 | 1 | 4 | ..... | ..... | ..... | ..... | 1 | 1.51 | 38.4 |
| Warsaw | N. 52 13 | E. 21 02 | 1.32 p.m. | 392 | 119 | 29.56 | 750.7 | 29.96 | 761.0 | 74.3 | 23.5 | 46.6 | 6 | 8 | 1 | 2 | 3 | 5 | 1 | 2 | 3 | ..... | ..... | 7 | ..... | ..... |
| Yeniseisk | N. 58 27 | E. 92 06 | 6.16 p.m. | 262? | 80? | 29.55 | 750 6 | 29.82 | 757.5 | 71.6 | 22.0 | 61.7 | 2 | 5 | 8 | 3 | 4 | 6 | 2 | 1 | ..... | ..... | ..... | 5 | 2.93 | 74.4 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Petrowsky Ac'y | N. 55 50 | E. 37 38 | 2.39 p.m. | 508 | 155 | 29.27 | 743.4 | 29.79 | 756.7 | 69.5 | 20.8 | 63.4 | 4 | 5 | 6 | 4 | 2 | 2 | 2 | 4 | 2 | ..... | ..... | 7 | 0.70 | 17.8 |
| SPANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barcelona | N. 41 23 | E. 2 15 | 0.16 p.m. | 138 | 42 | 29.89 | 759.1 | 30.06 | 763.4 | 77 9 | 25.5 | 66 | ..... | ..... | ..... | 7 | 10 | 5 | 6 | 3 | ..... | ..... | ..... | 3 | 0.31 | 8.0 |
| Bilbao | N. 43 15 | W. 2 59 | 11.56 a.m. | 52 | 16 | 30.00 | 762.0 | 30.06 | 763.5 | 79.2 | 26.2 | 57 | 2 | 19 | 2 | 2 | 1 | ..... | 3 | 1 | 1 | 1795 | 2890 | 5 | 1.23 | 32.6 |
| Burgos | N. 42 20 | W. 3 46 | 11.53 a.m. | 2821 | 860 | 27.16 | 689.8 | 30.00 | 762.0 | 75.2 | 24.0 | 48 | 3 | ..... | 1 | 10 | 4 | 3 | ..... | 10 | ..... | 5180 | 8336 | 2 | 0.10 | 2.5 |
| Madrid | N. 40 25 | W. 3 42 | 11.53 a.m. | 2152 | 656 | 27 87 | 707.9 | 29.98 | 761.5 | 84.2 | 29.0 | 30.6 | ..... | ..... | 4 | 15 | ..... | 1 | 3 | 8 | ..... | 7353 | 11834 | 1 | 0.28 | 7.2 |
| Murcia | N. 37 59 | W. 1 10 | 0.03 p.m. | 141 | 43 | 29.88 | 758 9 | 30.00 | 762.0 | 78.4 | 25.8 | 57.0 | ..... | ..... | ..... | 2 | 1 | 10 | 10 | 8 | ..... | 1552 | 2497 | 3 | 0.11 | 2.8 |
| Santiago | N. 42 53 | W. 8 28 | 11.34 a.m. | 863 | 263 | 29.15 | 740.3 | 30.02 | 762 4 | 72.5 | 22.5 | 61 | 9 | 2 | 3 | 9 | 2 | ..... | 2 | 4 | ..... | 7204 | 11593 | 6 | 3.30 | 83.7 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for July, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| *Sub-Series.* | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | o-10 | | |
| Havana | N. 23 08 | W. 82 28 | 7.39 a.m. | 62 | 19 | 29.98 | 761.5 | 30.05 | 763.3 | 79.3 | 26.3 | 81.5 | ..... | ..... | ..... | 1 | 2 | 14 | 12 | .... | 2 | ..... | ..... | 1 | 0.99 | 25.1 |
| Manilla | N. 14 35 | E. 120 56 | 8.12 p.m. | 54 | 16 | 29.75 | 755.7 | 29.81 | 757.1 | 78.5 | 25.8 | 86.9 | 1 | 2 | 7 | 11 | 4 | 3 | 2 | 1 | ..... | ..... | ..... | 8 | 28.19 | 716.0 |
| San Fernando | N. 36 28 | W. 6 13 | 11.43 a.m. | 95 | 29 | 29.98 | 761.4 | 30.07 | 763.8 | 79.1 | 26.2 | 61.4 | ..... | 2 | 14 | 4 | 1 | ..... | 10 | ..... | ..... | ..... | ..... | 2 | 0.01 | 0.2 |
| San Juan de Porto Rico | N. 18 30 | W. 66 10 | 7.44 a.m. | 82 | 25 | 29.98 | 761.4 | 30.07 | 763.7 | 80.1 | 26.7 | 55 | ..... | ..... | ..... | ..... | 2 | 12 | 5 | ..... | 12 | ..... | ..... | 7 | ..... | ..... |
| SWEDISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Haparanda | N. 65 47 | E. 24 03 | 1.44 p.m. | 29 | 9 | 29.85 | 758.1 | 29.89 | 759.1 | 64.9 | 18.3 | 62 | 7 | 1 | ..... | 5 | 10 | ..... | ..... | 4 | 4 | ..... | ..... | 4 | 1.36 | 34.6 |
| Umea | N. 63 50 | E. 20 17 | 1.29 p.m. | 39 | 12 | 29.83 | 757.7 | 29.88 | 759.0 | 67.1 | 19.5 | 57 | ..... | 1 | ..... | 8 | 10 | 2 | 4 | 5 | 1 | ..... | ..... | 6 | 1.56 | 39.5 |
| Hernosand | N. 62 32 | E. 17 57 | 1.20 p.m. | 46 | 14 | 29.83 | 757.6 | 29.88 | 758 9 | 67.6 | 19.8 | 58 | 4 | 2 | 1 | 6 | 6 | 2 | 5 | 5 | ..... | ..... | ..... | 4 | 2.50 | 63.5 |
| Stockholm | N. 59 20 | E. 18 04 | 1.20 p.m. | 144 | 44 | 29.73 | 755.2 | 29.91 | 759.7 | 68.9 | 20.5 | 54 | 1 | 1 | 4 | 7 | 6 | 2 | 6 | 2 | ..... | ..... | ..... | 5 | 1.65 | 41.8 |
| Wisby | N. 57 39 | E. 18 19 | 1.21 p.m. | 52 | 16 | 29.86 | 758.5 | 29.92 | 760.0 | 66.0 | 18.9 | 66 | 5 | 1 | 14 | 4 | ..... | 2 | 3 | 2 | ..... | ..... | ..... | 4 | 2.57 | 65.3 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upsala | N. 59 51 | E. 17 37 | 1.19 p.m. | 79 | 24 | 29.79 | 756.7 | 29.88 | 758.9 | 68.0 | 20.0 | 59.3 | 3 | 4 | 3 | 9 | 5 | 2 | 2 | 3 | ..... | ..... | ..... | 6 | 2.63 | 66.8 |
| SWISS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Geneva | N. 46 12 | E. 6 08 | 0.33 p m. | 1338 | 408 | 28.66 | 728.0 | 30.03 | 762.8 | 74.1 | 23.4 | 53.5 | 16 | ..... | 5 | 1 | 7 | ..... | ..... | 2 | ..... | ..... | ..... | 5 | 3.85 | 97.8 |
| TURKISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Constantinople | N 41 00 | E. 28 59 | 2.04 p.m. | 230 | 70 | ..... | ..... | 29.91 | 759.7 | 84.6 | 29.2 | 57 | 9 | 3 | 2 | 2 | ..... | ..... | ..... | 10 | 5 | ..... | ..... | 4 | 1.57 | 39.8 |
| Valona | N. 40 27 | E. 19 27 | 1.26 p.m. | 105 | 32 | ..... | ..... | 30.13? | 765.2? | 81.3 | 27.4 | ..... | ..... | 2 | 3 | 1 | 1 | 4 | 1 | 19 | ..... | ..... | ..... | 2 | 1.30 | 33.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beirut | N. 33 54 | E. 35 28 | 2.30 p.m. | 111 | 34 | ..... | ..... | 29.78 | 756.5 | 84.4 | 29.1 | 57.9 | 2 | 4 | 7 | 18 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 0.01 | 0.3 |
| Sanakov.t | N. 42 12 | E. 23 42 | 1.43 p m. | ? | ? | 26.78 | 680.2 | ..... | ..... | 69.0 | 20.6 | 83.6 | ..... | ..... | 3 | 1 | ..... | 3 | 1 | 1 | 13 | ..... | ..... | 5 | 1.22 | 31.0 |
| UNITED STATES. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *New Eng'd states* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastport | N. 44 54 | W. 66 59 | 7.40 a.m. | 61 | 18 | 29.72 | 754.9 | 29.78 | 756 4 | 57.6 | 14.2 | 84.8 | 3 | 5 | 3 | 2 | 6 | 2 | ..... | 4 | 6 | 4191 | 6745 | 6 | 8.46 | 215.4 |
| Portland | N. 43 39 | W. 70 15 | 7.27 a.m. | 45 | 14 | 29.76 | 755 9 | 29.80 | 756.9 | 64.7 | 18.2 | 77.7 | 5 | 2 | 9 | 6 | 4 | 1 | .... | 4 | ..... | 5454 | 8777 | 4 | 6.78 | 172.2 |
| Mt. Washington | N. 44 16 | W. 71 18 | 7.23 a.m. | 6279 | 1914 | 23.73 | 602.7 | 29.80 | 756.9 | 43.2 | 6.2 | 93.7 | ..... | 14 | 10 | 2 | 1 | 1 | 2 | 1 | ..... | 25815 | 41541 | 5 | 23.90 | 607.0 |
| Boston | N. 42 21 | W. 71 04 | 7.24 a.m. | 142 | 43 | 29.69 | 754.1 | 29.84 | 757.9 | 65.3 | 18.5 | 80.7 | 4 | 4 | 11 | 6 | 1 | 2 | 1 | 2 | ..... | 6808 | 10956 | 5 | 4.25 | 107.9 |
| Block Id | N. 41 10 | W. 71 36 | 7.22 a.m. | 27 | 8 | 29.83 | 757.7 | 29.86 | 758.4 | 64.2 | 17.9 | 86.6 | 4 | 7 | 3 | 7 | 2 | 2 | 1 | 5 | ..... | 9124 | 15166 | 4 | 6.52 | 165.6 |
| New London | N. 41 21 | W. 72 05 | 7.20 a.m. | 47 | 14 | 29.83 | 757.7 | 29.88 | 758.9 | 66.4 | 19.1 | 81.0 | 7 | 3 | 7 | 8 | 2 | ..... | 1 | 2 | 1 | 4696 | 7558 | 4 | 6.02 | 152.9 |
| New Haven | N. 41 18 | W. 72 56 | 7.16 a.m. | 107 | 32 | 29.76 | 755.9 | 29.88 | 758.9 | 64.8 | 18.2 | 80.3 | 8 | 6 | 2 | 6 | 3 | ..... | 2 | 3 | 1 | 4765 | 7668 | 5 | 5.89 | 149.6 |
| *Mid. Atlan. states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Albany | N. 42 39 | W. 73 45 | 7.13 a.m. | 75 | 23 | 29.80 | 756.9 | 29.88 | 758 9 | 67.6 | 19.8 | 70.6 | 6 | 5 | 11 | ..... | 9 | ..... | ..... | ..... | ..... | 4226 | 6801 | 8 | 5.04 | 128.0 |
| New York City | N. 40 43 | W. 74 00 | 7.12 a.m. | 164 | 50 | 29.72 | 754.9 | 29.89 | 759.2 | 66.8 | 19.3 | 79.8 | 6 | 8 | 4 | 5 | 3 | ..... | 1 | 4 | ..... | 7131 | 11476 | 5 | 6.14 | 156.0 |
| Philadelphia | N. 39 57 | W. 75 09 | 7.07 a.m. | 117 | 36 | 29.78 | 756.4 | 29.90 | 759.4 | 67.8 | 19.9 | 83.1 | 7 | 7 | 2 | 6 | 1 | ..... | 2 | 4 | 2 | 6352 | 10222 | 6 | 3.83 | 97.3 |
| Sandy Hook | N. 40 28 | W. 74 00 | 7.12 a.m. | 28 | 8 | 29.86 | 758.4 | 29.90 | 759.4 | 67.6 | 19.8 | 79.3 | 4 | 8 | 5 | 8 | 1 | ..... | 4 | 1 | ..... | 10498 | 16895 | 6 | 6.42 | 163.1 |
| Atlantic City | N. 39 22 | W. 74 25 | 7.10 a.m. | 13 | 4 | 29.87 | 759.7 | 29.88 | 758.9 | 68.5 | 20.3 | 81.0 | ..... | 6 | 4 | 7 | 1 | 6 | 2 | 2 | 3 | 1 | 5228 | 8413 | 6 | 4.73 | 120.1 |
| Barnegat City | N. 39 46 | W. 74 06 | 7.12 a.m. | 22 | 7 | 29.86 | 758.4 | 29.88 | 758.9 | 68.8 | 20.4 | 78.9 | 6 | 8 | 3 | 4 | 1 | 3 | 4 | 2 | ..... | 9394 | 15118 | 6 | 3.73 | 94.7 |
| Cape May | N. 38 56 | W. 74 58 | 7.08 a.m. | 27 | 8 | 29.87 | 758.7 | 29.90 | 759.4 | 70.0 | 21.1 | 83.6 | 1 | 9 | 4 | 4 | 4 | 3 | 2 | 3 | 1 | 10133 | 16307 | 5 | 4.44 | 112.8 |
| Del. Breakwater | N. 38 48 | W. 75 10 | 7.07 a.m. | 20 | 6 | 29.88 | 758.9 | 29.90 | 759.4 | 69.4 | 20.8 | 84.5 | 5 | 3 | 4 | 8 | 4 | 2 | ..... | 5 | ..... | 10542 | 16965 | 5 | 2.12 | 53.8 |
| Baltimore | N. 39 18 | W. 76 37 | 7.02 a.m. | 45 | 14 | 29.88 | 758.9 | 29.93 | 760.2 | 70.9 | 21.6 | 73.4 | 9 | 5 | 5 | 1 | 5 | 1 | 3 | 1 | 1 | 4074 | 6557 | 5 | 9.43 | 239.5 |
| Washington City | N. 38 54 | W. 77 02 | 7.00 a.m. | 106 | 32 | 29.82 | 757.4 | 29.93 | 760 2 | 69.1 | 20.6 | 80.3 | 4 | 8 | 5 | 5 | 3 | ..... | ..... | 4 | 2 | 3869 | 6226 | 5 | 7.39 | 187.7 |
| Chincoteague | N. 37 55 | W. 75 23 | 7.06 a.m. | 8 | 2 | 29.90 | 759.4 | 29.91 | 759.7 | 71.1 | 21.7 | 87.7 | 7 | 7 | 2 | 4 | 7 | 3 | ..... | 1 | ..... | 6086 | 9794 | 6 | 5.92 | 150.4 |
| Cape Henry | N. 36 56 | W. 76 00 | 7.04 a.m. | 16 | 5 | 29.91 | 759.7 | 29.93 | 760.2 | 72.7 | 22.6 | 81.8 | 4 | 4 | 1 | 12 | 7 | 1 | 1 | 1 | ..... | 8199 | 13195 | 5 | 7.64 | 194.1 |
| Lynchburg | N. 37 25 | W. 79 09 | 6.52 a.m. | 652 | 199 | 29.26 | 743.2 | 29.93 | 760.2 | 72.0 | 22.2 | 72.8 | 1 | 5 | 5 | 9 | ..... | ..... | 1 | 2 | 8 | 2174 | 3499 | 4 | 2.32 | 58.9 |
| Norfolk | N. 36 51 | W. 76 17 | 7.03 a.m. | 30 | 9 | 29.91 | 759.7 | 29.94 | 760.5 | 74.4 | 23.6 | 80.5 | 6 | ..... | 5 | 13 | 3 | ..... | ..... | 3 | 1 | 5227 | 8411 | 6 | 7.06 | 179.3 |
| *S. Atlantic states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kittyhawk | N. 36 00 | W. 75 42 | 7.05 a.m. | 22 | 7 | 29.93 | 760.2 | 29.95 | 760.7 | 75.1 | 23.9 | 83.7 | 5 | 3 | 6 | 13 | 1 | 1 | 1 | 1 | ..... | 10004 | 16100 | 5 | 10.75 | 273.3 |
| Hatteras | N. 35 15 | W. 75 40 | 7.05 a.m. | 12 | 4 | 29.93 | 760.2 | 29.94 | 760.5 | 75.9 | 24.4 | 86.0 | 3 | 3 | 4 | 11 | 1 | 3 | 1 | 2 | 3 | 7805 | 12562 | 4 | 10.51 | 267.0 |
| Fort Macon | N. 34 42 | W. 76 40 | 7.01 a.m. | 11 | 3 | 29.96 | 761.0 | 29.97 | 761.2 | 77.6 | 25.3 | 83.2 | ... | 6 | 2 | 17 | 2 | 1 | ..... | 3 | ..... | 9128 | 14689 | 4 | 4.36 | 110.7 |
| Smithville | N. 33 55 | W. 78 01 | 6.56 a.m. | 34 | 10 | 29.93 | 760.2 | 29.96 | 761.0 | 78.2 | 25.7 | 83.2 | 4 | 2 | 11 | 8 | 3 | ... | 1 | 1 | 1 | 9210 | 14822 | 4 | 7.32 | 185.9 |
| Wilmington | N. 34 14 | W. 77 57 | 6.56 a.m. | 52 | 16 | 29.92 | 760.0 | 29.97 | 761.2 | 76.8 | 24.9 | 84.5 | 2 | 4 | 4 | 14 | 1 | ..... | 1 | 3 | 3 | 4369 | 7031 | 5 | 8.29 | 210.6 |
| Charlotte | N. 35 13 | W. 80 51 | 6.44 a.m. | 808 | 246 | 29.13 | 739.9 | 29.96 | 761.0 | 72.1 | 22.3 | 79.7 | 5 | 1 | 2 | 16 | 4 | ..... | ..... | 3 | ..... | 3260 | 5246 | 5 | 7.90 | 200.7 |
| Charleston | N. 32 47 | W. 79 56 | 6.48 a.m. | 52 | 16 | 29.91 | 759 7 | 29.95 | 761.0 | 78.9 | 26.1 | 82.4 | 1 | 1 | 7 | 16 | ..... | 1 | ..... | 4 | 1 | 5466 | 8797 | 5 | 9.52 | 241.8 |
| Augusta | N. 33 28 | W. 81 54 | 6.40 a.m. | 183 | 56 | 29.83 | 757.7 | 30.02 | 762.5 | 75.7 | 24.3 | 82.9 | ..... | 3 | 3 | 5 | 9 | 5 | 2 | 4 | ..... | 2493 | 4012 | 6 | 3.25 | 82.5 |
| Savannah | N. 32 05 | W. 81 05 | 6.44 a.m. | 87 | 26 | 29.90 | 759 4 | 29.99 | 761.7 | 79.3 | 26.3 | 79.5 | 3 | 1 | 7 | 12 | 4 | 1 | 2 | 1 | ..... | 4791 | 7710 | 4 | 3.08 | 93.5 |
| Jacksonville | N. 30 20 | W. 81 39 | 6.42 a.m. | 43 | 13 | 29.97 | 761.2 | 30.01 | 762.2 | 80.0 | 26.7 | 83.2 | ..... | 1 | 3 | 16 | 6 | ..... | ..... | 5 | ..... | 5590 | 8996 | 4 | 6.02 | 152.9 |
| *Florida penin'la.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cedar Keys | N. 29 08 | W. 83 02 | 6.36 a.m. | 22 | 7 | 30.00 | 762.0 | 30.02 | 762.5 | 80.8 | 27.1 | 80.6 | 2 | 3 | 9 | 7 | 2 | 2 | 1 | 4 | 1 | 6311 | 10156 | 4 | 1.76 | 44.7 |
| Key West | N. 24 34 | W. 81 49 | 6.41 a.m. | 20 | 6 | 30.02 | 762.5 | 30.04 | 763.0 | 83.9 | 28.8 | 74.0 | .. | 1 | 3 | 4 | 3 | 14 | 2 | 4 | ..... | 5491 | 8837 | 5 | 2.36 | 59.9 |
| Sanford | N. 28 48 | W. 81 23 | 6.42 a.m. | 50 | 15 | 29.95 | 760.7 | 30.00 | 762.0 | 78.5 | 25.8 | 81.6 | ... | 3 | 12 | 10 | 1 | 1 | 1 | 3 | ..... | 3704 | 5961 | 3 | 5.57 | 141.5 |
| *East Gulf states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atlanta | N. 33 45 | W. 84 23 | 6.31 a.m. | 1129 | 344 | 28.85 | 732.8 | 30.00 | 762.0 | 73.0 | 22.8 | 82.7 | 2 | 4 | 12 | 9 | ..... | 1 | 1 | 2 | ... | 5486 | 8826 | 4 | 2.42 | 61.5 |
| Pensacola | N. 30 25 | W. 87 13 | 6.19 a.m. | 30 | 9 | 29.98 | 761.5 | 30.00 | 762 0 | 78.1 | 25.6 | 87.5 | 2 | 2 | 10 | 8 | 2 | 1 | ..... | 2 | 3 | 5218 | 8397 | 4 | 8.79 | 223.3 |
| Mobile | N. 30 41 | W. 88 02 | 6.16 a.m. | 35 | 11 | 29.98 | 761.5 | 30.02 | 762.5 | 76.8 | 24.9 | 88.5 | 4 | 6 | 7 | 9 | 1 | ..... | 2 | ..... | 2 | 4837 | 7784 | 5 | 4 96 | 126.0 |
| Montgomery | N. 32 23 | W. 86 18 | 6.23 a.m. | 219 | 66 | 29.77 | 756.1 | 29.99 | 761.7 | 76.2 | 24.6 | 88.0 | 3 | 3 | 4 | 14 | 1 | 4 | ..... | 1 | 1 | 3372 | 5427 | 4 | 2.80 | 71.1 |
| Vicksburg | N. 32 22 | W. 90 53 | 6.04 a.m. | 244 | 74 | 29.76 | 755.9 | 30.00 | 762.0 | 77.3 | 25.2 | 83.2 | 2 | ..... | ..... | 7 | 9 | 6 | 3 | 2 | 2 | 3825 | 6156 | 4 | 5.75 | 146.0 |
| New Orleans | N. 29 58 | W. 90 04 | 6.08 a.m. | 52 | 16 | 29.95 | 760.7 | 30.00 | 762.0 | 82.1 | 27.8 | 79.7 | 1 | 6 | 8 | 7 | 3 | ..... | 1 | 3 | 2 | 5049 | 8125 | 4 | 4.12 | 104.6 |
| *West Gulf states* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shreveport | N. 32 30 | W. 93 40 | 5.53 a.m. | 227 | 69 | 29.76 | 755.9 | 29.99 | 761.7 | 78.6 | 25.9 | 83.6 | 2 | 1 | 1 | 9 | 9 | ..... | 4 | ..... | 5 | 3348 | 5388 | 4 | 0.06 | 1.5 |
| Fort Smith | N. 35 22 | W. 94 24 | 5.50 a.m. | 451 | 137 | 29.48 | 748.8 | 29.94 | 760.5 | 74.0 | 23.3 | 89.2 | 3 | ..... | ..... | ..... | 2 | 1 | 13 | ..... | 12 | 2650 | 4265 | 4 | 5.93 | 151.9 |
| Little Rock | N. 34 45 | W. 92 06 | 6.00 a.m. | 298 | 91 | 29.66 | 753.4 | 29.97 | 761.2 | 75.9 | 24.4 | 93.7 | 1 | 5 | ..... | 7 | 3 | 1 | 3 | 1 | 10 | 3016 | 4854 | 3 | 4.23 | 107.4 |
| Galveston | N. 29 18 | W. 94 47 | 5.49 a.m. | 40 | 12 | 29.96 | 761.0 | 30.00 | 762 0 | 82.2 | 27.9 | 83.9 | ..... | 2 | 6 | 16 | 5 | 1 | ..... | ..... | ..... | 5543 | 8921 | 4 | 1.16 | 29.5 |
| Indianola | N. 28 32 | W. 96 31 | 5.42 a.m. | 26 | 8 | 29.96 | 761.0 | 29.99 | 761.7 | 79.7 | 26.5 | 90.6 | .. | ..... | ..... | 12 | 14 | 1 | ..... | ..... | 4 | 8798 | 14159 | 3 | 0.33 | 8.4 |
| Palestine | N. 31 45 | W. 95 40 | 5.45 a.m. | 533 | 162 | 29.46 | 748.3 | 30.00 | 762.0 | 76.1 | 24.5 | 93.2 | 1 | ..... | ..... | 4 | 20 | 1 | 1 | 2 | 2 | 6203 | 9982 | 4 | 0.06 | 1.5 |
| *Rio Grande valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brownsville | N. 25 53 | W. 97 26 | 5.38 a.m | 57 | 17 | 29.90 | 759.4 | 29.96 | 761 0 | 77.4 | 25.2 | 93.0 | .... | ..... | ..... | 2 | 14 | 11 | ... | ..... | 4 | 7307 | 11759 | 2 | 0.23 | 5.8 |
| Rio Grande City | N. 26 22 | W. 98 45 | 5.33 a m. | 230 | 70 | 29.76 | 755.9 | 29.99 | 761.7 | 78.1 | 25.6 | 82.4 | ..... | ..... | ..... | ..... | ..... | 28 | 2 | 1 | ..... | 7780 | 12520 | 0 | 0 | 0 |
| *Ohio val. & Tenn.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chattanooga | N. 35 04 | W. 85 15 | 6.27 a.m. | 783 | 239 | 29.18 | 741.2 | 29.98 | 761.5 | 71.4 | 21.9 | 90.5 | 3 | 3 | 8 | 12 | .... | 1 | ..... | 1 | 3 | 3434 | 5526 | 6 | 4.79 | 121 7 |
| Knoxville | N. 35 56 | W. 83 58 | 6.32 a.m. | 980 | 299 | 28.91 | 734.3 | 29.98 | 761.5 | 69.6 | 20.9 | 90.5 | 4 | ..... | 1 | 10 | 1 | ..... | 1 | 7 | 7 | 3520 | 5665 | 5 | 8.59 | 218.2 |
| Memphis | N. 35 09 | W. 90 03 | 6.08 a.m. | 321 | 98 | 29.65 | 753.1 | 29.98 | 761.5 | 77.2 | 25.1 | 81.1 | ..... | 6 | 3 | 6 | 4 | 3 | 1 | 6 | 2 | 3823 | 6152 | 5 | 2.38 | 60.4 |
| Nashville | N. 36 10 | W. 86 47 | 6.21 a.m. | 549 | 167 | 29.39 | 746.5 | 29.95 | 760.7 | 72.6 | 22.6 | 84.4 | 2 | 1 | 6 | 9 | 3 | ..... | 2 | 8 | ..... | 3294 | 5301 | 5 | 3.18 | 80.8 |
| Louisville | N. 38 15 | W. 85 45 | 6.25 a.m. | 530 | 162 | 29.40 | 746.7 | 29.96 | 761.0 | 71.8 | 22.1 | 81.4 | 10 | 2 | 3 | 3 | 8 | 3 | 1 | ..... | 1 | 4278 | 6885 | 5 | 3.94 | 100.1 |
| Indianapolis | N. 39 46 | W. 86 10 | 6.23 a.m. | 753 | 229 | 29.15 | 740.4 | 29.93 | 760.2 | 69.3 | 20.7 | 72.9 | 4 | 5 | 3 | 3 | 6 | 2 | 2 | ..... | 6 | 3390 | 5456 | 6 | 6 03 | 153.2 |
| Cincinnati | N. 39 06 | W. 84 30 | 5.30 a.m. | 620 | 189 | 29.31 | 744.5 | 29.91 | 760.5 | 71.1 | 21.7 | 72.7 | 6 | 2 | 6 | ..... | 9 | 2 | 2 | 2 | 3 | 3396 | 5465 | 5 | 1.73 | 43.9 |
| Columbus | N. 39 58 | W. 83 00 | 6.36 a.m. | 805 | 245 | 29.09 | 738.9 | 29.92 | 760.0 | 68.2 | 20.1 | 71.4 | 6 | 5 | 4 | 7 | 3 | 1 | 3 | 1 | 1 | 4358 | 7013 | 5 | 2.16 | 54.9 |
| Pittsburg | N. 40 32 | W. 80 02 | 6.48 a.m. | 766 | 233 | 29.11 | 739.4 | 29.92 | 759.4 | 65.6 | 18.7 | 79.3 | 4 | 9 | 4 | 3 | 5 | 1 | 3 | 1 | 1 | 4093 | 6587 | 5 | 4.04 | 102.6 |
| *Lower lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Roche-ter | N. 43 08 | W. 77 42 | 6.57 a.m. | 621 | 189 | 29.22 | 742.2 | 29.87 | 758.7 | 62.0 | 16.7 | 79.5 | 1 | 3 | 13 | 9 | 2 | 1 | 1 | ..... | 7492 | 12037 | 6 | 3.03 | 77.0 |
| Buffalo | N. 42 53 | W. 78 53 | 6.52 a.m | 690 | 210 | 29.14 | 740.1 | 29.86 | 758.4 | 62.6 | 17.0 | 80.3 | 2 | 4 | 6 | 9 | 4 | ..... | 2 | 1 | 3 | 6185 | 9954 | 5 | 5.11 | 129.8 |
| Oswego | N. 43 29 | W. 76 35 | 7.02 a.m. | 304 | 93 | 29.53 | 750.0 | 29.85 | 758.2 | 62.9 | 17.2 | 81.9 | 2 | 2 | 12 | 3 | 9 | 2 | ..... | 1 | ..... | 5831 | 9384 | 5 | 1.90 | 48.3 |
| Erie | N. 42 07 | W. 80 05 | 6.48 a.m. | 681 | 208 | 29.18 | 741.2 | 29.89 | 759.2 | 65.9 | 18.8 | 74.9 | 3 | 7 | 4 | 6 | 6 | ..... | 1 | 4 | ..... | 6642 | 10753 | 5 | 5.29 | 134.4 |
| Sandusky | N 41 25 | W. 82 40 | 6.37 a.m. | 639 | 195 | 29.24 | 742.7 | 29.90 | 759.4 | 67.5 | 19.7 | 71.4 | 4 | 3 | 7 | 8 | 3 | 2 | 2 | ..... | ..... | 7487 | 12049 | 5 | 5.75 | 146.0 |
| Cleveland | N. 41 30 | W. 81 42 | 6.41 a.m. | 690 | 210 | 29.18 | 741.2 | 29.90 | 759.4 | 65.8 | 18.8 | 73.0 | 4 | 5 | 3 | 4 | 3 | 3 | 5 | 5 | ..... | 5656 | 9102 | 5 | 5.13 | 130.3 |
| Toledo | N. 41 40 | W. 83 34 | 6.34 a.m. | 651 | 198 | 29.22 | 742.2 | 29.89 | 759.2 | 67.2 | 19.6 | 75.6 | 3 | 4 | 7 | 5 | 2 | ..... | 3 | 1 | 6 | 4044 | 6508 | 5 | 3.66 | 93.0 |
| Detroit | N. 42 20 | W. 83 03 | 6.36 a.m. | 661 | 201 | 29.23 | 742.4 | 29.92 | 760.0 | 64.2 | 17.9 | 71.5 | 5 | 8 | 5 | 6 | 1 | 3 | 1 | 1 | 1 | 5878 | 9460 | 4 | 3.76 | 95.5 |
| *Upper lake region* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alpena | N. 45 05 | W. 83 30 | 6.34 a.m. | 609 | 185 | 29.22 | 742.2 | 29.86 | 758.4 | 58.2 | 14.6 | 80.7 | ..... | 4 | 15 | 2 | 2 | 1 | 4 | 1 | 2 | 5959 | 9590 | 6 | 2.38 | 60.5 |
| Escanaba | N. 45 48 | W. 87 05 | 6.20 a.m. | 613 | 187 | 29.21 | 741.9 | 29.85 | 758.2 | 57.5 | 14.2 | 78.3 | 11 | 4 | 9 | 2 | 2 | 1 | 1 | 1 | ..... | 5843 | 9403 | 5 | 3.01 | 76.5 |
| Grand Haven | N. 43 05 | W. 86 18 | 6.23 a.m. | 620 | 189 | 29.26 | 743.2 | 29.91 | 759.7 | 65.3 | 18.5 | 76.6 | 4 | 2 | 8 | 2 | 4 | 3 | 4 | 2 | 2 | 6339 | 10202 | 5 | 4.01 | 101.9 |
| Mackinaw City | N. 45 47 | W. 84 39 | 6.30 a.m. | 605 | 184 | 29.23 | 742.4 | 29.87 | 758.7 | 59.5 | 15.3 | 78.2 | 2 | 7 | 4 | 5 | 2 | 1 | 5 | ..... | 5 | 6265 | 10082 | 5 | 2.51 | 63.8 |
| Marquette | N. 46 34 | W. 87 24 | 6.18 a.m. | 673 | 205 | 29.17 | 740.9 | 29.88 | 758.9 | 58.4 | 14.7 | 75.3 | 5 | 8 | 11 | 2 | 1 | 2 | 1 | ..... | 2 | 4826 | 7766 | 4 | 2.45 | 62.2 |
| Port Huron | N. 43 00 | W. 82 26 | 6.38 a.m | 633 | 193 | 29.23 | 742.4 | 29.89 | 759.2 | 60.5 | 15.8 | 84.6 | 3 | 4 | 5 | 4 | 3 | 3 | 1 | 3 | 3 | 5585 | 8988 | 4 | 2.04 | 51.8 |
| Chicago | N. 41 52 | W. 87 38 | 6.18 a.m. | 661 | 201 | 29.22 | 742.2 | 29.92 | 760.0 | 66.1 | 18.9 | 76.2 | 7 | 5 | 5 | 2 | 5 | 1 | 1 | 4 | 1 | 4293 | 6909 | 5 | 3.71 | 94.2 |
| Milwaukee | N. 43 02 | W. 87 54 | 6.16 a.m. | 697 | 212 | 29.17 | 740.9 | 29.90 | 759.4 | 62.4 | 16.9 | 82.5 | 5 | 11 | 3 | 2 | ..... | 3 | 1 | 3 | 3 | 6020 | 9688 | 5 | 3.80 | 96.5 |
| Duluth | N. 46 48 | W. 92 06 | 6.00 a.m. | 687 | 209 | 29.18 | 741.2 | 29.90 | 759.4 | 60.5 | 15.8 | 76.2 | 1 | 5 | 10 | ..... | 2 | ..... | 4 | 7 | 2 | 6446 | 10374 | 4 | 3.45 | 87.6 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea | | Result of Simultaneous Observations for July, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| U. S.—Continued. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Upper Miss. val.* | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Saint Paul | N. 44 58 | W. 93 03 | 5.56 a.m. | 801 | 244 | 29.07 | 738.4 | 29.90 | 759.4 | 63.0 | 17.2 | 83.8 | 1 | 7 | 7 | 1 | 1 | 4 | 1 | 2 | 7 | 4632 | 7454 | 4 | 2.93 | 74.4 |
| La Crosse | N. 43 49 | W. 91 15 | 6.03 a.m. | 725 | 221 | 29.15 | 740.4 | 29.90 | 759.4 | 65.8 | 18.8 | 75.4 | 4 | 5 | 4 | 6 | 8 | ..... | ..... | ..... | 4 | 4211 | 6777 | 4 | 4.58 | 116.3 |
| Davenport | N. 41 30 | W. 90 38 | 6.06 a.m. | 615 | 187 | 29.28 | 743.7 | 29.91 | 759.7 | 66.0 | 18.9 | 79.5 | 2 | 8 | 3 | 5 | ..... | 4 | 4 | 5 | .... | 5111 | 8225 | 5 | 4.51 | 114.6 |
| Des Moines | N. 41 35 | W. 93 37 | 5.54 a.m. | 849 | 259 | 29.06 | 738.1 | 29.94 | 760.5 | 61.9 | 18.3 | 83.8 | 6 | 1 | 1 | 3 | ..... | 6 | 3 | 3 | 8 | 3448 | 5549 | 5 | 7.16 | 181.9 |
| Dubuque | N. 42 30 | W. 90 44 | 6.05 a.m. | 665 | 203 | 29.24 | 742.7 | 29.93 | 760.2 | 63.5 | 17.5 | 80.5 | 2 | 8 | 3 | ..... | .... | 6 | 1 | 1 | 10 | 3093 | 4978 | 5 | 5.30 | 134.6 |
| Keokuk | N. 40 22 | W. 91 26 | 6.02 a.m. | 618 | 188 | 29.23 | 744.0 | 29.92 | 760.0 | 69.6 | 20.9 | 78.4 | 5 | 5 | 1 | 4 | 2 | 4 | 4 | 4 | 2 | 4730 | 7612 | 4 | 2.30 | 58.4 |
| Cairo | N. 37 00 | W. 89 10 | 6.11 a.m. | 377 | 115 | 29.59 | 751.6 | 29.96 | 761.0 | 74.1 | 23.4 | 88.0 | 6 | 2 | 3 | 3 | 11 | 2 | 1 | 3 | ..... | 4255 | 6848 | 5 | 7.34 | 186.4 |
| Springfield | N. 39 48 | W. 89 39 | 6.10 a.m. | 644 | 196 | 29.28 | 743.7 | 29.94 | 760 5 | 69.6 | 20.9 | 76.7 | 2 | 5 | 2 | 5 | 3 | 6 | 1 | 3 | 4 | 4310 | 6984 | 5 | 3.62 | 91.9 |
| Saint Louis | N. 38 38 | W. 90 12 | 6.07 a.m. | 583 | 178 | 29.34 | 745.2 | 29.94 | 760.5 | 72.9 | 22.7 | 82.1 | 3 | 2 | 6 | 5 | 1 | 6 | 2 | 5 | 1 | 7151 | 11508 | 6 | 2.06 | 72.6 |
| *Missouri valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leavenworth | N. 39 19 | W. 94 57 | 5.48 a.m. | 842 | 256 | 29.08 | 738.6 | 29.94 | 760.5 | 71.1 | 21.7 | 79.6 | 4 | 3 | ..... | ..... | 7 | ..... | 2 | 3 | 12 | 3323 | 5348 | 5 | 9.43 | 239.5 |
| Omaha | N. 41 16 | W. 95 56 | 5.44 a.m. | 1113 | 339 | 28 79 | 731.3 | 29.92 | 760.0 | 68.3 | 20.2 | 85.6 | 9 | 2 | ..... | 3 | 7 | 5 | 2 | 2 | 1 | 5385 | 8666 | 5 | 10.35 | 262.9 |
| Fort Bennett | N. 44 43 | W. 100 39 | 5.26 a.m. | 1510 | 457 | 28.36 | 720.3 | 29.90 | 759 4 | 62.1 | 16.7 | 84.6 | 2 | 6 | ..... | 2 | ..... | 8 | ..... | 9 | 4 | 5752 | 9257 | 6 | 3.79 | 96.3 |
| Huron | N. 44 21 | W. 98 09 | 5.35 a.m. | 1305 | 398 | 28.57 | 725.7 | 29.89 | 759.2 | 60.0 | 15.6 | 89.9 | 3 | 8 | 1 | ..... | 2 | 6 | 6 | 4 | 1 | 5624 | 9051 | 5 | 5.51 | 140.0 |
| Yankton | N. 42 54 | W. 97 28 | 5.38 a.m. | 1228 | 374 | 28.66 | 728.0 | 29.93 | 760.2 | 64.6 | 18.1 | 87.4 | 4 | 6 | 1 | 6 | 2 | 1 | 5 | 5 | 1 | 5446 | 8764 | 5 | 4.63 | 117.6 |
| *Extreme N'thwest.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moorhead | N. 46 52 | W. 96 44 | 5.41 a.m. | 923 | 281 | 28.94 | 735.1 | 29.90 | 759 4 | 57.0 | 13.9 | 85.0 | 8 | 5 | 3 | 1 | 8 | 3 | 1 | 1 | 1 | 4723 | 7601 | 5 | 7.32 | 185.9 |
| Saint Vincent | N. 48 56 | W. 97 14 | 5.39 a.m. | 804 | 245 | 29.05 | 738.1 | 29.90 | 759.4 | 53.1 | 11.7 | 93.1 | 1 | 11 | 5 | 1 | 3 | 4 | 1 | 3 | 2 | 5261 | 8467 | 5 | 3.47 | 88.1 |
| Bismarck | N. 46 47 | W. 100 38 | 5.26 a.m. | 1694 | 516 | 28 15 | 715.0 | 29.88 | 758.9 | 57.4 | 14.1 | 88.4 | 4 | 3 | 1 | 2 | 3 | 2 | 2 | 13 | 4914 | 7908 | 5 | 3.02 | 91.9 |
| Fort Buford | N. 48 00 | W. 103 56 | 5.12 a.m. | 1930 | 588 | 27.93 | 709.4 | 29.89 | 759.2 | 55.7 | 13.2 | 88.7 | 2 | 2 | 8 | 4 | ..... | 2 | 6 | 7 | .... | 7339 | 11811 | 6 | 1.87 | 47.5 |
| Fort Totten | N. 47 57 | W. 98 57 | 5.32 a.m. | 1500 | 457 | 28.33 | 719 6 | ..... | ..... | 57.3 | 14.1 | 85.2 | 3 | 6 | 2 | 6 | 3 | 7 | 2 | 2 | ..... | 7974 | 12833 | 5 | 3.05 | 77.5 |
| *Northern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Assiniboine | N. 48 32 | W. 109 42 | 4.49 a.m. | 2720 | 829 | 27.15 | 689.6 | 29.89 | 759.2 | 54.7 | 12.6 | 75.7 | ..... | 6 | 15 | 1 | ..... | 4 | ..... | 3 | 2 | 7830 | 12601 | 4 | 9.67 | 245.6 |
| Fort Benton *b* | N. 47 50 | W. 110 40 | 4.45 a.m. | 2681 | 817 | 27.20 | 690.9 | 29.90 | 759.4 | 56.5 | 13.6 | 75.8 | 1 | 1 | 0 | 7 | 1 | 3 | 3 | 5 | 2 | 5777 | 9297 | 5 | 3.09 | 78.5 |
| Fort Custer | N. 45 42 | W. 107 34 | 4.58 a.m. | 3040 | 926 | 26.82 | 681.2 | 29.84 | 757.9 | 55.7 | 13.2 | 80.2 | 2 | 2 | 7 | ..... | ..... | 1 | 11 | 5 | 3 | 5200 | 8497 | 4 | 0.80 | 20.3 |
| Fort Maginnis | N. 47 12 | W. 109 10 | 4.51 a.m. | 4340 | 1324 | 25 60 | 650.2 | 29.91 | 759.7 | 52.2 | 11.2 | 62.7 | ..... | 3 | 5 | 12 | 1 | 4 | 2 | 4 | ..... | 7269 | 11698 | 4 | 0.64 | 16.3 |
| Fort Shaw | N. 47 31 | W. 111 48 | 4.41 a.m. | 3550 | 1082 | 26.41 | 670.8 | 29.92 | 760.0 | 52.0 | 11.1 | 72.5 | 1 | 2 | 19 | 3 | ..... | 3 | ..... | 2 | 1 | 5600 | 9012 | 3 | 2.66 | 67.6 |
| Helena | N. 46 34 | W. 112 04 | 4.40 a.m. | 4044 | 1232 | 25.86 | 656.8 | 29.88 | 758 9 | 53.7 | 12.1 | 70.5 | 3 | 1 | 6 | 15 | ..... | ..... | ..... | 4 | 2 | 4979 | 8013 | 4 | 3.25 | 82.5 |
| Poplar River | N. 48 08 | W 105 10 | 5.07 a.m. | 2030 | 619 | ..... | ..... | ..... | ..... | 55.3 | 12.9 | 81.0 | 7 | ..... | 8 | 1 | 2 | 4 | 8 | 1 | ..... | ..... | ..... | 6 | 3.40 | 86.4 |
| Deadwood | N. 44 23 | W. 103 43 | 5.13 a.m. | 4600 | 1402 | 25 43 | 645 9 | 29.86 | 758 4 | 55.3 | 12.9 | 79.5 | 3 | ..... | 2 | 5 | 7 | 2 | 5 | 5 | 2 | 3642 | 5861 | 4 | 3.51 | 89.2 |
| Cheyenne | N. 41 08 | W. 104 48 | 5.09 a.m. | 6105 | 1861 | 24.10 | 612.1 | 29.81 | 757.2 | 54.9 | 12.7 | 59.6 | ..... | 16 | 4 | 5 | 4 | 1 | ..... | ... | 1 | 8138 | 13097 | 2 | 0.60 | 15.2 |
| North Platte | N. 41 08 | W. 100 45 | 5.25 a.m. | 2841 | 866 | 27.07 | 687.6 | 29.87 | 758.7 | 65.5 | 18.6 | 85.0 | 3 | 1 | 4 | ..... | 3 | 7 | 5 | 4 | 4 | 7184 | 11561 | 5 | 2.19 | 55.6 |
| *Middle slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pike's Peak | N. 38 50 | W. 105 02 | 5.08 a.m. | 14134 | 4308 | 18.09 | 459.5 | 29.87 | 758.7 | 35.2 | 1.8 | 70.1 | ..... | 6 | 15 | 8 | 1 | ..... | ..... | 1 | ..... | 12831 | 20654 | 3 | 0.41 | 10.4 |
| Denver | N. 39 45 | W. 105 00 | 5.08 a.m. | 5294 | 1614 | 24.81 | 630.2 | 29.82 | 757.4 | 62.9 | 17.2 | 61.3 | 2 | 3 | .... | 2 | 23 | 1 | ..... | ..... | ..... | 5073 | 8164 | 3 | 0.65 | 16.5 |
| W. Las Animas | N. 38 04 | W. 103 07 | 5.16 a.m. | 3905 | 1190 | 26.04 | 661.4 | 29.79 | 756.7 | 63.1 | 17.3 | 76.6 | 2 | 2 | 11 | 3 | 1 | ..... | 4 | 5 | 3 | 5539 | 8914 | 4 | 1.75 | 44.4 |
| Dodge City | N. 37 45 | W. 100 00 | 5.28 a.m. | 2517 | 767 | 27.38 | 695.4 | 29.88 | 758.9 | 68.8 | 20.4 | 80.4 | 1 | 3 | 3 | 1 | 2 | 7 | 2 | 12 | ..... | 9795 | 15763 | 4 | 6.40 | 162.6 |
| Fort Elliott | N. 35 30 | W. 100 21 | 5.27 a.m. | 2650 | 808 | 27.22 | 691.4 | 29.86 | 753.4 | 70.1 | 21.2 | 74.5 | 2 | ..... | ..... | 2 | 10 | 5 | 1 | 2 | 9 | 7572 | 12186 | 3 | 1.29 | 32.8 |
| *Southern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Sill | N. 34 40 | W. 98 23 | 5.34 a.m. | 1200 | 366 | 28.71*d* | 729.2*d* | 29.91*d* | 759 7*d* | 75.0 | 23.9 | 78.5 | 2 | ..... | 3 | ..... | 7 | 4 | ..... | 1 | 14 | 7618 | 12260 | 4 | 0.23 | 5.8 |
| Fort Concho | N 31 25 | W. 100 24 | 5.26 a.m. | 1900 | 579 | 28 09 | 713.5 | 29.97 | 761.2 | 75.0 | 23.9 | 72.3 | ..... | 2 | ..... | 3 | 17 | 2 | 4 | 1 | 2 | 6900 | 11104 | 2 | 2.37 | 60.2 |
| Fort Stockton | N. 30 53 | W. 102 53 | 5.16 a.m. | 3010 | 917 | 26.96 | 684.8 | 29.90 | 759.4 | 72.6 | 22.6 | 72.5 | 1 | 1 | ..... | 1 | 4 | 17 | ..... | ..... | 7 | 7699 | 12390 | 3 | 0.52 | 13.2 |
| Fort Davis | N. 30 38 | W. 103 56 | 5.12 a.m. | 4928 | 1502 | 25 23 | 640.8 | 29.86 | 758.4 | 68.9 | 20.5 | 75.4 | 1 | ..... | 1 | 9 | 3 | 1 | 5 | ..... | 11 | 4211 | 6777 | 1 | 0.35 | 8.9 |
| *Southern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Thomas | N. 33 04 | W. 110 02 | 4.48 a.m. | 2710 | 826 | 27 21 | 691.1 | 29.80 | 756.9 | 71.7 | 22.1 | 51.4 | 1 | 1 | 10 | ..... | ..... | ..... | ..... | ..... | 19 | ..... | ..... | 2 | 0.36 | 9.1 |
| Fort Apache | N. 33 48 | W. 109 57 | 4.48 a.m. | 5050 | 1539 | 25 06 | 636.5 | 29.80 | 756 9 | 58.5 | 14.7 | 69.9 | ..... | ..... | ..... | 2 | 2 | 5 | 18 | 4 | ..... | 4719 | 7594 | 2 | 0.14 | 3.6 |
| Fort Grant | N. 32 39 | W. 109 57 | 4.48 a.m. | 4856 | 1480 | 25.26 | 641.6 | 29.83 | 757.7 | 73.0 | 22.8 | 40.2 | 7 | 2 | ..... | ..... | 1 | 0 | 9 | 5 | 1 | 4703 | 7569 | 2 | 0.67 | 17.0 |
| Prescott | N. 34 33 | W. 112 28 | 4.38 a.m. | 5389 | 1642 | 24.80 | 629.9 | 29.83 | 757.7 | 57.8 | 14.3 | 71.5 | ..... | ..... | ..... | 4 | ..... | ..... | ..... | ..... | 27 | 4015 | 7427 | 1 | 1.33 | 33.8 |
| Yuma | N. 32 45 | W. 114 36 | 4.30 a.m. | 141 | 43 | 29.64 | 752.8 | 29.78 | 759.4 | 79.4 | 26.3 | 61.8 | ..... | 1 | 1 | 7 | 1 | 9 | 7 | 1 | 4 | 4369 | 7031 | 2 | 0.01 | 0.3 |
| El Paso | N. 31 47 | W. 106 30 | 5.02 a.m. | 3764 | 1147 | 26.25 | 666.7 | 29.85 | 758.2 | 74.3 | 23.5 | 51.1 | 1 | 4 | 7 | 1 | ..... | ..... | 1 | 8 | 9 | 2281 | 3671 | 3 | 0.46 | 11.7 |
| *Middle plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salt Lake City | N. 40 46 | W. 111 54 | 4.40 a.m. | 4348 | 1325 | 25.62 | 650.7 | 29.80 | 756.9 | 63.3 | 17.4 | 38.5 | ..... | 1 | ..... | ..... | ..... | 9 | 4 | 4 | 13 | 4023 | 6474 | 1 | 0.27 | 6.9 |
| *Northern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boise City | N. 43 37 | W. 116 08 | 4.24 a.m. | 2750 | 838 | 27.15 | 689.6 | 29.87 | 758.7 | 58.4 | 14.7 | 72.5 | ..... | 5 | 3 | 2 | 4 | 5 | 6 | 3 | 3 | 3236 | 5208 | 2 | 0.60 | 15.2 |
| Lewiston | N. 46 28 | W. 117 05 | 4.20 a.m. | 780 | 238 | 29.16 | 740.7 | 29.98 | 761.5 | 60.2 | 15.7 | 79.1 | ..... | 1 | ..... | ..... | ..... | 2 | ..... | 5 | 23 | 1268 | 2041 | 3 | 1.30 | 33.0 |
| Spokane Falls | N. 47 40 | W. 117 25 | 4.18 a.m. | 1910? | 582? | 27.93 | 709.4 | 29.91 | 759.7 | 55.0 | 12.8 | 76.9 | 1 | 1 | 1 | 6 | 3 | ..... | 1 | 5 | 13 | 3587 | 5773 | 5 | 1.06 | 26.9 |
| Dayton | N. 46 19 | W. 117 56 | 4.16 a.m. | 1667 | 508 | 28.26 | 717.8 | 29.98 | 761 5 | 54.6 | 12.6 | 71.7 | ..... | ... | ... | 11 | 5 | 3 | 5 | 2 | 5 | 4334 | 6975 | 4 | 0.32 | 8.1 |
| *N. Pac. coast reg'n* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Canby | N. 46 16 | W. 124 04 | 3.52 a.m. | 179 | 54 | 29.88 | 758.9 | 30.07 | 763.8 | 56.0 | 13.3 | 88.9 | 13 | 2 | 12 | ..... | ..... | 4 | ..... | ..... | ..... | 4239 | 6822 | 7 | 1.73 | 43.9 |
| Olympia | N. 47 03 | W. 122 53 | 3.57 a.m. | 36 | 11 | 30.01 | 762.2 | 30.05 | 763.3 | 52.4 | 11.3 | 89.6 | 2 | ..... | ..... | 2 | 3 | ..... | ..... | 1 | 23 | 1898 | 3055 | 4 | 0.60 | 15.2 |
| Tatoosh Id | N. 48 23 | W. 124 44 | 3.49 a.m. | 86 | 26 | 29.96 | 761.0 | 30.05 | 763 3 | 52.9 | 11.6 | 92.6 | ..... | 1 | 5 | 11 | 2 | ..... | 5 | 1 | 6 | 3790 | 6099 | 7 | 1.73 | 43.9 |
| Portland | N. 45 32 | W. 122 43 | 3.57 a.m. | 67 | 20 | 29.97 | 761.2 | 30.04 | 763 0 | 56.9 | 13.8 | 85.0 | 8 | 1 | ..... | ..... | 8 | ..... | 1 | ..... | 13 | 3282 | 5282 | 7 | 1.80 | 45.7 |
| Roseburg | N. 43 13 | W. 123 20 | 3.55 a.m. | 511 | 156 | 29.51 | 749.5 | 30.05 | 763 3 | 54.1 | 12.3 | 83 1 | 1 | 4 | .... | ..... | ..... | ..... | ..... | 2 | 24 | 2346 | 3776 | 7 | 0.05 | 1.3 |
| *Mid Pac. coast reg* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape Mendocino | N. 40 26 | W. 124 24 | 3.50 a.m. | 637 | 194 | 29.31 | 745.2 | 30.02 | 762.5 | 53.2 | 11.8 | 88.5 | 19 | 12 | ... | ..... | ..... | ..... | ..... | ..... | ..... | 16385 | 26368 | 4 | 0.45 | 11.4 |
| Red Bluff | N. 40 10 | W. 122 15 | 3.59 a.m. | 332 | 101 | 29.58 | 751.3 | 29.92 | 760 0 | 64.5 | 18.1 | 60.5 | 10 | 10 | .. | ..... | 7 | 2 | ..... | ..... | 2 | 4134 | 6653 | 1 | 0 | 0 |
| Sacramento | N. 38 35 | W. 121 30 | 4.02 a.m. | 64 | 19 | 29.85 | 758.2 | 29.92 | 760 0 | 61.6 | 16.4 | 73.0 | ..... | ..... | ..... | ..... | 11 | 20 | ..... | ..... | ..... | 5778 | 9299 | 0 | 0 | 0 |
| San Francisco | N. 37 48 | W. 122 26 | 3.58 a.m. | 60 | 18 | 29.90 | 759.4 | 29.97 | 761.2 | 55.7 | 13.2 | 88.1 | ..... | ..... | 5 | 19 | 2 | ..... | ..... | ..... | 5 | 8513 | 13700 | 6 | inap. | inap. |
| *N. Pac. coast reg'n.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Los Angeles | N. 34 03 | W. 118 15 | 4.15 a.m. | 299 | 91 | 29.57 | 751.1 | 29.96 | 761.0 | 59.7 | 15.4 | 89.5 | ..... | ..... | 6 | ..... | ..... | 2 | 1 | 10 | 12 | 3164 | 5092 | 2 | 0.02 | 0.5 |
| San Diego | N. 32 43 | W. 117 10 | 4.19 a.m. | 67 | 20 | 29.85 | 758.2 | 29.92 | 760.0 | 63.5 | 17.5 | 88.9 | 8 | 3 | 3 | 4 | 2 | 1 | ..... | 8 | 2 | 4195 | 6751 | 7 | 0 | 0 |
| *Alaska stations.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ft Saint Michael | N. 63 48 | W. 162 00 | 1.20 a.m. | 30 | 9 | 29.85 | 758.2 | 29.88 | 758 9 | 50.1 | 10.1 | 91.5 | 1 | 1 | 5 | 1 | 11 | 3 | 5 | 2 | 2 | 7815 | 12577 | 9 | 4.00 | 101.6 |
| Sitka | N. 57 03 | W. 135 19 | 3.07 a m. | 63 | 19 | 29.99 | 761.7 | 30.05 | 763.3 | 51.2 | 10.7 | 81.5 | ..... | 3 | 17 | 6 | ..... | 1 | 1 | 2 | 1 | 5229 | 8415 | 8 | 4.78 | 121.4 |
| Unalashka | N 53 53 | W. 166 32 | 1.02 a.m. | 13 | 4 | 29.80 | 756.9 | 29.81 | 757 2 | 48.8 | 9.3 | 83.9 | 1 | 1 | .... | 8 | 11 | 8 | ..... | 2 | ..... | 7878 | 12678 | 8 | 4.31 | 109.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Behring Island | N. 55 12 | E. 165 55 | 11.12 p.m. | 20 | 6 | 29.73 | 755 1 | 29.75 | 755.6 | 46.0 | 7.8 | 96.8 | 3 | 3 | ..... | 1 | 10 | .... | 6 | 5 | 3 | 5978 | 9620 | 7 | 2.27 | 57.7 |
| Bluefields | N. 12 00 | W. 83 43 | 6.31 a.m. | 20 | 6 | 29.91 | 759.7 | 29.93 | 760.2 | 77.5 | 25.3 | 90.9 | 4 | 10 | 1 | 1 | ..... | ..... | 1 | 14 | ..... | ..... | ..... | 8 | 17.06 | 433.3 |
| Bogota | N. 4 36 | W. 74 14 | 7.11 a.m. | 8655 | 2638 | 22 03 | 559.5 | ..... | ..... | 54.7 | 12.6 | 85.6 | 3 | 2 | 2 | ..... | 10 | 3 | ..... | ..... | 11 | ..... | ..... | 6 | 3.53 | 89.7 |
| Fort Chimo | N 59 00 | W. 68 00 | 7.36 a m | 1267 | 387 | 29.84 | 757.9 | 29 98 | 761.5 | 53.4 | 11.9 | 69.0 | 9 | 3 | 1 | 4 | 6 | 4 | ..... | 2 | 2 | ..... | ..... | 6 | 1.40 | 35.6 |
| Paramaribo | N. 5 50 | W. 55 13 | 8.27 a.m. | 6 | 2 | 30.03 | 762.7 | 30.03 | 762.7 | 78.3 | 25.7 | 83 | 1 | ..... | ..... | ..... | ..... | 7 | 20 | 3 | ..... | ..... | ..... | 4 | 8.16 | 207.3 |
| Puerto Berrio | N. 6 22 | W. 74 28 | 7.10 a.m. | 542 | 165 | 29.50? | 749.3? | 30.00? | 763.5? | 79.0 | 26.1 | 92 | 4 | ..... | ..... | ..... | 15 | ..... | ..... | 1 | 10 | ..... | ..... | 6 | 5.46 | 138.7 |
| Rivas | N. 11 26 | W. 85 47 | 6.25 a.m. | 150 | 46 | 29.88 | 758 9 | 29 94 | 760.5 | 77.4 | 25.2 | 86 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 28 | ..... | ..... | ..... | 5 | 4.98 | 126.5 |
| York Factory | N. 57 02 | W. 92 26 | 5.58 a.m. | 55 | 17 | 29.98 | 761.5 | 30.04 | 763.0 | 47.3 | 8.5 | 95.8 | 3 | 7 | 7 | 9 | 4 | ..... | 1 | ..... | ..... | 8830 | 14210 | 5 | 11.70 | 297.2 |

## OCEAN SQUARE DATA FOR JULY, 1884.

| Location of Centre of each Square. | Barometer. | | Temperature. | | Wind Frequency. | | | | | | | | | | Wind force 0–10. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch. | Mill. | Fah. | Cent. | N. | NW. | W. | SW. | S. | SE. | E. | NE. | Calm. | Blank. | |
| ° ° N. 12.5 W. 22.5 | 30.02 | 762.5 | 80.5 | 26.9 | 1 | 1 | | | 1 | | 9 | 19 | | | 3.6 |
| 12.5 27.5 | 30.04 | 763.0 | 80.4 | 26.9 | 2 | | | | | | 12 | 17 | | | 3.7 |
| 12.5 32.5 | 30.05 | 763.3 | 80.8 | 27.1 | | | 1 | 1 | | | 15 | 14 | | | 4.0 |
| 12.5 37.5 | 30.06 | 763.5 | 81.3 | 27.4 | | | | | | | 20 | 5 | | | 4.2 |
| 12.5 42.5 | 30.08 | 764.0 | 81.9 | 27.7 | | | | | | | 24 | 7 | | | 4.2 |
| 12.5 47.5 | 30.08 | 764.0 | 81.9 | 27.7 | | | | | | | 28 | 3 | | | 4.2 |
| 12.5 52.5 | 30.06 | 763.5 | 81.6 | 27.6 | | | | | 1 | | 27 | 1 | 1 | 1 | 3.5 |
| 17.5 22.5 | 30.06 | 763.5 | 79.2 | 26.2 | 2 | | | | | | 6 | 23 | | | 3.7 |
| 17.5 27.5 | 30.08 | 764.0 | 79.2 | 26.2 | | | | | | | 8 | 23 | | | 3.9 |
| 17.5 32.5 | 30.10 | 764.5 | 79.8 | 26.6 | 1 | | | | | | 18 | 12 | | | 4.1 |
| 17.5 37.5 | 30.12 | 765.0 | 80.5 | 26.9 | | | | | | 1 | 24 | 7 | | | 4.1 |
| 17.5 42.5 | 30.13 | 765.3 | 81.1 | 27.3 | | | | | | 7 | 30 | | | | 4.2 |
| 17.5 47.5 | 30.12 | 765.0 | 81.5 | 27.5 | | | | | | 5 | 22 | 2 | | | 4.1 |
| 17.5 52.5 | 30.09 | 764.3 | 82.0 | 27.8 | | | | | | 3 | 26 | | | | 3.9 |
| 17.5 57.5 | 30.07 | 763.8 | 82.3 | 27.9 | | | | | | | 28 | | | | 3.8 |
| 22.5 22.5 | 30.11 | 764.8 | 77.7 | 25.4 | 10 | | | | | | 6 | 15 | | | 3.8 |
| 22.5 27.5 | 30.13 | 765.3 | 78.0 | 25.6 | 6 | | | | | | 9 | 16 | | | 3.9 |
| 22.5 32.5 | 30.15 | 765.8 | 78.8 | 26.0 | 2 | | | | | | 12 | 17 | | | 3.9 |
| 22.5 37.5 | 30.17 | 766.3 | 79.6 | 26.4 | 2 | | | | | | 19 | 10 | | | 3.7 |
| 22.5 42.5 | 30.17 | 766.3 | 80.3 | 26.8 | | 1 | | | | 8 | 22 | | | | 4.0 |
| 22.5 47.5 | 30.16 | 766.1 | 80.6 | 27.0 | 1 | | | | 2 | 13 | 15 | | | | 3.7 |
| 22.5 52.5 | 30.14 | 765.5 | 80.9 | 27.2 | | | | | 3 | 15 | 13 | | | | 3.6 |
| 22.5 57.5 | 30.12 | 765.0 | 81.1 | 27.3 | | | | | 7 | 13 | 11 | | | | 3.9 |
| 22.5 62.5 | 30.11 | 764.8 | 81.3 | 27.4 | | | | 1 | 4 | 14 | 10 | | 2 | | 3.7 |
| 22.5 67.5 | 30.11 | 764.8 | 82.5 | 28.1 | | | 1 | | 5 | 14 | 11 | | | | 3.4 |
| 22.5 72.5 | 30.09 | 764.3 | 83.2 | 28.4 | | | 1 | 1 | 3 | 12 | 12 | 1 | 1 | | 3.9 |
| 27.5 22.5 | 30.15 | 765.8 | 76.1 | 24.5 | 6 | 4 | | | | | 5 | 16 | | | 3.9 |
| 27.5 27.5 | 30.18 | 766.6 | 76.5 | 24.7 | 8 | 1 | | | | | 7 | 15 | | | 3.7 |
| 27.5 32.5 | 30.20 | 767.1 | 77.5 | 25.3 | 5 | 2 | | | | | 16 | 7 | | 1 | 3.4 |
| 27.5 37.5 | 30.22 | 767.6 | 78.5 | 25.8 | 5 | 1 | 1 | | 1 | 5 | 13 | 5 | | | 3.2 |
| 27.5 42.5 | 30.23 | 767.8 | 79.2 | 26.2 | 1 | | 1 | 1 | 7 | 7 | 10 | 4 | | | 3.4 |
| 27.5 47.5 | 30.20 | 767.1 | 79.5 | 26.4 | | | 1 | 1 | 12 | 7 | 10 | | | | 3.5 |
| 27.5 52.5 | 30.17 | 766.3 | 79.5 | 26.4 | | | | | 16 | 8 | 7 | | | | 3.5 |
| 27.5 57.5 | 30.14 | 765.5 | 79.7 | 26.5 | | | | 4 | 14 | 8 | 5 | | | | 3.6 |
| 27.5 62.5 | 30.12 | 765.0 | 80.2 | 26.8 | | | 1 | 4 | 12 | 8 | 3 | | 3 | | 3.7 |
| 27.5 67.5 | 30.10 | 764.5 | 81.3 | 27.4 | | | 4 | 6 | 14 | 4 | 3 | | | | 3.9 |
| 27.5 72.5 | 30.09 | 764.3 | 82.3 | 27.9 | | 1 | 4 | 7 | 11 | 6 | 2 | | | | 3.8 |
| 27.5 77.5 | 30.05 | 763.3 | 83.3 | 28.5 | | | 3 | 5 | 17 | 5 | | | | 1 | 2.6 |
| 32.5 12.5 | 30.10 | 764.5 | 74.5 | 23.6 | 17 | 1 | 4 | | | 1 | 7 | 1 | | | 3.4 |
| 32.5 17.5 | 30.15 | 765.8 | 74.2 | 23.4 | 10 | | 9 | | 1 | | 1 | 8 | 2 | | 2.6 |
| 32.5 22.5 | 30.19 | 766.8 | 74.0 | 23.3 | 6 | 5 | 4 | | | | 5 | 11 | | | 3.4 |
| 32.5 27.5 | 30.22 | 767.6 | 74.7 | 23.7 | 10 | 4 | 2 | | | 1 | 9 | 5 | | | 3.6 |
| 32.5 32.5 | 30.24 | 768.1 | 75.3 | 24.1 | 11 | | 3 | 1 | 1 | 4 | 8 | 2 | | 1 | 3.4 |
| 32.5 37.5 | 30.25 | 768.3 | 76.5 | 24.7 | 6 | | 3 | 4 | 5 | 5 | 5 | 2 | 1 | | 3.1 |
| 32.5 42.5 | 30.21 | 767.3 | 77.6 | 25.3 | 1 | | 3 | 5 | 6 | 4 | 3 | 2 | 3 | 1 | 3.1 |
| 32.5 47.5 | 30.18 | 766.6 | 77.8 | 25.4 | 1 | 1 | 5 | 8 | 8 | 3 | 1 | 1 | 3 | | 3.2 |
| 32.5 52.5 | 30.15 | 765.8 | 77.5 | 25.3 | | 1 | 5 | 7 | 9 | 8 | 1 | | | | 3.6 |
| 32.5 57.5 | 30.12 | 765.0 | 77.5 | 25.3 | | 2 | 4 | 8 | 12 | 5 | | | | | 4.0 |
| 32.5 62.5 | 30.09 | 764.3 | 77.9 | 25.5 | | | 6 | 12 | 7 | 3 | 1 | | | | 4.4 |
| 32.5 67.5 | 30.06 | 763.5 | 78.8 | 26.0 | | 5 | 8 | 9 | 8 | | 1 | | | | 4.2 |
| 32.5 72.5 | 30.03 | 762.7 | 79.4 | 26.3 | 2 | 2 | 6 | 10 | 7 | 2 | | 1 | | 1 | 4.3 |
| 32.5 77.5 | 29.99 | 761.7 | 79.5 | 26.4 | 4 | | 9 | 14 | 2 | | | 2 | | | 3.5 |
| 37.5 12.5 | 30.09 | 764.3 | 72.1 | 22.3 | 3 | 8 | 6 | 6 | | | 1 | 7 | | | 3.9 |
| 37.5 17.5 | 30.14 | 765.5 | 70.4 | 21.3 | 6 | 7 | 8 | 1 | 1 | | 2 | 5 | | 1 | 3.8 |
| 37.5 22.5 | 30.19 | 766.8 | 70.9 | 21.6 | 4 | 10 | 6 | | | 1 | 8 | 2 | | | 3.5 |
| 37.5 27.5 | 30.22 | 767.6 | 72.2 | 22.3 | 4 | 5 | 8 | 1 | 3 | 4 | 4 | | 2 | | 3.0 |
| 37.5 32.5 | 30.19 | 766.8 | 72.4 | 22.4 | 2 | 7 | 3 | 8 | 4 | 1 | 3 | 1 | 1 | 1 | 3.5 |
| 37.5 37.5 | 30.19 | 766.8 | 72.9 | 22.7 | 3 | 3 | 7 | 7 | 6 | 2 | 2 | | | 1 | 3.8 |
| 37.5 42.5 | 30.11 | 764.8 | 73.6 | 23.1 | 5 | 2 | 4 | 11 | 6 | 1 | 2 | | | | 3.9 |
| 37.5 47.5 | 30.13 | 765.3 | 73.5 | 23.1 | 3 | 1 | 5 | 11 | 3 | 4 | 3 | 1 | | | 4.3 |
| 37.5 52.5 | 30.08 | 764.0 | 73.9 | 23.3 | 1 | | 5 | 8 | 7 | 6 | | | 1 | | 4.4 |
| 37.5 57.5 | 30.03 | 762.7 | 73.6 | 23.1 | 1 | 3 | 6 | 10 | 9 | 2 | | | | | 4.7 |
| 37.5 62.5 | 29.99 | 761.7 | 72.8 | 22.7 | 1 | 4 | 4 | 15 | 6 | | | | 1 | | 4.6 |
| 37.5 67.5 | 29.95 | 760.7 | 72.8 | 22.7 | 1 | 4 | 9 | 10 | 7 | | | | | | 4.2 |
| 37.5 72.5 | 29.92 | 760.0 | 72.8 | 22.7 | 1 | 5 | 8 | 8 | 6 | | 2 | 1 | | | 4.1 |
| 42.5 12.5 | 30.05 | 763.3 | 68.9 | 20.5 | 5 | 5 | 7 | 6 | 2 | | 1 | 5 | | | 4.1 |
| 42.5 17.5 | 30.08 | 764.0 | 67.1 | 19.5 | 3 | 8 | 11 | 1 | 3 | | 3 | | | 2 | 4.5 |
| 42.5 22.5 | 30.11 | 764.8 | 67.1 | 19.5 | 1 | 11 | 8 | 4 | 1 | 2 | | | 3 | 1 | 4.0 |
| 42.5 27.5 | 30.11 | 764.8 | 67.6 | 19.8 | 1 | 10 | 8 | 5 | 5 | | | 1 | 1 | | 4.5 |
| 42.5 32.5 | 30.12 | 765.0 | 67.9 | 19.9 | 2 | 10 | 6 | 7 | 4 | 1 | | | 1 | | 4.4 |
| 42.5 37.5 | 30.12 | 765.0 | 67.8 | 19.9 | 2 | 6 | 5 | 8 | 6 | 1 | 1 | 2 | | | 4.8 |
| 42.5 42.5 | 30.10 | 764.5 | 69.1 | 20.6 | 2 | 5 | 5 | 10 | 4 | | 3 | 1 | 1 | | 4.2 |
| 42.5 47.5 | 30.05 | 763.3 | 66.6 | 19.2 | 1 | 1 | 8 | 7 | 6 | 3 | | 1 | 4 | | 3.8 |
| 42.5 52.5 | 29.98 | 761.5 | 66.3 | 19.1 | 1 | 3 | 5 | 13 | 1 | 3 | 1 | | 1 | 1 | 4.2 |
| 42.5 57.5 | 29.93 | 760.2 | 66.6 | 19.2 | 1 | 4 | 4 | 10 | 6 | 3 | 1 | 1 | | 1 | 4.5 |
| 42.5 62.5 | 29.88 | 758.9 | 64.4 | 18.0 | 3 | 2 | 8 | 8 | 7 | 2 | | | 1 | | 4.2 |
| 42.5 67.5 | 29.83 | 757.7 | 61.6 | 16.4 | 2 | 5 | 5 | 6 | 7 | 1 | 1 | 3 | 1 | | 3.2 |
| 47.5 12.5 | 29.94 | 760.5 | 64.6 | 18.1 | 1 | 5 | 11 | 10 | 2 | 2 | | | | | 4.8 |
| 47.5 17.5 | 29.92 | 760.0 | 62.7 | 17.1 | | 6 | 14 | 7 | 4 | | | | | | 5.0 |
| 47.5 22.5 | 29.93 | 760.2 | 61.8 | 16.6 | 3 | 10 | 9 | 6 | 3 | | | | | | 5.0 |
| 47.5 27.5 | 29.95 | 760.7 | 60.8 | 16.0 | 2 | 11 | 8 | 5 | 5 | | | | | | 5.1 |
| 47.5 32.5 | 29.98 | 761.5 | 60.2 | 15.7 | 4 | 10 | 5 | 9 | 2 | | 1 | | | | 5.2 |
| 47.5 37.5 | 29.99 | 761.7 | 59.4 | 15.2 | 3 | 9 | 6 | 9 | 2 | | 1 | 1 | | | 4.9 |
| 47.5 42.5 | 29.98 | 761.5 | 57.3 | 14.1 | 1 | 9 | 4 | 10 | 3 | 1 | 1 | 1 | 1 | | 4.6 |
| 47.5 47.5 | 29.96 | 761.0 | 53.3 | 11.8 | 1 | 2 | 11 | 4 | 6 | 2 | 3 | 2 | | | 4.5 |
| 52.5 12.5 | 29.82 | 757.4 | 60.1 | 15.6 | 1 | 4 | 8 | 7 | 9 | 2 | | | | | 5.1 |
| 52.5 17.5 | 29.78 | 756.4 | 58.3 | 14.6 | 2 | 5 | 9 | 7 | 2 | 4 | 2 | | | | 5.0 |
| 52.5 22.5 | 29.78 | 756.4 | 58.3 | 14.6 | 3 | 8 | 6 | 8 | 2 | 2 | 1 | 1 | | | 5.3 |
| 52.5 27.5 | 29.79 | 756.7 | 54.9 | 12.7 | 6 | 6 | 5 | 9 | 3 | | | 2 | | | 5.4 |
| 52.5 32.5 | 29.81 | 757.2 | 53.5 | 11.9 | 6 | 5 | 9 | 5 | 2 | 1 | | 3 | | | 4.9 |
| 52.5 37.5 | 29.85 | 758.2 | 52.6 | 11.4 | 6 | 8 | 7 | 4 | 2 | 3 | 1 | | | | 5.0 |
| 52.5 42.5 | 29.86 | 758.4 | 50.4 | 10.2 | 4 | 7 | 7 | 2 | 8 | | 2 | 1 | | | 4.9 |
| 52.5 47.5 | 29.86 | 758.4 | 48.3 | 9.1 | 3 | 6 | 4 | 4 | 2 | 3 | 3 | 4 | | 2 | 4.7 |
| 57.5 12.5 | 29.77 | 756.1 | 57.4 | 14.1 | 2 | 2 | | 4 | 10 | 9 | 2 | 2 | | | 4.6 |
| 57.5 17.5 | 29.73 | 755.1 | 56.0 | 13.3 | 3 | 1 | 2 | 3 | 10 | 7 | 3 | 2 | | | 4.5 |
| 57.5 22.5 | 29.72 | 754.9 | 53.6 | 12.0 | 6 | | 2 | 4 | 8 | 2 | 4 | 4 | | 1 | 4.8 |
| 57.5 27.5 | 29.74 | 755.4 | 51.4 | 10.8 | 6 | 2 | 3 | 3 | 4 | 1 | 3 | 8 | | 1 | 5.1 |
| 57.5 32.5 | 29.77 | 756.1 | 49.6 | 9.8 | 4 | 2 | 3 | 2 | 1 | 6 | 1 | 9 | | 3 | 5.2 |
| 57.5 37.5 | 29.80 | 756.9 | 48.5 | 9.2 | 7 | 7 | 2 | 1 | 1 | 2 | 3 | 6 | | 2 | 5.2 |
| 57.5 42.5 | 29.85 | 758.2 | 47.8 | 8.8 | 6 | 4 | 3 | 2 | 1 | 2 | 5 | 6 | | 2 | 4.8 |
| 57.5 47.5 | 29.88 | 758.9 | 47.4 | 8.6 | 6 | 7 | 2 | 1 | 1 | 4 | 6 | 4 | | | 4.2 |

## REVIEW.

### INTERNATIONAL METEOROLOGY FOR JULY, 1884.

[*Pressure expressed in inches and millimetres; temperature in degrees, Fahrenheit and Centigrade; wind-force by scale of* 0–10.]

The following description refers to chart ii. for the month of July, 1884. This chart continues the series of international charts begun in January, 1877, and exhibits the mean pressure, mean temperature, and the prevailing wind-direction over the northern hemisphere, as determined from one simultaneous observation taken each day at 7 a. m., Washington, or 0 h. 8 m. p. m., Greenwich, mean time.

As is usual during the summer months, the mean pressures are least over British India; in the region between the parallels of 20° and 32° north, and the meridians of 70° and 90° east, the means range from 29.41 (747.0) to 29.54 (750.0), and in that part of Hindostan lying south of 20° N., they exceed 29.6 (751.8); this area of barometric minima, which is indicated by the isobar for 29.6 (751.8), has no well-defined limits, but apparently occupies that part of Asia lying between 20° and 50° north, and 65° and 100° east. In all other parts of the Asiatic continent the mean pressure ranges from 29.7 (754.4) to 29.8 (756.9), nowhere exceeding the latter value. Three small areas of relatively low pressures, each inclosed by the isobar for 29.8 (756.9), are shown on the chart; the first of these occupies the north Atlantic ocean between 50° and 60° north, and 10° and 40° west; the second is over the Canadian Maritime Provinces, the Gulf of Saint Lawrence, and the provinces of Quebec and eastern Ontario, the mean values ranging from 29.75 (755.6) to 29.8 (756.9). The third area occupies the southwestern districts of the United States, comprising portions of Colorado, Wyoming, Utah, Arizona, and New Mexico. In all other parts of the continent, except on the north Pacific coast, in Florida, and along the northern coast of the Gulf of Mexico, the mean pressure ranges from 29.81 (757.2) to 29.97 (761.2); in the districts above enumerated it varied from 30.0 (762.0) to 30.05 (763.3).

The only marked area of barometric maxima exhibited on the chart for July, 1884, is that of the north Atlantic ocean; this is indicated by the isobar for 30.2 (767.1) and stretches from the Azores southwestward between the parallels of 37° and 25°, to about the forty-seventh meridian west of Greenwich. Over the greater part of the Atlantic south of 45° N. the pressure exceeds 30.0 (762.0), that isobar extending from the European coast westward along the forty-sixth parallel to about 50° W., where it trends to the southwestward and enters the Florida peninsula.

Compared with the chart for the preceding month (June, 1884), there has been an increase of pressure in the north Pacific coast district, in the states bordering on the Gulf of Mexico, and in southern Arizona and New Mexico, but in all other districts of the United States the pressure has decreased. In Canada the mean pressure was considerably below that of the preceding month. Over the north Atlantic ocean south of 50° N. the pressure has decreased; there has also been a decrease between 50° and 60° N. and east of 40° W., while to the westward of that meridian it has increased. An increase of pressure is shown over Greenland and Iceland. In Europe there has been a slight increase of pressure, except in the British Isles, where a decrease has occurred; the increase is greatest in Austria, Italy, and Russia, and least in France and the northern peninsulas. Throughout Asia there has been a slight decrease of pressure.

Compared with the corresponding month of previous years, the mean pressure of the atmosphere over the United States during July, 1884, was less than the normal, the departures being greatest in the eastern parts of the country; in Canada it was about .10 inch below the normal. In Europe it was slightly above the normal.

The following table shows the mean pressure and mean temperature for July, 1884, in the several countries of the eastern hemisphere, and the departures as compared with the means determined from observations taken during the last seven years.

| Countries. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | July mean of 7 (1877-'83) years. | July, 1884. | Departure. | July mean of 7 (1877-'83) years. | July, 1884. | Departure. |
| | | | | ° | ° | ° |
| Algeria | 30.03 | | | 88.7 | | |
| Austro-Hungary | 29.91 | 29.95 | + 0.04 | 74.5 | 74.5 | normal. |
| British Isles | 29.89 | 29.92 | + 0.03 | 63.3 | 65.1 | + 1.8 |
| Denmark | 29.81 | 29.93 | + 0.12 | 64.1 | 66.8 | + 2.7 |
| France | 30.02 | 30.03 | + 0.01 | 73.1 | 75.2 | + 2.1 |
| Germany | 29.91 | 30.00 | + 0.09 | 69.0 | 73.1 | + 4.1 |
| India | 29.57 | 29.52 | — 0.05 | 84.1 | 84.8 | + 0.7 |
| Italy | 29.96 | 29.97 | + 0.01 | 81.4 | 80.9 | — 0.5 |
| Norway | 29.74 | 29.86 | + 0.12 | 63.1 | 64.2 | + 1.1 |
| Portugal* | 30.05 | | | 79.6 | | |
| Russia | 29.79 | 29.87 | + 0.08 | 74.6 | 73.9 | — 0.7 |
| Spain* | 30.02 | 30.03 | + 0.01 | 79.3 | 78.1 | — 1.2 |
| Sweden | 29.76 | 29.89 | + 0.13 | 64.5 | 67.1 | + 2.6 |

* Means for six years only.

The accompanying table shows the deviations in pressure and temperature at isolated stations during the month of July, 1884, as compared with the means for seven years:

| Stations. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | July mean of 7 (1877-'83) years. | July, 1884. | Departure. | July mean of 7 (1877-'83) years. | July, 1884. | Departure. |
| | | | | ° | ° | ° |
| Astrakhan, Russia | 29.79 | 29.81 | + 0.02 | 85.7 | 82.9 | — 2.8 |
| Archangel, Russia | 29.74 | 29.86 | + 0.12 | 64.8 | 61.7 | — 3.1 |
| Angra, Azores | | | | | | |
| Athens, Greece | 29.88 | 29.90 | + 0.02 | 87.7 | 85.6 | — 2.1 |
| Beirut, Turkey in Asia | 29.76 | 29.78 | + 0.02 | 87.6 | 84.4 | — 3.2 |
| Barnaul, Siberia, Asia | 29.64 | 29.74 | + 0.10 | 73.0 | 73.9 | + 0.9 |
| Bridgetown, Barbadoes | | 30.02 | | | 82.7 | |
| Cape Town, Cape of Good Hope* | | | | 62.1 | 58.9 | — 3.2 |
| Cagliari, Sardinia, Italy | | | | | | |
| Ekaterinburg, Russia | 29.69 | 29.76 | + 0.07 | 70.4 | 69.4 | — 1.0 |
| Fort Napier, Natal, South Africa | 30.03 | 30.12 | + 0.09 | 68.5 | 67.6 | — 0.9 |
| Freetown, Sierra Leone | 29.96 | 29.83 | — 0.13 | 82.4 | 88.2 | + 5.8 |
| Funchal, Madeira Islands | 30.16 | 30.15 | — 0.01 | 72.5 | 74.1 | + 1.6 |
| Gibraltar | 30.02 | 30.03 | + 0.01 | 78.0 | 76.8 | — 1.2 |
| Godthaab, Greenland* | 29.79 | | | 44.4 | | |
| Havana, Cuba, W. I* | 30.06 | 30.05 | — 0.01 | 81.3 | 79.3 | — 2.0 |
| Malta, Mediterranean Sea | 29.97 | 29.94 | — 0.03 | 83.5 | 79.4 | — 4.1 |
| Mauritius, Indian Ocean | 30.21 | 30.09 | — 0.12 | 71.6 | 72.3 | + 0.7 |
| Melbourne, New South Wales | 30.14 | 30.24 | + 0.10 | 47.7 | 45.6 | — 2.1 |
| Mexico, Mexico | | | | | | |
| Nassau, Bahamas, W. I | 30.06 | 30.08 | + 0.02 | 84.5 | 85.3 | + 0.8 |
| Nikolaevsk on the Amoor, Asia | | | | | 59.4 | |
| Paramaribo, D. Guiana, S. A | 30.04 | 30.03 | — 0.01 | 80.9 | 78.3 | — 2.6 |
| Pekin, China | 29.66 | 29.69 | + 0.03 | 80.0 | 77.5 | — 2.5 |
| Ponta Delgado, Azores | 30.30 | 30.21 | — 0.09 | 74.8 | 72.3 | — 2.5 |
| Sandwick Manse, Orkney Islands | 29.77 | 29.84 | + 0.07 | 56.4 | 57.9 | + 1.5 |
| San Juan de Puerto Rico, W. I | 30.05 | 30.07 | + 0.02 | 82.3 | 80.1 | — 2.2 |
| Stykkisholm, Iceland | 29.78 | 29.89 | + 0.11 | 51.5 | 52.3 | + 0.8 |
| Tashkend, Toorkistan, Asia | 29.65 | 29.58 | + 0.07 | 88.1 | 92.5 | + 4.4 |
| Thorshavn, Färöe Islands | 29.77 | 29.92 | + 0.15 | 54.0 | 52.0 | — 2.0 |
| Tiflis, Russia | 29.76 | 29.78 | + 0.02 | 88.6 | 84.9 | — 3.7 |
| Tokei, Japan | 29.86 | 29.91 | + 0.05 | 74.9 | 72.4 | — 2.5 |
| Yeniseisk, Siberia, Asia | 29.69 | 29.82 | + 0.13 | 69.3 | 71.6 | + 2.3 |
| York Factory, B. A | 29.87 | 30.04 | + 0.17 | 53.5 | 47.3 | — 6.2 |
| Zi-Ka-Wei, China | 29.73 | 29.74 | + 0.01 | 77.8 | 77.0 | — 0.8 |

* Means for six years only.

The mean temperature of the air was above the normal on the eastern slope of the Rocky mountains, in southern California, the plateau regions, and in the western Gulf states; in all other districts the mean temperature was from 0°.5 to 4°.5 below the normal. In Canada it was everywhere below the normal. In Europe the temperature was above the normal, except in the southern peninsulas and Russia. In British India it was 0°.7 above the seven years' mean; the highest mean temperature reported was 94°.3 Fahr. (34°.6 Cent.), at Lahore, and the lowest was 71°.0 Fahr. (21°.7 Cent.), at Belgaum.

The following are some of the extremes reported at isolated stations:

| Highest. | Fahr. | Cent. | Lowest. | Fahr. | Cent. |
|---|---|---|---|---|---|
| | ° | ° | | ° | ° |
| Tashkend, Turkestan, Asia | 92.5 | 33.6 | Upernavik, Greenland | 41.2 | 5.1 |
| Cairo, Egypt | 90.9 | 32.7 | Behring Island, Behring Sea | 46.0 | 7.8 |
| Petro-Alexandrovsk, Asia | 90.1 | 32.3 | York Factory, B. A | 47.3 | 8.5 |
| Freetown, Sierra Leone, Africa | 88.2 | 31.2 | Ivigtut, Greenland | 47.7 | 8.7 |
| Samarkand, Asia | 86.9 | 30.5 | Unalashka, Alaska | 48.8 | 9.3 |
| Athens, Greece | 85.6 | 29.8 | Fort Saint Michael's, Alaska | 50.1 | 10.1 |

In the United States the prevailing winds were southwesterly in the south Atlantic and Gulf states, and from west to northwest and north in other parts of the country. In Canada they were mostly from southwest to northwest. Over the Atlantic ocean from the coast of the United States eastward to W. 40° and between 25° and 45° N. the winds were southerly and southwesterly; east of 40° W. and between the above mentioned parallels they were northerly and easterly. North of 45° N. they were generally northwesterly, except off the British coasts, where they were southerly. South of 25° N. the winds were from east and southeast. In Europe the winds were southerly, southwesterly, westerly, and northwesterly.

The rainfall during July, 1884, in the United States exceeded the average in all districts lying north of the fortieth parallel, and also in the southern part of the middle Atlantic states, south Atlantic states, and Tennessee; in all other districts it was less than the average; in Canada it exceeded the average in the Maritime Provinces and Quebec, and was less than the average in Ontario. In Europe the rainfall exceeded the average amount.

STORM-TRACKS FOR JULY, 1884.

Chart iii. for July, 1884, shows the paths of the principal depressions that have appeared in the northern hemisphere during that month. This chart continues the series of international charts begun in November, 1877, and in its preparation the following material has been used, viz.: Chart i. for each day of the month, containing the data of one simultaneous observation taken at 7 a. m., Washington, or 0h. 8m., p. m., Greenwich mean time, as heretofore published in the DAILY INTERNATIONAL BULLETIN; abstracts of ship's logs; special reports, and other miscellaneous data received at this office.

The paths of thirty-one depressions are shown on the chart, and in addition to these are also given the tracks of three typhoons which occurred in the China sea and its vicinity during the month. These are taken from the "Bulletin Mensuel," published by Rev. M. Dechevrens, director of the observatory at Zi-Ka-Wei, near Shanghai, China.

Of the depressions above referred to, twelve (numbers i. to xii.) are traced over the United States and Canada; three of these, numbers ii., v., and ix., first appeared in the region to the westward of the Rocky mountains; three (vii., viii., and x.) approached the stations of observation from the British Northwest Territories. Number iii. moved from Kansas to the Lake Superior region, where it was joined by number iv., a depression which had moved northward from southern Michigan; number vi. developed at sea, near the middle Atlantic coast, and the remaining disturbances, numbers i., xi., and xii., first appeared over the country east of the Mississippi river. The general direction of movement of the depressions traced over the North American continent was easterly; there were, however, two depressions, numbers ii. and v., which moved southeastward, while one (vi.) pursued a somewhat abnormal path, having moved from the middle Atlantic coast, where it developed, northward over the Canadian Maritime Provinces and then northwestward, finally disappearing in Labrador.

During their passage over the United States these disturbances were mostly slight and unimportant, but as they approached the Maritime Provinces and the depressions deepened, their attendant winds increased to moderate or occasionally strong gales, and were accompanied by generally heavy rains. They are fully described in the MONTHLY WEATHER REVIEW for July, 1884, under the heading "Areas of low barometer." Of the nine depressions traced over the north Atlantic ocean, four, viz., numbers xvii., xviii., xix., and xxi., were continuations of storms which entered the ocean from the north American continent; number xx. developed south of Nova Scotia on the 28th, and moved northeastward, apparently at a much lower latitude than the other depressions charted during this month; number xiii. was probably a continuation of low area xix. of the chart for the preceding month (June 1884), and the remaining depressions (xiv., xv., and xvi.) developed over the ocean between W. 25° and the British Isles. The depressions which traversed the Atlantic were not attended by any great storm-energy, although some of them attained considerable depth, especially those traced in the eastern part of the ocean. From the 1st to the 5th an area of low pressure (xiii.) occupied the region north of the fiftieth parallel, with barometer ranging from 29.2 (741.7) to 29.6 (751.8). At the same time an area of high pressures occupied northern Europe, which, however, gradually gave way as low area xiii. advanced toward the British Isles.

After the 7th an area of high barometer formed over Greenland and the Arctic regions to the westward, and continued, with slight variation, until about the 24th; on referring to the chart it will be noticed that only one depression, number xvii., moved over the western part of the Atlantic north of 50° N. during this period. During the first half of the month several deep depressions remained persistently over the ocean between W. 25° and the coasts of the British Isles, causing rainy, unsettled weather and frequent thunder-storms over those islands, and throwing off numerous subsidiary disturbances (not charted) which passed over those districts and entered the European continent. During the prevalence of the primary depressions above referred to, the barometric readings ranged from 29.0 (736.6) to 29.35 (745.5) near the centre of disturbance, and moderate to strong gales were reported at sea.

Of the depressions traced over the European continent, four, numbers xxii., xxiii., xxiv., and xxv., occupied the regions south of the fiftieth parallel, and were of slight intensity; the barometer did not fall below 29.7 (754.4), except in the case of number xxiv., when it touched 29.4 (746.7), on the 22d, while the storm-centre was in the Black sea region. The depressions which traversed the northern districts entered Scandinavia from the Atlantic, skirting the northwestern and northern coasts of the British Isles; in these the barometer ranged from 29.3 (744.2) to 29.6 (751.8).

One depression, number xxvi., is traced in western Siberia; in this the pressure varied from 29.1 (739.1), on the 2d and 3d, to 29.45 (748.0), on the 6th. Number xxvii. appeared off the southeastern coast of Niphon on the 1st, and was probably a continuation of a typhoon which had passed from the China sea during the closing days of June. Two depressions, numbers xxviii. and xxx., appeared over Behring sea and the Aleutian archipelago; in the first the barometer ranged from 29.48 (748.8) to 29.7 (754.4), and in the second the minima were 29.32 (744.7), on the 17th and 29.35 (745.5), on the 19th. Number xxix. passed over the Gulf of Pe-Che-Li and Corea on the 5th, having apparently advanced from northern China. The last depression, number xxxi., was probably closely connected with the typhoon charted as the third typhoon of July; this depression was attended by very heavy rains, causing disastrous floods, with great loss of life and property in the province of Kiang-Si.

Concerning the typhoons of July, 1885, Mr. Marc Dechevrens, in the "Bulletin Mensuel," states that the first typhoon, which was an offshoot from that of June, passed westward between Luzon and Formosa during the 5th and 6th, and crossed the island of Hainan on the 7th, entering Tonquin on the 8th. The wind was extremely violent at Hai-Phong, causing the destruction of substantially built houses and the loss of many lives.

The second typhoon traversed the island of Luzon on the 9th, and then passed northward to Formosa; on the 12th its centre was in the Channel of Formosa, whence it entered the continent on the 12th; it moved northward and curved to the eastward on the 14th, crossing the Yellow sea and the peninsula of Corea and entering the Sea of Japan on the 15th. This typhoon exhibited great energy and, like its predecessor, it caused great damage to property and loss of life in the districts through which it passed. The centre, where the pressure was 28.51 (724.1), touched the southern end of Formosa on the 11th.

The third typhoon appears to have formed over the China

sea, near the coast, on the 23d, it moved first southeastward, recurving to the westward on the 25th, when to the eastward of Luzon; it passed over the northern extremity of that island and thence westward, reaching the Gulf of Tonquin at the close of the month. It appears to have exhibited less violence than that which pursued nearly the same course at the beginning of the month.

### STORM-TRACKS FOR OCTOBER, 1882.

Chart iii. for October, 1882, exhibits the paths of thirty-eight of the more important depressions that have appeared in the northern hemisphere during that month, together with the tracks of two typhoons which occurred in the China sea and over Luzon; these are taken from the Rev. Marc Dechevren's paper "The Typhoons of 1882" (second part).

The depressions are distributed geographically as follows, viz., eleven, numbers i. to xi., inclusive, are traced in the North American continent; nine, numbers xii. to xx., inclusive, are shown over the Atlantic ocean; ten, xxi. to xxx., inclusive, are traced over or near the British Isles and in the continent of Europe; eight, xxxi. to xxxviii., are shown in eastern Asia and over the north Pacific ocean.

Of the depressions traced over the United States and Canada, four, numbers i., ii., v., and x., first appeared on the Pacific coast; only one of these (x.) moved eastward to Canada and reached the Atlantic ocean, the others having passed northeastward to Manitoba and thence to the Hudson Bay region where they disappeared. Three depressions developed in the British Northwest Territories; of these, numbers ix. and xi. moved southeastward to the Missouri valley and then northeastward to the lake region, while the other, number vii., which was a very slight depression, moved eastward from Manitoba and dissipated north of Lake Superior. Three depressions (iii., vi., and viii.) first appeared in the central valleys, the first and third passed northeastward over the lakes to the Atlantic, and the second (vi.) moved north-northeastward to the Hudson Bay region. None of the above-mentioned depressions displayed any great storm-energy during their passage over the continent, the maximum wind-force not exceeding that of a moderate gale. Number ii., which appeared on the Pacific coast on the 3d, was accompanied by extremely heavy rains which caused some damage to farming interests. The most important disturbance of the month was the tropical hurricane (number iv.) which developed in the Caribbean sea during the first decade of the month; it passed over the western end of the island of Cuba, causing immense damage and some loss of life; after leaving Cuba the hurricane moved northward to the peninsula of Florida and thence northeastward, gaining the Atlantic ocean from the Georgia coast; it then passed slowly northeastward along the Atlantic coast, and on the 15th it pushed out into mid-ocean. It appears to have lost much of its energy after leaving Cuba, although it was attended by strong gales during its passage along the coast. A full description of this hurricane, with special barometric observations at Havana and other points, will be found, together with descriptions of the depressions which traversed the United States, in the MONTHLY WEATHER REVIEW for October, 1882, under "Areas of low barometer."

Respecting the depressions traced over the Atlantic ocean, three, numbers xv., xviii., and xx. are continuations of disturbances which entered the Atlantic from the North American continent, number xviii. being the tropical hurricane above referred to. Numbers xvii. and xix. developed near the coast of the United States; xii. was a continuation of low area xvii. of the September chart; xiii. represents an area of low pressures which remained nearly stationary in southern Greenland from the 4th until the 9th, and numbers xiv. and xvi. developed over the ocean between N. 55° and 60°, and W. 15° and 25°. The general direction of movement of the storm-centres over the Atlantic was northeasterly until reaching the fifty-fifth parallel, when they appear to have been retarded and even forced to the westward by an extensive area of high pressures which occupied northern and western Europe. Number xii. was apparently forced to the southeastward by the high area just referred to, which, on the 7th, had spread northwestward from southern Scandinavia and the Baltic to Iceland and the western coast of Greenland; at the centre of the high area, which was to the north of Scotland, the pressure was 30.6 (777.2).

The depressions which traversed the Atlantic during October, 1882, were mostly attended by moderate to strong gales, which, at times, reached hurricane force. The more important of these, with the lowest pressures reported, were as follows:

| Depression. | Date. | Lat. N. | Long. W. | Barometer. | | Wind. | Force 0–9 |
|---|---|---|---|---|---|---|---|
| | | about | | | | | |
| | | ° ′ | ° ′ | *Inches.* | *Mill.* | | |
| XII | 8 | 45 00 | 32 00 | 29.30 | 744.2 | e.; ne. | 6–8 |
| XIII | 7 | 58 00 | 52 00 | 29.04 | 737.6 | sse. | 7 |
| XIV | 11 | 53 00 | 14 00 | 29.09 | 738.9 | wnw. | 7 |
| XV | 12 | 50 00 | 39 00 | 29.06 | 738.1 | w. | 6 |
| | 13 | Ivigtut, Greenland | | 28.99 | 736.3 | n. | 6 |
| XVIII | 17 | 51 00 | 31 00 | 29.10 | 739.1 | wnw. | 7 |
| | 18 | 53 00 | 27 00 | 28.56 | 725.4 | nw. | 6–10 |
| | 19 | 58 00 | 24 00 | 28.56 | 725.4 | e. | 6 |
| | 21 | 55 00 | 15 00 | 28.90 | 733.8 | wsw. | 6 |
| XIX | 25 | 40 00 | 60 00 | 29.28 | 743.7 | wnw. | 6 |
| | 27 | 53 00 | 49 00 | 28.91 | 734.3 | sw. | 7 |
| | 28 | 52 00 | 54 00 | 29.05 | 737.9 | n. | 7 |

The maximum wind-force was encountered by vessels at considerable distances from the storm-centres, generally between N. 45° and 50°, where the w. and nw. winds frequently attained a force varying from 8 to 10.

Of the ten depressions traced over Europe, two (xxvi. and xxviii.) developed over the southern part of the North sea and moved north-northeastward and northeastward to the Scandinavian peninsula and northern Russia; the former was probably a subsidiary disturbance which formed to the southeastward of low area xviii., whose centre was off the northwest of Scotland and moving slowly northward on the 22d; the latter appears to have been a fully developed cyclonic storm when first observed on the 24th. Three depressions (xxiii., xxiv., and xxv.) appeared in the northern districts; the first moved southeastward from northern Scandinavia to the Ural region; the second formed in central Russia and also moved eastward to the Ural region; while xxv. was probably a continuation of the same disturbance. Number xxix. was a deep depression which appeared off the southern coast of Ireland on the 26th; it moved southeastward to the Bay of Biscay and on the 27th it entered France; its course then changed abruptly to the northeastward and it moved over the western districts of France, the Netherlands, and thence over the northern peninsulas to the White sea. Numbers xxii., xxvii., and xxx. occupied the southern districts of Europe; the first-mentioned was remarkable on account of its abnormal path, which was from east to west; on the 4th it appeared in the Italian peninsula; on the 5th it was over the Mediterranean, and by the 7th it had traversed southern France and reached the Bay of Biscay. Number xxi. was apparently a continuation of low area xvi. of the September chart; it moved northward along the British coasts, but its centre did not cross the coast line. In addition to the above-mentioned disturbances there were two depressions (xiv. and xvi.) which entered the continent from the Atlantic ocean; the first moved from the southwestern extremity of Ireland southeastward over France to Italy, and thence northeastward over the Adriatic to Austro-Hungary and finally disappeared in the Black sea region; the second passed southeastward over Ireland and disappeared in northern France.

The more important of the depressions above enumerated were the following: number xxi. which passed northward along the Irish coast, causing very heavy s. gales in the western districts of the British Isles, from which much damage to property resulted, especially in the western and southern parts of Ireland. During the passage of this depression the barometric minima were 28.65 (727.7), near N. 54°, W. 13°, on the 1st, and 28.89 (733.8), in Iceland, on the 2d. Number xxviii. which

appeared in the southeastern counties of England on the 24th, causing heavy rains and fresh to strong gales from sw. to nw. Heavy gales accompanied its passage over the North sea during the 24th and 25th, and several casualties to shipping were reported. The barometric minima were 28.78 (731.0), at Greenwich, on the 24th, and 28.96 (735.6), at Vestervig, Denmark, on the 2d. Number xxix. was a deep depression which appeared on the 26th; on the 27th the cyclonic action of the winds became well-defined, and this continued throughout the passage of the disturbance, which was attended by moderate to strong gales in western Europe. The lowest reported pressures were 28.87 (733.4), at Roche-sur-Yon, France, on the 27th; 29.22 (742.3), at Chalons-sur-Marne, on the 28th; and 29.23 (742.5), at Fanöe, Denmark, on the 29th.

Of the depressions traced in eastern Asia and over the Pacific, that shown as number xxxi. was probably a continuation of the typhoon which passed near the Japan islands during the 1st and 2d; throughout its course the pressure ranged from 29.0 (736.6) to 29.3 (744.2), and moderate gales were reported. Number xxxii. was an unimportant depression which appeared north of Yesso on the 10th and disappeared in the Behring sea on the 12th; number xxxvi. apparently developed over the Sea of Japan and crossed northern Niphon on the 23d, disappearing in the Pacific on the following day; during its passage over Niphon the barometer fell to 29.65 (753.1). The depressions which appeared in the vicinity of the Aleutian islands were mostly deep, the barometer ranging from 28.85 (732.8) to 29.3 (744.2).

Concerning the typhoons of October, 1882, both manifested great violence during their transit, but that which passed over Luzon on the 20th was one of the most disastrous that has ever visited that island. According to the report published by the Rev. Marc Dechevrens, the lowest pressures reported during the prevalence of the first typhoon were 28.89 (733.8), on the 10th, near N. 30° 44′, E. 132° 30′, and 28.45 (722.6), on the afternoon of the 11th.

The second typhoon passed over southern Luzon, very near, and to the north of, the observatory at Manila on the 20th; during the passage of the centre the barometer fell to 28.65 (727.6); before the passage of the centre the wind blew from the wnw., with a velocity of 120 miles (193 kilometres) per hour; at the time the vortex passed Manila there was a calm for about eight minutes, after which the wind again attained a velocity of 118 miles (190 kilometres) per hour from the sw.; it then shifted to sse., blowing about 90 miles (140 kilometres), and then suddenly moderated. A noteworthy feature in connection with this typhoon was the decided increase which occurred in the temperature, and the equally decided decrease in the humidity of the air during the passage of the region of central calm. At 11 a. m. (Manila time) the temperature was 74°.8 Fahr. (23°.8 Cent.) and the percentage of humidity was 100; at 11.40 a. m., when the centre passed, the temperature rose to 88°.9 Fahr. (31°.6 Cent.) and the humidity fell to 50 per cent. At 1 p. m. the temperature had again fallen to 76°.6 Fahr. (24°.6 Cent.) and the humidity had risen to 100 per cent. As an illustration of the violence of this typhoon it may be mentioned that in the Province of Bulacan alone, to the north of Manila, more than 20,000 houses were blown down, and in the Province of Japanga only two or three houses out of a thousand were left standing. In the harbor of Manila, fifteen vessels were blown ashore; five men-of-war, and numerous other vessels were seriously damaged, and several vessels were lost near the coasts. All the crops in the districts visited by the typhoon were totally destroyed.

Full and interesting descriptions of these typhoons will be found in Mr. Dechevrens' paper, before referred to.

## SPECIAL NOTES.

### DAILY BULLETIN.

On and after July 1, 1884, the DAILY BULLETIN OF SIMULTANEOUS METEOROLOGICAL OBSERVATIONS will be discontinued. The daily chart accompanying this bulletin, or international chart No. i., will continue to be issued as heretofore, but on an enlarged scale, and will contain data referring to pressure (at sea-level), temperature, wind-direction, and state of weather for each day at all reporting stations in the northern hemisphere, and over the northern portions of the Atlantic and Pacific oceans, as heretofore published in the DAILY BULLETIN.

The observations are taken at 7 h. 0 m., a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time, except at the following stations, viz.: Arlon, Belgium, at 1 p. m., local time, or 28 minutes late; Upernavik, Greenland, at 8 a. m., local time, or 24 minutes early; Ivigtut, Greenland, at 8 a. m., or 56 minutes early; Brono, Norway, at 2 p. m., or 63 minutes late.

All data referring to force, velocity, or pressure (in pounds per square foot) of the wind, are reduced to the scale of 0-10, and the approximate value is indicated by the number of feathers on the arrow (see below). The state of the weather is indicated by the following symbols:

○ clear; ◔ fair; ◑ cloudy; ● precipitation (rain, snow, hail, sleet).

### INTERNATIONAL CHARTS.

International chart i. shows the atmospheric pressure at sea-level in English inches, the isobars being drawn for every two-tenths of an inch; temperature (by figures only) in degrees Fahrenheit.

Arrows show direction of, and fly with, the wind; force is shown as follows:

| SYMBOLS. | FORCE. | VELOCITY. | |
|---|---|---|---|
| | | MILES PER HOUR. | METRES PER SECOND. |
| ○ | 0 | 0 | 0 |
| → | 1, 2 | 0 to 9 | 0 to 4 |
| → | 3, 4 | 9.1 to 22.5 | 4.1 to 10.1 |
| → | 5, 6 | 22.6 to 40.5 | 10.1 to 18.1 |
| → | 7, 8 | 40.6 to 67.5 | 18.1 to 30.2 |
| → | 9, 10 | 67.6 up. | 30.2 and over. |

International chart ii. (monthly mean chart) shows the mean pressure at sea-level in English inches; the mean temperature in degrees, Fahrenheit; the mean force and prevailing direction of the wind, as determined from observations taken at 7 a. m., Washington mean time.

International chart iii. shows the tracks of centres of low barometer. The Arabic numerals show the location of the centres of low barometer at 7 a. m., Washington mean time of that date.

In the above charts, broken lines indicate that the lines so drawn are doubtful.

### MONTHLY SUMMARY OF INTERNATIONAL SIMULTANEOUS METEOROLOGICAL OBSERVATIONS.

The positions of stations (latitude and longitude) are obtained from Keith Johnson's "Index Geographicus," except where more exact information is furnished. The elevations of stations obtained either from the annual, semi-annual, and monthly publications of the various meteorological bureaus here represented, or from the original forms upon which are entered the daily observations. In the United States series the elevations are computed from the latest surveys, and are carefully revised each month, in order to note any change in the elevation of the barometer-cistern at any station. It is believed for the most part that, throughout the European and other series, the elevations as given represent the height of the barometer-cistern above sea-level; at least this should be the case. The local time, where omitted or not given correctly in the original, is carefully computed at this office. A letter placed opposite the name of a station or some portion of the data credited thereto, indicates that a certain number of observations are missing, corresponding to the relative position in the English alphabet of the letter so used.

At Hobart Town, Tasmania, the observations are taken at 9 p. m. instead of at 9.57 p. m.

On and after July 1, 1884, all stations in the United States series will be grouped by states and territories under each district, in the following order:

NEW ENGLAND: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

MIDDLE ATLANTIC STATES: New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia.

SOUTH ATLANTIC STATES: North Carolina, South Carolina, Georgia, Florida.

EASTERN GULF STATES: Georgia, Florida, Alabama, Mississippi, Louisiana.

WESTERN GULF STATES: Louisiana, Arkansas, Indian Territory, Texas.

RIO GRANDE VALLEY: Texas.

OHIO VALLEY AND TENNESSEE: Tennessee, Kentucky, Illinois, Indiana, Ohio, West Virginia, Pennsylvania.

LOWER LAKES: New York, Pennsylvania, Ohio, Michigan.

UPPER LAKES: Michigan, Indiana, Illinois, Wisconsin, Minnesota.

UPPER MISSISSIPPI VALLEY: Minnesota, Wisconsin, Iowa, Illinois, Missouri.

MISSOURI VALLEY: Missouri, Kansas, Nebraska, Iowa, Dakota.

EXTREME NORTHWEST: Minnesota, Dakota.

NORTHERN SLOPE: Montana, Dakota, Wyoming, Nebraska.

MIDDLE SLOPE: Nebraska, Colorado, Kansas, Indian Territory, Texas, New Mexico.

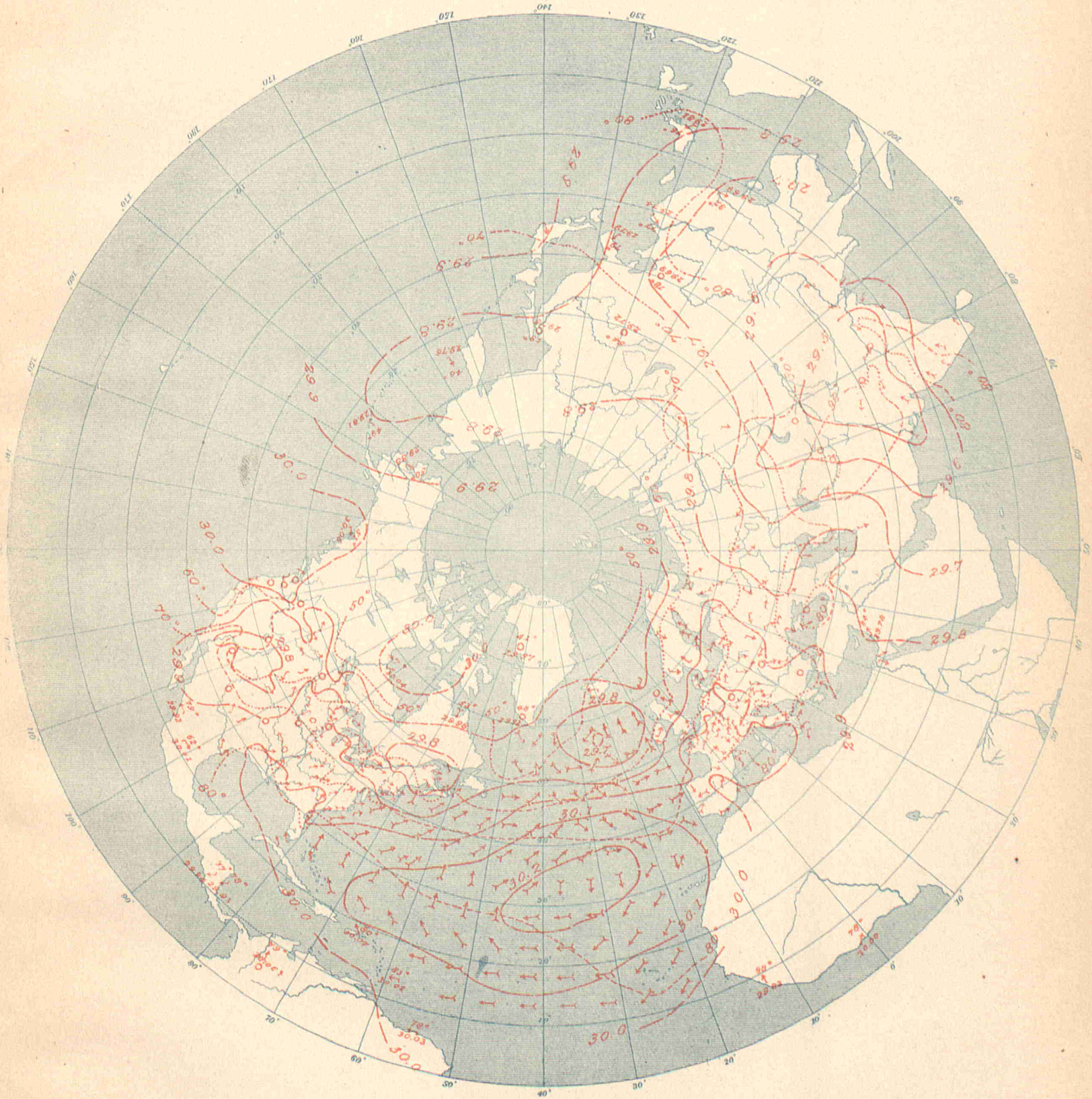
SOUTHERN SLOPE: Indian Territory, Texas, New Mexico.
SOUTHERN PLATEAU: New Mexico, Arizona, California, Nevada.
MIDDLE PLATEAU: California, Nevada, Utah, Colorado, Wyoming.
NORTHERN PLATEAU: Wyoming, Montana, Idaho, Oregon, Washington.
NORTH PACIFIC COAST: Washington, Oregon.
MIDDLE PACIFIC COAST: California.
SOUTH PACIFIC COAST: California.

OCEAN SQUARES.—The table of ocean square data shows (1) the location of the centres of squares whose sides extend 5° each in latitude and longitude, (2) the monthly mean pressure and temperature of the air, and the mean force and total frequency of the wind at 7 a. m., Washington time, computed for the centre of each square from daily readings as obtained by interpolation between the isobars and isotherms of the daily international simultaneous weather maps.

PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

W. B. HAZEN,
*Brig. & Bvt. Maj. Gen'l,*
*Chief Signal Officer, U. S. A.*

# International Chart II. July, 1884. Isobars, Isotherms, and Winds.



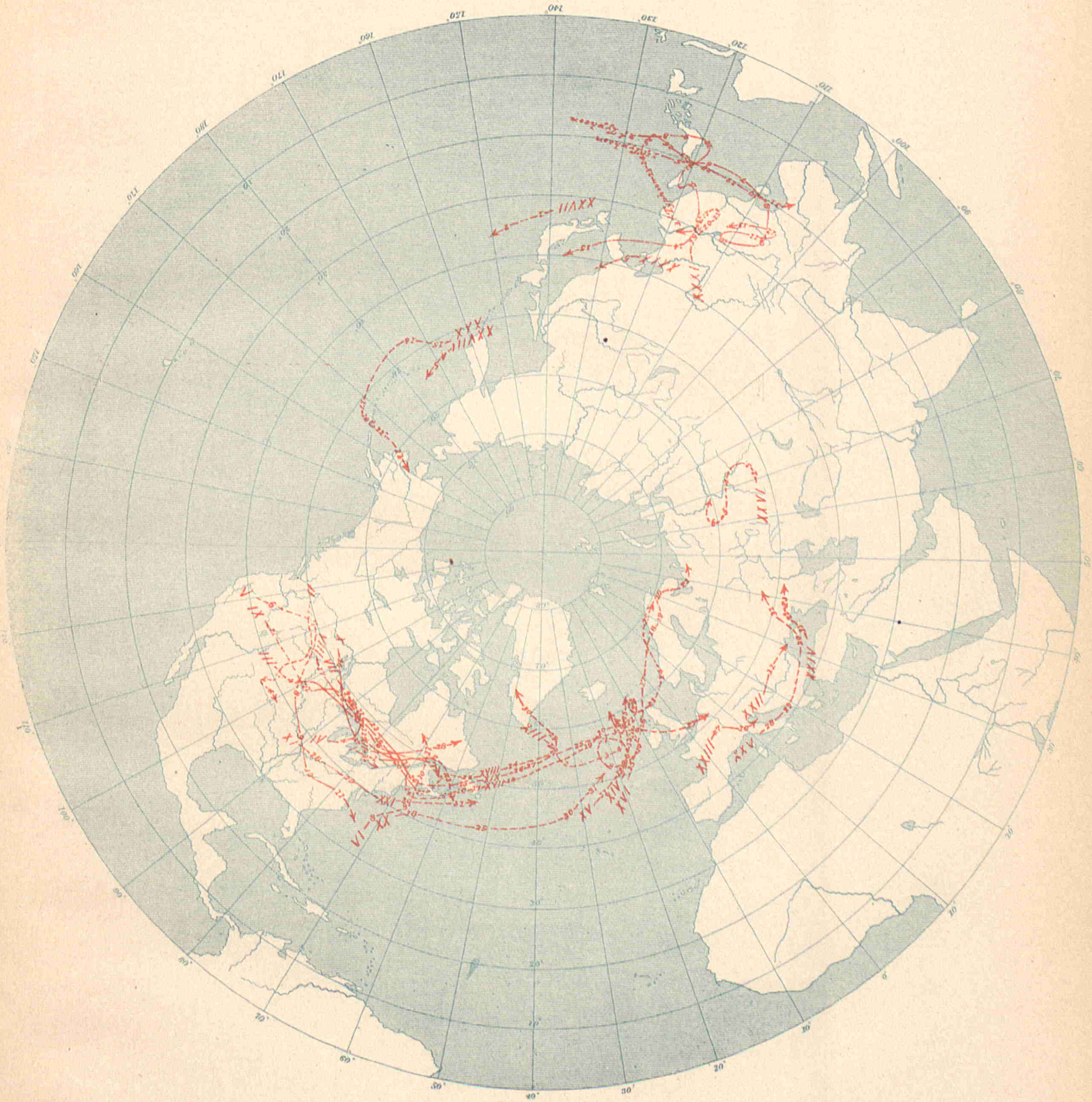
UNITED STATES OF AMERICA.

By Order of the Secretary of War.

W.B. Hazen, Chief Signal Officer.

Signal Office 14th.

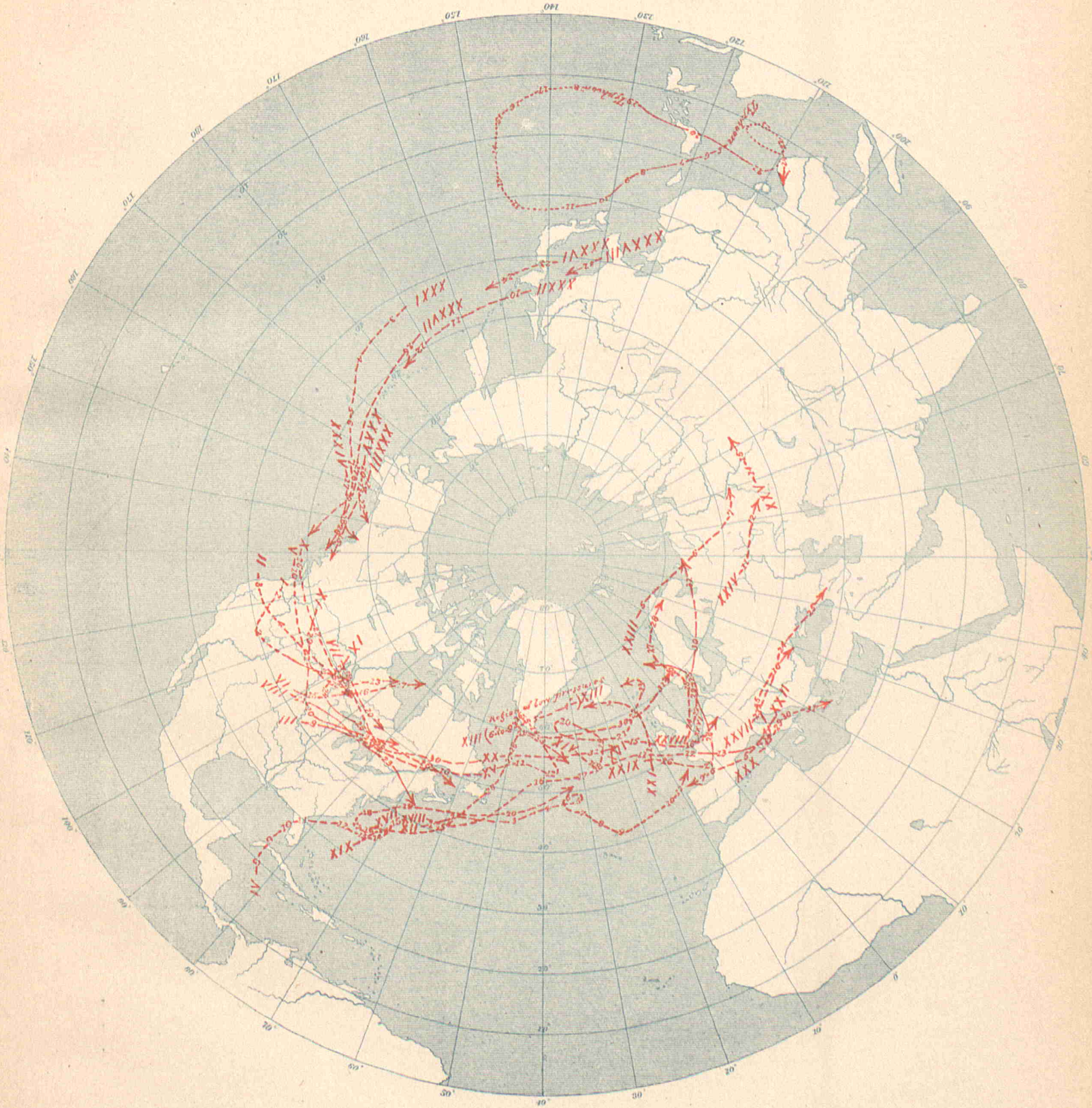
# International Chart III. July, 1884. Storm-Tracks.



UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B. Hazen, Chief Signal Officer.
Signal Office, 14th

# International Chart III. October, 1882. Storm-Tracks.



UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B.Hazen, Chief Signal Officer.

Signal Office Lith.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY OF THE UNITED STATES.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS

## FOR THE MONTH OF AUGUST, 1884.

*PRINTED FOR EXCHANGE WITH CO-OPERATING OBSERVERS.*

WASHINGTON, D. C.,
SEPTEMBER, 1885.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## AUGUST, 1884.

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for August, 1884. | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| AUSTRALIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adelaide | S. 34 57 | E. 138 35 | 9.22 p.m. | 140 | 42 | ..... | ..... | 30.08 | 764.0 | 52.7 | 11.5 | 76.2 | 7 | 1 | 6 | 3 | 3 | 1 | ..... | 8 | 2 | ..... | ..... | 5 | 1.09 | 27.7 |
| Hobart Town | S. 42 53 | E. 147 26 | 9.00 p.m. | 190 | 58 | 29.62 | 752.3 | 29.81 | 757.2 | 46.2 | 7.9 | 89 | 3 | 9 | 4 | 5 | 4 | ..... | ..... | 1 | 5 | ..... | ..... | 5 | 3.95 | 100.3 |
| Melbourne | S. 37 50 | E. 144 58 | 9.47 p.m. | 91 | 28 | 29.88 | 758 9 | 29.97 | 761.3 | 51.1 | 10.6 | 76 | 15 | 5 | 3 | 4 | 1 | 1 | 1 | 1 | ..... | ..... | ..... | 6 | 1.62 | 41.1 |
| AUSTRIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agram | N. 45 48 | E. 15 53 | 1.12 p.m. | 536 | 163 | 29.46 | 748.3 | 30.00 | 762.0 | 73.0 | 22.8 | 62 8 | ..... | 3 | 3 | 3 | 3 | 5 | 6 | 8 | ..... | ..... | ..... | 5 | 4.42 | 112.3 |
| Cracow | N. 50 04 | E. 20 00 | 1.28 p.m. | 722 | 220 | 29.26 | 743.2 | 30.01 | 762.2 | 69.4 | 20.8 | 52.5 | 3 | 6 | 5 | 3 | 1 | 1 | 8 | 4 | ..... | ..... | ..... | 7 | 0.68 | 17.3 |
| Eperies | N. 48 58 | E. 21 15 | 1.33 p.m. | 820 | 250 | 29.12 | 739.7 | 29.97 | 761.1 | 69.6 | 20.9 | 69.3 | 14 | ..... | ..... | ..... | 6 | ..... | ..... | ..... | 11 | ..... | ..... | 6 | 2.02 | 51.2 |
| Gratz | N. 47 04 | E. 15 28 | 1.10 p.m. | 1171 | 357 | 28.81 | 731 8 | 30.02 | 762.6 | 70.5 | 21.4 | 68 | 1 | 5 | ..... | 4 | 5 | 6 | 4 | 3 | 3 | ..... | ..... | 5 | 4.37 | 110.9 |
| Hermannstadt | N. 45 47 | E. 24 13 | 1.45 p.m. | 1352 | 412 | 28.56 | 725 3 | 29.93 | 760.1 | 73.8 | 23.2 | 49 | 5 | 5 | 4 | ..... | 4 | 7 | 4 | 2 | ..... | ..... | ..... | 5 | 0.92 | 23.5 |
| Kremsmunster | N. 48 03 | E. 14 08 | 1.04 p.m. | 1260 | 384 | 28.69 | 728.8 | 30.00 | 761.9 | 68.2 | 20.1 | 74 | 4 | ..... | 7 | 3 | ..... | ..... | 5 | 9 | 3 | ..... | ..... | 5 | 5.89 | 149.7 |
| Lemberg | N. 49 50 | E. 24 00 | 1.44 p.m. | 978 | 298 | 29.02 | 737.2 | 29.98 | 761.5 | 66.6 | 19.2 | 58.6 | ..... | 5 | 8 | 1 | 3 | 1 | 8 | 5 | ..... | ..... | ..... | 7 | 3.04 | 77.2 |
| Pola | N. 44 52 | E. 13 51 | 1.04 p.m. | 105 | 32 | 29.87 | 758.7 | 29.98 | 761 5 | 77.2 | 25.1 | 56.8 | 1 | 1 | 9 | 2 | ..... | 4 | 8 | 5 | 1 | ..... | ..... | 4 | 5.13 | 130.4 |
| Szathmar | N. 47 46 | E. 22 53 | 1.39 p.m. | 430 | 131 | 29.48 | 748.7 | 29.93 | 760.1 | 73.9 | 23.3 | 52 | 5 | 9 | 4 | 2 | 1 | 1 | 6 | 3 | ..... | ..... | ..... | 4 | 2.70 | 68.7 |
| Szegedin *a* | N. 46 15 | E. 20 10 | 1.29 p.m. | 256 | 78 | 29.68 | 753.8 | 29.95 | 760.6 | 72.7 | 22.6 | 61.5 | 2 | 6 | 2 | 3 | 5 | 1 | 1 | 4 | 6 | ..... | ..... | 6 | 1.65 | 42.0 |
| Trieste | N. 45 39 | E. 13 46 | 1.04 p.m. | 85 | 26 | 29.90 | 759 5 | 30.00 | 762.0 | 77.4 | 25.2 | 62.5 | 2 | 4 | 6 | 7 | ..... | 3 | 3 | 6 | ..... | ..... | ..... | 4 | 4.82 | 122.3 |
| Vienna | N. 48 12 | E. 16 22 | 1.14 p.m. | 663 | 202 | 29.32 | 744.7 | 30.01 | 762.3 | 70.0 | 21.1 | 61.0 | 6 | 3 | 8 | 1 | 2 | 4 | 2 | 3 | 2 | ..... | ..... | 5 | 2.95 | 75.0 |
| BELGIAN | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arlon | N. 49 40 | E. 5 48 | 0.32 p.m. | ? | ? | ..... | ..... | ..... | ..... | 72.0 | 22.2 | 69.1 | 2 | 2 | 2 | 6 | 5 | 4 | 5 | 5 | ..... | ..... | ..... | ..... | 2.24 | 56.9 |
| Brussels | N. 50 51 | E. 4 22 | 0.26 p.m. | 187 | 57 | 29.82 | 757.5 | 30.02 | 762.4 | 72.5 | 22.5 | 55.9 | 2 | 4 | 4 | 6 | 2 | 5 | 5 | 3 | ..... | ..... | ..... | 6 | 3.18 | 80.7 |
| Furnes *g* | N. 51 04 | E. 2 40 | 0.19 p.m. | 20 | 6 | 29.99 | 761.8 | 30.01 | 762.3 | 73.2 | 22.9 | 73.4 | 3 | 5 | 1 | 4 | ..... | 2 | 5 | 4 | ..... | ..... | ..... | 5 | 1.61 | 41.0 |
| Maeseyck | N. 51 06 | E. 5 48 | 0.32 p.m. | 115 | 35 | 29.91 | 759.8 | 30.04 | 763.0 | 75.9 | 24.4 | 64.0 | 1 | 4 | 8 | 4 | 2 | .... | 9 | 3 | ..... | ..... | ..... | 5 | 2.70 | 68.7 |
| BRITISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aberdeen | N. 57 10 | W. 2 06 | 0.00 m. | 89 | 27 | 29.84 | 757.9 | 29.94 | 760.5 | 61.4 | 16.3 | 70.2 | 1 | ..... | 2 | 1 | 7 | 18 | 1 | 1 | ..... | ..... | ..... | 5 | 2.38 | 60.5 |
| Bidston | N. 53 24 | W. 3 04 | 11.56 a.m. | 197 | 60 | ..... | ..... | 29.98 | 761.5 | 66.8 | 19.3 | 60.4 | 2 | 2 | 10 | 5 | 2 | 7 | 3 | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Bolton | N. 53 35 | W. 2 28 | 11.58 a.m. | 500 | 152 | 29.44 | 747.8 | 29.96 | 761.0 | 65.6*a* | 18.7*a* | 66.4*a* | 1 | 1 | 5 | 4 | 14 | 5 | 1 | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Bradford | N. 53 48 | W. 1 47 | 0.01 p.m. | 366 | 111 | 29.58 | 751.3 | 29.98 | 761.5 | 66.7 | 19.3 | 57.8 | 2 | 3 | 6 | 6 | 3 | 5 | 6 | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Bridgetown | N. 13 04 | W. 59 37 | 8.10 a.m. | 28 | 9 | 29.95 | 760 7 | 29.98 | 761.5 | 83.1 | 28.4 | 74.2 | ..... | ..... | ..... | ..... | ..... | ..... | 20 | 11 | ..... | ..... | ..... | 4 | ..... | ..... |
| Cardington *o* | N. 52 08 | W. 0 27 | 0.06 p.m. | 109 | 33 | ..... | ..... | ..... | ..... | 68.8 | 20.4 | 66.5 | 3 | 1 | 2 | 6 | 2 | 1 | 1 | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| Chatham | N. 51 25 | E. 0 33 | 0.10 p.m. | 160 | 49 | 29.85 | 758.2 | 30.02 | 762.5 | 72.8 | 22.7 | 52.4 | 1 | 1 | 4 | 6 | 4 | ..... | 8 | 1 | 6 | ..... | ..... | 5 | ..... | ..... |
| Falmouth | N. 50 09 | W. 5 04 | 11.48 a.m. | 211 | 64 | 29.81 | 757.2 | 30.04 | 763 0 | 66.2 | 19.0 | 69.4 | ..... | 8 | 5 | 5 | 4 | 3 | 6 | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Fort Napier | S. 30 | E. 31 | 2.12 p.m. | 2205 | 672 | 27.61 | 706.4 | 30.12 | 765.0 | 74.1 | 23.4 | 27.0 | 2 | 3 | ..... | 2 | 3 | 3 | 9 | 9 | ..... | ..... | ..... | 2 | ..... | ..... |
| Freetown | N. 8 30 | W. 13 14 | 11.15 a.m. | 224 | 68 | 29.64 | 752.8 | 29.87 | 758.7 | 86.8 | 30.4 | 88.4 | 10 | ..... | ..... | 5 | 3 | 7 | 1 | 5 | ..... | ..... | ..... | 3 | ..... | ..... |
| Galway | N. 53 15 | W. 9 03 | 11.32 a.m. | 32 | 10 | 29.87 | 758.7 | 29.90 | 759.4 | 61.8 | 16.6 | 76.0 | ..... | ..... | 6 | 21 | 2 | 1 | ..... | 1 | ..... | ..... | ..... | 6 | ..... | ..... |
| Gibraltar | N. 36 09 | W. 5 21 | 11.47 a.m. | 50 | 15 | 29.84 | 757.9 | 29.99 | 761.7 | 82.1 | 27.8 | 82.2 | ..... | 1 | 9 | 3 | ..... | ..... | 11 | 7 | ..... | ..... | ..... | 2 | ..... | ..... |
| Greenwich | N. 51 29 | 0 00 | 0.08 p.m. | 159 | 48 | 29.84 | 757.9 | 30.01 | 762.2 | 74.4 | 23.6 | 49.6 | 4 | ..... | 6 | 9 | 3 | 2 | 4 | 2 | 1 | ..... | ..... | 5 | ..... | ..... |
| Guernsey | N. 49 27 | W. 2 41 | 11.58 a.m. | 275 | 84 | 29.76 | 755.9 | 30.05 | 763.3 | 68.8 | 20.4 | 66.0 | 3 | 1 | 7 | 7 | 1 | 3 | 4 | 5 | ..... | ..... | ..... | 4 | 0.62 | 15.7 |
| Kew | N. 51 28 | W. 0 19 | 0.07 p.m. | 34 | 10 | 29.98 | 761.5 | 30.02 | 762 5 | 71.4 | 21.9 | 51.5 | 2 | 4 | 9 | 4 | 5 | 1 | 6 | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Leicester | N. 52 39 | W. 1 08 | 0.04 p.m. | 245 | 75 | 29.73 | 755.1 | 29.98 | 761.5 | 69.5 | 20.8 | 63.6 | 1 | 4 | 2 | 17 | 2 | 1 | 2 | 1 | 1 | ..... | ..... | 5 | ..... | ..... |
| Malta | N. 36 00 | E. 14 30 | 1.00 p.m. | 70 | 21 | 29.84 | 757.9 | 29.91 | 759.7 | 80.6 | 27.0 | 73.2 | 4 | 7 | ..... | 4 | ..... | 3 | 10 | ..... | ..... | ..... | ..... | 1 | ..... | ..... |
| Nassau | N. 25 04 | W. 77 22 | 6.58 a.m. | 44 | 13 | 30.02 | 762.5 | 30.07 | 763.8 | 84.0 | 28.9 | 75.8 | ..... | ..... | ..... | 2 | 3 | 20 | 6 | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Oxford | N. 51 46 | W. 1 17 | 0.03 p.m. | 210 | 64 | 29.79 | 756.7 | 30.02 | 762.5 | 70.5 | 21.4 | 58.9 | 1 | 3 | 3 | 8 | 10 | 4 | ..... | 2 | ..... | ..... | ..... | 5 | ..... | ..... |
| Plymouth | N. 50 22 | W. 4 10 | 11.51 a.m. | 69 | 21 | 29.95 | 760.7 | 30.02 | 762.5 | 70.1 | 21.2 | 67.2 | 1 | 2 | 6 | 7 | 6 | 3 | 5 | ..... | 1 | ..... | ..... | 5 | ..... | ..... |
| Sandwick Manse | N. 59 05 | W. 3 20 | 11.54 a.m. | 94 | 29 | 29.78 | 756.4 | 29.88 | 758 9 | 60.0 | 15.6 | 77.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Scutari Cemet'ry | N. 41 00 | E. 29 03 | 2.04 p.m. | 60 | 18 | 29.82 | 757.4 | 29.88 | 758.9 | 79.7 | 26.5 | 52.2 | 2 | ..... | ..... | 4 | 1 | ..... | ..... | 24 | ..... | ..... | ..... | 4 | ..... | ..... |
| Sheffield | N. 53 23 | W. 1 28 | 0.02 p.m. | 260 | 79 | 29.65 | 753 1 | 29.98 | 761.5 | 69.5 | 20.8 | 63.0 | 1 | ..... | 4 | 16 | 3 | 3 | 1 | 1 | 2 | ..... | ..... | 4 | ..... | ..... |
| Silloth Rectory | N. 54 52 | W. 3 22 | 11.54 a.m. | 28 | 9 | 29.92 | 760.0 | 29.95 | 760.7 | 67.3 | 19.6 | 73.2 | 1 | 2 | 15 | 7 | ..... | ..... | 5 | ..... | 1 | ..... | ..... | 5 | 1.54 | 39.1 |
| Stonyhurst | N. 53 51 | W. 2 28 | 11.58 a.m. | 361 | 110 | ..... | ..... | 30.00 | 762.0 | 66.1 | 18.9 | 64.4 | ..... | 1 | 11 | 7 | 7 | 2 | 3 | ..... | ..... | ..... | ..... | 6 | 2.85 | 72.4 |
| Strathfield | N. 51 17 | W. 0 53 | 0.04 p.m. | 197 | 60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Valencia | N. 51 55 | W. 10 18 | 11.27 a.m | 23 | 7 | 29.96 | 761.0 | 29.98 | 761.5 | 61.7 | 16.5 | 75.5 | 1 | 2 | 8 | 8 | 5 | 7 | ..... | ..... | ..... | ..... | ..... | 7 | ..... | ..... |
| *Sub-series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gozo | N. 36 01 | E. 14 16 | 1.05 p.m. | 364 | 111 | 29.65 | 753.1 | 30.03 | 762 7 | 81.5 | 27.5 | 58.0 | ..... | 11 | 5 | 10 | 1 | ..... | 2 | 2 | ..... | ..... | ..... | 2 | 0 | 0 |
| CANADIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bathurst *b* | N. 47 39 | W. 65 43 | 7.45 a.m. | 35 | 11 | 29.97 | 761.2 | 30.01 | 762.2 | 64.4 | 18.0 | ..... | ..... | ..... | 1 | 1 | 4 | 9 | ..... | 14 | ..... | ..... | ..... | 6 | 0.88 | 22.4 |
| Charlottetown | N. 46 14 | W. 63 10 | 7.55 a.m. | 38 | 12 | 30.03 | 762.7 | 30.07 | 763 8 | 64.4 | 18.0 | 85.8 | 3 | ..... | 2 | 11 | 9 | 3 | 1 | 1 | 5211 | 8386 | 7 | 2.40 | 61.0 |
| Chatham | N. 47 03 | W. 65 29 | 7.45 a.m. | 56 | 17 | 29.95 | 760.7 | 30.01 | 762 2 | 60.6 | 15.9 | 89.8 | 1 | 2 | 2 | 22 | 3 | .. | ..... | 1 | ..... | 3480 | 5600 | 6 | 2.13 | 54.1 |
| Cornwall | N. 45 01 | W. 74 43 | 7.09 a.m. | 175 | 53 | 29.78 | 756.4 | 29.97 | 761.2 | 60.9 | 16.1 | 87.1 | 2 | 3 | 17 | 5 | ..... | ..... | 3 | 1 | ..... | ..... | ..... | 5 | 1.92 | 48.8 |
| Dalhousie *b* | N. 48 04 | W. 66 22 | 7.32 a.m. | 45 | 14 | 29.94 | 760.5 | 29.98 | 761.5 | 60.8 | 16.0 | ..... | ... | ..... | 19 | 1 | ..... | ..... | 6 | ..... | 3 | ..... | ..... | 4 | 1.08 | 27.4 |
| Father Point | N. 48 31 | W. 68 28 | 7.34 a.m. | 20 | 6 | 29.92 | 760.0 | 29.94 | 760.5 | 56.9 | 13.8 | 84.2 | ..... | 3 | 12 | 10 | 2 | ..... | 1 | ..... | 3 | ..... | ..... | 5 | 1.34 | 34.0 |
| Fort Garry | N. 49 51 | W. 97 07 | 5.39 a.m. | 754 | 230 | 29.08 | 738.6 | 29.87 | 758.7 | 53.4 | 11.9 | 83.3 | 7 | 5 | 2 | 5 | 6 | 3 | 1 | 1 | 8706 | 14011 | 7 | 6.91 | 175.5 |
| Fredericton | N. 45 57 | W. 66 38 | 7.41 a.m. | 59 | 18 | 29.99 | 761.7 | 30.05 | 763.3 | 62.1 | 16.7 | 84.3 | 1 | 9 | 1 | 3 | 4 | 5 | 2 | 2 | 4 | ..... | ..... | 6 | 4.24 | 107.7 |
| Grand Manan | N. 44 46 | W. 66 45 | 7.41 a.m. | 49 | 15 | 30.00 | 762.0 | 30.05 | 763.3 | 60.1 | 15.6 | 86.6 | 3 | 2 | 5 | 7 | 3 | 1 | 2 | 3 | 5 | 6434 | 10354 | 3 | 5.28 | 134.1 |
| Granton | N. 43 12 | W. 81 21 | 6.43 a.m. | 1015 | 309 | 28.95 | 735 3 | 30.04 | 763 0 | 56.7 | 13.7 | 94.6 | 1 | 1 | 2 | : | 5 | 3 | ..... | 1 | 17 | ..... | ..... | 4 | 2.19 | 55.6 |
| Halifax | N. 44 39 | W. 63 36 | 7.53 a.m. | 122 | 37 | 29.97 | 761.2 | 30.10 | 764.5 | 62.2 | 16.7 | 92.1 | 6 | ..... | 8 | 2 | 4 | 1 | 6 | 1 | 3 | ..... | ..... | 6 | 2.93 | 74.4 |
| Hamilton | N. 43 16 | W. 79 53 | 6.49 a.m. | 350 | 107 | 29.69 | 754.1 | 30.09 | 764.3 | 65.6 | 18.7 | 78.3 | 4 | 10 | 2 | 3 | ..... | ..... | 1 | 5 | ..... | 6 | ..... | 3 | 1.59 | 40.4 |
| Kingston | N. 44 14 | W. 76 30 | 7.02 a.m. | 307 | 94 | 29.70 | 754.4 | 30.02 | 762.5 | 63.9 | 17.7 | 83.1 | 3 | 2 | 4 | 10 | 2 | 1 | 1 | 4 | 4 | 4097 | 6593 | 4 | 3.97 | 100.8 |
| Little Glace Bay | N. 46 12 | W. 59 58 | 8.08 a.m. | 34 | 10 | 30.02 | 762.5 | 30.06 | 763.5 | 66.4 | 19.1 | 82.4 | 1 | ..... | 3 | 20 | 4 | 1 | 1 | ..... | 1 | ..... | ..... | 5 | ..... | ..... |
| London | N. 43 00 | W. 81 15 | 6.43 a.m. | 816 | 248 | 29.17 | 740.9 | 30.06 | 763.5 | 58.5 | 14.7 | 89.7 | 2 | ..... | 1 | 2 | ..... | ..... | ..... | ..... | 26 | ..... | ..... | ..... | 2.10 | 53.3 |
| Medicine Hat | N. 50 01 | W. 110 37 | 4.46 a.m. | 2136 | 651 | 27.62 | 701.5 | 29.86 | 758.4 | 53.1 | 11.7 | 77.9 | 6 | 4 | 5 | 3 | 3 | 3 | 3 | ..... | 4 | 4507 | 7253 | 3 | 1.19 | 30.2 |
| Minnedosa | N. 50 13 | W. 99 48 | 5.29 a.m. | 1796 | 545 | 28.09 | 713.5 | 29.92 | 760.0 | 49.2 | 9.6 | 93.3 | 1 | 2 | 3 | 3 | 2 | 1 | 5 | 5 | 9 | ..... | ..... | 4 | 3.86 | 98.0 |
| Montreal | N. 45 31 | W. 73 33 | 7.13 a.m. | 187 | 57 | 29.81 | 757.2 | 30.01 | 762.2 | 64.5 | 18.1 | 73.0 | ..... | 8 | 3 | 11 | 7 | 1 | 1 | ..... | ..... | ..... | ..... | 4 | 1.93 | 49.0 |
| Ottawa | N. 45 26 | W. 75 41 | 7.05 a.m. | 200 | 61 | 29.78 | 756.4 | 30.00 | 762.0 | 61.2 | 16.2 | 97.5 | 3 | 1 | 1 | 14 | 4 | ..... | 1 | 7 | ..... | ..... | ..... | 5 | 2.82 | 71.6 |
| Parry Sound | N. 45 19 | W. 80 01 | 6.48 a.m. | 635 | 194 | 29.33 | 745.0 | 30.00 | 762.0 | 58.5 | 14.7 | 91.2 | 4 | 2 | 2 | 4 | 3 | 7 | 3 | 1 | 5 | 5617 | 9040 | 4 | 1.67 | 42.4 |
| Peterboro *a* | N. 44 17 | W. 78 18 | 6.54 a.m. | 688 | 210 | 29.29 | 744.0 | 30.01 | 762.2 | 61.9 | 16.6 | 80.7 | ..... | 1 | 7 | 8 | 3 | 1 | ..... | 1 | 9 | ..... | ..... | 3 | 2.79 | 70.9 |
| Port Arthur | N. 48 27 | W. 89 12 | 6.11 a.m. | 642 | 196 | 29.23 | 742.4 | 29.92 | 760.0 | 57.3 | 14.1 | 85.7 | 7 | 3 | 2 | ..... | 3 | 1 | 3 | 2 | 10 | 3369 | 5422 | 5 | 4.77 | 121.2 |
| Port Dover | N. 42 47 | W. 80 13 | 6.47 a.m. | 635 | 194 | 29.35 | 745.5 | 30.03 | 762.7 | 61.6 | 16.4 | 93.8 | 3 | 5 | 2 | 4 | 4 | 1 | ..... | 1 | 11 | 3690 | 5938 | 4 | 2.12 | 53.8 |
| Port Stanley | N. 42 40 | W. 81 13 | 6.43 a.m. | 592 | 180 | 29.39 | 746.5 | 30.03 | 762.7 | 59.2 | 15.1 | 91.8 | 7 | 1 | 8 | 1 | ..... | 3 | 1 | 9 | ..... | ..... | ..... | 4 | 2.29 | 58.2 |
| Qu Appelle | N. 50 44 | W. 103 42 | 5.13 a.m. | 2115 | 646 | 27 68 | 703.1 | 29.91 | 759.7 | 49.9 | 9.9 | 92.3 | 2 | 4 | 4 | 2 | 7 | 2 | 1 | 9 | 7618 | 12260 | 3 | 1.50 | 38.1 |
| Quebec | N. 46 48 | W. 71 12 | 7.23 a.m. | 293 | 89 | 29.64 | 752 8 | 29.99 | 761.7 | 63.1 | 17.3 | 89.7 | ..... | ..... | ..... | 8 | 4 | ..... | 1 | 1 | 17 | ..... | ..... | 6 | 2.13 | 54.1 |
| Rockliffe | N. 46 10 | W. 77 48 | 6.57 a.m. | 418 | 127 | 29.54 | 750.3 | 29.98 | 761.5 | 55.5 | 13.1 | 95.7 | 1 | 8 | 3 | ..... | ..... | 2 | 3 | 1 | 13 | ..... | ..... | 3 | 3.54 | 89.9 |
| Saint Andrews | N. 43 04 | W. 81 06 | 6.34 a.m. | 47 | 14 | 29.98 | 761.5 | 30.03 | 762.7 | 58.7 | 14.8 | 92.5 | 2 | 5 | 1 | 3 | 7 | 6 | 5 | ..... | 2 | ..... | ..... | 3 | 2.91 | 74.9 |
| Saint John, N.B | N. 45 17 | W. 66 03 | 7.44 a.m. | 116 | 35 | 29.91 | 759.7 | 30.05 | 763.3 | 58.7 | 14.8 | 91.8 | 2*a* | 3 | 1 | 1 | 8 | 5 | 1 | 1 | 8 | ..... | ..... | 4 | 4.48 | 113.8 |
| Saint Pierre | N. 46 47 | W. 56 08 | 8.24 a.m. | ? | ? | ..... | ..... | 30.08 | 764.1 | 59.7 | 15.4 | ..... | 1 | 6 | 8 | 8 | 1 | 1 | 1 | 5 | ..... | ..... | ..... | ..... | 4.82 | 122.5 |
| Saugeen | N. 44 30 | W. 81 21 | 6.42 a.m. | 656 | 200 | 29.32 | 744.7 | 30.01 | 762 2 | 60.4 | 15.8 | 82.5 | 3 | 4 | 1 | 3 | 8 | 5 | ..... | 1 | 6 | 5422 | 8726 | 6 | 1.85 | 47.0 |
| Stratford | N. 43 23 | W. 81 00 | 6.44 a.m. | 1186 | 361 | 28 79 | 731.3 | 30.05 | 763.3 | 58.5 | 14.7 | 89.1 | ..... | 3 | 6 | 3 | 7 | ..... | 2 | ..... | 10 | ..... | ..... | 2 | 4.36 | 110.7 |
| Sydney | N. 46 08 | W. 60 10 | 8.07 a.m. | 37 | 11 | 30.01 | 762 2 | 30.07 | 763.8 | 63.6 | 17.6 | 85.5 | ..... | ..... | 3 | 17 | 3 | ..... | 1 | ..... | 7 | 6630 | 10670 | 7 | 1.60 | 40.6 |
| Toronto | N. 43 39 | W. 79 23 | 6.50 a.m. | 350 | 107 | 29.66 | 753 4 | 30.03 | 762.7 | 61.3 | 16.3 | 82.8 | 5 | 5 | 7 | 3 | 2 | 1 | 1 | 3 | 4 | 6003 | 9661 | 3 | 1.91 | 48.5 |
| Woodstock | N. 43 08 | W. 80 47 | 6.48 a.m. | 980 | 299 | 29.01 | 736 8 | 30.05 | 763 3 | 60.6 | 15.9 | 84.0 | 2*b* | 5 | 4 | 8 | 3 | 2 | 1 | ..... | 4 | ..... | ..... | 4 | 1.29 | 32.8 |
| Yarmouth | N. 43 50 | W. 66 02 | 7.44 a.m. | 61 | 19 | 29 99 | 761.7 | 30.06 | 763.5 | 60.1 | 15.6 | 94.6 | 1 | ..... | 2 | 6 | 9 | 2 | 4 | 1 | 6 | ..... | ..... | 3 | 3.57 | 90.7 |
| CAPE COLONY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape St. Francis | S. 34 10 | E. 24 50 | 1.47 p.m. | 25 | 7 | 30.19 | 766.8 | 30.22 | 767.6 | 63.2 | 17.3 | 94.0 | ..... | 5 | ... | 15 | ..... | 1 | ..... | 10 | ..... | ..... | ..... | 5 | ..... | ..... |
| Cape Town | S. 34 02 | E. 18 29 | 1.22 p.m. | ? | ? | 30.09 | 764.3 | ..... | ..... | 65.3 | 18.5 | 64.8 | 1 | 14 | 2 | 2 | ..... | 3 | 2 | 3 | 4 | ..... | ..... | 4 | 1.06 | 26.9 |
| Springbok *a* | S. 29 45 | E. 17 43 | 1.19 p.m. | ? | ? | 27.89 | 708.4 | ..... | ..... | 71.6 | 22.0 | 41.6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0 | 0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for August, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| CHILIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Coquimbo | S. 29 56 | W. 71 21 | 7.22 a.m | 72 | 22 | 29.94 | 760.5 | 30.02 | 762.5 | 54.0 | 12.2 | 93.0 | 3 | 1 | 3 | 5 | 5 | 6 | 6 | 2 | ..... | ..... | ..... | 6 | 0.24 | 6.2 |
| Iquique, c | S. 20 12 | W. 70 11 | 7.27 a.m | 26 | 8 | 29.97 | 761.3 | 30.00 | 762.0 | 60.6 | 15.9 | 73.0 | 1 | 2 | ..... | 13 | ..... | ..... | 2 | 10 | ..... | ..... | ..... | ..... | ..... | ..... |
| Niebla | S 39 53 | W. 73 25 | 7.14 a.m. | 98 | 30 | 29.41 | 747.0 | 29.52 | 749 8 | 47.1 | 8.4 | 91.4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 26.09 | 662.6 |
| Punta Caldera | S 27 03 | W. 70 53 | 7.25 a.m. | 82 | 25 | 29.93 | 760.3 | 30.02 | 762 6 | 55.9 | 13.3 | 81.7 | 1 | 10 | ..... | 4 | 1 | 5 | ..... | 10 | ..... | ..... | ..... | 6 | ..... | ..... |
| Punta Corona | S. 41 47 | W. 73 53 | 7.12 a.m | 174 | 53 | 29.69 | 754.2 | 29.89 | 759.0 | ..... | ..... | ..... | 7 | 3 | 4 | 2 | ..... | 5 | ..... | 10 | ..... | ..... | ..... | 8 | ..... | ..... |
| Quiriquina | S. 36 37 | W. 73 03 | 7.25 a.m. | 187 | 57 | 29.77 | 756.1 | 29.97 | 761.3 | 52.5 | 11.4 | 84.4 | 6 | 11 | 6 | ..... | 2 | 2 | 2 | 2 | ..... | ..... | ..... | 8 | ..... | ..... |
| Valparaiso | S. 33 02 | W. 71 39 | 7.22 a.m. | 82 | 25 | 29.92 | 759.9 | 30.06 | 763.5 | 54.1 | 12.3 | 88.0 | 9 | ..... | 3 | 3 | 6 | 2 | 5 | 3 | ..... | ..... | ..... | 9 | 10.54 | 267.8 |
| CHINESE. | | | | | | | | | | | | | | | | | | | | | | | | 6 | 5.39 | 136.9 |
| Hong Kong | N. 22 18 | E. 114 04 | 745 p.m. | 110 | 33 | 29.62 | 752.3 | 29.73 | 755.1 | 81.6 | 27.6 | 83.6 | 2 | 1 | 1 | 6 | 9 | 2 | 8 | ..... | 2 | ..... | ..... | 5 | 10.82 | 274.8 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zi-Ka-Wei | N. 31 12 | E. 121 26 | 8.14 p.m. | 22 | 7 | 29.74 | 755.5 | 29.77 | 756.1 | 76.1 | 24.5 | 90 | 2 | 1 | 4 | ..... | 2 | 6 | 8 | 8 | ..... | ..... | ..... | 6 | 5.98 | 151.9 |
| DANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copenhagen | N. 55 41 | E. 12 36 | 0.58 p.m. | 43 | 13 | 30.00 | 762.1 | 30.05 | 763.3 | 66.0 | 18.9 | 66 | 4 | 4 | ..... | ..... | 6 | 10 | 4 | 2 | 1 | ..... | ..... | 5 | ..... | ..... |
| Fanöe | N. 55 27 | E. 8 24 | 0.42 p.m. | 20 | 6 | 30.01 | 762.2 | 30.03 | 762.7 | 67.5 | 19.7 | 70 | ..... | 2 | 9 | 7 | 4 | 3 | 6 | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Ivigtut | N. 61 12 | W. 48 — | 8.56 a.m. | 16 | 5 | 29.68 | 753 8 | 29.70 | 754.3 | 42.8 | 6.0 | ..... | 3 | 3 | 2 | ..... | 1 | 1 | ..... | 1 | 20 | ..... | ..... | 8 | ..... | ..... |
| Stykkisholm | N. 65 05 | W. 22 46 | 10.37 a.m. | 36 | 11 | 29.51 | 719.6 | 29.56 | 750.7 | 51.3 | 10.7 | 81 | 2 | 1 | 1 | 1 | 8 | 5 | 4 | 5 | 4 | ..... | ..... | 8 | ..... | ..... |
| Thorshavn | N. 62 02 | W. 6 44 | 11.41 a.m. | 29 | 9 | 29.75 | 755.7 | 29.78 | 756.3 | 54.1 | 12.3 | 90 | ..... | ..... | 1 | 4 | 9 | 4 | 2 | 2 | 9 | ..... | ..... | 8 | ..... | ..... |
| Vestervig | N. 56 47 | E. 8 20 | 0.41 p.m. | 82 | 25 | 29.94 | 760.5 | 30.03 | 762.8 | 65.3 | 18.5 | 67 | ..... | 5 | 10 | 2 | ..... | 2 | 10 | 2 | ..... | ..... | ..... | 8 | ..... | ..... |
| Egyptian. | | | | | | | | | | | | | | | | | | | | | | | | 4 | ..... | ..... |
| Cairo, *a* | N. 30 03 | E. 31 21 | 2.14 p.m. | ? | ? | 29.71 | 754.6 | ..... | ..... | 94.5 | 34.7 | 27.7 | 11 | 3 | 2 | ..... | ..... | ..... | ..... | 14 | ..... | ..... | ..... | 2 | 0 | 0 |
| FRENCH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agen | N. 44 12 | E. 0 38 | 0.11 p.m. | 604 | 184 | 29.45 | 748.0 | 30.08 | 763.9 | 81.0 | 27.2 | 44.6 | 1 | 10 | ..... | 4 | ..... | 14 | ..... | 2 | ..... | ..... | ..... | ..... | 0.83 | 21.0 |
| Alençon | N. 48 26 | E. 0 05 | 0.09 p.m. | 476 | 145 | 29.60 | 751.9 | 30.07 | 763.8 | 74.5 | 23.6 | 64.3 | 1 | 3 | ..... | 10 | 2 | ..... | ..... | 15 | ..... | ..... | ..... | ..... | 1.46 | 37.2 |
| Arras | N. 50 18 | E. 2 46 | 0.19 p m | 223 | 68 | 29.79 | 756.7 | 30.02 | 762.6 | 71.6 | 22.0 | 61.4 | ..... | 10 | 9 | ..... | ..... | 3 | 6 | 3 | ..... | ..... | ..... | 5 | 3.22 | 81.7 |
| Avignon | N. 43 57 | E. 4 48 | 0.27 p.m | 65 | 20 | 29.94 | 760.4 | 30.02 | 762.4 | 84.7 | 29.3 | 47 | 15 | 5 | 3 | 2 | 4 | 1 | 1 | ..... | ..... | ..... | ..... | 1 | 0.76 | 19.4 |
| Bar-sur-Seine | N. 48 07 | E. 4 22 | 0.25 p.m. | 518 | 158 | 29.49 | 749.0 | 30.02 | 762.6 | 74.1 | 23.4 | 56.3 | 1 | 1 | ... | 3 | 3 | 12 | 8 | 3 | ..... | ..... | ..... | 6 | 3.11 | 78.9 |
| Beauvais | N. 49 26 | E. 2 05 | 0.16 p.m. | 246 | 75 | 29.78 | 756 4 | 30.04 | 763.0 | 73.2 | 22.9 | 57.4 | 3 | 2 | 3 | 3 | 1 | 5 | 12 | 2 | ..... | ..... | ..... | 5 | 3.48 | 88.4 |
| Besançon | N. 47 14 | E. 6 02 | 0.32 p.m. | 846 | 258 | 29.10 | 739.2 | 30.08 | 763 9 | 75.9 | 24.4 | 72.2 | 9 | 1 | 4 | 8 | 3 | ..... | ..... | 6 | ..... | ..... | ..... | ..... | 2.09 | 53.1 |
| Bordeaux | N. 44 50 | E. 0 32 | 0.06 p.m. | 243 | 74 | 29.73 | 756.3 | 30.03 | 762.7 | 78.8 | 26.0 | 47.0 | 4 | 5 | 7 | 2 | 4 | 5 | 2 | 2 | ..... | ..... | ..... | 5 | 0.53 | 13.4 |
| Bourges | N. 47 10 | E. 2 26 | 0.17 p.m. | 510 | 156 | 29.47 | 748.5 | 30.00 | 762.1 | 79.2 | 26.2 | 43.5 | 4 | 3 | 1 | 10 | 4 | ..... | 4 | 5 | ..... | ..... | ..... | ..... | 0.57 | 14.5 |
| Brest | N. 48 24 | W. 4 30 | 11.50 a.m. | 210 | 64 | 29.85 | 758 2 | 30.10 | 764.4 | 74.5 | 23.6 | 68.7 | 5 | 3 | 6 | 8 | 3 | 4 | ..... | ..... | 2 | ..... | ..... | 5 | 0.47 | 12.0 |
| Caen | N. 49 11 | W. 0 21 | 0.07 p.m. | 69 | 21 | 29.93 | 760.2 | 30.00 | 762.1 | 74.7 | 23.7 | 65.6 | 5 | 3 | 9 | 7 | 4 | ..... | 3 | ..... | ..... | ..... | ..... | 4 | 1.04 | 26.5 |
| Châlons sur Marne | N. 48 57 | E. 4 21 | 0.25 p.m. | 292 | 89 | 29.56 | 750.9 | 29.89 | 759.2 | 73.0 | 22.8 | 83 | 2 | 2 | 2 | 6 | 3 | 3 | 1 | 1 | ..... | ..... | ..... | 5 | 1.76 | 44.7 |
| Charleville | N. 49 46 | E. 4 49 | 0.27 p.m. | 476 | 145 | 29.52 | 749.9 | 30.04 | 763.0 | 74.1 | 23.4 | 54.6 | 5 | 4 | 6 | 2 | 2 | 3 | 3 | 6 | ..... | ..... | ..... | 5 | 3.37 | 85.5 |
| Clermont-Fer'and | N. 45 46 | E. 3 05 | 0.20 p.m. | 1273 | 388 | 28.70 | 729.0 | 30.00 | 761.9 | 76.8 | 24.9 | 48.2 | 12 | 4 | 4 | 2 | 1 | ... | 1 | 7 | ..... | ..... | ..... | 5 | 2.93 | 74.4 |
| Cluny | N. 46 26 | E. 4 39 | 0.27 p.m. | 787 | 240 | 29.19 | 741.4 | 30.02 | 762.5 | 78.3 | 25.7 | 53.9 | ..... | 2 | 1 | 7 | 3 | 3 | 4 | 11 | ..... | ..... | ..... | 4 | 2.17 | 55.1 |
| Commercy | N. 48 46 | E. 5 35 | 0.30 p.m. | 797 | 243 | 29.20 | 741.6 | 30.02 | 762.6 | 71.2 | 21.8 | 65.4 | 2 | 4 | 10 | 3 | ..... | ..... | 7 | 5 | ..... | ..... | ..... | ..... | 1.14 | 29.0 |
| Gap | N. 44 33 | E. 6 05 | 0.32 p.m. | 2424 | 739 | 27.55 | 699.8 | 30.97 | 761.2 | 77.7 | 25.4 | 40.9 | 11 | ..... | ..... | ..... | 14 | 2 | 4 | ..... | ..... | ..... | ..... | 2 | 2.49 | 63.2 |
| Gréasque | N. 43 25 | E. 5 37 | 0.31 p.m. | 1056 | 322 | 28.92 | 734.5 | 29.95 | 761.6 | 83.5 | 28.6 | 35.1 | 4 | 8 | 4 | 10 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 0.40 | 10.2 |
| Grenoble | N. 45 12 | E. 5 43 | 0.31 p.m. | 715 | 218 | 29.28 | 743.7 | 30.02 | 762.4 | 77.9 | 25.5 | 65.9 | 2 | 9 | 6 | .... | 1 | 4 | 2 | 7 | ..... | ..... | ..... | ..... | 2.26 | 57.4 |
| Guéret | N. 46 10 | E. 1 52 | 0.16 p.m. | 1486 | 453 | 28.49 | 723.6 | 30.03 | 762.8 | 72.9 | 22.7 | 65.1 | 3 | 2 | 3 | 15 | 5 | ... | 2 | 1 | ..... | ..... | ..... | 3 | 2.97 | 75.5 |
| Lamballe | N. 48 28 | W. 2 31 | 11.58 a.m. | 252 | 77 | 29.80 | 756.8 | 30.07 | 763.7 | 75.9 | 24.4 | 66.2 | 12 | 7 | 3 | ..... | 1 | 1 | 2 | 5 | ..... | ..... | ..... | ..... | 0.39 | 10.0 |
| Lescar | N. 43 20 | W. 0 26 | 0.06 p.m. | 525 | 160 | 29.48 | 748.9 | 30.03 | 762.8 | 81.5 | 27.5 | 52.1 | 1 | 1 | 15 | 2 | 2 | 4 | 3 | 3 | ..... | ..... | ..... | 5 | 1.33 | 33.8 |
| Lorient | N. 47 45 | W. 3 21 | 11.55 a.m. | 86 | 26 | 29.98 | 761.4 | 30.08 | 764.0 | 75.6 | 24.2 | 63 | 2 | 2 | 1 | 10 | 11 | 3 | ..... | 1 | ..... | ..... | ..... | 5 | 1.08 | 27.4 |
| Lyon | N. 45 41 | E. 2 30 | 0.25 p.m. | 981 | 299 | 29.00 | 736.5 | 30.02 | 762.4 | 77.2 | 25.1 | 47.7 | 6 | 3 | 1 | ..... | 3 | 5 | 8 | 5 | ..... | ..... | ..... | 5 | 0.71 | 18.0 |
| Mans | N. 48 01 | E. 0 12 | 0.09 p.m. | 285 | 87 | 29.78 | 756.3 | 30.07 | 763 7 | 81.9 | 27.7 | 68.9 | 6 | ..... | 2 | 6 | 2 | 1 | 3 | 3 | 8 | ..... | ..... | 4 | 1.46 | 37.0 |
| Marseille | N. 43 18 | E. 5 23 | 0.29 p.m. | 246 | 75 | 29.74 | 755.5 | 30.01 | 762.2 | 78.8 | 26.0 | 54.9 | ..... | 5 | 15 | 9 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 0.03 | 0.8 |
| Montpellier | N. 43 37 | E. 3 53 | 0.24 p.m. | 118 | 36 | 29.87 | 758.6 | 29.97 | 761.3 | 84.2 | 29.0 | 64.1 | ..... | 5 | 1 | 4 | 13 | 6 | 1 | ..... | 1 | ..... | ..... | 2 | 0.09 | 2.2 |
| Nancy | N. 48 42 | E. 6 11 | 0.33 p.m. | 725 | 221 | 29.28 | 743.7 | 30.04 | 762.9 | 72.5 | 22.5 | 62.5 | 7 | 7 | 5 | 3 | 2 | 1 | 1 | 5 | ..... | ..... | ..... | ..... | 2.74 | 69.5 |
| Nantes | N. 47 13 | W. 1 33 | 0.02 p.m. | 134 | 41 | 29.91 | 759.7 | 30.07 | 763.8 | 78.3 | 25.7 | 49.3 | 2 | 3 | 4 | 5 | 2 | 3 | 5 | 7 | ..... | ..... | ..... | 5 | 0.41 | 10.4 |
| Perpignan | N. 42 42 | E. 2 53 | 0.19 p.m. | 105 | 32 | 29.92 | 759.9 | 30.02 | 762.6 | 79.5 | 26.4 | 57.0 | 1 | 7 | 1 | ..... | ..... | 5 | 13 | 4 | ..... | ..... | ..... | 4 | 0.26 | 6.5 |
| Pic du Midi (Sum- | N. 42 56 | W. 0 08 | 0.08 p.m. | 9380 | 2859 | 21.45 | 544.8 | ..... | ..... | 50.4 | 10.2 | ..... | ..... | 4 | 6 | 5 | ..... | ..... | ..... | 16 | ..... | ..... | ..... | 4 | 4.48 | 113.9 |
| Privas. ..... [mit.) | N. 44 45 | E. 4 36 | 0.26 p.m. | 997 | 304 | 28.99 | 736.4 | 30.00 | 762.1 | 72.5 | 22.5 | 57.1 | 8 | 7 | 1 | 3 | 4 | 1 | 1 | 6 | ..... | ..... | ..... | ..... | 3.32 | 84.4 |
| Puy de Dôme | N. 45 46 | E. 2 58 | 0.20 p.m. | 4813 | 1467 | 25.29 | 642.3 | ..... | ..... | 57.4 | 14.1 | 78.2 | ..... | 3 | 10 | 3 | 3 | 3 | 6 | 3 | ..... | ..... | ..... | 5 | 2.76 | 70.2 |
| Rochefort | N. 45 56 | W. 0 58 | 0.04 p.m. | 29 | 9 | 30.04 | 762.9 | 30.07 | 763 7 | 78.8 | 26.0 | 58.9 | 4 | ..... | 3 | 7 | 3 | ..... | 4 | 8 | 2 | ..... | ..... | 3 | 0.63 | 16.0 |
| Roche-sur-Yon | N. 46 40 | W. 1 26 | 0.02 p.m. | 198 | 60 | 29.81 | 757.1 | 30.03 | 762.8 | 81.0 | 27.2 | 52.3 | ..... | 5 | 5 | 7 | 2 | 7 | 3 | 2 | ..... | ..... | ..... | 3 | 0.13 | 3.3 |
| Rodez | N. 44 21 | E. 2 34 | 0.18 p.m. | 2050 | 625 | 27 96 | 710.2 | 30.00 | 762 1 | 77.4 | 25.2 | 59.1 | 11 | 7 | ..... | ..... | 2 | 2 | 6 | 5 | ..... | ..... | ..... | 4 | 1.95 | 49.8 |
| Rouen | N. 49 26 | E. 1 05 | 0.12 p.m. | 39 | 12 | 29.99 | 761.8 | 30.04 | 763.0 | 76.1 | 24.5 | 64.7 | 2 | 5 | 3 | 7 | 2 | 2 | 3 | 7 | ..... | ..... | ..... | 5 | 2.38 | 60.4 |
| Saint Maur | N. 48 48 | E. 2 21 | 0.17 p.m. | 162 | 49 | 29.88 | 758.9 | 30.04 | 763.1 | 74.8 | 23.8 | 52.4 | 9 | 3 | 4 | 5 | ..... | 2 | 2 | 6 | ..... | ..... | ..... | 5 | 2.30 | 58.5 |
| Toulouse | N. 43 37 | E. 1 27 | 0.14 p.m. | 636 | 194 | 29.37 | 745.9 | 30.09 | 764.3 | 83.1 | 28.4 | 47.6 | 6 | 6 | 3 | 1 | 2 | 8 | 3 | 2 | ..... | ..... | ..... | 2 | 1.04 | 26.4 |
| Tours | N. 47 24 | E. 0 41 | 0.11 p.m. | 167 | 51 | 29.87 | 758.7 | 30.04 | 763.0 | 76.3 | 24.6 | 53 | 8 | 5 | 4 | 3 | 3 | ..... | 1 | 7 | ..... | ..... | ..... | ..... | 1.60 | 40.7 |
| Versailles | N. 48 48 | E. 2 07 | 0.16 p.m. | 400 | 122 | 29.61 | 752.0 | 30.18 | 766 5 | 73.2 | 22.9 | 55.7 | 1 | 3 | 2 | 8 | 1 | 3 | 10 | 3 | ..... | ..... | ..... | 5 | 1.95 | 49.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| St. Martin du Hinx. | N. 43 35 | W. 1 16 | 0.03 p.m. | 131 | 40 | 29.90 | 759.4 | 30.05 | 763.2 | 79.7 | 26.5 | 56 | 6 | 3 | 12 | 1 | 1 | ..... | 4 | 4 | ..... | ..... | ..... | 5 | 2.04 | 51.7 |
| GERMAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ansbach | N. 49 18 | E. 10 36 | 0.50 p.m. | 1358 | 414 | 28.62 | 727.0 | 30.02 | 762.6 | 70.9 | 21.6 | 50.0 | 2 | 2 | 9 | 2 | 1 | 1 | 1 | 9 | 4 | ..... | ..... | 5 | 3.92 | 99.6 |
| Bamberg | N. 49 54 | E. 10 54 | 0.51 p.m. | 787 | 240 | 29.20 | 741.7 | 30.05 | 763.2 | 70.3 | 21.3 | 53.8 | 1*a* | 2 | 12 | ..... | 5 | 4 | 3 | 2 | 1 | ..... | ..... | 4 | 1.84 | 46.8 |
| Berlin | N. 52 30 | E. 13 19 | 1.02 p.m. | 131 | 40 | 29.87 | 758.7 | 30.01 | 762.3 | 72.0 | 22.2 | 45.8 | 1 | 3 | 6 | ..... | 4 | 6 | 4 | 7 | ..... | ..... | ..... | 6 | 1.64 | 41.6 |
| Breslau | N. 51 07 | E. 17 02 | 1.17 p.m. | 482 | 147 | 29.53 | 750.1 | 30.06 | 763.6 | 68.7 | 20.4 | 48.7 | 7 | 4 | 5 | 1 | 2 | 2 | 5 | 5 | ..... | ..... | ..... | 5 | 2.78 | 70.6 |
| Carlsruhe | N. 49 01 | E. 8 25 | 0.42 p.m. | 413 | 126 | 29.58 | 751.3 | 30.02 | 762.6 | 74.1 | 23.4 | 55.4 | 1 | 2 | ..... | 14 | 1 | 1 | 7 | 5 | ..... | ..... | ..... | 6 | 5.27 | 133.9 |
| Cassel | N. 51 19 | E. 9 28 | 0.46 p.m. | 669 | 204 | 29.34 | 745.1 | 30.04 | 763.1 | 71.2 | 21.8 | 53.0 | 6 | 4 | 1 | 1 | 9 | 4 | 4 | 2 | ..... | ..... | ..... | 5 | 3.80 | 96.4 |
| Frankfort on M | N. 50 08 | E. 8 41 | 0.43 p.m. | 338 | 103 | ..... | ..... | 30.02 | 762.5 | 73.9 | 23.3 | 54.8 | 2 | 3 | 2 | 4 | 4 | 3 | 6 | 7 | ..... | ..... | ..... | 5 | 2.76 | 70.0 |
| Friedrichshafen | N. 47 39 | E. 9 29 | 0.46 p.m. | 1339 | 408 | 28.65 | 727.6 | 30.01 | 762.3 | 71.8 | 22.1 | 69.8 | 2 | ..... | 3 | 16 | 5 | ..... | ..... | 5 | ..... | ..... | ..... | 5 | 9.40 | 238.7 |
| Hamburg | N. 53 33 | E. 9 58 | 0.48 p.m. | 85 | 26 | 29.97 | 761.1 | 30.06 | 763 4 | 69.3 | 20.7 | 61.9 | 5 | 2 | 5 | 3 | 5 | 6 | 1 | 4 | ..... | ..... | ..... | 6 | 1.62 | 41.2 |
| Kiel | N. 54 19 | E. 10 04 | 0.48 p.m. | 13 | 4 | 30.02 | 762.5 | 30.04 | 762.9 | 68.5 | 20.3 | 59.3 | 8 | 3 | 2 | 2 | 6 | 1 | 1 | 7 | 1 | ..... | ..... | 5 | 0.53 | 13.4 |
| Leipsic | N. 51 20 | E. 12 24 | 0.58 p.m. | 390 | 119 | 29.64 | 752.8 | 30.05 | 763.2 | 70.5 | 21.4 | 57.0 | 4 | 5 | 3 | 3 | 2 | 4 | 4 | 6 | ..... | ..... | ..... | 5 | 1.28 | 32.6 |
| Magdeburg | N. 52 09 | E. 11 37 | 0.54 p.m. | 177 | 54 | 29.84 | 757.9 | 30.02 | 762.6 | 73.6 | 23.1 | 53.5 | 5 | 4 | 3 | 2 | 1 | 5 | 4 | 7 | ..... | ..... | ..... | 4 | 1.48 | 37.5 |
| Memel | N. 55 43 | E. 21 07 | 1.32 p.m. | 39 | 12 | 30.02 | 762.6 | 30.07 | 763.8 | 64.6 | 18.1 | 65.5 | 7 | 11 | 3 | 2 | 1 | 1 | 2 | 4 | ..... | ..... | ..... | 6 | ..... | ..... |
| Munich | N. 48 09 | E. 11 34 | 0.54 p.m. | 1732 | 528 | 28 24 | 717.3 | 30.11 | 764.9 | 70.3 | 21.3 | 51.6 | 4 | 6 | 1 | 2 | ..... | ..... | 4 | 7 | 7 | ..... | ..... | 4 | 5.11 | 129.9 |
| Neufahrwasser | N. 54 24 | E. 18 40 | 1.25 p.m. | 26 | 8 | 30.04 | 762.9 | 30.06 | 763 6 | 64.8 | 18.2 | 65.1 | 7 | 3 | 3 | 1 | 2 | ..... | 4 | 11 | ..... | ..... | ..... | 5 | 1 57 | 39.9 |
| Neustadt | N. 49 21 | E. 8 08 | 0.41 p.m. | 479 | 146 | 29.51 | 749.6 | 30.04 | 763.0 | 73.4 | 23.0 | 60.0 | ..... | ..... | ..... | 10 | 2 | 2 | 1 | 12 | 4 | ..... | ..... | 6 | 4.11 | 104.4 |
| Stuttgart | N. 48 47 | E. 9 11 | 0.45 p.m. | 833 | 254 | 29.13 | 739.9 | 29.97 | 761.1 | 72.9 | 22.7 | 59.9 | 3 | 8 | 3 | 3 | ..... | 4 | 3 | 6 | 1 | ..... | ..... | 5 | 3.28 | 83.2 |
| Wustrow | N. 54 21 | E. 12 24 | 0.58 p.m. | 23 | 7 | 30.00 | 762.1 | 30.03 | 762.7 | 67.6 | 19.8 | 77.9 | 5 | 2 | 5 | 3 | ..... | 4 | 7 | 5 | ..... | ..... | ..... | 5 | 1.07 | 27.2 |
| GREEK. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Athens | N. 37 58 | E. 23 44 | 1.43 p.m. | 361 | 110 | 29.55 | 750.5 | 29.91 | 759.8 | 83.8 | 28.8 | 46.0 | 4 | 1 | ..... | 10 | 3 | ..... | ..... | 13 | ..... | ..... | ..... | 2 | 1.47 | 37.3 |
| INDIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kurrachee | N. 24 47 | E. 67 04 | 4.36 p.m. | 49 | 15 | 29.50 | 749 3 | 29.55 | 751.6 | 85.3 | 29.6 | 72 | 1 | 1 | 9 | 19 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 5 | 0.33 | 8.4 |
| Deesa | N. 24 16 | E. 72 14 | 4.57 p.m. | 466 | 142 | 29.12 | 739.6 | 29.58 | 751.3 | 85.2 | 29.6 | 63 | 1*b* | 1 | 3 | 17 | 3 | 1 | 1 | 2 | ..... | ..... | ..... | 9 | 7.59 | 192.8 |
| Bombay | N. 18 54 | E. 72 49 | 5.00 p.m. | 37 | 11 | 29.68 | 753.9 | 29.72 | 754 9 | 81.3 | 27.4 | 86 | ..... | 3 | 24 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 14.88 | 378.0 |
| Poona | N. 18 28 | E. 74 10 | 5.05 p.m. | 1849 | 564 | 27.87 | 707.9 | 29.72 | 754.9 | 76.1 | 24.5 | 76 | *b* | 3 | 15 | 11 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 2.59 | 65.8 |
| Belgaum | N. 15 52 | E. 74 42 | 5.07 p.m. | 2550 | 777 | 27.22 | 691.4 | 29.78 | 756.4 | 70.4 | 21.3 | 89 | ..... | ..... | 1 | 14 | 17 | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 12.57 | 319.3 |
| Lahore | N. 31 34 | E. 74 20 | 5.05 p.m. | 732 | 223 | 28.76 | 730.5 | 29.48 | 748.8 | 91.6 | 33.1 | 61 | ..... | 1 | 2 | ..... | ..... | ..... | 9 | 2 | 17 | ..... | ..... | 4 | 2.80 | 71.1 |
| Roorkee | N. 29 52 | E. 77 56 | 5.20 p.m. | 887 | 270 | 28.64 | 727.4 | 29.52 | 749.8 | 81.5 | 29.2 | 79 | ..... | ..... | 3 | ..... | 3 | 3 | 5 | ..... | 17 | ..... | ..... | 5 | 20.27 | 514.9 |
| Agra | N. 27 10 | E. 78 05 | 5.20 p.m. | 555 | 169 | 28.99 | 736.3 | 29.55 | 750.6 | 84.9 | 29.4 | 75 | 3 | 9 | 3 | 5 | 4 | 4 | 2 | 1 | ..... | ..... | ..... | 8 | 9.89 | 251.2 |
| Nagpur | N. 21 09 | E. 79 11 | 5.24 p.m. | 1025 | 312 | 28.55 | 725.2 | 29.59 | 751.6 | 80.7 | 27.1 | 70 | 2 | 10 | 7 | 1 | 1 | ..... | ..... | ..... | 10 | ..... | ..... | 9 | 15.02 | 381.5 |
| Jubbulpore | N. 23 09 | E. 79 59 | 5.28 p.m. | 1341 | 409 | 28 23 | 717.0 | 29.57 | 751.1 | 79.6 | 26.4 | 84 | ..... | 6 | 10 | 4 | ..... | 1 | ..... | 1 | 9 | ..... | ..... | 9 | 25.32 | 643.1 |
| Lucknow | N. 26 50 | E. 81 00 | 5.32 p.m. | 369 | 113 | 29.15 | 740.4 | 29.52 | 749.8 | 85.5 | 29.7 | 76 | 6 | ..... | ..... | ..... | ..... | ..... | 2 | 4 | 19 | ..... | ..... | 7 | 12.42 | 315.4 |
| Allahabad | N. 25 26 | E. 81 52 | 5.35 p.m. | 307 | 94 | 29.21 | 741.9 | 29.52 | 749.8 | 83.8 | 28.8 | 86 | 1 | 3 | ..... | 3 | ..... | ..... | 4 | 6 | 3 | ..... | ..... | 8 | 9 44 | 239.8 |
| Patna | N. 25 37 | E. 85 08 | 5.49 p.m. | 183 | 56 | 29.35 | 745.5 | 29.53 | 750.0 | 86.5 | 30.3 | 76 | ..... | ..... | 1 | 2 | ..... | 2 | 20 | 6 | ..... | ..... | ..... | 7 | 7.20 | 184.4 |
| Hazaribagh | N. 24 00 | E. 85 24 | 5.50 p.m. | 2007 | 612 | 27.55 | 699.8 | 29.54 | 750.3 | 78.8 | 26.0 | 82 | ..... | 3 | 1 | 2 | 5 | 12 | 5 | 1 | 2 | ..... | ..... | 9 | 14.92 | 379.0 |
| Cuttack | N. 20 29 | E. 85 54 | 5.52 p.m. | 80 | 24 | 29.49 | 749.0 | 29.57 | 751.1 | 83.6 | 28.7 | 80 | 5 | 2 | 4 | 5 | 4 | 4 | ..... | 4 | 3 | ..... | ..... | 6 | 9.91 | 252.2 |
| Calcutta | N. 22 33 | E. 88 21 | 6.01 p.m. | 21 | 6 | 29.54 | 750.3 | 29.56 | 750.8 | 82.5 | 28.1 | 86 | ..... | ..... | 1 | 6 | 12 | 11 | 1 | ... | ..... | ..... | ..... | 8 | 10.97 | 278.6 |
| Chittagong | N. 22 21 | E. 91 50 | 6.15 p.m. | 87 | 26 | 29.56 | 750.8 | 29.65 | 753.1 | 80.9 | 27.2 | 87 | ..... | ..... | ..... | 6 | 15 | 4 | ..... | ..... | 6 | ..... | ..... | 7 | 0.23 | 5.8 |
| Sibsagar | N. 26 59 | E. 94 40 | 6.27 p.m. | 333 | 102 | 29.27 | 743.4 | 29.60 | 751.8 | 85.4 | 29.7 | 80 | ..... | 2 | ..... | 16 | 1 | 3 | .... | 9 | ..... | ..... | ..... | 6 | 20.76 | 527.3 |

| STATIONS. | Latitude | Longitude | Local Time | Altitude of Barometer above sea. | | Result of Simultaneous Observations for August, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| INDIAN—Cont'd. | o ' | o ' | | | | | | | | | | | | | | | | | | | | | | | | |
| Jeypore | N. 26 55 | E. 75 50 | 5.05 p.m. | 1431 | 436 | 28.14 | 714.7 | 29.55 | 750.6 | 85.2 | 29.6 | 63 | 1 | 6 | 8 | 3 | ... | 5 | 4 | 3 | 1 | ..... | ..... | 8 | 5.27 | 133.9 |
| Zanzibar | S. 6 10 | E. 39 11 | 2.45 p m. | 23 | 7 | 30.03 | 762.7 | ... ... | ..... | 80.6 | 27.0 | 56 | ..... | ..... | ..... | 1 | 1 | 22 | 7 | ..... | ..... | ..... | ..... | 4 | 0 | 0 |
| Bellary | N. 15 09 | E. 76 57 | 5.16 p.m. | 1455 | 444 | 28.22 | 716.8 | 29.67 | 753.6 | 85.7 | 29.8 | 50 | ..... | ..... | 14 | 17 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 0.01 | 0.3 |
| Trichinopoly | N. 10 50 | E. 78 44 | 5.23 p.m. | 275 | 84 | 29.47 | 748.5 | 29.75 | 755.6 | 92.2 | 33.4 | 45 | ..... | 16 | 10 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 | 1.53 | 38.9 |
| ITALIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Udine | N. 46 04 | E. 13 13 | 1.01 p.m. | 381 | 116 | 29.60 | 751.9 | 30.00 | 761.9 | 78.1 | 25.6 | 50 | ..... | ..... | 5 | 9 | 3 | 1 | 5 | 3 | 5 | ..... | ..... | 4 | 5.01 | 128.1 |
| Milan | N. 45 28 | E. 9 11 | 0.45 p.m. | 482 | 147 | 29.50 | 749.3 | 30.00 | 762.1 | 79.2 | 26.2 | 53 | 1 | 1 | ..... | 5 | 7 | 6 | 9 | 2 | ..... | ..... | ..... | 5 | 3.65 | 92.7 |
| Padua | N. 45 24 | E. 11 53 | 0.56 p.m. | 102 | 31 | 29.88 | 759.0 | 29.99 | 761.7 | 77.4 | 25.2 | 54 | 1 | 3 | ..... | 5 | 1 | 10 | 7 | 4 | ..... | ..... | ..... | 3 | 3.18 | 80.8 |
| Moncalieri | N. 45 00 | E. 7 41 | 0.39 p.m. | 846 | 258 | 29.10 | 739.2 | 29.97 | 761.3 | 76.8 | 24.9 | 52 | ..... | 6 | 2 | 4 | 5 | 9 | 5 | ..... | ..... | ..... | ..... | 4 | 5.58 | 141.8 |
| Genoa | N. 44 24 | E. 8 55 | 0.44 p.m. | 157? | 48? | 29.82 | 757.3 | 30.00 | 762.0 | 78.3 | 25.7 | 57 | 4 | 2 | ..... | 19 | 2 | 3 | ..... | 1 | ..... | ..... | ..... | 3 | 1.03 | 26.1 |
| Pesaro | N. 43 55 | E. 12 53 | 1.00 p.m. | 46 | 14 | 29.95 | 760.7 | 30.00 | 761.9 | 74.8 | 23.8 | 66 | 13 | 2 | 1 | 1 | ..... | ..... | 7 | 7 | ..... | ..... | ..... | 3 | 2.07 | 52.6 |
| Florence | N. 43 46 | E. 11 15 | 0.53 p.m. | 240 | 73 | 29.71 | 754.6 | 29.96 | 760.9 | 80.8 | 27.1 | 38 | 8 | 4 | 8 | 2 | 2 | ..... | 1 | 6 | ..... | ..... | ..... | 3 | 3.91 | 99.3 |
| Leghorn | N. 43 33 | E. 10 18 | 0.49 p.m. | 79 | 24 | 29.84 | 757.8 | 29.92 | 759.9 | 79.5 | 26.4 | 63 | 3 | 5 | 17 | 3 | 1 | 1 | ..... | 1 | ..... | ..... | ..... | 4 | 2.95 | 75.0 |
| Rome | N. 41 54 | E. 12 29 | 0.58 p.m. | 164 | 50 | 29.79 | 756 7 | 29.96 | 761.0 | 84.4 | 29.1 | 41 | 4 | 1 | 11 | 10 | 4 | ..... | ..... | 1 | ..... | ..... | ..... | 3 | 2.01 | 51.0 |
| Lecce | N. 40 22 | E. 18 12 | 1.21 p.m. | 236 | 72 | 29.70 | 754.4 | 29.95 | 760.6 | 78.4 | 25.8 | 48 | 17 | 5 | 1 | ..... | 3 | 1 | 2 | 2 | ..... | ..... | ..... | 2 | 1.03 | 26.2 |
| Cosenza | N. 39 19 | E. 16 17 | 1.13 p.m. | 840 | 256 | 29.10 | 739.2 | 29.96 | 761.0 | 79.3 | 26.3 | 65 | 2 | 6 | 12 | 4 | 2 | 4 | 1 | ..... | ..... | ..... | ..... | 3 | 2.60 | 66.0 |
| Palermo | N. 38 07 | E. 13 21 | 1.02 p.m. | 236 | 72 | 29.76 | 755.8 | 30.00 | 761.9 | 81.1 | 27.3 | 51 | 2 | 5 | ..... | 3 | ..... | ..... | 2 | 19 | ..... | ..... | ..... | 2 | 0.03 | 0.7 |
| Syracuse | N. 37 03 | E. 15 15 | 1.09 p.m. | 72 | 22 | 29.87 | 758.6 | 29.91 | 759.7 | 83.1 | 28.4 | 57 | 5 | 2 | ..... | ..... | 4 | 5 | 12 | 3 | ..... | ..... | ..... | 3 | 0.07 | 1.8 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Naples *a* | N. 40 52 | E. 14 15 | 1.05 p.m. | 489 | 149 | 29.47 | 748.5 | ..... | ..... | 80.4 | 26.9 | 56.3 | 1 | 1 | 1 | 17 | ..... | 2 | 4 | 4 | ..... | ..... | ..... | 3 | 2.92 | 74.1 |
| Stelvio | N. 46 32 | E. 10 25 | 0.50 p.m. | 8343 | 2543 | 22.33 | 567.1 | ..... | ..... | 43.5 | 6.4 | 56.1 | ..... | ..... | 9 | 3 | ..... | 1 | 5 | 13 | ..... | ..... | ..... | 6 | 5.08 | 129.1 |
| Valdobbia | N. 45 47 | E. 7 51 | 0.40 p.m. | 8360 | 2548 | 22.34 | 567.5 | ..... | ..... | 51.6 | 10.9 | 73.4 | 2 | 9 | 6 | 3 | 1 | ..... | 2 | 8 | ..... | ..... | ..... | 8 | 1.42 | 36.2 |
| JAPANESE. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akita | N. 39 42 | E.140 07 | 9.28 p.m. | 32 | 10 | ..... | ..... | 29.82 | 757.3 | 71.1 | 21.7 | ..... | (12 | 3 | 2 | 1 | 1 | 3 | 1 | ..... | 17 | ..... | ..... | ..... | ..... | ..... |
| Awomori | N. 40 51 | E.140 45 | 9.31 p.m. | 32 | 10 | ..... | ..... | 29.83 | 757.6 | 69.6 | 19.8 | ..... | 4 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 17 | ..... | ..... | ..... | ..... | ..... |
| Hokodate | N. 41 47 | E.140 44 | 9.31 p.m. | 10 | 3 | ..... | ..... | 29.84 | 758.0 | 64.0 | 17.8 | ..... | 3 | 2 | 3 | ..... | ..... | 5 | 10 | ..... | 8 | ..... | ..... | ..... | ..... | ..... |
| Hamamatsu | N. 34 43 | E.137 43 | 9.19 p.m. | 92 | 28 | ..... | ..... | 29.84 | 757.8 | 74.5 | 23.6 | ..... | 2 | ..... | 8 | ..... | ..... | 1 | 14 | 1 | 5 | ..... | ..... | ..... | ..... | ..... |
| Hiroshima *c* | N 34 23 | E.132 27 | 8.58 p m. | 16 | 5 | ..... | ..... | 29.75 | 755 6 | 77.0 | 25.0 | ..... | 8 | ..... | ..... | ..... | 1 | 1 | 2 | 4 | 12 | ..... | ..... | ..... | ..... | ..... |
| Kanazawa | N. 36 33 | E.136 40 | 9.14 p.m. | 95 | 29 | ..... | ..... | 29.84 | 757.8 | 72.5 | 22.5 | ..... | ..... | 1 | ..... | 1 | ..... | 5 | 9 | 1 | 14 | ..... | ..... | ..... | ..... | ..... |
| Kagoshima *d* | N. 31 35 | E.130 33 | 8.50 p.m. | 14 | 4 | ..... | ..... | 29.77 | 756.2 | 77 5 | 25.3 | ..... | 4 | 5 | 1 | 1 | 1 | 2 | 8 | 2 | 3 | ..... | ..... | ..... | ..... | ..... |
| Kioto | N. 35 01 | E.135 46 | 9.11 p.m. | 162 | 49 | ..... | ..... | 29.82 | 757.4 | 75.0 | 23.9 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 4 | 1 | 25 | ..... | ..... | ..... | ..... | ..... |
| Kochi *b* | N. 33 33 | E.133 34 | 9.02 p.m. | 20 | 6 | ..... | ..... | 29.79 | 756.7 | 76.3 | 24.6 | ..... | 1 | 2 | 5 | ..... | ... | 1 | 6 | 2 | 12 | ..... | ..... | ..... | ..... | ..... |
| Minaka *a* | N. 31 56 | E.131 26 | 8.54 p.m. | 26 | 8 | ..... | ..... | 29.79 | 756 7 | 76.1 | 24.5 | ..... | 3 | 2 | 5 | 3 | 3 | 3 | 7 | 3 | 1 | ..... | ..... | ..... | ..... | ..... |
| Miyako *a* | N. 39 38 | E.141 59 | 9.36 p.m. | 98 | 30 | ..... | ..... | 29.86 | 758.4 | 66.4 | 19.1 | ..... | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... | 27 | ..... | ..... | ..... | ..... | ..... |
| Nagasaki *c* | N. 32 44 | E.129 52 | 8.47 p.m. | 189 | 58 | ..... | ..... | 29.78 | 756.4 | 77.0 | 25.0 | ..... | 2 | 1 | 1 | 2 | 3 | ..... | ..... | 5 | 14 | ..... | ..... | ..... | ..... | ..... |
| Niigata | N. 37 55 | E.139 03 | 9.24 p.m. | 32 | 10 | ..... | ..... | 29.83 | 757 7 | 74.1 | 23.4 | ..... | 1 | ..... | ..... | 4 | ... | 4 | ..... | 3 | 18 | ..... | ..... | ..... | ..... | ..... |
| Nobiru | N. 38 23 | E.141 11 | 9 32 p.m. | 15 | 5 | ..... | ..... | 29.83 | 757.6 | 70.5 | 21.4 | ..... | 4 | 2 | 1 | .. | 8 | 3 | 4 | 2 | 7 | ..... | ..... | ..... | ..... | ..... |
| Numadzu | N. 35 06 | E.138 51 | 9.23 p.m. | 32 | 10 | ..... | ..... | 29.84 | 758.0 | 74.3 | 23.5 | ..... | 2 | ..... | 2 | 4 | 3 | ..... | 9 | 3 | 8 | ..... | ..... | ..... | ..... | ..... |
| Osaka | N. 34 42 | E.135 30 | 9.10 p.m. | 13 | 4 | ..... | ..... | 29.82 | 757.3 | 76.1 | 24.5 | ..... | 4 | ..... | 3 | ..... | ..... | 1 | 5 | 10 | 8 | ..... | ..... | ..... | ..... | ..... |
| Sakai *b* | N. 35 33 | E.133 14 | 9.01 p.m. | 10 | 3 | ..... | ..... | 29.79 | 756.7 | 75.9 | 24.4 | ..... | 8 | 5 | 1 | 1 | ..... | 1 | 6 | 5 | 2 | ..... | ..... | ..... | ..... | ..... |
| Shimonoseki *a* | N. 33 58 | E.130 56 | 8.52 p.m. | 134 | 41 | ..... | ..... | 29.79 | 756.6 | 75.0 | 23.9 | ..... | 3 | ..... | ..... | ..... | ..... | ..... | 9 | 3 | 15 | ..... | ..... | ..... | ..... | ..... |
| Sapporo *b* | N. 43 04 | E.141 23 | 9.33 p m. | 60 | 18 | ..... | ..... | 29.84 | 758.0 | 64.2 | 17.9 | ..... | ..... | 2 | 2 | ..... | 1 | 12 | ..... | ..... | 12 | ..... | ..... | ..... | ..... | ..... |
| Tokei | N. 35 41 | E.139 46 | 9.27 p.m. | 69 | 21 | ..... | ..... | 29.84 | 757.8 | 72.0 | 22.2 | ..... | 2 | 2 | ..... | 1 | 7 | 2 | 3 | 2 | 12 | ..... | ..... | ..... | ..... | ..... |
| Wakayama | N. 34 14 | E.135 09 | 9.09 p.m. | 48 | 15 | ..... | ..... | 29.80 | 757.0 | 77.4 | 25.2 | ..... | 4 | 1 | ..... | ..... | 3 | ..... | ..... | 2 | 21 | ..... | ..... | ..... | ..... | ..... |
| MAURITIUS. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mauritius | S. 20 06 | E. 57 33 | 3.58 p.m. | 181 | 55 | 29.95 | 760.7 | 30.14 | 765.5 | 71.7 | 22.1 | 61.9 | ..... | ..... | 2 | 2 | ..... | 13 | 13 | 1 | ..... | ..... | ..... | 5 | 0.34 | 8.6 |
| MEXICAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leon | N. 21 07 | W.101 35 | 5.22 a.m. | 5901 | 1799 | 24.35 | 618 5 | 30.01 | 762.2 | 59.5 | 15.3 | 83 | 3 | 10 | 1 | 1 | 3 | 1 | ..... | ..... | 12 | ..... | ..... | 6 | 4.54 | 115.3 |
| Mazatlan | N. 23 11 | W.106 17 | 5.03 a.m. | 249 | 76 | 29.66 | 753.4 | 29.91 | 759.7 | 77.9 | 25.5 | 87.4 | 7 | 3 | ..... | ..... | ..... | ..... | 13 | 8 | ..... | ..... | ..... | 6 | 5.73 | 145.5 |
| NETHERLANDS. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flushing | N. 51 24 | E. 3 35 | 0.22 p.m. | 0 | 0 | 30.04 | 763.0 | 30.04 | 763.0 | 72.3 | 22.4 | ..... | 7 | 3 | 6 | 4 | 1 | 1 | 7 | 2 | ..... | ..... | ..... | ..... | 1.69 | 42.9 |
| Groningen | N. 53 12 | E. 6 34 | 0.34 p.m. | ? | ? | 29.98 | 761.6 | 30.04 | 763.0 | 69.3 | 20.7 | ..... | 8 | 3 | 4 | 2 | 6 | 2 | 4 | 2 | ... | ..... | ..... | ..... | 3.53 | 89.7 |
| Helder | N. 52 58 | E. 4 45 | 0.27 p.m. | 0 | 0 | 30.02 | 762.5 | 30.02 | 762.5 | 67.6 | 19.8 | ..... | 2 | 7 | ..... | 6 | 4 | ..... | 6 | 6 | ..... | ..... | ..... | ..... | 2.47 | 62.7 |
| Hellevoetsluis | N. 51 49 | E. 4 08 | 0.25 p.m. | 0 | 0 | 30.03 | 762.7 | 30.03 | 762.7 | 68.9 | 20.5 | 61.6 | 1 | 4 | 3 | 7 | ..... | ... | 11 | 3 | 2 | ..... | ..... | ..... | 2.15 | 54.5 |
| Utrecht | N. 52 05 | E. 5 07 | 0.29 p.m. | 43 | 13 | 29.98 | 761.5 | 30.04 | 762.9 | 73.2 | 22.9 | 54.1 | 3 | 6 | 3 | 5 | 3 | 5 | 5 | 1 | ..... | ..... | ..... | 4 | 2.21 | 56.1 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Batavia | S. 6 11 | E.106 48 | 7.15 p.m. | ? | ? | ..... | ..... | 29.88 | 758.9 | 79.9 | 26.6 | 78.0 | 9 | 1 | ..... | ..... | ..... | ..... | 1 | 20 | ..... | ..... | ..... | 5 | 0.46 | 11.7 |
| NORWEGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bergen | N. 60 24 | E. 5 20 | 0.29 p.m. | 56 | 17 | 29.93 | 760.1 | 29.99 | 761.7 | 65.1 | 18.4 | 64.1 | 1 | 4 | 3 | 1 | 16 | 1 | ..... | .. | 5 | ..... | ..... | 5 | 3.13 | 79.6 |
| Brono | N. 65 28 | E. 12 14 | 0.57 p.m. | 34 | 10 | 29.97 | 761.3 | 30.01 | 762.3 | 65.8 | 18.8 | 61.3 | 12 | ..... | 2 | 2 | ..... | 6 | 2 | ... | 7 | ..... | ..... | 3 | 6.55 | 13.9 |
| Christiania | N. 59 55 | E. 10 45 | 0.51 p.m. | 134 | 41 | 29.88 | 759.0 | 30.02 | 762.6 | 68.7 | 20.4 | 86.2 | 1 | ..... | 3 | 7 | 8 | 4 | 8 | ..... | ..... | ..... | ..... | 5 | 0.23 | 5.9 |
| Gjesvær | N. 71 07 | E. 25 22 | 1.49 p.m. | 23 | 7 | 30.03 | 762.7 | 30.05 | 763.3 | 55.4 | 13.0 | ..... | ..... | ..... | 3 | 3 | 2 | ..... | 3 | 5 | 15 | ..... | ..... | 4 | 1.09 | 27.7 |
| PORTUGUESE. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Funchal | N. 32 38 | W. 16 55 | 11.00 a.m. | 82 | 25 | 29.99 | 761.8 | 30.08 | 764.0 | 75.2 | 24.0 | 67.7 | ..... | ..... | 1 | 21 | 1 | 5 | ..... | ..... | 3 | ..... | ..... | 4 | 0.60 | 15.3 |
| Lisbon | N. 38 42 | W. 9 08 | 11.31 a.m. | 312 | 95 | 29.70 | 754.4 | 30.02 | 762 6 | 77.2 | 25.1 | 50.2 | 4 | 2 | 1 | 7 | 9 | 1 | 2 | 5 | ..... | ..... | ..... | 4 | 0.02 | 0.6 |
| Ponta Delgada | N. 37 45 | W. 25 41 | 10.25 a.m. | 66 | 20 | 30.12 | 765 1 | 30.19 | 766.9 | 72.9 | 22.7 | 62.8 | 8 | ..... | 4 | 4 | ..... | 2 | ... | 11 | 2 | ..... | ..... | 4 | 2.14 | 54.3 |
| Saint Paul de Loando | S. 8 49 | E. 13 07 | 1.00 p.m. | 193 | 59 | 29.80 | 756.8 | 30.00 | 762 0 | 72.5 | 22.5 | 78.9 | 5 | 7 | 4 | 4 | 5 | 4 | ..... | 1 | 1 | ..... | ..... | 6 | 0 | 0 |
| San Salvador | S. 6 17 | E. 14 53 | 1.07 p.m. | 1834 | 559 | 28 12 | 714.2 | 29.96 | 761.0 | 75.2 | 24.0 | 57.1 | ..... | 3 | 5 | 14 | 6 | ..... | ..... | ..... | 3 | ..... | ..... | 5 | 0 | 0 |
| Serra da Estrella | N. 40 25 | W. 7 35 | 11.37 a.m. | 4728 | 1441 | 25.40 | 645.2 | 29.97 | 761.2 | 66.2 | 19 0 | 52.0 | 2 | 4 | 7 | 1 | ..... | 2 | 14 | 1 | ..... | ..... | ..... | 5 | 2.92 | 74.1 |
| RUSSIAN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akmolinski *c* | N. 51 12 | E. 71 23 | 4.54 p.m. | 843? | 306? | 28.68 | 728 4 | 29.71 | 754.5 | 71.2 | 21.8 | 35.8 | 4 | 6 | 10 | 2 | 1 | 2 | 2 | 1 | ..... | ..... | ..... | 4 | 1.02 | 25.8 |
| Archangel | N. 64 33 | E. 40 32 | 2.50 p.m. | 16 | 5 | 29.98 | 761.6 | 30.00 | 762.1 | 55.2 | 12.9 | 65.8 | 14 | 6 | 1 | 1 | 1 | 1 | 1 | 6 | ..... | ..... | ..... | 8 | 0.15 | 3.7 |
| Astrakhan | N.46 21 | E. 48 02 | 3.20 p.m. | 68 | 21 | 29.97 | 761.2 | 29.90 | 759.4 | 79.9 | 26.6 | 43.3 | 1 | 1 | 4 | 3 | 8 | 8 | 4 | 2 | ... | ..... | ..... | 4 | 1.78 | 45.1 |
| Baku | N. 40 21 | E. 49 51 | 3.28 p.m. | 39 | 12 | 29.91 | 759.6 | 29.86 | 758 4 | 81.1 | 27.3 | 61.6 | 12 | ..... | ..... | ..... | 9 | 5 | 3 | 2 | ..... | ..... | ..... | 1 | 0.01 | 0.3 |
| Barnaul | N. 53 20 | E. 83 47 | 5.43 p.m. | 459? | 140? | 29.33 | 745.0 | 29.81 | 757.2 | 65.1 | 18.4 | 50.7 | 1 | 7 | 6 | 3 | 1 | 2 | 1 | 4 | 6 | ..... | ..... | 6 | 0.81 | 20.6 |
| Bielosersk | N. 60 02 | E. 37 47 | 2.39 p.m. | 430? | 131? | 29.48 | 748.7 | 29.94 | 760.4 | 58.5 | 14.7 | 70.8 | 7 | 7 | 2 | 1 | 1 | 2 | 3 | 6 | 2 | ..... | ..... | 7 | 2.58 | 72.3 |
| Dorpat | N. 58 23 | E. 26 43 | 1.55 p.m. | 223 | 68 | 29.78 | 756.4 | 30.02 | 762 4 | 64.2 | 17.9 | 57.8 | 6 | 4 | 2 | 2 | 1 | ..... | 3 | 11 | 2 | ..... | ..... | 6 | 0.72 | 18.3 |
| Ekaterinburg | N. 56 49 | E. 60 38 | 4.10 p.m. | 894? | 272? | 28.81 | 731.7 | 29.75 | 755.6 | 57.7 | 14.3 | 65.8 | 3 | 4 | 12 | 4 | 2 | 1 | 4 | 1 | ..... | ..... | ..... | 8 | 3.37 | 85.6 |
| Elissawetgrad | N. 48 31 | E. 32 17 | 2.17 p.m. | 417? | 127? | 29.51 | 749.6 | 29.95 | 760 6 | 73.2 | 22.9 | 39.8 | 6 | 0 | 7 | 2 | 1 | 2 | 1 | 2 | 1 | ..... | ..... | 6 | 1.28 | 32.4 |
| Kasan | N. 55 47 | E. 49 08 | 3.24 p.m. | 249 | 76 | 29 54 | 750 2 | 29.80 | 756.9 | 64.0 | 17.8 | 58.7 | 4 | 8 | 5 | 4 | 3 | 1 | 2 | 2 | 2 | ..... | ..... | 9 | 0.56 | 14.2 |
| Kem | N. 64 57 | E. 34 39 | 2.26 p.m. | 43 | 13 | 30.02 | 762.5 | 30.07 | 763.8 | 55.2 | 12.9 | 70.7 | 3 | 1 | 1 | 1 | ..... | 2 | 5 | 15 | 3 | ..... | ..... | 8 | 1.47 | 37.3 |
| Kertch | N. 45 21 | E. 36 29 | 2.34 p.m. | 18? | 6? | 29.91 | 759.8 | 29.94 | 760.4 | 77.0 | 25.0 | 51.6 | 7 | ..... | 2 | ..... | 1 | 1 | 2 | 6 | 12 | ..... | ..... | 4 | 1.59 | 40.3 |
| Kieff | N. 50 27 | E. 30 30 | 2.10 p.m. | 600 | 183 | 29.30 | 744.3 | 29.92 | 759.9 | 67.3 | 19.6 | 52.3 | 8 | 8 | 5 | 5 | 2 | ..... | 2 | 1 | ..... | ..... | ..... | 6 | 2.59 | 65.7 |
| Koslov | N. 52 53 | E. 40 31 | 2.50 p.m. | 466? | 142? | 29.33 | 744 9 | 29.82 | 757.4 | 65.8 | 18.8 | 60.1 | 5 | 3 | 4 | 5 | 3 | 2 | 1 | 5 | 3 | ..... | ..... | 7 | 2.68 | 68.0 |
| Lgov | N 51 41 | E 35 17 | 2.29 p m. | 535? | 163? | 29.37 | 745.9 | 29.93 | 760.3 | 66.4 | 19.1 | 56.6 | 3 | 8 | 6 | 5 | ..... | 2 | 2 | 5 | ..... | ..... | ..... | 6 | 2.89 | 73.3 |
| Libau | N. 56 31 | E. 21 01 | 1.32 p.m. | 20 | 6 | 30.03 | 762.7 | 30.05 | 763.3 | 63.3 | 17.4 | 63.9 | 1 | 12 | 6 | 4 | 1 | 1 | 4 | 2 | ..... | ..... | ..... | 5 | 2.03 | 51.5 |
| Lugan | N. 48 35 | E. 39 20 | 2.45 p.m. | 188? | 57? | 29.67 | 753.6 | 29.87 | 758.6 | 74.8 | 23.8 | 45.3 | 4 | 2 | 8 | 10 | 1 | 2 | 1 | 3 | ..... | ..... | ..... | 7 | 1.54 | 39.0 |
| Moscow | N. 55 46 | E. 37 40 | 2.39 p.m. | 448 | 136 | 29.44 | 747.8 | 29.88 | 758.8 | 60.3 | 15.7 | 72.0 | 15 | 2 | ..... | 3 | 4 | 2 | 1 | 3 | 1 | ..... | ..... | 7 | 2.45 | 62.3 |
| Nertchinsk | N. 51 19 | E.119 37 | 8.07 p.m. | ? | ? | 27.61 | 701.3 | 29.84 | 757 9 | 57.4 | 14.1 | 81.8 | 1 | ..... | ..... | 5 | 3 | 2 | 2 | ..... | 18 | ..... | ..... | 6 | 8.02 | 203.6 |
| Nikolaiev | N. 46 58 | E. 31 58 | 2.16 p.m. | 62 | 19 | 29.89 | 759 1 | 29.96 | 760 0 | 77.2 | 25.1 | 51.6 | 7 | 3 | 3 | 3 | ..... | 1 | 4 | 7 | ..... | ..... | ..... | 2 | 0.10 | 2.6 |
| Nikolaievsk *f* | N. 53 08 | E.140 45 | 9.31 p.m. | 59 | 18 | 29.79 | 756.6 | 29.88 | 758.8 | 57.4 | 14.1 | 83.5 | 1 | 1 | ..... | ..... | ..... | 5 | ..... | 1 | 17 | ..... | ..... | 5 | ..... | ..... |
| Pekin | N. 39 57 | E.116 28 | 7.54 p.m. | 123? | 38? | 29.63 | 752.7 | 29.78 | 756.3 | 74.5 | 23.6 | 81.5 | ... | 1 | ..... | 1 | ..... | ..... | ... | ..... | 29 | ..... | ..... | 5 | 7.40 | 187.9 |
| Petro-Alexandrovsk | N. 41 28 | E. 61 05 | 4.12 p.m. | 328 | 100 | 29.46 | 748 2 | 29.78 | 756.5 | 88.2 | 31.2 | 18.7 | 10 | 4 | 2 | 1 | ..... | 1 | 1 | 9 | 3 | ..... | ..... | 1 | ..... | ..... |
| Petrozavodsk | N. 61 47 | E. 34 23 | 2.26 p m. | 180? | 55? | 29.78 | 756.5 | 29.98 | 761.4 | 58.1 | 14.5 | 68.8 | 8 | 2 | 3 | ..... | 1 | 2 | 2 | 11 | 1 | ..... | ..... | 6 | 3.58 | 90.9 |
| Pinsk | N. 52 07 | E. 26 06 | 1.52 p.m. | 459? | 140? | 29.52 | 749.7 | 30.00 | 762 0 | 66.6 | 19.2 | 56.3 | 8 | 5 | 4 | 3 | 2 | 3 | 4 | 2 | ..... | ..... | ..... | 7 | 0.46 | 11.6 |
| Poti | N. 42 09 | E. 41 37 | 2.54 p.m. | 466? | 142? | 29.88 | 758 8 | 29.91 | 759.6 | 78.6 | 25.9 | 81.7 | ..... | 3 | 6 | 16 | 4 | ..... | 1 | ..... | 1 | ..... | ..... | 6 | 9.40 | 238.7 |
| St. Petersburg | N. 59 56 | E. 30 16 | 2.09 p.m. | 20 | 6 | 29.97 | 761.3 | 30.00 | 761.9 | 61.0 | 16.1 | 61.8 | 5 | 9 | 5 | ..... | ..... | ..... | 2 | 10 | ..... | ..... | ..... | 6 | 2.05 | 52.0 |
| Samarkand | N. 39 39 | E. 66 57 | 4.36 p.m. | 2379? | 725? | 27.35 | 694.8 | 29.67 | 753.6 | 83 1 | 28.4 | 43.0 | ..... | 1 | ..... | ..... | ..... | 1 | 8 | 2 | 9 | ..... | ..... | 1 | ..... | ..... |
| Semipalatinsk | N. 50 24 | E. 80 13 | 5.29 p.m. | 607? | 185? | 29.19 | 741.3 | 29.81 | 757.2 | 72.1 | 22.3 | 30.2 | 7 | 8 | 4 | ..... | ..... | ..... | ..... | 2 | 10 | ..... | ..... | 4 | 0.06 | 1.4 |
| Sevastopol | N. 44 37 | E 33 31 | 2.22 p.m. | 138? | 42? | 29.70 | 754.5 | 29.91 | 759.7 | 77.5 | 25.3 | 48.8 | 6 | 13 | 3 | 4 | 1 | ..... | 1 | 3 | ..... | ..... | ..... | 4 | 0.52 | 13.3 |
| Staroi Bykhov | N. 53 31 | E. 30 16 | 2.09 p.m. | 512 | 156 | 29.40 | 749.7 | 29.94 | 760.4 | 64.0 | 17.8 | 59.8 | 2 | 4 | 4 | 1 | 4 | 4 | 5 | 7 | ..... | ..... | ..... | 8 | 2.83 | 71.9 |
| Tashkend | N. 41 20 | E. 69 18 | 4.45 p.m. | 1607? | 490? | 28.11 | 714.0 | 29.65 | 753.1 | 90.3 | 32.4 | 32.5 | ..... | 7 | ..... | ..... | ..... | ..... | ..... | ..... | 24 | ..... | ..... | 1 | ..... | ..... |
| Tiflis | N. 41 43 | E. 44 47 | 3.07 p.m. | 1343 | 409 | 28.49 | 723.6 | 29.54 | 757.8 | 81.1 | 27.3 | 40.9 | 2 | 9 | 1 | ..... | 5 | 9 | 2 | 1 | 2 | ..... | ..... | 4 | 1.82 | 46.2 |
| Vernoe | N. 43 16 | E. 76 53 | 5.16 p.m. | 2401? | 732? | 27 24 | 691.8 | 29.59 | 751.5 | 78.4 | 25.8 | 36.2 | 2 | ..... | 1 | 1 | 2 | ..... | 4 | 2 | 19 | ..... | ..... | 3 | ..... | ..... |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for August, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| Russian—Con. | o ′ | o ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Vialka ...a | N. 58 36 | E. 49 41 | 3.27 p.m. | 581? | 177? | 29.19 | 741.4 | 29.80 | 757.0 | 59.2 | 15.1 | 65.4 | 11 | 6 | 1 | 1 | 3 | ..... | 4 | 4 | ..... | ..... | ..... | 7 | 1.54 | 39.2 |
| Warsaw | N. 52 13 | E. 21 02 | 1.32 p.m. | 392 | 119 | 29.60 | 751.9 | 30.01 | 762.3 | 68.9 | 20.5 | 46.8 | 5 | 4 | 1 | 3 | 2 | 2 | 2 | 5 | 7 | ..... | ..... | 7 | ..... | ..... |
| Yeniseisk c | N. 58 27 | E. 92 06 | 6.16 p.m. | 262? | 80? | 29.57 | 751.1 | 29.85 | 758.1 | 63.0 | 17.2 | 71.4 | ..... | 4 | 6 | 6 | 2 | 6 | 1 | 1 | 2 | ..... | ..... | 6 | 4.36 | 110.7 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Petrowsky Ac'y | N. 55 50 | E. 37 38 | 2.39 p.m. | 508 | 155 | 29.31 | 744.5 | 29.80 | 756 9 | 60.0 | 15.6 | 68.0 | 8 | 6 | 4 | 4 | 3 | 1 | 1 | 1 | 3 | ..... | ..... | 8 | 1.20 | 30.5 |
| Spanish. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barcelona | N. 41 23 | E. 2 15 | 0.16 p.m. | 138 | 42 | 29.86 | 758.5 | 30.03 | 762.8 | 80.8 | 27.1 | 62 | 2 | 1 | ..... | 7 | 4 | 7 | 5 | 5 | ..... | ..... | ..... | 4 | 0.63 | 16.0 |
| Bilbao | N. 43 15 | W. 2 59 | 11.56 a.m. | 52 | 16 | 29.98 | 761.5 | 30.04 | 763.0 | 81.0 | 27.2 | 61 | 1 | 18 | ..... | 1 | 1 | 4 | 1 | 1 | 4 | 1470 | 2366 | 6 | 1.65 | 41.9 |
| Burgos | N. 42 20 | W. 3 46 | 11.53 a.m. | 2821 | 860 | 27.14 | 689.3 | 29.96 | 760.9 | 78.6 | 25.9 | 47 | 1 | ..... | 7 | 8 | 5 | ..... | 5 | 5 | ..... | 3938 | 6338 | 2 | 0.24 | 6.2 |
| Madrid | N. 40 25 | W. 3 42 | 11.53 a.m. | 2152 | 656 | 27.85 | 707.3 | 29.94 | 760.5 | 87.6 | 30.9 | 30 | ..... | 2 | 5 | 10 | 4 | 4 | 3 | 3 | ..... | 5250 | 8448 | 4 | 0.58 | 14.7 |
| Murcia | N. 37 59 | W. 1 10 | 0.03 p.m. | 141 | 43 | 29.86 | 758 4 | 30.00 | 761.9 | 80.2 | 26.8 | 52 | ..... | ..... | ..... | ..... | 2 | 7 | 10 | 12 | ..... | 1473 | 2370 | 5 | 0.08 | 2.0 |
| Santiago | N. 42 53 | W. 8 28 | 11.34 a.m. | 863 | 263 | 29.11 | 739.4 | 29.97 | 761.1 | 77.9 | 25.5 | 53 | 7 | 1 | 2 | 9 | ..... | 2 | ..... | 5 | 5 | 5374 | 8648 | 4 | 1.50 | 38.2 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Havana | N. 23 08 | W.82 28 | 7.39 a.m. | 62 | 19 | 29.95 | 760.6 | 30.01 | 762.2 | 77.7 | 25.4 | 85.5 | ..... | ..... | ..... | ..... | 1 | 18 | 11 | 1 | ..... | ..... | ..... | 3 | 9.89 | 251.3 |
| Manilla | N. 14 35 | E.120 56 | 8.12 p.m. | 54 | 16 | 29.78 | 756.5 | 29.84 | 758.0 | 79.5 | 26.4 | 85.2 | 3 | ..... | 6 | 10 | 4 | 1 | 5 | 2 | ..... | 8632 | 13894 | 7 | 12.85 | 326.5 |
| San Fernando | N. 36 28 | W. 6 13 | 11.43 a.m. | 95 | 29 | 29.93 | 760.3 | 30.03 | 762 7 | 83.2 | 28.4 | 56.7 | .. | 3 | 16 | 3 | 2 | 2 | 5 | ..... | ..... | ..... | ..... | 3 | inap. | inap. |
| San Juan de Porto Rico | N. 18 30 | W.66 10 | 7.44 a.m. | 82 | 25 | 29.93 | 760.2 | 30.02 | 762.5 | 79.9 | 26.6 | 87 | ..... | ..... | ..... | 1 | 5 | 7 | 6 | 2 | 10 | ..... | ..... | 6 | 4.03 | 102.4 |
| Swedish. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Haparanda | N. 65 47 | E. 24 03 | 1.44 p.m. | 29 | 9 | 30.05 | 763.2 | 30.09 | 764.2 | 59.5 | 15.3 | 70 | 8 | ..... | 1 | ..... | 16 | 1 | ..... | 4 | 1 | ..... | ..... | 4 | 0.06 | 1.4 |
| Umea | N. 63 50 | E. 20 17 | 1.29 p.m. | 39 | 12 | 30.04 | 763.0 | 30.09 | 764 3 | 64.2 | 17.9 | 61 | 2 | 3 | 1 | 10 | 7 | 1 | 3 | 4 | ..... | ..... | ..... | 4 | 0.26 | 6.7 |
| Hernosand | N. 62 32 | E. 17 57 | 1.20 p.m. | 46 | 14 | 30.04 | 762 9 | 30.09 | 764.2 | 64.9 | 18.3 | 61 | 1 | 2 | 1 | 4 | 9 | ..... | 8 | 5 | 1 | ..... | ..... | 4 | 0.25 | 6.3 |
| Stockholm | N. 59 20 | E. 18 04 | 1.20 p.m. | 144 | 44 | 29.90 | 759 4 | 30.08 | 763.9 | 64.2 | 17.9 | 62 | 3 | 1 | 6 | 1 | 3 | 3 | 7 | 5 | 2 | ..... | ..... | 5 | 2.62 | 66.6 |
| Wisby | N. 57 39 | E. 18 19 | 1.21 p.m. | 52 | 16 | 29.97 | 761.1 | 30.02 | 762.6 | 63.5 | 17.5 | 70 | 6 | 6 | 7 | 1 | 1 | 3 | 2 | 5 | ..... | ..... | ..... | 5 | 0.28 | 7.1 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upsala | N. 59 51 | E. 17 37 | 1.19 p.m. | 79 | 24 | 29.97 | 761.2 | 30.06 | 763.4 | 64.0 | 17.8 | 64.6 | 8 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | ..... | ..... | ..... | 6 | 0.92 | 23.3 |
| Swiss. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Geneva | N. 46 12 | E. 6 08 | 0.33 p m. | 1338 | 408 | 28.65 | 727.7 | 30.02 | 762.5 | 74.3 | 23.5 | 53.5 | 16 | 3 | 3 | 1 | 4 | ..... | 1 | 3 | ..... | ..... | ..... | 4 | 2.05 | 52.1 |
| Turkish. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Constantinople | N. 41 00 | E. 28 59 | 2.04 p.m. | 230 | 70 | ..... | ..... | 29.95 | 760 6 | 74.1 | 23.4 | 58 | 10 | 1 | ..... | 2 | 3 | 1 | ..... | 14 | ... | ..... | ..... | 5 | 2.78 | 70.6 |
| Valona | N. 40 27 | E. 19 27 | 1.26 p.m. | 105 | 32 | ..... | ..... | 30.12 | 765.1 | 78.6 | 25.9 | ..... | ..... | 14 | 8 | 6 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | 2 | 8.94 | 227.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beirut | N. 33 54 | E. 35 28 | 2.30 p.m. | 111 | 34 | ..... | ..... | 29.79 | 756.6 | 85.5 | 29.7 | 58.1 | 3 | 4 | 3 | 21 | ..... | ..... | ... | ... | ..... | ..... | ..... | 3 | 0.04 | 1.0 |
| United States. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *New Eng'd states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastport | N. 44 54 | W. 66 59 | 7.40 a.m. | 61 | 18 | 29.97 | 761.2 | 30.04 | 763.0 | 58.9 | 14.9 | 86.4 | 3 | 2 | 1 | ..... | 11 | ..... | 2 | 2 | 10 | 3133 | 5042 | 3 | 4.41 | 112.0 |
| Portland | N. 43 39 | W. 70 15 | 7.27 a.m. | 45 | 14 | 30.00 | 762.0 | 30.05 | 763.3 | 64.6 | 18.1 | 83.6 | 4 | 8 | 2 | 4 | 7 | 1 | ..... | 4 | 1 | 5103 | 8212 | 5 | 3.98 | 101.1 |
| Mt. Washington | N. 44 16 | W. 71 18 | 7.23 a.m. | 6279 | 1914 | 23.97 | 608.8 | 30.05 | 763.3 | 45.2 | 7.3 | 91.0 | ... | 10 | 9 | 5 | 1 | 1 | ..... | 5 | ..... | 20870 | 33586 | 3 | 8.63 | 219.2 |
| Boston | N. 42 21 | W. 71 04 | 7.24 a.m. | 142 | 43 | 29.92 | 760.0 | 30.06 | 763.5 | 65.8 | 18.8 | 86.9 | 4 | 7 | 7 | 5 | 2 | 4 | ..... | 2 | ..... | 5722 | 9208 | 6 | 5.01 | 127.3 |
| Block Id | N. 41 10 | W. 71 36 | 7.22 a.m. | 27 | 8 | 30.04 | 763.0 | 30.07 | 763.8 | 65.9 | 18.8 | 91.8 | 7 | 4 | ..... | 7 | 6 | 4 | ..... | ..... | 5 | 7452 | 11993 | 4 | 6.41 | 162.8 |
| New London | N. 41 21 | W. 72 05 | 7.20 a.m. | 47 | 14 | 30.04 | 763.0 | 30.09 | 764.3 | 66.9 | 19.4 | 89.4 | 12 | 2 | ..... | 9 | 2 | 1 | ..... | 2 | 3 | 3796 | 6109 | 5 | 7.13 | 181.1 |
| New Haven | N. 41 18 | W. 72 56 | 7.16 a.m. | 107 | 32 | 29.96 | 761.0 | 30.07 | 763.8 | 65.4 | 18.6 | 86.9 | 9 | 1 | 2 | 2 | 5 | 2 | 1 | 4 | 5 | 3957 | 6368 | 5 | 5.60 | 142.2 |
| *Mid. Atlan. states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Albany | N. 42 39 | W. 73 45 | 7.13 a.m. | 75 | 23 | 29.99 | 761.7 | 30.07 | 763.8 | 68.1 | 20.1 | 75.9 | 8 | ..... | 4 | 1 | 14 | 1 | ..... | 2 | 1 | 3419 | 5502 | 5 | 5.27 | 133.9 |
| New York City | N. 40 43 | W. 74 00 | 7.12 a.m. | 164 | 50 | 29.91 | 759.7 | 30.08 | 764.0 | 68.5 | 20.3 | 83.1 | 2 | 5 | 3 | 1 | 5 | 5 | 1 | 8 | 1 | 5352 | 8613 | 5 | 8.56 | 217.4 |
| Philadelphia | N. 39 57 | W. 75 09 | 7.07 a.m. | 117 | 36 | 29.96 | 701.0 | 30.08 | 764.0 | 68.4 | 20.2 | 82.9 | 7 | 3 | 1 | 3 | 7 | ..... | 1 | 7 | 2 | 5041 | 8112 | 6 | 4.30 | 109.2 |
| Sandy Hook | N. 40 28 | W. 74 00 | 7.12 a.m. | 28 | 8 | 30.05 | 763.3 | 30.08 | 764.0 | 69.2 | 20.7 | 83.5 | 4 | 2 | 6 | 4 | 4 | 1 | 2 | 7 | 1 | 8032 | 12926 | 6 | 5.12 | 130.0 |
| Atlantic City | N. 39 22 | W. 74 25 | 7.10 a.m. | 13 | 4 | 30.04 | 763.0 | 30.05 | 763.3 | 69.7 | 20.9 | 86.7 | 6 | 1 | 3 | 3 | 4 | 1 | 4 | 9 | .... | 5808 | 9347 | 5 | 4.04 | 102.6 |
| Barnegat City | N. 39 46 | W. 74 06 | 7.12 a.m. | 22 | 7 | 30.04 | 763.0 | 30.06 | 763.5 | 69.8 | 21.0 | 88.1 | 9 | 3 | 1 | 5 | 1 | 1 | 6 | 5 | ..... | 8391 | 13504 | 6 | 5.04 | 128.0 |
| Cape May | N. 38 56 | W. 74 58 | 7.08 a.m. | 27 | 8 | 30.03 | 762.7 | 30.06 | 763.5 | 71.2 | 21.8 | 88.0 | 3 | 4 | 1 | 1 | 7 | 3 | 1 | 10 | 1 | 8180 | 13164 | 5 | 5.30 | 134.6 |
| Del. Breakwater | N. 38 48 | W. 75 10 | 7.07 a.m. | 20 | 6 | 30.05 | 763.3 | 30.07 | 763.8 | 70.7 | 21.5 | 89.5 | 5 | 2 | ..... | 6 | 5 | 1 | 3 | 9 | ..... | 9192 | 14793 | 6 | 4.19 | 106.4 |
| Baltimore | N. 39 18 | W. 76 37 | 7.02 a.m. | 45 | 14 | 30.04 | 763.0 | 30.09 | 764.3 | 71.1 | 21.7 | 75.9 | 13 | 1 | 2 | 1 | 5 | ..... | 3 | 5 | 1 | 3237 | 5209 | 5 | 1.74 | 44.2 |
| Washington City | N. 38 54 | W. 77 02 | 7.00 a.m. | 106 | 32 | 29.98 | 761.5 | 30.09 | 764.3 | 69.0 | 20.6 | 83.8 | 7 | 4 | 2 | 3 | 2 | ..... | 2 | 5 | 6 | 3107 | 5000 | 5 | 1.01 | 25.7 |
| Chincoteague | N. 37 55 | W. 75 23 | 7.06 a.m. | 8 | 2 | 30.05 | 763.3 | 30.06 | 763.5 | 71.8 | 22.1 | 94.6 | 4 | 3 | 3 | 5 | 2 | 4 | 2 | 8 | ..... | 5735 | 9229 | 7 | 1.10 | 27.9 |
| Cape Henry | N. 36 56 | W. 76 00 | 7.04 a.m. | 16 | 5 | 30.05 | 763.3 | 30.07 | 763.8 | 72.1 | 22.3 | 88.2 | 4 | 1 | 1 | 7 | 6 | 1 | 3 | 8 | ..... | 8395 | 13510 | 5 | 2.56 | 65.0 |
| Lynchburg | N. 37 25 | W. 79 09 | 6.52 a.m. | 652 | 199 | 29.40 | 746.7 | 30.07 | 763.8 | 69.4 | 20.8 | 79.7 | 2 | 6 | 3 | 1 | 2 | ..... | 2 | 5 | 10 | 1890 | 3042 | 5 | 2.85 | 72.4 |
| Norfolk | N. 36 51 | W. 76 17 | 7.03 a.m. | 30 | 9 | 30.04 | 763.0 | 30.07 | 763.8 | 73.0 | 23.1 | 85.2 | 4 | 1 | 2 | 7 | 3 | .... | 5 | 6 | 3 | 4715 | 7588 | 6 | 2.95 | 74.9 |
| *S Atlantic states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kittyhawk | N. 36 00 | W. 75 42 | 7.05 a.m. | 22 | 7 | 30.04 | 763.0 | 30.06 | 763.5 | 74.0 | 23.3 | 89.0 | ..... | ..... | 4 | 7 | ..... | 3 | 5 | 10 | 2 | 10441 | 16803 | 6 | 6.58 | 167.1 |
| Hatteras | N. 35 15 | W. 75 40 | 7.05 a.m. | 12 | 4 | 30.03 | 762.7 | 30.04 | 763.0 | 75.1 | 23.9 | 89.6 | 3 | ..... | 4 | 9 | 2 | 1 | 10 | 1 | 1 | 7462 | 12009 | 7 | 5.89 | 149.6 |
| Fort Macon | N. 34 42 | W. 76 40 | 7.01 a.m. | 11 | 3 | 30.05 | 763.3 | 30.06 | 763.5 | 74.9 | 23.8 | 89.0 | 6 | 2 | 2 | 8 | 3 | ..... | 2 | 7 | 1 | 9942 | 16000 | 6 | 6.86 | 174.2 |
| Smithville | N. 33 55 | W. 78 01 | 6.56 a.m. | 34 | 10 | 30.00 | 762.0 | 30.04 | 763.0 | 73.9 | 23.3 | 93.6 | 5 | 3 | 2 | 3 | 2 | 1 | 3 | 10 | 2 | 6705 | 10790 | 5 | 5.38 | 136.6 |
| Wilmington | N. 34 14 | W. 77 57 | 6.56 a.m. | 52 | 16 | 30.01 | 762.2 | 30.06 | 763.5 | 73.4 | 23.0 | 87.8 | 2 | 1 | 1 | 5 | 1 | 4 | 1 | 11 | 5 | 3432 | 5523 | 6 | 9.58 | 243.3 |
| Charlotte | N. 35 13 | W. 80 51 | 6.44 a.m | 808 | 246 | 29.25 | 742.9 | 30.08 | 764.0 | 69.3 | 20.7 | 84.9 | 3 | 2 | 1 | 4 | 2 | 1 | 3 | 15 | ..... | 3313 | 5332 | 5 | 2.08 | 52.8 |
| Charleston | N. 32 47 | W. 79 56 | 6.48 a.m. | 52 | 16 | 29.99 | 761.7 | 30.04 | 763.0 | 75.4 | 24.1 | 87.3 | 3 | 3 | 4 | 3 | ..... | 1 | ..... | 12 | 5 | 4505 | 7250 | 6 | 6.12 | 155.4 |
| Augusta *a* | N. 33 28 | W. 81 54 | 6.40 a.m. | 183 | 56 | 29.91 | 759 7 | 30.10 | 764.5 | 73.1 | 22.8 | 84.7 | 2 | 3 | 3 | 1 | 2 | 6 | 1 | 9 | 3 | 2218 | 3570 | 4 | 4.36 | 110.7 |
| Savannah *b* | N. 32 05 | W. 81 05 | 6.44 a.m. | 87 | 26 | 29.97 | 761.2 | 30.06 | 763.5 | 75.4 | 24.1 | 87.4 | 9 | 3 | 3 | 6 | ..... | 2 | 1 | 4 | 1 | 3325*d* | 5351*d* | 5 | 8.41 | 213.6 |
| Jacksonville | N. 30 20 | W. 81 39 | 6.42 a.m. | 43 | 13 | 30.00 | 762.0 | 30.04 | 763.0 | 76.9 | 24.9 | 88.4 | 4 | 2 | 1 | 7 | ..... | 1 | 1 | 5 | 10 | 3451 | 5551 | 4 | 5.21 | 132.3 |
| *Florida penin'la.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cedar Keys | N. 29 08 | W. 83 02 | 6.36 a.m. | 22 | 7 | 30.01 | 762.2 | 30.03 | 762.7 | 78.2 | 25.7 | 85.0 | 3 | 2 | 1 | 1 | 1 | 4 | 5 | 12 | 2 | 5002 | 8050 | 4 | 8.11 | 206.0 |
| Key West | N. 24 34 | W. 81 49 | 6.41 a.m. | 20 | 6 | 30.00 | 762.0 | 30.02 | 762.5 | 82.1 | 27.8 | 77.6 | .... | 1 | 2 | ..... | 4 | 12 | 8 | 4 | ..... | 5366 | 8636 | 6 | 3.16 | 80.3 |
| Sanford | N. 28 48 | W. 81 23 | 6.42 a.m. | 35 | 11 | 29.98 | 761.5 | 30.02 | 762.5 | 76.7 | 24.8 | 90.4 | 5 | 4 | 1 | 3 | 2 | 3 | 1 | 12 | ..... | 3209 | 5164 | 2 | 11.09 | 281.7 |
| *East Gulf states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atlanta | N. 33 45 | W. 84 23 | 6.31 a.m. | 1129 | 344 | 28.94 | 735.1 | 30.09 | 764.3 | 69.4 | 20.8 | 84.8 | ..... | 6 | 3 | 2 | 1 | 4 | 5 | 9 | 1 | 4939 | 7948 | 3 | 2.06 | 52.3 |
| Pensacola | N. 30 25 | W. 87 13 | 6.19 a.m. | 30 | 9 | 30.02 | 762.5 | 30.04 | 763 0 | 75.3 | 24.1 | 85.5 | 7 | 3 | 1 | 3 | 2 | 2 | ..... | 13 | ..... | 4385 | 7057 | 4 | 2.07 | 52.6 |
| Mobile | N. 30 41 | W. 88 02 | 6.16 a.m. | 35 | 11 | 30.03 | 762.7 | 30.07 | 763.8 | 72.8 | 22.7 | 88.5 | 12 | 13 | ..... | 2 | .... | 1 | ..... | 2 | 1 | 4188 | 6740 | 4 | 1.26 | 32.0 |
| Montgomery | N. 32 23 | W. 86 18 | 6.23 a.m. | 219 | 66 | 29.84 | 757.9 | 30.07 | 763.8 | 71.6 | 22.0 | 90.8 | 3 | 5 | 4 | 1 | ..... | 5 | .... | 10 | 3 | 2829 | 4553 | 4 | 3.05 | 77.5 |
| Vicksburg | N. 32 22 | W. 90 53 | 6.04 a.m. | 244 | 74 | 29.83 | 757.7 | 30.07 | 763.8 | 71.9 | 22.2 | 84.2 | 3 | ..... | ..... | ..... | 3 | 7 | 7 | 6 | 5 | 3045 | 4900 | 2 | 2.16 | 54.9 |
| New Orleans | N. 29 58 | W. 90 04 | 6.08 a.m. | 52 | 16 | 29.98 | 761.5 | 30.03 | 762.7 | 78.5 | 25.8 | 81.7 | 3 | 5 | 1 | 1 | 1 | 3 | 4 | 10 | 3 | 4372 | 7036 | 3 | 0.87 | 22.1 |
| *West Gulf states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shreveport | N. 32 30 | W. 93 40 | 5.53 a.m. | 227 | 69 | 29.83 | 757.7 | 30.06 | 763.5 | 72.9 | 22.7 | 85.6 | 5 | ..... | ..... | 2 | 11 | 4 | 3 | 5 | 1 | 3251 | 5232 | 4 | 1.99 | 50.5 |
| Fort Smith | N. 35 22 | W. 94 24 | 5.50 a.m. | 451 | 137 | 29.58 | 751.3 | 30.04 | 763 0 | 69.0 | 20.6 | 88.2 | 3 | ..... | ..... | ..... | ..... | ..... | 14 | 1 | 13 | 2720 | 4377 | 5 | 3.73 | 94.7 |
| Little Rock | N. 34 45 | W. 92 06 | 6.00 a.m. | 298 | 91 | 29.76 | 755.9 | 30.07 | 763.8 | 70.9 | 21.6 | 88.0 | 5 | 1 | 1 | .... | 1 | ..... | 2 | 1 | 20 | 2555 | 4112 | 3 | 3.26 | 82.8 |
| Galveston | N. 29 18 | W. 94 47 | 5.49 a.m. | 40 | 12 | 29.99 | 761.7 | 30.03 | 762.7 | 80.3 | 26.8 | 82.8 | 1 | ..... | 1 | 2 | 11 | 6 | 3 | 7 | ..... | 6577 | 10574 | 3 | 1.77 | 45.0 |
| Indianola | N. 28 32 | W. 96 31 | 5.42 a.m. | 26 | 8 | 29.98 | 761.5 | 30.01 | 762.2 | 78.2 | 25.7 | 88.1 | 5 | 1 | 1 | 1 | 5 | 7 | 3 | 3 | 5 | 6610 | 10638 | 3 | 1.28 | 32.5 |
| Palestine | N. 31 45 | W. 95 40 | 5.45 a.m. | 533 | 162 | 29.52 | 749.8 | 30.06 | 763.5 | 71.7 | 22.1 | 88.3 | 2 | ..... | ..... | ..... | 14 | 5 | 1 | 8 | 1 | 5880 | 9463 | 2 | 0.66 | 16.8 |
| *Rio Grande valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brownsville | N. 25 53 | W. 97 26 | 5.38 a.m | 57 | 17 | 29.92 | 760.0 | 29.98 | 761.5 | 74.8 | 23.8 | 94.1 | 5 | ..... | ..... | ..... | 3 | 7 | 3 | ..... | 13 | 4884 | 7859 | 2 | 0.86 | 22.4 |
| Rio Grande City | N. 26 22 | W. 98 45 | 5.33 a m. | 230 | 70 | 29.79 | 756.7 | 30.03 | 762.7 | 73.3 | 22.9 | 85.7 | ..... | ..... | ..... | ..... | ..... | 20 | 9 | ..... | 2 | 5392 | 8677 | 1 | 0 | 0 |
| *Ohio val. & Tenn.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chattanooga | N. 35 04 | W. 85 15 | 6.27 a.m. | 783 | 239 | 29.28 | 743.7 | 30.08 | 764.0 | 68.1 | 20.1 | 92.2 | 3 | 7 | 1 | 4 | 3 | 3 | 1 | 5 | 4 | 2798 | 4503 | 4 | 2.54 | 64.5 |
| Knoxville | N. 35 56 | W. 83 58 | 6.32 a.m | 980 | 299 | 29.09 | 738.9 | 30.10 | 764.5 | 66.4 | 19.1 | 90.5 | 6 | ..... | ..... | 3 | .... | 2 | ..... | 14 | 6 | 2803 | 4511 | 4 | 4.75 | 120.6 |
| Memphis | N. 35 09 | W. 90 03 | 6.08 a.m. | 321 | 98 | 29.74 | 755.4 | 30.07 | 763.8 | 72.7 | 22.6 | 81.1 | 3 | 9 | ..... | 1 | 4 | 7 | 3 | 2 | 2 | 3567 | 5740 | 3 | 1.27 | 32.3 |
| Nashville | N. 36 10 | W. 86 47 | 6.21 a.m. | 549 | 167 | 29.51 | 749.5 | 30.07 | 763.8 | 68.5 | 20.3 | 85.9 | 2 | 3 | 6 | 2 | 1 | 2 | 8 | 7 | ..... | 3100 | 4999 | 4 | 2.81 | 71.4 |
| Louisville | N. 38 15 | W 85 45 | 6.25 a.m. | 530 | 162 | 29.51 | 749.5 | 30.08 | 764.0 | 68.2 | 20.1 | 80.2 | 5 | 1 | 2 | 3 | 9 | 4 | 1 | 3 | 3 | 3780 | 6083 | 3 | 4.81 | 122.2 |
| Indianapolis | N. 39 46 | W. 86 10 | 6.23 a.m. | 753 | 229 | 29.28 | 743.7 | 30.06 | 763.5 | 65.7 | 18.7 | 73.0 | 6 | 3 | 3 | 4 | 7 | 1 | 1 | 4 | 2 | 3357 | 5402 | 3 | 0.46 | 11.7 |
| Cincinnati | N. 39 06 | W. 84 30 | 6.30 a.m. | 620 | 189 | 29.44 | 747.8 | 30.07 | 763.8 | 68.3 | 20.2 | 73.3 | 8 | 3 | 5 | 2 | 2 | 4 | 3 | ..... | 4 | 3165 | 5093 | 3 | 2.05 | 52.1 |
| Columbus | N. 39 58 | W. 83 00 | 6.36 a.m. | 805 | 245 | 29.23 | 744.4 | 30.06 | 763.5 | 65.1 | 18.4 | 74.5 | 7 | 4 | 5 | 4 | 4 | 3 | 2 | 2 | ..... | 3612 | 5813 | 4 | 0.70 | 17.8 |
| Pittsburg | N. 40 32 | W. 80 02 | 6.48 a.m. | 766 | 233 | 29.26 | 743.2 | 30.05 | 763.3 | 64.6 | 18.1 | 83.5 | 5 | 10 | 1 | 4 | 2 | 1 | 2 | 6 | ..... | 3444 | 5542 | 3 | 2.94 | 74.7 |
| *Lower lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rochester | N. 43 08 | W. 77 42 | 6.57 a.m. | 621 | 189 | 29.39 | 746.5 | 30.04 | 763.0 | 61.7 | 16.5 | 80.8 | 1 | ..... | 7 | 17 | 5 | .... | ..... | 1 | ..... | 6673 | 10739 | 4 | 2.52 | 64.0 |
| Buffalo | N. 42 53 | W. 78 53 | 6.52 a.m | 690 | 210 | 29.30 | 744.2 | 30.02 | 762.5 | 63.8 | 17.7 | 79.2 | ..... | 3 | 1 | 4 | 13 | 2 | 4 | 3 | 1 | 6180 | 9946 | 4 | 4.56 | 115.8 |
| Oswego | N. 43 29 | W. 76 35 | 7.02 a.m. | 334 | 102 | 29.68 | 753.9 | 30.03 | 762.7 | 64.3 | 17.9 | 78.1 | 1 | 2 | 3 | 5 | 8 | 10 | 1 | 1 | ..... | 5683 | 9146 | 4 | 1.71 | 43.4 |
| Erie | N. 42 07 | W. 80 05 | 6.48 a.m. | 681 | 208 | 29.33 | 745.0 | 30.04 | 763.0 | 65.8 | 18.8 | 73.9 | 2 | 3 | 1 | 4 | 13 | 3 | 4 | 1 | ..... | 5852 | 9418 | 3 | 2.16 | 54.9 |
| Sandusky | N 41 25 | W. 82 40 | 6.37 a.m. | 639 | 195 | 29.38 | 746.2 | 30.04 | 763.0 | 66.6 | 19.2 | 72.3 | 4 | 1 | 4 | 13 | 5 | 1 | 1 | 2 | ..... | 7588 | 12212 | 3 | 2.48 | 63.0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea | | Result of Simultaneous Observations for August, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| U. S.—Continued. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *L. l. region*—Con. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Cleveland | N. 41 30 | W. 81 42 | 6.41 a.m. | 690 | 210 | 29.33 | 745.0 | 30.05 | 763 3 | 64.0 | 17.8 | 76.0 | 3 | 2 | ..... | 3 | 7 | 11 | 4 | 1 | .... | 5572 | 8967 | 3 | 1.65 | 41.9 |
| Toledo | N. 41 40 | W. 83 34 | 6.34 a.m. | 651 | 198 | 29.35 | 745.5 | 30.02 | 762.5 | 64.5 | 18.1 | 78.8 | 6 | 2 | 3 | 8 | 7 | ..... | 1 | ..... | 4 | 4754 | 7651 | 3 | 1.48 | 37.6 |
| Detroit | N. 42 20 | W. 83 03 | 6.36 a.m. | 661 | 201 | 29.35 | 745.5 | 30.04 | 763.0 | 64.0 | 17.8 | 73.2 | 2 | 10 | 2 | 8 | 5 | 1 | 2 | 1 | ..... | 5699 | 9172 | 3 | 1.55 | 39.4 |
| *Upper lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alpena | N. 45 05 | W. 83 30 | 6.34 a.m. | 609 | 185 | 29.33 | 745.0 | 29.97 | 761.2 | 58.1 | 14.5 | 83 3 | ..... | 6 | 10 | 4 | 5 | 4 | ..... | 1 | 1 | 5975 | 9616 | 4 | 2.69 | 68.3 |
| Escanaba | N. 45 48 | W. 87 05 | 6.20 a.m. | 613 | 187 | 29.32 | 744.7 | 29.96 | 761.0 | 57.7 | 14.3 | 82.3 | 6 | 5 | 6 | 1 | 8 | 2 | ..... | 1 | 2 | 5792 | 9321 | 5 | 4.71 | 119.6 |
| Grand Haven | N. 43 05 | W. 86 18 | 6.23 a.m. | 620 | 189 | 29.38 | 746.2 | 30.03 | 762.7 | 62.1 | 16.7 | 82.7 | 5 | 3 | 4 | 2 | 7 | 3 | 3 | 4 | ..... | 7045 | 11338 | 5 | 2.30 | 58.4 |
| Mackinaw City | N. 45 47 | W. 84 39 | 6.30 a.m. | 605 | 184 | 29.35 | 745.5 | 29 99 | 761.7 | 59.8 | 15.4 | 81.8 | 2 | 8 | 2 | 7 | 4 | 4 | 1 | ..... | 3 | 6000 | 9656 | 5 | 3.28 | 83.3 |
| Marquette | N. 46 34 | W. 87 24 | 6.18 a.m. | 673 | 205 | 29.20 | 743.2 | 29.97 | 761.2 | 60.0 | 15.6 | 78.6 | 3 | 9 | 8 | 3 | 2 | 3 | 1 | ..... | 2 | 5804 | 9340 | 4 | 5.46 | 138.7 |
| Port Huron | N. 43 00 | W. 82 26 | 6.38 a.m. | 633 | 193 | 29.36 | 745 7 | 30.02 | 762.5 | 61.4 | 16.3 | 84.3 | 1 | 6 | 3 | 5 | 5 | 4 | ..... | 3 | 4 | 5631 | 9067 | 4 | 1.28 | 32.5 |
| Chicago | N. 41 52 | W. 87 38 | 6.18 a.m. | 661 | 201 | 29.34 | 745 2 | 30.03 | 762.7 | 64.5 | 18.1 | 78.2 | 1 | 3 | 4 | 5 | 7 | 2 | 3 | 2 | 4 | 4996 | 8040 | 4 | 2.50 | 63.5 |
| Milwaukee | N. 43 02 | W. 87 54 | 6.16 a.m. | 697 | 212 | 29.28 | 743 7 | 30.02 | 762.5 | 61.4 | 16.3 | 84.3 | 3 | 6 | 7 | 7 | 3 | 2 | ..... | 2 | 1 | 6769 | 10894 | 5 | 1.84 | 46.7 |
| Duluth | N. 46 48 | W. 92 06 | 6.00 a.m. | 687 | 209 | 29.24 | 742.7 | 29.96 | 761.0 | 60.2 | 15.7 | 84.1 | 1 | 5 | 7 | 3 | 1 | ..... | 3 | 6 | 5 | 5856 | 9424 | 4 | 6.92 | 175.8 |
| *Upper Miss. val.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saint Paul | N. 44 58 | W. 93 03 | 5.56 a.m. | 801 | 244 | 29.13 | 739.9 | 29.96 | 761.0 | 62.4 | 16.9 | 83.5 | ..... | 3 | 6 | 2 | 5 | 12 | ..... | 1 | 2 | 6190 | 9962 | 4 | 2.89 | 73.4 |
| La Crosse | N. 43 49 | W. 91 15 | 6.03 a.m. | 725 | 221 | 29.24 | 743 7 | 29.99 | 761 7 | 62.7 | 17.1 | 82.4 | 2 | 5 | 3 | 4 | 12 | 1 | 1 | 1 | 2 | 5166 | 8314 | 5 | 3.82 | 97.0 |
| Davenport | N. 41 30 | W. 90 38 | 6.06 a.m. | 615 | 187 | 29.38 | 746.2 | 30.01 | 762.2 | 63.7 | 17.6 | 80.9 | ..... | 8 | 3 | 7 | 1 | 3 | 3 | 4 | 2 | 5472 | 8805 | 4 | 3.84 | 97.5 |
| Des Moines | N. 41 35 | W. 93 37 | 5.54 a.m. | 849 | 259 | 29.16 | 740 7 | 30.04 | 763 0 | 61.8 | 16.6 | 84.4 | 4 | 4 | 4 | 5 | 3 | 2 | 2 | ..... | 7 | 3578 | 5758 | 3 | 3.84 | 97.5 |
| Dubuque | N. 42 30 | W. 90 44 | 6.05 a.m. | 665 | 203 | 29.31 | 745 2 | 30.02 | 762 5 | 61.4 | 16.3 | 84.5 | ..... | 8 | 3 | 3 | 6 | 2 | 2 | ..... | 7 | 3278 | 5275 | 4 | 4.25 | 107.9 |
| Keokuk | N. 40 22 | W. 91 26 | 6.02 a.m. | 618 | 188 | 29.40 | 746.7 | 30.03 | 762 7 | 65.6 | 18.7 | 80.5 | 2 | 3 | 2 | 4 | 4 | 5 | 5 | 2 | 4 | 5111 | 8225 | 3 | 2.74 | 69.6 |
| Cairo | N. 37 00 | W. 89 10 | 6.11 a.m. | 377 | 115 | 29.70 | 754 4 | 30.07 | 763.8 | 69.7 | 20.9 | 86.1 | 9 | 5 | 2 | 3 | 7 | 2 | ..... | 3 | ..... | 4112 | 6618 | 3 | 2.74 | 69.6 |
| Springfield | N. 39 48 | W. 89 39 | 6.10 a.m. | 644 | 196 | 29.40 | 746.7 | 30.05 | 763 5 | 65.4 | 18.6 | 73.5 | 2 | 3 | 1 | 5 | 6 | 5 | 2 | 5 | 2 | 5032 | 8098 | 3 | 1.54 | 39.1 |
| Saint Louis | N. 38 38 | W. 90 12 | 6.07 a.m. | 583 | 178 | 29.47 | 748.5 | 30.06 | 763.5 | 68.4 | 20.2 | 81.5 | 4 | 3 | 6 | 2 | 1 | 8 | 4 | 1 | 2 | 7411 | 11927 | 4 | 1.21 | 30.7 |
| *Missouri valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leavenworth | N. 39 19 | W. 94 57 | 5.48 a.m. | 842 | 256 | 29.18 | 741.2 | 30.04 | 763.0 | 66.1 | 18.9 | 82.9 | 4 | 3 | ..... | ..... | 6 | 7 | 2 | ..... | 9 | 4187 | 6738 | 5 | 4.65 | 118.1 |
| Omaha | N. 41 16 | W. 95 56 | 5.44 a.m. | 1113 | 339 | 28 88 | 733.5 | 30.02 | 762.5 | 64.2 | 17.9 | 86.5 | 4 | 4 | 2 | 3 | 9 | 6 | 1 | 1 | 1 | 5644 | 9083 | 3 | 7.07 | 179.6 |
| Fort Bennett | N. 44 43 | W. 100 39 | 5.26 a.m. | 1510 | 457 | 28.41 | 721.6 | 29 95 | 760.7 | 60.0 | 15.6 | 82.3 | ..... | 6 | 1 | 1 | ..... | 13 | ..... | 6 | 4 | 6996 | 11259 | 4 | 0.74 | 18.8 |
| Huron | N. 44 21 | W. 98 09 | 5.35 a.m. | 1305 | 398 | 28.62 | 726.9 | 29.96 | 761.0 | 57.4 | 14.1 | 89.1 | 1 | 10 | 1 | ..... | 6 | 12 | ..... | 1 | ..... | 7030 | 11314 | 4 | 1.18 | 30.0 |
| Yankton | N. 42 54 | W. 97 28 | 5.38 a.m. | 1228 | 374 | 28.72 | 729.5 | 30.00 | 762.0 | 61.8 | 16.6 | 86.8 | 2 | 4 | 5 | 1 | 6 | 3 | ..... | 2 | 8 | 3113 | 5010 | 4 | 2.61 | 66.3 |
| *Extreme N'thwest.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moorhead | N. 46 52 | W. 96 44 | 5.41 a.m. | 923 | 281 | 28.96 | 735.6 | 29.92 | 760 0 | 56.2 | 13.4 | 89.1 | 4 | 3 | 2 | 2 | 14 | 3 | ..... | 2 | 1 | 7368 | 11858 | 4 | 6.17 | 156.7 |
| Saint Vincent | N. 48 56 | W. 97 14 | 5.39 a.m. | 804 | 245 | 29.06 | 738.1 | 29.91 | 759.7 | 53.8 | 12.1 | 94.0 | 1 | 10 | 2 | 3 | 9 | 4 | 1 | ..... | 1 | 6354 | 10226 | 5 | 7.18 | 182.4 |
| Bismarck | N. 46 47 | W. 100 38 | 5.26 a.m. | 1694 | 516 | 28 16 | 715.3 | 29.92 | 760.0 | 56.9 | 13.8 | 86.6 | 1 | 7 | 1 | ..... | 2 | 4 | 4 | 4 | 8 | 5858 | 9427 | 4 | 3.80 | 96.5 |
| Fort Buford | N. 48 00 | W. 103 56 | 5.12 a.m. | 1930 | 588 | 27.94 | 709.7 | 29.92 | 760.0 | 54.3 | 12.4 | 80.5 | 3 | 3 | 5 | 2 | 2 | 5 | 7 | 2 | 6209 | 10089 | 4 | 1.06 | 26.9 |
| Fort Totten | N. 47 57 | W. 98 57 | 5.32 a.m. | 1500 | 457 | 28.34 | 719.8 | ..... | ..... | 57.0 | 13.9 | 86.0 | 3 | 4 | 3 | 4 | 9 | 6 | 1 | 1 | ..... | 9828 | 15816 | 4 | 3.72 | 94.5 |
| *Northern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Assinaboine | N. 48 32 | W. 109 42 | 4.49 a.m. | 2720 | 829 | 27.18 | 690.4 | 29.94 | 760.5 | 54.0 | 12.2 | 76.6 | ..... | 9 | 10 | 4 | ..... | 4 | 1 | 2 | 1 | 5542 | 8919 | 3 | 2.61 | 66.3 |
| Fort Benton | N. 47 50 | W. 110 40 | 4.45 a.m. | 2681 | 817 | 27.24 | 691.9 | 30.02 | 762.5 | 56.0 | 13.3 | 72.3 | ..... | 1 | 3 | 10 | 4 | ..... | 3 | 7 | 3 | 4742 | 7631 | 3 | 0.79 | 20.1 |
| Fort Custer | N. 45 42 | W. 107 34 | 4.58 a.m. | 3040 | 926 | 26.86 | 682.2 | 29.92 | 760.0 | 54.7 | 12.6 | 78.8 | 2 | 3 | 5 | .... | ..... | 8 | 8 | 3 | 2 | 4759 | 7644 | 5 | 2.09 | 53.1 |
| Fort Maginnis | N. 47 12 | W. 109 10 | 4.51 a.m. | 4340 | 1324 | 25 65 | 651.5 | 29.96 | 761.0 | 53.8 | 12.1 | 65.7 | ..... | 7 | 9 | 9 | 4 | 1 | ..... | 1 | ..... | 6740 | 10847 | 3 | 1.33 | 33.8 |
| Fort Shaw | N. 47 31 | W. 111 48 | 4.41 a.m. | 3550 | 1082 | *26.46 | *672.1 | *29.99 | *761 7 | 52.0 | 11.1 | 67.4 | ..... | 4 | 17 | 3 | ..... | ..... | ..... | 5 | 2 | 4658 | 7496 | 3 | 0.59 | 15.0 |
| Helena | N. 46 34 | W. 112 04 | 4.40 a.m. | 4044 | 1232 | 25.50 | 657.8 | 29.94 | 760 5 | 57.5 | 14.2 | 50.9 | 1 | 1 | 7 | 19 | ..... | ..... | 1 | ..... | 2 | 4635 | 7459 | 3 | 0.47 | 11.9 |
| Poplar River | N. 48 08 | W 105 10 | 5.07 a.m. | 2030 | 619 | ..... | ..... | ..... | ..... | 52.7 | 11.5 | 79.9 | 7 | 2 | 10 | 4 | 2 | 2 | 4 | ..... | ..... | ..... | ..... | 4 | 0.68 | 17.3 |
| Deadwood | N. 44 23 | W. 103 43 | 5.13 a.m. | 4600 | 1402 | 25 47 | 646 9 | 29.91 | 759.7 | 54.2 | 12.3 | 76.1 | ..... | 1 | 3 | 6 | 6 | 3 | 3 | 5 | 4 | 2163 | 3481 | 2 | 3.07 | 78.0 |
| Cheyenne | N. 41 08 | W. 104 48 | 5.09 a.m. | 6105 | 1861 | 24.14 | 613.1 | 29.86 | 758.4 | 51.5 | 10.8 | 71.3 | 3 | 15 | 3 | 4 | 3 | 2 | ..... | 1 | 5 | 6741 | 10848 | 3 | 2.07 | 52.6 |
| North Platte | N. 41 08 | W. 100 45 | 5.25 a.m. | 2841 | 866 | 27.14 | 689.3 | 29.94 | 760.5 | 60.1 | 15.6 | 85.4 | 1 | 4 | 6 | 1 | 1 | 10 | 2 | 1 | 5 | 6535 | 10517 | 4 | 2.13 | 54.1 |
| *Middle slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pike's Peak | N. 38 50 | W. 105 02 | 5.08 a.m. | 14134 | 4308 | 18.07 | 459.0 | 29.86 | 758.4 | 31.3 | —0.4 | 79.2 | 1 | 6 | 14 | 3 | 2 | ..... | 2 | 3 | ..... | 9113 | 14666 | 2 | 0.25 | 6.3 |
| Denver | N. 39 45 | W. 105 00 | 5.08 a.m. | 5294 | 1614 | 24.86 | 631.4 | 29.88 | 758 9 | 58.6 | 14.8 | 68.2 | ..... | 5 | 1 | 3 | 20 | 1 | 1 | ..... | ..... | 4475 | 7202 | 3 | 1.71 | 43.4 |
| W. Las Animas | N. 38 04 | W. 103 07 | 5.16 a.m. | 3905 | 1190 | 26.09 | 662.7 | 29.83 | 757.7 | 58.9 | 14.9 | 76.0 | ..... | 3 | 10 | 5 | 1 | 2 | 5 | 2 | 3 | 5323 | 8566 | 4 | 2.17 | 55.1 |
| Dodge City | N. 37 45 | W. 100 00 | 5.28 a.m. | 2517 | 767 | 27.46 | 697.5 | 29.94 | 760.5 | 64.3 | 17.9 | 84.8 | 2 | 3 | 1 | 3 | 4 | 13 | 3 | 2 | ..... | 8874 | 14281 | 5 | 4.82 | 122.4 |
| Fort Elliott | N. 35 30 | W. 100 21 | 5.27 a.m. | 2650 | 808 | 27.30 | 693.4 | 29.94 | 760.5 | 60.0 | 18.9 | 81.1 | ..... | 5 | ..... | 3 | 5 | 9 | 3 | 4 | 2 | 7024 | 11304 | 5 | 5.60 | 142.2 |
| *Southern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Sill | N. 34 40 | W. 98 23 | 5.34 a.m. | 1300 | 366 | 28.80 | 731.5 | 29.98 | 761.5 | 69.3 | 20.7 | 80.2 | 4 | ..... | 1 | 1 | 3 | 8 | 1 | 5 | 8 | 7101 | 11428 | 4 | 1.21 | 30.7 |
| Fort Concho | N. 31 25 | W. 100 24 | 5.26 a.m. | 1900 | 579 | 28 15 | 715.0 | 30.01 | 762.2 | 70.9 | 21.6 | 75.5 | ..... | 3 | ..... | 3 | 15 | 1 | 3 | 6 | ..... | 6170 | 9930 | 2 | 1.20 | 30.5 |
| Fort Stockton | N. 30 53 | W. 102 53 | 5.16 a.m. | 3010 | 917 | 27.03 | 686.5 | 29.97 | 761.2 | 69.1 | 20.6 | 81.9 | ..... | ..... | 2 | 3 | 13 | 7 | ..... | 2 | 4 | 7146 | 11500 | 3 | 2.75 | 69.8 |
| Fort Davis | N. 30 38 | W. 103 56 | 5.12 a.m. | 4928 | 1502 | 25 27 | 641.8 | 29.91 | 759.7 | 64.3 | 17.9 | 72.7 | 3 | ..... | ..... | 9 | 2 | 1 | ..... | ..... | 10 | 3794 | 6106 | 2 | 6.70 | 170.2 |
| *Southern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Thomas | N. 33 04 | W. 110 02 | 4.48 a.m. | 2710 | 826 | 27.24 | 691.9 | 29.86 | 758.4 | 68.8 | 20.4 | 56.3 | ..... | ..... | 2 | 1 | 3 | 1 | 5 | ..... | 19 | ..... | ..... | 4 | 2.04 | 51.8 |
| Fort Apache | N. 33 48 | W. 109 57 | 4.48 a.m. | 5050 | 1539 | 25 08 | 637.0 | 29.80 | 756.9 | 56.6 | 13.7 | 81.1 | ..... | ..... | ..... | 3 | 3 | 2 | 19 | 4 | ..... | 3819 | 6146 | 5 | 5.59 | 142.0 |
| Fort Grant | N. 32 39 | W. 109 57 | 4.48 a.m. | 4856 | 1480 | 25.27 | 641.8 | 29.84 | 757.9 | 66.9 | 19.4 | 57.6 | 3 | 1 | ..... | ..... | ..... | 5 | 4 | 5 | 13 | 3828 | 6160 | 4 | 2.41 | 61.2 |
| Prescott | N. 34 33 | W. 112 28 | 4.38 a.m. | 5389 | 1642 | 24.80 | 629.9 | 29.82 | 757.4 | 56.8 | 13.8 | 69.5 | ..... | ..... | 1 | ..... | 8 | 3 | 2 | 1 | 10 | 3893 | 6264 | 2 | 1.57 | 39.9 |
| Yuma | N. 32 45 | W. 114 36 | 4.30 a.m. | 141 | 43 | 29.65 | 753.1 | 29.79 | 756.7 | 79?2 | 26.2 | 65.7 | 2 | 3 | 1 | 6 | 1 | 7 | 3 | 3 | 5 | 4167 | 6706 | 2 | 0.32 | 8.1 |
| El Paso | N. 31 47 | W. 106 30 | 5.02 a.m. | 3764 | 1147 | 26 29 | 667 8 | 29.89 | 759.2 | 71.0 | 21.7 | 64.4 | 1 | ..... | 3 | ..... | ..... | ..... | 3 | 3 | 21 | 1474 | 2372 | 6 | 3.98 | 101.1 |
| *Middle plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salt Lake City | N. 40 46 | W. 111 54 | 4.40 a.m. | 4348 | 1325 | 25.67 | 652.0 | 29.86 | 758.4 | 63.5 | 17.5 | 44.0 | 3 | 1 | ..... | ..... | ..... | 7 | 1 | 8 | 11 | 3492 | 5620 | 3 | 0.73 | 18.5 |
| *Northern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boisé City | N. 43 37 | W. 116 08 | 4.24 a.m. | 2750 | 838 | 27.17 | 690.1 | 29.92 | 760.0 | 61.5 | 16.4 | 64.2 | 1 | 1 | 6 | 2 | 3 | 8 | 3 | 1 | 6 | 2839 | 4569 | 2 | 0.07 | 1.8 |
| Lewiston | N. 46 28 | W. 117 05 | 4.20 a.m. | 780 | 238 | 29.19 | 741.4 | 30.00 | 762.0 | 60.2 | 15.7 | 70.2 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 4 | 26 | 987 | 1588 | 1 | 0.06 | 1.5 |
| Spokane Falls | N. 47 40 | W. 117 25 | 4.18 a.m. | 1910? | 582? | 27 98 | 710.7 | 29.98 | 761.5 | 55.4 | 13.0 | 69.5 | 2 | 2 | ..... | 9 | 1 | 1 | ..... | ..... | 16 | 2895 | 4059 | 1 | 0.54 | 13.7 |
| Dayton | N. 46 19 | W. 117 56 | 4.16 a.m. | 1667 | 508 | 28 25 | 717.5 | 29.97 | 761.2 | 57.6 | 14.2 | 59.8 | ..... | 1 | ..... | 6 | 5 | 7 | 8 | 4 | ..... | 4320 | 6952 | 2 | 0.09 | 2.3 |
| *N. Pac. coast reg'n* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Canby | N. 46 16 | W. 124 04 | 3.52 a.m. | 179 | 54 | 29.83 | 757.7 | 30.02 | 762 5 | 58.0 | 14.4 | 85.8 | 7 | 3 | 10 | 1 | 7 | 1 | 1 | 1 | ..... | 5503 | 8856 | 6 | 1.23 | 31.2 |
| Olympia | N. 47 03 | W. 122 53 | 3.57 a.m. | 36 | 11 | 29.97 | 761.2 | 30.01 | 762 2 | 57.2 | 14.0 | 85.8 | ..... | ..... | ..... | 1 | 3 | ..... | ..... | ..... | 27 | 1225 | 1971 | 3 | 0.96 | 24.4 |
| Tatoosh Id | N. 48 23 | W. 124 44 | 3.49 a.m. | 86 | 26 | 29.92 | 760.0 | 30.01 | 762 2 | 53.3 | 11.8 | 91.3 | ..... | ..... | ..... | 5 | 3 | 11 | ..... | 11 | ..... | 6016 | 9682 | 4 | 5.49 | 139.4 |
| Portland | N. 45 32 | W. 122 43 | 3.57 a.m. | 67 | 20 | 29.93 | 760.2 | 30.00 | 762.0 | 58.4 | 14.7 | 84.7 | 8 | 5 | 1 | 2 | 2 | ..... | ..... | ..... | 13 | 3258 | 5243 | 2 | 0.33 | 8.4 |
| Roseburg | N. 43 13 | W. 123 20 | 3.55 a.m. | 511 | 156 | 29.46 | 748.3 | 30.02 | 762 0 | 55.8 | 13.2 | 81.1 | 1 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 16 | 1412 | 5272 | 2 | 0.03 | 0.8 |
| *Mid Pac. coast reg* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape Mendocino | N. 40 26 | W. 124 24 | 3.50 a.m. | 637 | 194 | 29.30 | 744.2 | 29.98 | 761.5 | 53.7 | 12.1 | 90.8 | 27 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 1 | 16448 | 26470 | 2 | 0.33 | 8.4 |
| Red Bluff | N. 40 10 | W. 122 15 | 3.59 a.m. | 332 | 101 | 29.55 | 750.6 | 29.90 | 759.4 | 68.0 | 20.0 | 58.5 | 5 | 11 | ..... | ..... | 4 | 3 | 3 | ..... | 5 | 3492 | 5620 | 0 | inap. | inap. |
| Sacramento | N. 38 35 | W. 121 30 | 4.02 a.m. | 64 | 19 | 29.81 | 757.2 | 29.88 | 758.9 | 63.1 | 17.3 | 73.1 | ..... | ..... | ..... | ..... | 13 | 17 | ..... | ..... | 1 | 5234 | 8584 | 0 | inap. | inap. |
| San Francisco | N. 37 48 | W. 122 26 | 3.58 a.m. | 60 | 18 | 29.88 | 758.9 | 29.95 | 700.7 | 55.4 | 13.0 | 91.5 | ..... | ..... | 5 | 24 | ..... | ..... | ..... | 1 | 8351 | 13439 | 8 | 0.04 | 1.0 |
| *S. Pac. coast reg'n,* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Los Angeles | N. 34 03 | W. 118 15 | 4.15 a.m. | 299 | 91 | 29.55 | 750 6 | 29.94 | 760.5 | 61.8 | 16.6 | 87.0 | 1 | ..... | 7 | ..... | 1 | ..... | 2 | 13 | 7 | 3695 | 5946 | 2 | 0.02 | 0.5 |
| San Diego | N. 32 43 | W. 117 10 | 4.19 a.m. | 67 | 20 | 29.83 | 757.7 | 29.90 | 759.4 | 64.8 | 18.2 | 88.2 | 8 | 7 | 3 | 2 | 2 | 2 | 1 | 3 | 3 | 4367 | 7028 | 7 | inap. | inap. |
| *Alaska stations.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ft Saint Michael | N. 63 48 | W. 162 00 | 1.20 a.m. | 30 | 9 | 29.82 | 757.4 | 29.85 | 758.2 | 53.4 | 11.9 | 86.1 | 8 | 2 | 6 | 4 | 2 | ..... | 2 | 3 | 4 | 6343 | 10208 | 6 | 1.40 | 35.6 |
| Sitka | N. 57 03 | W. 135 19 | 3.07 a.m. | 63 | 19 | 29.83 | 757 7 | 29.89 | 759.2 | 53.6 | 12.0 | 84.9 | ..... | 1 | 7 | 2 | ..... | 3 | 14 | 1 | 3 | 4556 | 7332 | 8 | 6.91 | 175.5 |
| Unalashka | N 53 53 | W. 166 32 | 1.02 a.m. | 13 | 4 | 29.78 | 756 4 | 29.79 | 750.7 | 48.8 | 9.3 | 88.9 | ..... | 4 | 3 | 7 | 3 | 7 | ..... | 3 | 4 | 6037 | 9716 | 8 | 4.90 | 124.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Behring Island | N. 55 12 | E. 165 55 | 11.12 p.m. | 20 | 6 | 29.78 | 756.4 | 29.80 | 756.9 | 48.2 | 9.0 | 95.5 | 2 | 1 | 1 | 1 | 2 | 1 | 9 | 8 | 6 | 5419 | 8721 | 8 | 1.71 | 43.4 |
| Bluefields | N. 12 00 | W. 83 43 | 6.31 a.m. | 20 | 6 | 29.90 | 759.4 | 29.92 | 760.0 | 76.0 | 24.4 | 92.0 | 4 | 19 | ..... | ..... | ..... | ..... | ..... | 8 | ..... | ..... | ..... | 6 | 16.40 | 416.6 |
| Bogota | N. 4 36 | W. 74 14 | 7.11 a.m. | 8655 | 2638 | 22.01 | 559.1 | ..... | ..... | 53.8 | 12.1 | 83.7 | 3 | ..... | 1 | 3 | 3 | 1 | ..... | ..... | 20 | ..... | ..... | 8 | 1.06 | 26.9 |
| Fort Chimo | N 59 00 | W. 68 00 | 7.36 a m | 120? | 38? | 29.74 | 755.4 | 29.88 | 758.9 | 48.6 | 9.2 | 69.7 | 1 | 6 | 7 | 4 | 4 | ..... | 1 | 1 | ..... | ..... | ..... | 8 | 3.28 | 83.3 |
| Paramaribo | N. 5 50 | W. 55 13 | 8.27 a.m. | 6 | 2 | 30.05 | 763.3 | 30.03 | 763.3 | 79.9 | 26.6 | 79 | ..... | ..... | ..... | ..... | 1 | 7 | 21 | 2 | ..... | ..... | ..... | 8 | 1.74 | 44.2 |
| Puerto Berrio | N. 6 22 | W. 74 28 | 7.10 a.m. | 542 | 165 | 29.52? | 749.8? | 30.08? | 764.0? | 78.8 | 26.0 | 90.2 | 4 | ..... | ..... | ..... | 14 | 1 | ..... | ..... | 10 | ..... | ..... | 8 | 13.88 | 352.5 |
| Rivas | N. 11 26 | W. 85 47 | 6.25 a.m. | 150 | 46 | 29.89 | 759 2 | 29.95 | 760.7 | 77.2 | 25.1 | 86.6 | 1 | ..... | ..... | ..... | 1 | ..... | 1 | 28 | ..... | ..... | ..... | 5 | 3.84 | 97.5 |
| York Factory | N. 57 02 | W. 92 26 | 5.58 a.m. | 55 | 17 | 29.81 | 757.2 | 29.87 | 758.7 | 38.9 | 3.8 | 95.3 | 7 | 6 | 7 | 6 | 2 | ..... | .... | 3 | ..... | 9000 | 14484 | 4 | 10.35 | 262.9 |

## OCEAN SQUARE DATA FOR AUGUST, 1884.

| Location of Centre of each Square. | Barometer. | | Temperature. | | Wind Frequency. | | | | | | | | | | Wind force 0–10. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch. | Mill. | Fah. | Cent. | N. | NW. | W. | SW. | S. | SE.. | E. | NE. | Calm. | Blank. | |
| N. 12.5 W. 22.5 | 29.97 | 761.2 | 79.4 | 26.3 | 2 | ..... | 1 | 1 | 11 | 2 | 7 | 2 | ..... | 5 | 3.6 |
| 12.5 27.5 | 29.98 | 761.5 | 80.2 | 26.8 | 2 | 1 | 4 | 1 | 4 | 4 | 5 | 5 | 1 | 4 | 3.4 |
| 12.5 32.5 | 30.00 | 762.0 | 80.9 | 27.2 | 2 | 2 | 1 | 1 | 1 | 2 | 9 | 5 | 1 | 4 | 3.4 |
| 12.5 37.5 | 30.02 | 762.5 | 81.9 | 27.7 | ..... | ..... | 1 | 1 | ..... | 1 | 15 | 9 | ..... | 4 | 3.6 |
| 12.5 42.5 | 30.04 | 763.0 | 83.3 | 28.5 | ..... | ..... | ..... | ..... | 2 | 1 | 15 | 8 | 1 | 4 | 3.4 |
| 12.5 47.5 | 30.05 | 763.3 | 84.1 | 28.9 | ..... | ..... | ..... | ..... | 1 | 1 | 20 | 4 | 1 | 4 | 3.5 |
| 12.5 52.5 | 30.05 | 763.3 | 83.6 | 28.7 | ..... | ..... | ..... | ..... | 2 | 2 | 25 | 2 | ..... | ..... | 3.3 |
| 17.5 22.5 | 30.00 | 762.0 | 78.6 | 25.9 | 4 | ..... | ..... | ..... | 2 | 2 | 9 | 10 | ..... | 4 | 3.4 |
| 17.5 27.5 | 30.02 | 762.5 | 79.2 | 26.2 | 2 | ..... | ..... | ..... | ..... | 1 | 9 | 15 | ..... | 4 | 3.5 |
| 17.5 32.5 | 30.03 | 762.7 | 80.2 | 26.8 | ..... | ..... | ..... | ..... | ..... | ..... | 14 | 13 | ..... | 4 | 3.9 |
| 17.5 37.5 | 30.05 | 763.3 | 81.1 | 27.3 | ..... | ..... | ..... | ..... | ..... | 1 | 19 | 7 | ..... | 4 | 3.8 |
| 17.5 42.5 | 30.07 | 763.8 | 82.8 | 28.2 | ..... | ..... | ..... | ..... | ..... | 1 | 21 | 6 | ..... | 3 | 3.9 |
| 17.5 47.5 | 30.08 | 764.0 | 83.6 | 28.7 | ..... | ..... | ..... | ..... | ..... | 1 | 23 | 4 | ..... | 3 | 3.9 |
| 17.5 52.5 | 30.06 | 763.5 | 84.3 | 29.1 | ..... | ..... | ..... | ..... | 1 | 4 | 24 | 2 | ..... | ..... | 3.4 |
| 17.5 57.5 | 30.03 | 762.7 | 84.0 | 28.9 | ..... | ..... | ..... | ..... | ..... | 6 | 24 | 1 | ..... | ..... | 3.6 |
| 22.5 22.5 | 30.04 | 763.0 | 77.2 | 25.1 | 3 | ..... | ..... | ..... | 1 | ..... | 7 | 18 | ..... | 2 | 3.7 |
| 22.5 27.5 | 30.07 | 763.8 | 78.4 | 25.8 | 1 | ..... | ..... | ..... | ..... | 1 | 13 | 14 | ..... | 2 | 3.2 |
| 22.5 32.5 | 30.09 | 764.3 | 79.4 | 26.3 | 1 | ..... | ..... | ..... | ..... | ..... | 18 | 10 | ..... | 2 | 3.7 |
| 22.5 37.5 | 30.11 | 764.8 | 80.6 | 27.0 | ..... | ..... | ..... | ..... | ..... | ..... | 24 | 7 | ..... | ..... | 3.9 |
| 22.5 42.5 | 30.11 | 764.8 | 82.1 | 27.8 | 1 | ..... | ..... | ..... | ..... | 1 | 24 | 4 | ..... | 1 | 3.7 |
| 22.5 47.5 | 30.11 | 764.8 | 83.0 | 28.3 | ..... | ..... | ..... | ..... | ..... | 4 | 25 | 2 | ..... | ..... | 3.8 |
| 22.5 52.5 | 30.10 | 764.5 | 83.4 | 28.6 | ..... | ..... | ..... | ..... | 2 | 5 | 23 | 1 | ..... | ..... | 3.7 |
| 22.5 57.5 | 30.08 | 764.0 | 83.5 | 28.6 | ..... | ..... | ..... | ..... | 3 | 8 | 20 | ..... | ..... | ..... | 3.8 |
| 22.5 62.5 | 30.07 | 763.8 | 82.5 | 28.1 | ..... | ..... | ..... | ..... | 2 | 8 | 19 | ..... | 2 | ..... | 3.4 |
| 22.5 67.5 | 30.06 | 763.5 | 82.2 | 27.9 | ..... | ..... | ..... | ..... | 1 | 9 | 21 | ..... | ..... | ..... | 3.5 |
| 22.5 72.5 | 30.04 | 763.0 | 82.9 | 28.3 | ..... | ..... | ..... | ..... | 1 | 10 | 18 | 2 | ..... | ..... | 3.5 |
| 27.5 22.5 | 30.09 | 764.3 | 76.1 | 24.5 | 11 | ..... | ..... | ..... | 1 | ..... | 6 | 12 | ..... | 1 | 3.1 |
| 27.5 27.5 | 30.12 | 765.0 | 77.0 | 25.0 | 7 | ..... | ..... | ..... | ..... | 1 | 10 | 11 | ..... | 2 | 3.3 |
| 27.5 32.5 | 30.15 | 765.8 | 78.5 | 25.8 | 4 | ..... | ..... | ..... | 1 | ..... | 13 | 13 | ..... | ..... | 3.7 |
| 27.5 37.5 | 30.16 | 766.1 | 79.8 | 26.6 | 2 | ..... | ..... | ..... | ..... | ..... | 20 | 9 | ..... | ..... | 3.9 |
| 27.5 42.5 | 30.16 | 766.1 | 80.9 | 27.2 | 3 | ..... | ..... | ..... | ..... | 3 | 23 | 2 | ..... | ..... | 4.3 |
| 27.5 47.5 | 30.16 | 766.1 | 81.5 | 27.5 | 1 | ..... | ..... | ..... | ..... | 5 | 22 | 3 | ..... | ..... | 3.5 |
| 27.5 52.5 | 30.15 | 765.8 | 82.0 | 27.8 | ..... | ..... | ..... | ..... | 4 | 6 | 18 | 3 | ..... | ..... | 3.6 |
| 27.5 57.5 | 30.14 | 765.5 | 82.3 | 27.9 | ..... | ..... | ..... | ..... | 5 | 11 | 4 | 1 | ..... | ..... | 3.7 |
| 27.5 62.5 | 30.12 | 765.0 | 82.3 | 27.9 | ..... | ..... | ..... | ..... | 6 | 14 | 10 | 1 | ..... | ..... | 3.8 |
| 27.5 67.5 | 30.10 | 764.5 | 82.4 | 28.0 | 1 | 1 | ..... | 1 | 2 | 15 | 9 | 1 | 1 | ..... | 3.5 |
| 27.5 72.5 | 30.09 | 764.3 | 82.5 | 28.1 | 1 | ..... | ..... | ..... | 9 | 13 | 6 | 2 | ..... | ..... | 3.1 |
| 27.5 77.5 | 30.07 | 763.8 | 82.6 | 28.1 | ..... | ..... | 1 | ..... | 10 | 10 | 10 | ..... | ..... | ..... | 2.5 |
| 32.5 12.5 | 30.05 | 763.3 | 76.3 | 24.6 | 13 | 2 | 6 | 1 | 1 | ..... | 5 | 2 | ..... | 1 | 2.5 |
| 32.5 17.5 | 30.08 | 764.0 | 74.8 | 23.8 | 14 | ..... | 5 | 1 | ..... | 1 | 2 | 6 | 1 | 1 | 2.1 |
| 32.5 22.5 | 30.13 | 765.3 | 74.6 | 23.7 | 11 | 3 | 1 | ..... | 1 | ..... | 6 | 9 | ..... | ..... | 3.0 |
| 32.5 27.5 | 30.17 | 766.3 | 75.3 | 24.1 | 7 | 3 | 2 | ..... | ..... | 1 | 8 | 10 | ..... | ..... | 3.0 |
| 32.5 32.5 | 30.19 | 766.8 | 76.3 | 24.6 | 6 | 1 | 1 | ..... | 1 | 2 | 8 | 12 | ..... | ..... | 3.4 |
| 32.5 37.5 | 30.20 | 767.1 | 77.7 | 25.4 | 4 | 1 | ..... | ..... | 2 | 4 | 10 | 9 | ..... | 1 | 3.7 |
| 32.5 42.5 | 30.22 | 767.6 | 78.9 | 26.1 | 3 | ..... | ..... | ..... | 3 | 5 | 17 | 3 | ..... | ..... | 3.8 |
| 32.5 47.5 | 30.23 | 767.8 | 79.7 | 26.5 | 2 | 1 | ..... | ..... | 5 | 8 | 12 | 2 | 1 | ..... | 3.4 |
| 32.5 52.5 | 30.21 | 767.3 | 80.1 | 26.7 | ..... | ..... | ..... | ..... | 8 | 9 | 9 | 4 | 1 | ..... | 3.2 |
| 32.5 57.5 | 30.19 | 766.8 | 80.6 | 27.0 | 1 | ..... | ..... | ..... | 8 | 14 | 6 | 1 | 1 | ..... | 3.4 |
| 32.5 62.5 | 30.14 | 765.5 | 80.1 | 26.7 | ..... | ..... | ..... | 1 | 10 | 17 | 2 | 1 | ..... | ..... | 4.0 |
| 32.5 67.5 | 30.12 | 765.0 | 80.4 | 26.9 | ..... | ..... | ..... | 3 | 16 | 7 | 1 | 4 | ..... | ..... | 3.5 |
| 32.5 72.5 | 30.10 | 764.5 | 80.4 | 26.9 | ..... | ..... | ..... | 2 | 16 | 3 | 7 | 1 | 2 | ..... | 3.6 |
| 32.5 77.5 | 30.06 | 763.5 | 78.5 | 25.8 | 4 | ..... | 3 | 9 | 1 | 3 | 4 | 4 | 3 | ..... | 3.4 |
| 37.5 12.5 | 30.06 | 763.5 | 74.5 | 23.6 | 11 | 5 | 6 | 2 | 1 | 1 | 2 | 2 | ..... | 1 | 2.8 |
| 37.5 17.5 | 30.11 | 764.8 | 71.5 | 21.9 | 9 | 6 | 4 | ..... | ..... | ..... | 2 | 7 | 3 | ..... | 2.8 |
| 37.5 22.5 | 30.15 | 765.8 | 71.5 | 21.9 | 11 | 6 | 3 | 1 | ..... | ..... | 3 | 6 | 1 | ..... | 3.0 |
| 37.5 27.5 | 30.19 | 766.8 | 72.5 | 22.5 | 9 | 3 | 4 | 1 | 2 | 1 | 1 | 8 | 2 | ..... | 2.9 |
| 37.5 32.5 | 30.20 | 767.1 | 72.9 | 22.7 | 4 | 8 | 4 | 2 | 5 | ..... | 4 | 4 | ..... | ..... | 3.4 |
| 37.5 37.5 | 30.21 | 767.3 | 74.0 | 23.3 | 9 | 8 | 2 | 1 | 4 | 1 | 4 | 2 | ..... | ..... | 4.1 |
| 37.5 42.5 | 30.24 | 768.1 | 75.0 | 23.9 | 8 | 6 | 1 | 1 | 6 | 1 | 6 | 1 | ..... | 1 | 3.8 |
| 37.5 47.5 | 30.26 | 768.6 | 75.4 | 24.1 | 5 | 3 | 2 | 3 | 4 | 8 | 3 | 3 | ..... | ..... | 3.5 |
| 37.5 52.5 | 30.25 | 768.3 | 76.4 | 24.7 | 4 | 1 | 1 | 3 | 14 | 4 | 4 | ..... | ..... | ..... | 3.6 |
| 37.5 57.5 | 30.20 | 767.1 | 77.3 | 25.2 | 1 | 1 | 1 | 3 | 13 | 7 | 3 | 1 | 1 | ..... | 3.5 |
| 37.5 62.5 | 30.15 | 765.8 | 76.0 | 24.4 | 1 | ..... | ..... | 9 | 14 | 6 | ..... | 1 | ..... | ..... | 4.0 |
| 37.5 67.5 | 30.11 | 764.7 | 75.0 | 23.9 | 2 | 1 | 2 | 7 | 15 | 1 | 1 | 1 | ..... | 1 | 4.3 |
| 37.5 72.5 | 30.07 | 763.8 | 73.9 | 23.3 | 4 | 4 | 2 | 6 | 4 | 3 | 2 | 5 | ..... | 1 | 3.9 |
| 42.5 12.5 | 30.03 | 762.7 | 72.3 | 22.4 | 8 | 2 | 6 | 3 | 1 | ..... | ..... | 9 | ..... | ..... | 2.7 |
| 42.5 17.5 | 30.08 | 764.0 | 68.1 | 20.1 | 3 | 9 | 10 | 3 | ..... | ..... | ..... | 5 | 1 | ..... | 3.4 |
| 42.5 22.5 | 30.11 | 764.8 | 67.6 | 19.8 | 4 | 9 | 11 | 3 | 1 | ..... | ..... | 2 | 1 | ..... | 3.9 |
| 42.5 27.5 | 30.13 | 765.3 | 67.9 | 19.9 | 3 | 9 | 8 | 7 | 1 | ..... | ..... | 2 | 1 | ..... | 4.1 |
| 42.5 32.5 | 30.14 | 765.5 | 68.6 | 20.3 | 2 | 10 | 7 | 4 | 3 | 1 | ..... | 1 | 3 | ..... | 3.8 |
| 42.5 37.5 | 30.16 | 766.1 | 69.1 | 20.6 | 3 | 10 | 8 | 3 | 3 | 1 | 2 | ..... | 1 | ..... | 4.2 |
| 42.5 42.5 | 30.17 | 766.3 | 69.2 | 20.7 | 2 | 9 | 6 | 7 | 5 | 1 | ..... | ..... | 1 | ..... | 4.3 |
| 42.5 47.5 | 30.19 | 766.8 | 66.9 | 19.4 | 1 | 7 | 9 | 8 | 4 | ..... | 1 | ..... | 1 | ..... | 4.0 |
| 42.5 52.5 | 30.17 | 766.3 | 69.2 | 20.7 | 1 | 7 | 6 | 8 | 7 | 2 | ..... | ..... | ..... | ..... | 3.9 |
| 42.5 57.5 | 30.15 | 765.8 | 69.9 | 21.1 | 1 | 3 | 7 | 8 | 7 | 5 | ..... | ..... | ..... | ..... | 3.9 |
| 42.5 62.5 | 30.11 | 764.8 | 68.2 | 20.1 | 2 | 3 | 4 | 11 | 6 | 1 | 2 | 1 | 1 | ..... | 3.5 |
| 42.5 67.5 | 30.07 | 763.8 | 64.9 | 18.3 | 3 | 2 | 4 | 5 | 10 | 3 | 2 | ..... | 2 | ..... | 3.4 |
| 47.5 12.5 | 30.02 | 762.5 | 66.3 | 19.1 | 3 | 5 | 8 | 8 | 5 | ..... | 1 | 1 | ..... | ..... | 4.5 |
| 47.5 17.5 | 30.01 | 762.2 | 64.0 | 17.8 | 5 | 6 | 9 | 9 | 2 | ..... | ..... | ..... | ..... | ..... | 4.2 |
| 47.5 22.5 | 30.00 | 762.0 | 62.5 | 16.9 | 3 | 7 | 10 | 8 | 2 | 1 | ..... | ..... | ..... | ..... | 4.9 |
| 47.5 27.5 | 29.99 | 761.7 | 61.5 | 16.4 | 3 | 9 | 9 | 5 | 3 | 1 | 1 | ..... | ..... | ..... | 5.0 |
| 47.5 32.5 | 30.01 | 762.2 | 61.5 | 16.4 | 3 | 12 | 5 | 6 | 2 | 1 | 1 | 1 | ..... | ..... | 5.0 |
| 47.5 37.5 | 30.04 | 763.0 | 61.5 | 16.4 | 1 | 9 | 13 | 4 | 2 | ..... | ..... | 2 | ..... | ..... | 4.6 |
| 47.5 42.5 | 30.05 | 763.3 | 59.7 | 15.4 | ..... | 11 | 10 | 7 | 2 | 1 | ..... | ..... | ..... | ..... | 4.7 |
| 47.5 47.5 | 30.04 | 763.0 | 55.6 | 13.1 | ..... | 7 | 12 | 9 | 3 | ..... | ..... | ..... | ..... | ..... | 4.1 |
| 52.5 12.5 | 29.93 | 760.2 | 60.6 | 15.9 | ..... | 3 | 9 | 14 | 5 | ..... | ..... | ..... | ..... | ..... | 4.8 |
| 52.5 17.5 | 29.85 | 758.2 | 59.0 | 15.0 | ..... | 4 | 12 | 11 | 4 | ..... | ..... | ..... | ..... | ..... | 5.4 |
| 52.5 22.5 | 29.83 | 757.7 | 57.0 | 13.9 | 1 | 13 | 6 | 9 | 1 | ..... | ..... | ..... | 1 | ..... | 5.3 |
| 52.5 27.5 | 29.84 | 757.9 | 55.0 | 12.8 | 2 | 11 | 10 | 7 | 1 | ..... | ..... | ..... | ..... | ..... | 5.6 |
| 52.5 32.5 | 29.85 | 758.2 | 54.2 | 12.3 | 1 | 11 | 9 | 8 | ..... | ..... | ..... | ..... | 1 | 1 | 4.9 |
| 52.5 37.5 | 29.86 | 758.4 | 53.2 | 11.8 | 2 | 6 | 12 | 8 | 1 | ..... | 1 | 1 | ..... | ..... | 5.2 |
| 52.5 42.5 | 29.87 | 758.7 | 51.2 | 10.7 | 1 | 8 | 11 | 5 | 2 | 1 | 2 | 1 | ..... | ..... | 5.1 |
| 52.5 47.5 | 29.87 | 758.7 | 49.3 | 9.6 | 3 | 7 | 11 | 6 | 2 | 2 | ..... | ..... | ..... | ..... | 4.7 |
| 57.5 12.5 | 29.75 | 755.6 | 57.0 | 13.9 | ..... | 2 | 3 | 16 | 9 | 1 | ..... | ..... | ..... | ..... | 4.9 |
| 57.5 17.5 | 29.67 | 753.6 | 55.2 | 12.9 | ..... | 4 | 7 | 9 | 7 | 2 | 1 | ..... | 1 | ..... | 5.4 |
| 57.5 22.5 | 29.63 | 752.6 | 53.3 | 11.8 | 3 | 5 | 7 | 11 | 2 | 3 | ..... | ..... | ..... | ..... | 5.8 |
| 57.5 27.5 | 29.64 | 752.8 | 51.1 | 10.6 | 6 | 10 | 4 | 7 | 3 | ..... | 1 | ..... | ..... | ..... | 5.6 |
| 57.5 32.5 | 29.68 | 753.9 | 49.4 | 9.7 | 6 | 10 | 6 | 6 | 1 | ..... | ..... | 2 | ..... | ..... | 5.8 |
| 57.5 37.5 | 29.69 | 754.1 | 47.9 | 8.8 | 5 | 10 | 7 | 4 | 2 | ..... | 1 | 1 | ..... | 1 | 5.6 |
| 57.5 42.5 | 29.72 | 754.9 | 46.5 | 8.1 | 3 | 9 | 10 | 2 | 2 | ..... | ..... | 3 | ..... | 2 | 5.1 |
| 57.5 47.5 | 29.75 | 755.6 | 45.1 | 7.3 | 4 | 8 | 9 | 3 | 2 | ..... | 3 | 1 | 1 | ..... | 4.6 |

## REVIEW.

### INTERNATIONAL METEOROLOGY FOR AUGUST, 1884.

[*Pressure expressed in inches and millimetres; temperature in degrees, Fahrenheit and Centigrade; wind-force by scale of* 0–10.]

The following description refers to chart ii. for the month of August, 1884. This chart continues the series of international charts begun in January, 1877, and exhibits the mean pressure, mean temperature, and the prevailing wind-direction over the northern hemisphere, as determined from one simultaneous observation taken each day at 7 a. m., Washington, or 0 h. 8 m. p. m., Greenwich, mean time.

Two well-marked areas of barometric minima appear on the chart; the first of these is enclosed by the isobar for 29.5 (749.3) and occupies the northwestern part of British India, the lowest mean pressure reported being 29.48 (748.8), at Lahore. In other parts of British India lying north of the twentieth parallel the means ranged from 29.5 (749.3) to 29.59 (751.6); south of the twentieth parallel they exceed 29.7 (754.4). The second area of low mean pressures is indicated by the isobar for 29.6 (751.8) and is situated in the neighborhood of Iceland, the lowest mean being 29.56 (750.8), at Stykkisholm. The barometric gradient increases gradually until the isobar for 30.0 (762.0) is reached; that isobar extending from northern Scandinavia south-southwestward to the southern counties of England and thence westward along the forty-eighth parallel to the Gulf of Saint Lawrence. In the North American continent the lowest mean pressures, 29.8 (756.9), are shown in southwestern Arizona; in that part of the United States lying west of the hundredth meridian and south of the forty-fifth parallel, except on the California coast, the means are less than 29.9 (759.4); on the north Pacific coast, and over the country east of 100° W., and south of 45° N., they exceed 30.0 (762.0), the highest, 30.1 (764.5), being in eastern Tennessee and northern Georgia. In Scandinavia, and in western and central Europe, and the southern part of England, the mean pressure ranges from 30.0 (762.0) to 30.09 (764.3); in the southern peninsulas and over the greater part of Russia it is less than 30.0 (762.0).

Only one well-defined area of barometric maxima appears on the chart, viz., that of the north Atlantic; this area is enclosed by the isobar for 30.2 (767.1) and extends over the ocean from about W. 32° to W. 58° and between N. 30° and 40°.

Compared with the chart for the preceding month (July, 1884), there has been, except on the Pacific coast, a general increase of pressure throughout the United States, being greatest in New England and the Maritime Provinces, and least in the Gulf states and Florida. Over the north Atlantic south of 50° N., the pressure has increased, while it has decreased over the region north of that parallel. In Europe the pressure has decreased slightly in Spain, while no change has occurred in Italy and France; in all other countries of the continent there has been an increase, amounting to about .15 inch in the northern peninsulas and ranging from .03 to .07 inch in Austria, Russia, and the British Isles. No material change has occurred in Asia.

Compared with the corresponding month of previous years, the mean atmospheric pressure over the United States was slightly below the normal in the northern districts from the lake region to the Pacific, but in the southern districts it was normal or slightly above. In Canada it was slightly above the normal, the excess being greatest in Nova Scotia. In Europe it was above the normal, especially so in the northern peninsulas, where the excess averaged .25 inch.

The following table shows the mean pressure and mean temperature for August, 1884, in the several countries of the eastern hemisphere, and the departures as compared with the means determined from observations taken during the last seven years.

| Countries. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Aug mean of 7 (1877–'83) years. | Aug., 1884. | Departure. | Aug. mean of 7 (1877–'83) years. | Aug., 1884. | Departure. |
| | | | | ° | ° | ° |
| Algeria | 30.02 | | | 89.1 | | |
| Austro-Hungary | 29.90 | 29.98 | + 0.08 | 73.6 | 71.9 | — 1.7 |
| British Isles | 29.87 | 29.99 | + 0.12 | 62.9 | 67.7 | + 4.8 |
| Denmark | 29.81 | 30.04 | + 0.23 | 64.1 | 66.3 | + 2.2 |
| France | 29.98 | 30.03 | + 0.05 | 73.7 | 77.2 | + 3.5 |
| Germany | 29.92 | 30.04 | + 0.12 | 69.1 | 70.5 | + 1.4 |
| India | 29.61 | 29.60 | — 0.01 | 83.1 | 83.3 | + 0.2 |
| Italy | 29.95 | 29.97 | + 0.02 | 81.3 | 79.4 | — 1.9 |
| Norway | 29.76 | 30.01 | + 0.25 | 63.1 | 66.5 | + 3.4 |
| Portugal | 30.01 | | | 81.5 | | |
| Russia | 29.83 | 29.93 | + 0.10 | 71.6 | 66.7 | — 4.9 |
| Spain* | 29.99 | 30.00 | + 0.01 | 80.7 | 81.5 | + 0.8 |
| Sweden | 29.78 | 30.07 | + 0.29 | 64.3 | 63.4 | — 0.9 |

* Means for six years only.

The accompanying table shows the deviations in pressure and temperature at isolated stations during the month of August, 1884, as compared with the means for seven years:

| Stations. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Aug. mean of 7 (1877–'83) years. | Aug., 1884. | Departure. | Aug. mean of 7 (1877–'83) years. | Aug., 1884. | Departure. |
| | | | | ° | ° | ° |
| Astrakhan, Russia | 29.86 | 29.90 | + 0.04 | 82.3 | 79.9 | — 2.4 |
| Archangel, Russia | 29.74 | 30.00 | + 0.26 | 61.7 | 55.2 | — 6.5 |
| Angra, Azores* | 30.17 | | | 73.0 | | |
| Athens, Greece | 29.88 | 29.91 | + 0.03 | 87.4 | 83.8 | — 3.6 |
| Beirut, Turkey in Asia | 29.78 | 29.79 | + 0.01 | 88.4 | 85.5 | — 2.9 |
| Barnaul, Siberia, Asia | 29.75 | 29.81 | + 0.06 | 67.8 | 65.1 | — 2.7 |
| Bridgetown, Barbadoes | 29.99 | 29.98 | — 0.01 | 83.6 | 83.1 | — 0.5 |
| Cape Town, Cape of Good Hope | | | | | | |
| Cagliari, Sardinia, Italy | | | | | | |
| Ekaterinburg, Russia | 29.75 | 29.75 | normal. | 66.2 | 57.7 | — 8.5 |
| Fort Napier, Natal, South Africa | 29.98 | 30.12 | + 0.14 | 67.8 | 74.1 | + 6.3 |
| Freetown, Sierra Leone | 29.96 | 29.87 | — 0.09 | 81.6 | 86.8 | + 5.2 |
| Funchal, Madeira Islands | 30.12 | 30.08 | — 0.04 | 75.6 | 75.2 | — 0.4 |
| Gibraltar | 29.99 | 29.99 | normal. | 80.0 | 82.1 | + 2.1 |
| Godthaab, Greenland | 29.80 | | | 43.7 | | |
| Havana, Cuba, W. I. | 30.01 | 30.01 | normal. | 80.6 | 77.7 | — 2.9 |
| Malta, Mediterranean Sea* | 29.96 | 29.91 | — 0.05 | 82.9 | 80.6 | — 2.3 |
| Mauritius, Indian Ocean | 30.17 | 30.14 | — 0.03 | 71.7 | 71.7 | normal. |
| Melbourne, New South Wales | 30.07 | 29.97 | — 0.10 | 49.8 | 51.1 | + 1.3 |
| Mexico, Mexico | | | | | | |
| Nassau, Bahamas, W. I. | 30.04 | 30.07 | + 0.03 | 84.1 | 84.0 | — 0.1 |
| Nikolaevsk on the Amoor, Asia | | | | | | |
| Paramaribo, D. Guiana, S. A. | 30.03 | 30.05 | + 0.02 | 80.2 | 79.9 | — 0.3 |
| Pekin, China | 29.76 | 29.78 | + 0.02 | 76.5 | 74.5 | — 2.0 |
| Ponta Delgado, Azores | 30.19 | 30.19 | normal. | 75.0 | 72.9 | — 2.7 |
| Sandwick Manse, Orkney Islands | 29.80 | 29.88 | + 0.08 | 56.7 | 60.0 | + 3.3 |
| San Juan de Puerto Rico, W. I. | 30.02 | 30.02 | normal. | 81.5 | 79.9 | — 1.6 |
| Stykkisholm, Iceland | 29.79 | 29.56 | — 0.23 | 50.6 | 51.3 | + 0.7 |
| Tashkend, Toorkistan, Asia | 29.72 | 29.65 | — 0.07 | 84.3 | 90.3 | + 6.0 |
| Thorshavn, Färöe Islands | 29.79 | 29.78 | — 0.01 | 53.4 | 54.1 | + 0.7 |
| Tiflis, Russia | 29.78 | 29.84 | + 0.06 | 86.5 | 81.1 | — 5.4 |
| Tokei, Japan | 29.88 | 29.84 | — 0.04 | 75.9 | 72.0 | — 3.9 |
| Yeniseisk, Siberia, Asia | 29.82 | 29.85 | + 0.03 | 63.1 | 63.0 | — 0.1 |
| York Factory, B. A. | 29.92 | 29.87 | — 0.05 | 40.9 | 38.9 | — 8.0 |
| Zi-Ka-Wei, China | 29.78 | 29.77 | — 0.01 | 76.6 | 76.1 | — 0.5 |

* Means for six years only.

The mean temperature of the air was colder than the average in all parts of the United States, except on the Pacific coast and in the southern Rocky mountain districts, the greatest deficiencies, about 3°.5, occurring in the central valleys. In Canada it was below the average in Ontario, but above in the other districts. In Europe the mean temperature was, in general, above the normal in the northern and western districts, and below the normal in the south and east. In British India it was 0°.2 above the seven years' mean, the highest mean temperature reported was 92°.2 Fahr. (33°.4 Cent.), at Trichinopoly, and the lowest was 70°.4 Fahr. (21°.3 Cent.), at Belgaum.

The following are some of the extremes reported at isolated stations:

| Highest. | Fahr. | Cent. | Lowest. | Fahr. | Cent. |
|---|---|---|---|---|---|
| | ° | ° | | ° | ° |
| Cairo, Egypt | 94.5 | 34.7 | York Factory, B. A. | 38.9 | 3.8 |
| Tashkend, Turkestan, Asia | 90.3 | 32.4 | Ivigtut, Greenland | 42.8 | 6.0 |
| Petro-Alexandrovsk, Asia | 88.2 | 31.2 | Behring Island, Behring Sea | 48.2 | 9.0 |
| Freetown, Sierra Leone, Africa | 86.8 | 30.4 | Fort Chimo, Labrador | 48.6 | 9.2 |
| Beirut, Turkey in Asia | 85.5 | 29.7 | Unalashka, Alaska | 48.8 | 9.3 |

In the United States the prevailing winds were from south to southwest and west over the country north of the fortieth parallel and from the Atlantic to the Pacific; along the Atlantic coast south of 40° N. they were northeasterly; elsewhere they were southerly and southeasterly. In Canada they were mostly southwesterly. Over the Atlantic ocean the prevailing winds were as follows: from the United States coast eastward to 50° W. and between 25° and 45° N., southeasterly, southerly, and southwesterly; from 50° W. eastward to the European coasts and between 35° and 60° N. they were northerly and northwesterly; south of 30° N., they were easterly and northeasterly. In Europe the winds were variable.

The rainfall during August, 1884, in the United States, exceeded the average in the following districts, viz., New England, the lake region, Mississippi and Missouri valleys, the extreme northwest, and on the eastern slope of the Rocky mountains. In all other parts of the United States it was less than the average, the largest deficiencies occurring in the Rio Grande valley and the Gulf states. In the southern districts of Europe the rainfall was slightly in excess of the average, while in the northern districts there was a slight deficiency.

## STORM-TRACKS FOR AUGUST, 1884.

Chart iii. shows the paths of the more important depressions which appeared in the northern hemisphere during August, 1884. This chart continues the series of international charts begun in November, 1877, and in its preparation the following data have been used, viz.: Chart i. for each day of the month, containing the data of one simultaneous observation taken at 7 a. m., Washington, or 0h. 8m., p. m., Greenwich mean time, as heretofore published in the DAILY INTERNATIONAL BULLETIN; abstracts of ships' logs; special reports, and other miscellaneous data on file at this office.

The approximate paths of thirty-seven depressions are shown on the chart, and in addition to these are also given the tracks of three typhoons which appeared in the China sea and Japan during August, 1884. The latter are taken from the "Bulletin Mensuel," published by the Rev. M. Dechevrens, director of the observatory at Zi-Ka-Wei, near Shanghai, China, and from the tri-daily weather maps of the Imperial Meteorological Observatory at Tokio, Japan, under direction of Mr. J. Arai.

Eleven depressions (numbers i. to xi., inclusive) are traced in the North American continent; these, for the most part, first appeared in the British Northwest Territories and moved east-southeastward to the northern part of the lake region and thence northeastward to northern Canada. They were, generally, of slight intensity, and their accompanying winds did not exceed the force of a moderate gale; they are described in detail under "Areas of low barometer," in the MONTHLY WEATHER REVIEW for August, 1884.

Of the ten depressions (numbers xii. to xxi., inclusive) traced over the north Atlantic, two were continuations of low areas which had previously crossed the American continent, passing into the ocean from the Labrador coast and thence northward beyond the sixtieth parallel; one (number xvi.) appeared off the eastern coast of Newfoundland, and moved east-northeastward to the Irish coast, where it disappeared; this was the most southerly depression of the month. Numbers xiii. and xvii. developed over the ocean north of the fiftieth parallel and west of the fortieth meridian, moving north-northeastward. The remaining disturbances are shown over the region north of 50° N., and between the meridians of 40° and 10° W.; they moved in a northeasterly direction to about 60° N., where they appear to have been pushed towards the west. The depressions which traversed the Atlantic during August, 1884, did not exhibit any great storm-energy, their attendant winds not exceeding the force of a fresh gale. The barometric minima of the month occurred in connection with the passage of the following: Number xii., 29.13 (739.9), on the 2d; number xv., 29.4 (746.7), on the 11th, and 29.31 (744.5), on the 19th; number xvii., 29.14 (740.1), on the 21st, and 29.0 (736.6), on the 22d; number xviii., 29.25 (742.9), on the 26th; number xxi., 29.39 (746.5 , on the 31st. In the other depressions the barometer did not fall below 29.5 (749.3). The depressions which appeared in Europe were mostly slight and unimportant and merit no special mention; their paths lie, mostly, in the eastern and northeastern parts of the continent. The numerous depressions which occupied the ocean to the west and northwest of the British Isles caused generally unsettled weather and severe thunder-storms over those islands.

Of the depressions traced in eastern Asia and over the Pacific ocean, that charted as number xxxii. passed over Niphon on the 15th, having apparently advanced from the Sea of Japan; the lowest barometer was 29.6 (752.0); number xxxiii. moved from the Yellow sea northeastward over Corea, and at the close of the month it was entering the Sea of Japan; the lowest pressure was 29.68 (753.9). In number xxxv. the barometer fell to 29.47 (748.5), on the 3d, in N. 48°, W. 162°; in xxxvi. the minimum was 29.33 (745.0), at Behring Island, on the 8th; in number xxxvii. it was 29.32 (744.7), at Unalashka.

Concerning the typhoons of the month of August, 1884, the first (3d–13th) appears to have first formed as a depression to the westward of Shanghai, and to have developed the violence peculiar to typhoons only after having reached the China sea, where it remained, to the northward of Formosa, for four days. As it approached southern Japan it was a well-developed typhoon, with barometer at the centre below 29.14 (740.1). During its passage over southern Japan it was attended by strong east to northeast gales and heavy rain.

The second typhoon (19th–24th) followed the usual parabolic course, first appearing to the eastward of Luzon on the 19th and crossing that island and the China sea during the 20th and 21st, when it curved to the northward and entered the continent in the vicinity of Amoy. The typhoon seems to have been most disastrous at Amoy, where several large vessels were totally wrecked, and many junks, with their crews, were swept away; the town itself also sustained great damage.

This typhoon was remarkable on account of its extraordinary velocity of movement, which was about 27.8 miles an hour throughout the period for which it is charted. The barometric minimum was observed at the "Lamocks" light-house (N. 23° 15′, E. 117° 18′), where the barometer fell to 28.75 (730.2) at the moment of the passage of the centre.

The third typhoon (25th and 26th) was most disastrous in Japan. It appeared suddenly as a well-defined typhoon near Kiu-siu at about midnight of the 24th–25th, the barometer at Kagoshima falling to 28.9 (734.0), a decrease of .71 inch (18 mm.) in eight hours, and strong gales from south to southeast, east and northeast, were prevailing at the stations in southern Japan. By the morning of the 25th (7 a. m., Washington time) the centre of disturbance was near Hiroshima, which station reported barometer 28.66 (728.0), a fall of .79 inch (20 mm.) in seven hours; fresh to strong gales prevailed at nearly all stations in Niphon.

The typhoon continued to move northeastward along the western coast of Niphon, and on the 26th its centre was in the northern part of the island, the barometer having risen to 29.14 (740.0); during the day it passed off into the Pacific.

The s. s. "Principia" encountered this typhoon shortly after leaving Kobe, and had decks swept, several of the crew washed overboard, and others injured; during the gale the vessel's aneroid barometer stood at 28.42 (721.9).

This typhoon caused great destruction to property and loss of life during its transit over Japan.

## SPECIAL NOTES.

### DAILY BULLETIN.

On and after July 1, 1884, the DAILY BULLETIN OF SIMULTANEOUS METEOROLOGICAL OBSERVATIONS will be discontinued. The daily chart accompanying this bulletin, or international chart No. i., will continue to be issued as heretofore, but on an enlarged scale, and will contain data referring to pressure (at sea-level), temperature, wind-direction, and state of weather for each day at all reporting stations in the northern hemisphere, and over the northern portions of the Atlantic and Pacific oceans, as heretofore published in the DAILY BULLETIN.

The observations are taken at 7 h. 0 m., a. m., Washington, or 0 h. 8 m.,

p. m., Greenwich, mean time, except at the following stations, viz.: Arlon, Belgium, at 1 p. m., local time, or 28 minutes late; Upernavik, Greenland, at 8 a. m., local time, or 24 minutes early; Ivigtut, Greenland, at 8 a. m., or 56 minutes early; Brono, Norway, at 2 p. m., or 63 minutes late.

All data referring to force, velocity, or pressure (in pounds per square foot) of the wind, are reduced to the scale of 0-10, and the approximate value is indicated by the number of feathers on the arrow (see below). The state of the weather is indicated by the following symbols:

○ clear; ⊖ fair; ◐ cloudy; ● precipitation (rain, snow, hail, sleet).

INTERNATIONAL CHARTS.

International chart i. shows the atmospheric pressure at sea-level in English inches, the isobars being drawn for every two-tenths of an inch; temperature (by figures only) in degrees Fahrenheit.

Arrows show direction of, and fly with, the wind; force is shown as follows:

| Symbols. | Force. | Velocity. | |
|---|---|---|---|
| | | Miles per hour. | Metres per second. |
| ○ | 0 | 0 | 0 |
| → | 1, 2 | 0 to 9 | 0 to 4 |
| → | 3, 4 | 9.1 to 22.5 | 4.1 to 10.1 |
| → | 5, 6 | 22.6 to 40.5 | 10.1 to 18.1 |
| → | 7, 8 | 40.6 to 67.5 | 18.1 to 30.2 |
| → | 9, 10 | 67.6 up. | 30.2 and over. |

International chart ii. (monthly mean chart) shows the mean pressure at sea-level in English inches; the mean temperature in degrees, Fahrenheit; the mean force and prevailing direction of the wind, as determined from observations taken at 7 a. m., Washington mean time.

International chart iii. shows the tracks of centres of low barometer. The Arabic numerals show the location of the centres of low barometer at 7 a. m., Washington mean time of that date.

In the above charts, broken lines indicate that the lines so drawn are doubtful.

MONTHLY SUMMARY OF INTERNATIONAL SIMULTANEOUS METEOROLOGICAL OBSERVATIONS.

The positions of stations (latitude and longitude) are obtained from Keith Johnson's "Index Geographicus," except where more exact information is furnished. The elevations of stations are obtained either from the annual, semi-annual, and monthly publications of the various meteorological bureaus here represented, or from the original forms upon which are entered the daily observations. In the United States series the elevations are computed from the latest surveys, and are carefully revised each month, in order to note any change in the elevation of the barometer-cistern at any station. It is believed for the most part that, throughout the European and other series, the elevations as given represent the height of the barometer-cistern above sea-level; at least this should be the case. The local time, where omitted or not given correctly in the original, is carefully computed at this office. A letter placed opposite the name of a station or some portion of the data credited thereto, indicates that a certain number of observations are missing, corresponding to the relative position in the English alphabet of the letter so used.

At Hobart Town, Tasmania, the observations are taken at 9 p. m. instead of at 9.57 p. m.

At Astrakhan, Ashurada, and Baku the barometer-cisterns are below sea-level.

NOTE.—In the absence of the international simultaneous observations in Japan, the means for August, 1884, at stations in that country, have been determined from data published on the daily weather maps of the Imperial Meteorological Observatory at Tokio, the observation taken at 9 p. m. (Kioto time), each day, having been used.

On and after July 1, 1884, all stations in the United States series will be grouped by states and territories under each district, in the following order:

NEW ENGLAND: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

MIDDLE ATLANTIC STATES: New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia.

SOUTH ATLANTIC STATES: North Carolina, South Carolina, Georgia, Florida.

EASTERN GULF STATES: Georgia, Florida, Alabama, Mississippi, Louisiana.

WESTERN GULF STATES: Louisiana, Arkansas, Indian Territory, Texas.

RIO GRANDE VALLEY: Texas.

OHIO VALLEY AND TENNESSEE: Tennessee, Kentucky, Illinois, Indiana, Ohio, West Virginia, Pennsylvania.

LOWER LAKES: New York, Pennsylvania, Ohio, Michigan.

UPPER LAKES: Michigan, Indiana, Illinois, Wisconsin, Minnesota.

UPPER MISSISSIPPI VALLEY: Minnesota, Wisconsin, Iowa, Illinois, Missouri.

MISSOURI VALLEY: Missouri, Kansas, Nebraska, Iowa, Dakota.

EXTREME NORTHWEST: Minnesota, Dakota.

NORTHERN SLOPE: Montana, Dakota, Wyoming, Nebraska.

MIDDLE SLOPE: Nebraska, Colorado, Kansas, Indian Territory, Texas, New Mexico.

SOUTHERN SLOPE: Indian Territory, Texas, New Mexico.

SOUTHERN PLATEAU: New Mexico, Arizona, California, Nevada.

MIDDLE PLATEAU: California, Nevada, Utah, Colorado, Wyoming.

NORTHERN PLATEAU: Wyoming, Montana, Idaho, Oregon, Washington.

NORTH PACIFIC COAST: Washington, Oregon.

MIDDLE PACIFIC COAST: California.

SOUTH PACIFIC COAST: California.

OCEAN SQUARES.—The table of ocean square data shows (1) the location of the centres of squares whose sides extend 5° each in latitude and longitude, (2) the monthly mean pressure and temperature of the air, and the mean force and total frequency of the wind at 7 a. m., Washington time, computed for the centre of each square from daily readings as obtained by interpolation between the isobars and isotherms of the daily international simultaneous weather maps.

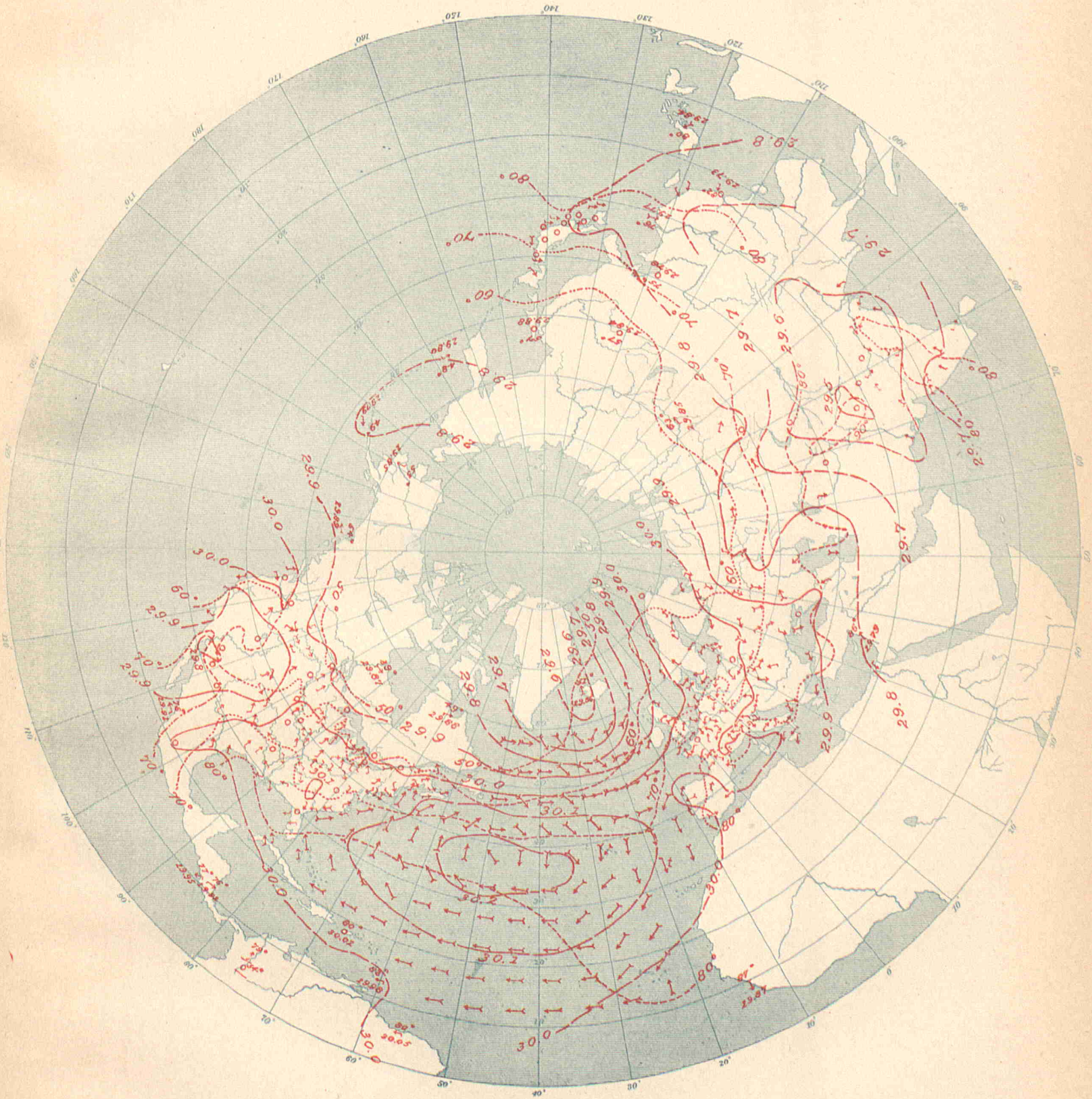
PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

W. B. HAZEN,

*Brig. & Bvt. Maj. Gen'l,*

*Chief Signal Officer, U. S. A.*

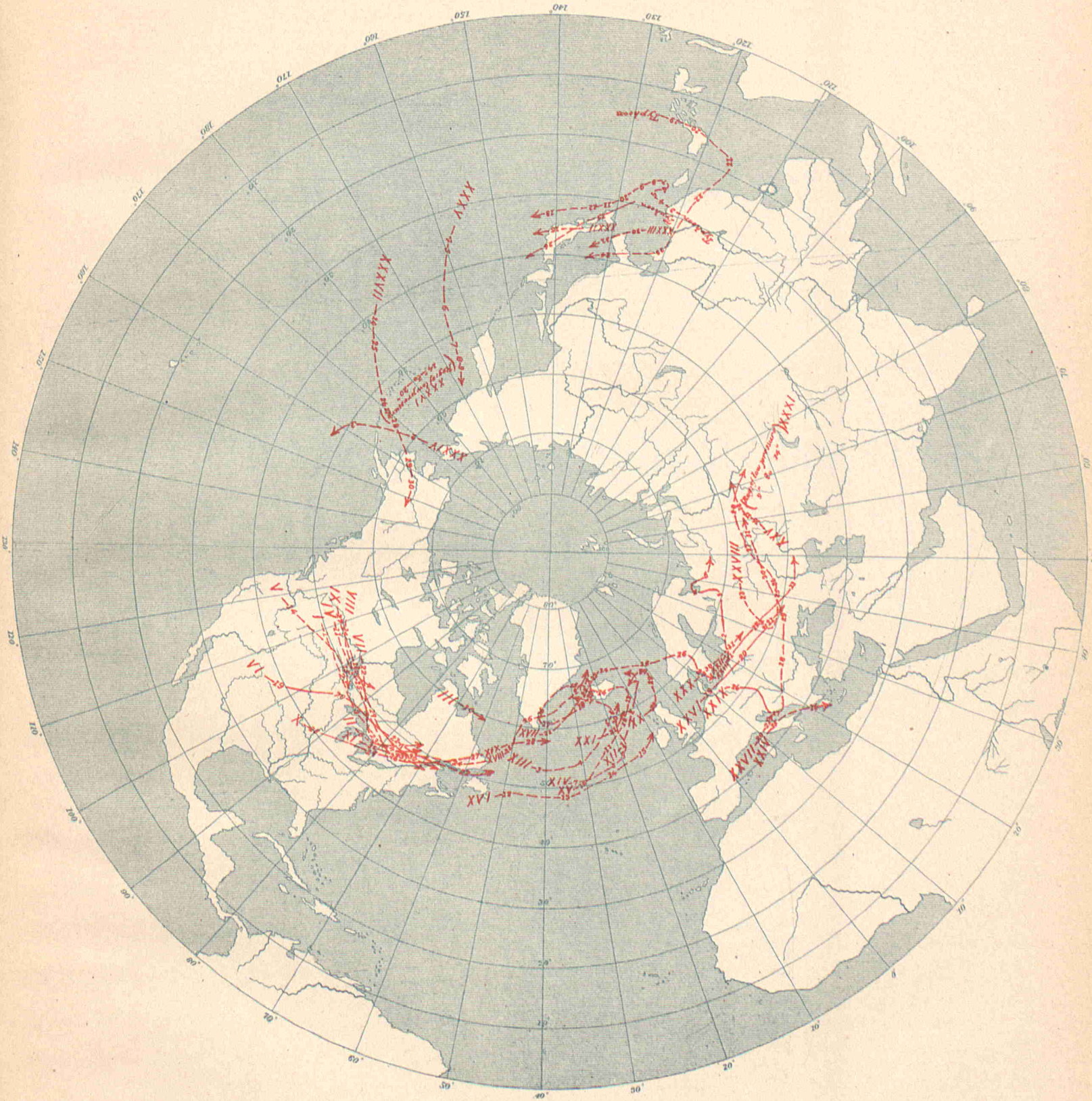
# International Chart II. August, 1884. Isobars, Isotherms, and Winds.



UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B. Hazen, Chief Signal Officer.

# International Chart III. August, 1884. Storm-Tracks.



UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B. Hazen, Chief Signal Officer.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY OF THE UNITED STATES.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS

## FOR THE MONTH OF SEPTEMBER, 1884.

*PRINTED FOR EXCHANGE WITH CO-OPERATING OBSERVERS.*

WASHINGTON, D. C.,
OCTOBER, 1885.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## SEPTEMBER, 1884.

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for September, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| AUSTRALIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adelaide | S. 34 57 | E. 138 35 | 9.22 p.m. | 140 | 42 | ..... | ..... | 30.09 | 764.3 | 57.4 | 14.1 | 62 | 3 | 2 | 2 | 6 | 2 | ..... | 4 | 8 | 3 | 8607 | 13851 | 5 | 2.63 | 66.8 |
| Hobart Town | S. 42 53 | E. 147 20 | 9.57 p.m. | 190 | 58 | 29.61 | 752.1 | 29.80 | 756.9 | 48.3 | 9.1 | 82 | 4 | 6 | 7 | 4 | 4 | 2 | ..... | ..... | 3 | ..... | ..... | 6 | 2.13 | 54.1 |
| Melbourne | S. 37 50 | E. 144 58 | 9.47 p.m. | 91 | 28 | 29.90 | 759 4 | 29.99 | 761.7 | 52.3 | 11.3 | 73 | 8 | 6 | 2 | 5 | 2 | 4 | 1 | 2 | ..... | ..... | ..... | 5 | 0.69 | 17.5 |
| AUSTRIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agram | N. 45 48 | E. 15 53 | 1.12 p.m. | 536 | 163 | 29.56 | 750.9 | 30.11 | 764.8 | 68.2 | 20.1 | 56.4 | ..... | ..... | 1 | 8 | 4 | 2 | 6 | 9 | ..... | ..... | ..... | 4 | 2.24 | 56.9 |
| Cracow | N. 50 04 | E. 20 00 | 1.28 p.m. | 722 | 220 | 29.36 | 745.7 | 30.11 | 764.9 | 65.8 | 18.8 | 60.0 | 3 | 4 | 6 | 4 | 1 | ..... | 12 | ..... | ..... | ..... | ..... | 6 | 1.64 | 41.6 |
| Eperies | N. 48 58 | E. 21 15 | 1.33 p.m. | 820 | 250 | 29.21 | 742.0 | 30.07 | 763.8 | 66.6 | 19.2 | 55.4 | 8 | ..... | ..... | ..... | 5 | ..... | ..... | ..... | 17 | ..... | ..... | 6 | 1.62 | 41.1 |
| Gratz | N. 47 04 | E. 15 28 | 1.10 p.m. | 1171 | 357 | 28.91 | 734.4 | 30.10 | 764.5 | 65.7 | 18.7 | 73.0 | 1 | 1 | 1 | 6 | 9 | 4 | 5 | 1 | 2 | ..... | ..... | 4 | 3.05 | 77.4 |
| Hermannstadt | N. 45 47 | E. 24 13 | 1.45 p.m. | 1352 | 412 | 28.67 | 728.1 | 30.06 | 763.6 | 66.4 | 19.1 | 51.0 | 1 | 12 | 1 | 1 | 2 | 8 | 2 | 3 | ..... | ..... | ..... | 6 | 1.39 | 35.2 |
| Kremsmunster | N. 48 03 | E. 14 08 | 1.04 p.m. | 1260 | 384 | 28 76 | 730.5 | 30.08 | 764.0 | 63.7 | 17.6 | 78.1 | 1 | 2 | 4 | 2 | ..... | ..... | 6 | 10 | 5 | ..... | ..... | 4 | 2.47 | 62.8 |
| Lemberg | N. 49 50 | E. 24 00 | 1.44 p.m. | 978 | 298 | 29.13 | 739.8 | 30.10 | 764.5 | 63.0 | 17.2 | 65.4 | 4 | 3 | 3 | 2 | 5 | 2 | 1 | 10 | ..... | ..... | ..... | 6 | 2.23 | 56.7 |
| Pola | N. 44 52 | E. 13 51 | 1.04 p.m. | 105 | 32 | 29.98 | 761.6 | 30.10 | 764.4 | 71.2 | 21.8 | 65.0 | ..... | 2 | 4 | 3 | 1 | 10 | 7 | 3 | ..... | ..... | ..... | 5 | 3.80 | 96.4 |
| Szathmar | N. 47 46 | E. 22 53 | 1.39 p.m. | 430 | 131 | 29.60 | 751.7 | 30.05 | 763.2 | 68.7 | 20.4 | 64.0 | 11 | 1 | 1 | 1 | 6 | 3 | 5 | 2 | ..... | ..... | ..... | 3 | 1.35 | 34.2 |
| Szegedin | N. 46 15 | E. 20 10 | 1.29 p.m. | 256 | 78 | 29.80 | 756.8 | 30.07 | 763.7 | 71.2 | 21.8 | 57.4 | 3 | 9 | 3 | 1 | 4 | 2 | 2 | 3 | 4 | ..... | ..... | 6 | 1.10 | 27.9 |
| Trieste | N. 45 39 | E. 13 46 | 1.04 p.m. | 85 | 26 | 30.01 | 762.3 | 30.11 | 764.8 | 72.3 | 22.4 | 77.0b | ..... | 10 | 2 | 5 | ..... | 2 | 3 | 7 | 1 | ..... | ..... | 4 | 3.81 | 96.8 |
| Vienna | N. 48 12 | E. 16 22 | 1.14 p.m. | 663 | 202 | 29.41 | 747.1 | 30.11 | 764.9 | 66.7 | 19.3 | 59.1 | 1 | 6 | 6 | ..... | ..... | 16 | ..... | 1 | ..... | ..... | ..... | 4 | 0.89 | 22.5 |
| BELGIAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arlon | N. 49 40 | E. 5 48 | 0.32 p.m. | ? | ? | ..... | ..... | ..... | ..... | 64.4 | 18.0 | 80.3 | ..... | ..... | 1 | 7 | 6 | 6 | 6 | 4 | ..... | ..... | ..... | 3 | 1.85 | 47.0 |
| Brussels | N. 50 51 | E. 4 22 | 0.26 p.m. | 187 | 57 | 29.84 | 758.0 | 30.04 | 763 0 | 65.5 | 18.6 | 67.5 | 1 | 1 | 3 | 10 | 5 | 2 | 4 | 4 | ..... | ..... | ..... | 7 | 1.89 | 48.1 |
| Furnes c | N. 51 04 | E. 2 40 | 0.19 p.m. | 20 | 6 | 30.00 | 761.9 | 30.02 | 762.4 | 67.8 | 19.9 | 72.0 | 3 | 3 | 3 | 4 | 6 | 3 | ..... | 3 | ..... | ..... | ..... | 4 | 2.02 | 51.2 |
| Maeseyck | N. 51 06 | E. 5 48 | 0.32 p.m. | 115 | 35 | 29.94 | 760.4 | 30.06 | 763.6 | 69.6 | 20.9 | 69.7 | 1 | 1 | 6 | 5 | 6 | ..... | 7 | 4 | ..... | ..... | ..... | 6 | 1.13 | 28.7 |
| BRITISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aberdeen | N. 57 10 | W. 2 06 | 0.00 m. | 89 | 27 | 29.81 | 757.2 | 29.91 | 759.7 | 57.2 | 14.0 | 75.8 | ..... | 2 | 1 | 6 | 8 | 7 | 3 | 3 | ..... | ..... | ..... | 6 | 1.46 | 37.1 |
| Bidston | N. 53 24 | W. 3 04 | 11.56 a.m. | 197 | 60 | ..... | ..... | 29.97 | 761.2 | 62.1 | 16.7 | 68.6 | ..... | 1 | 7 | 5 | 4 | 8 | 2 | 3 | ..... | ..... | ..... | 6 | ..... | ..... |
| Bolton | N. 53 35 | W. 2 28 | 11.58 a.m. | 500 | 152 | 29.44 | 747.8 | 29.96 | 761.0 | 60.8 | 16.0 | 72.8 | ..... | 2 | 4 | 6 | 9 | 5 | 3 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Bradford | N. 53 48 | W. 1 47 | 0.01 p.m. | 366 | 111 | 29.57 | 751.1 | 29.97 | 761.2 | 60.6 | 15.9 | 71.3 | 2 | 2 | 6 | 8 | 2 | 2 | 3 | 5 | ..... | ..... | ..... | 8 | 1.89 | 47.8 |
| Bridgetown | N. 13 04 | W. 59 37 | 8.10 a.m. | 28 | 9 | 29.97 | 761.2 | 30.00 | 762.0 | 82.9 | 28.3 | 76.2 | ..... | ..... | ..... | ... | ..... | 1 | 19 | 10 | ..... | ..... | ..... | 4 | ..... | ..... |
| Cardington e | N. 52 08 | W. 0 27 | 0.06 p.m. | 109 | 33 | ..... | ..... | ..... | ..... | 63.4 | 17.4 | 76.0 | 1 | 1 | 3 | 5 | 1 | 1 | 1 | 2 | ..... | ..... | ..... | 5 | ..... | ..... |
| Chatham b | N. 51 25 | E. 0 33 | 0.10 p.m. | 160 | 49 | 29.89 | 759.2 | 30.06 | 763.5 | 64.1 | 17.8 | 72.5 | 1 | 2 | 4 | 6 | 3 | 2 | 7 | ..... | 3 | ..... | ..... | 7 | ..... | ..... |
| Falmouth | N. 50 09 | W. 5 04 | 11.48 a.m. | 211 | 64 | 29.81 | 757.2 | 30.03 | 762.7 | 62.3 | 16.8 | 75.0 | 2 | 2 | 7 | 7 | 2 | 2 | 8 | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Fort Napier | S. 30 | E. 31 | 2.12 p.m. | 2205 | 672 | 27 65 | 702.3 | 29.96 | 761.0 | 75.3 | 24.1 | 36.7 | 1 | 3 | ..... | : | 5 | 6 | 2 | 12 | ..... | ..... | ..... | 4 | ..... | ..... |
| Freetown | N. 8 30 | W. 13 14 | 11.15 a.m. | 224 | 68 | 29.63 | 752.6 | 29.86 | 758.4 | 82.2 | 27.9 | 83.0 | 7 | ..... | 5 | ..... | 9 | ..... | 9 | ..... | ..... | ..... | ..... | 3 | ..... | ..... |
| Galway | N. 53 15 | W. 9 03 | 11.32 a.m. | 32 | 10 | 29.86 | 758 4 | 29.89 | 759.2 | 58.6 | 14.8 | 85.6 | ..... | ..... | 6 | 14 | 1 | 2 | 4 | 3 | ..... | ..... | ..... | 6 | 2.68 | 68.1 |
| Gibraltar | N. 36 09 | W. 5 21 | 11.47 a.m. | 50 | 15 | 29.91 | 759.7 | 30.05 | 763.3 | 74.2 | 23.4 | 75.2 | 1 | 4 | 10 | 3 | ..... | ..... | 5 | 7 | ..... | ..... | ..... | 4 | ..... | ..... |
| Greenwich | N. 51 29 | 0 00 | 0.08 p.m. | 159 | 48 | 29.84 | 757.9 | 30.01 | 762 2 | 65.6 | 18.7 | 66.8 | ..... | 1 | 8 | 6 | 3 | 2 | 7 | 3 | ..... | ..... | ..... | 6 | ..... | ..... |
| Guernsey | N. 49 27 | W. 2 41 | 11.58 a.m. | 275 | 84 | 29.75 | 755.6 | 30.05 | 763 3 | 61.8 | 16.6 | 80.5 | 1 | 2 | 7 | 7 | 2 | 3 | 1 | 7 | ..... | ..... | ..... | 6 | 2.83 | 71.9 |
| Kew | N. 51 28 | W. 0 19 | 0.07 p.m. | 34 | 10 | 29 98 | 761.5 | 30.02 | 762.5 | 64.1 | 17.8 | 65.0 | 2 | 1 | 8 | 7 | 3 | ..... | 5 | 4 | ..... | ..... | ..... | 6 | ..... | ..... |
| Leicester | N. 52 39 | W. 1 08 | 0.04 p.m. | 245 | 75 | 29.73 | 755.1 | 29.98 | 761.5 | 63.9 | 17.7 | 72.0 | ... | 4 | 3 | 10 | 3 | 2 | 1 | 6 | 1 | ..... | ..... | 6 | ..... | ..... |
| Malta | N. 36 00 | E. 14 30 | 1.06 p.m. | 70 | 21 | 29.94 | 760.5 | 30.02 | 762 5 | 77.0 | 25.0 | 69.0 | 1 | 8 | ..... | ..... | 3 | 1 | 7 | 2 | 8 | ..... | ..... | 3 | ..... | ..... |
| Nassau | N. 25 04 | W. 77 22 | 6.58 a.m. | 44 | 13 | 30.03 | 762 7 | 30.08 | 764.0 | 81.8 | 27.7 | 79.4 | 1 | ..... | 3 | 7 | 1 | 10 | 7 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Oxford | N. 51 46 | W. 1 17 | 0.03 p.m. | 210 | 64 | 29.79 | 756.7 | 30.02 | 762.5 | 63.9 | 17.7 | 68.8 | 1 | 1 | 4 | 4 | 7 | 4 | 1 | 8 | ..... | ..... | ..... | 6 | ..... | ..... |
| Plymouth | N. 50 22 | W. 4 10 | 11.51 a.m. | 69 | 21 | 29.94 | 760.5 | 30.02 | 762.5 | 67.3 | 19.6 | 62.4 | ..... | 6 | ..... | 11 | 1 | 1 | 4 | 4 | 3 | ..... | ..... | 6 | ..... | ..... |
| Sandwick Manse | N. 59 05 | W. 3 20 | 11.54 a.m. | 94 | 29 | 29.73 | 755.1 | 29.83 | 757.7 | 55.9 | 13.3 | 84.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Scutari Cemet'y a | N. 41 00 | E. 29 03 | 2.04 p.m. | 60 | 18 | 29.94 | 760.5 | 30.00 | 762.0 | 73.1 | 22.8 | 55.6 | 5 | 1 | ..... | 5 | ..... | ..... | ..... | 17 | 1 | ..... | ..... | 4 | ..... | ..... |
| Sheffield | N. 53 23 | W. 1 28 | 0.02 p.m. | 260 | 79 | 29.65 | 753 4 | 29.98 | 761.5 | 62.6 | 17.0 | 73.0 | ..... | 1 | 3 | 16 | 1 | ..... | ..... | 4 | 5 | ..... | ..... | 5 | ..... | ..... |
| Silloth Rectory | N. 54 52 | W. 3 22 | 11.54 a.m. | 28 | 9 | 29.91 | 759.7 | 29.94 | 760.5 | 61.9 | 16.6 | 78.5 | 1 | 5 | 8 | 6 | 2 | ..... | 4 | 3 | 1 | ..... | ..... | 5 | 2.76 | 70.1 |
| Stonyhurst | N. 53 51 | W. 2 28 | 11.58 a.m. | 361 | 110 | ..... | ..... | 29.99 | 761.7 | 61.4 | 16.3 | 73.0 | ..... | 2 | 8 | 6 | 4 | 1 | 3 | 5 | 1 | ..... | ..... | 8 | 3.76 | 95.5 |
| Strathfield | N. 51 17 | W. 0 53 | 0.04 p.m. | 197 | 60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Valencia | N. 51 55 | W. 10 18 | 11.27 a.m. | 23 | 7 | 29.94 | 760.5 | 29.96 | 761.0 | 60.0 | 15.6 | 77.5 | 1 | 3 | 5 | 7 | 7 | 2 | 3 | 2 | ..... | ..... | ..... | 7 | ..... | ..... |
| *Sub-series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gozo | N. 36 01 | E. 14 16 | 1.05 p.m. | 364 | 111 | 29.74 | 755.4 | 30.12 | 765.0 | 77.1 | 25.1 | 63.0 | 1 | 6 | 5 | 4 | 7 | 4 | ..... | 3 | ..... | 3389 | 5454 | 4 | 0.29 | 7.4 |
| CANADIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bathurst d | N. 47 39 | W. 65 43 | 7.45 a m. | 35 | 11 | 29.95 | 760.7 | 29.99 | 761.7 | 53.4 | 11.9 | ..... | ..... | 1 | .... | 5 | 6 | 8 | ..... | 1 | 5 | ..... | ..... | 5 | 1.36 | 34.5 |
| Charlottetown | N. 46 14 | W. 63 10 | 7.55 a.m. | 38 | 12 | 29.95 | 760.7 | 29.99 | 761.7 | 55.2 | 12.9 | 83.7 | ..... | 6 | 5 | 9 | 5 | 1 | ..... | 2 | 2 | 5294 | 8520 | 5 | 2.69 | 68.3 |
| Chatham | N. 47 03 | W. 65 29 | 7.45 a.m. | 56 | 17 | 29.92 | 760.0 | 29.59 | 761.7 | 49.6 | 9.8 | 86.0 | 2 | 3 | 8 | 11 | 4 | ..... | ..... | 2 | ..... | 3601 | 5795 | 6 | 2.97 | 75.4 |
| Cornwall | N. 45 01 | W. 74 43 | 7.09 a.m. | 175 | 53 | 29.81 | 757.2 | 30.00 | 762.0 | 56.1 | 13.4 | 87.7 | ..... | 5 | 19 | 4 | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 5 | 2.99 | 75.9 |
| Dalhousie | N. 48 04 | W. 66 22 | 7.32 a m. | 45 | 14 | 29.92 | 760.0 | 29.97 | 761.2 | 51.0 | 10.6 | ..... | 1 | 2 | 20 | ..... | ..... | ..... | 3 | 1 | 3 | ..... | ..... | 5 | 3.26 | 82.8 |
| Father Point | N. 48 31 | W. 68 28 | 7.34 a.m. | 20 | 6 | 29.92 | 760.0 | 29.94 | 760.5 | 48.7 | 9.3 | 80.0 | 1 | 4 | 11 | 9 | 1 | 1 | ..... | 2 | 1 | ..... | ..... | 7 | 2.59 | 65.8 |
| Fort Garry | N. 49 51 | W. 97 07 | 5.39 a.m. | 754 | 230 | 29.00 | 736.6 | 29.83 | 757 7 | 44.8 | 7.1 | 95.1 | 3 | 5 | 8 | 4 | 3 | 4 | 1 | 2 | ..... | 8240 | 13261 | 5 | 3.77 | 95.8 |
| Fredericton | N. 45 57 | W. 66 38 | 7.41 a.m. | 59 | 18 | 29.98 | 761.5 | 30.05 | 763 3 | 51.5 | 10.8 | 83.4 | ..... | 15 | 2 | 3 | 2 | 4 | 2 | 2 | ..... | ..... | ..... | 6 | 3.94 | 100.1 |
| Grand Manan | N. 44 46 | W. 66 45 | 7.41 a.m. | 49 | 15 | 29.99 | 761.7 | 30.05 | 763 3 | 56.7 | 13.7 | 73.2 | 4 | 4 | 8 | 6 | ..... | 2 | 1 | 2 | 3 | 8402 | 13521 | 5 | 1.24 | 31.5 |
| Granton | N. 43 12 | W. 81 21 | 6.43 a.m. | 1015 | 309 | 28.99 | 736.3 | 30.07 | 763.8 | 56.2 | 13.4 | 98.6 | 1 | 4 | .... | 4 | 4 | 1 | 1 | ..... | 15 | ..... | ..... | 4 | 4.36 | 110.7 |
| Halifax | N. 44 39 | W. 63 36 | 7.53 a.m. | 122 | 37 | 29.93 | 760.2 | 30.06 | 763.5 | 55.1 | 12.8 | 88.4 | 7 | 3 | 10 | 1 | 6 | ..... | ..... | 1 | 2 | ..... | ..... | 5 | 2.39 | 60.7 |
| Hamilton | N. 43 16 | W. 79 53 | 6.49 a.m. | 350 | 107 | 29.62 | 752 3 | 30.02 | 762 5 | 61.1 | 16.2 | 88.4 | 1 | 5 | 2 | 18 | ..... | ..... | 2 | 1 | 1 | ..... | ..... | 4 | 2.66 | 67.6 |
| Kingston | N. 44 14 | W. 76 30 | 7.02 a.m. | 307 | 94 | 29.71 | 754.6 | 30.06 | 763 5 | 60.0 | 15.6 | 82.1 | 5 | ..... | 6 | 10 | ..... | ..... | 2 | 2 | 5 | 4806 | 7734 | 6 | 2.99 | 75.9 |
| LittleGlace Bay d | N. 46 12 | W. 59 58 | 8.08 a.m. | 34 | 10 | 29.94 | 760.5 | 29.98 | 761.5 | 56.6 | 13.7 | 79.8 | 6 | 1 | 6 | 6 | 6 | ..... | ..... | ... | 1 | ..... | ..... | 6 | ..... | ..... |
| London | N. 43 00 | W. 81 15 | 6.43 a.m. | 816 | 248 | 29.19 | 741 4 | 30.08 | 764.0 | 57.1 | 13.9 | 91.2 | ..... | 1 | ..... | 4 | 1 | ..... | ..... | ..... | 24 | ..... | ..... | ..... | 2.41 | 61.2 |
| Medicine Hat | N. 50 01 | W. 110 37 | 4.46 a.m. | 2136 | 651 | 27.55 | 699.8 | 29.84 | 757.9 | 42.1 | 5.6 | 83.6 | 3 | 2 | 4 | 9 | 2 | ..... | 1 | 3 | 6 | 7615 | 12255 | 5 | 4.84 | 122.9 |
| Minnedosa | N. 50 13 | W. 99 48 | 5.29 a.m. | 1796 | 545 | 27.99 | 710.9 | 29.84 | 757.9 | 40.0 | 4.4 | 94.0 | 1 | 2 | 5 | 5 | 1 | 1 | 8 | 4 | 3 | ..... | ..... | 6 | 2.94 | 74.7 |
| Montreal | N. 45 31 | W. 73 33 | 7.13 a.m. | 187 | 57 | 29.82 | 757.4 | 30.02 | 762.5 | 57.5 | 14.2 | 80.4 | 2 | 2 | 14 | 4 | 5 | 1 | 2 | ..... | ..... | ..... | ..... | 4 | 3.37 | 85.6 |
| Ottawa | N. 45 26 | W. 75 41 | 7.05 a.m. | 200 | 61 | 29.87 | 758.7 | 30.09 | 764.3 | 54.0 | 12.2 | 95.8 | 5g | 1 | 4 | 11 | 1 | ..... | ..... | 1 | ..... | ..... | ..... | 4 | 3.75 | 95.2 |
| Parry Sound | N. 45 19 | W. 80 01 | 6.48 a.m. | 625 | 194 | 29.34 | 745.2 | 30.02 | 762.5 | 54.1 | 12.3 | 90.3 | 3 | 3 | 3 | 2 | 6 | 4 | 6 | 1 | 2 | 6551 | 10543 | 5 | 3.08 | 78.2 |
| Peterboro | N. 44 17 | W. 78 18 | 6.54 a.m. | 688 | 210 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Port Arthur | N. 48 27 | W. 89 12 | 6.11 a.m. | 642 | 196 | 29.20 | 741.7 | 29.86 | 758.4 | 50.6 | 10.3 | 90.9 | 6 | 4 | 5 | ..... | 5 | ..... | 3 | 1 | 6 | 3832 | 6167 | 6 | 4.41 | 112.0 |
| Port Dover | N. 42 47 | W. 80 13 | 6.47 a.m. | 635 | 194 | 29.39 | 746.5 | 30.07 | 763.8 | 60.3 | 15.7 | 93.5 | 3 | 4 | ..... | 10 | 2 | ..... | 5 | 6 | 4440 | 7145 | 5 | 1.75 | 44.4 |
| Port Stanley | N. 42 40 | W. 81 13 | 6.43 a.m. | 592 | 180 | 29.42 | 747.3 | 30.06 | 763.5 | 59.4 | 15.2 | 90.3 | 5 | ..... | 10 | 2 | 1 | 2 | 5 | 2 | 3 | ..... | ..... | 4 | 1.59 | 40.4 |
| Qu' Appelle | N. 50 44 | W. 103 42 | 5.13 a.m. | 2115 | 646 | 27.57 | 700.3 | 29.83 | 757.7 | 40.1 | 4.5 | 90.5 | ..... | 3 | 10 | 2 | 4 | 1 | 3 | 1 | 6 | 8376 | 13480 | 6 | 3.15 | 80.0 |
| Quebec | N. 46 48 | W. 71 12 | 7.23 a.m. | 293 | 89 | 29.61 | 752.1 | 30.00 | 762.0 | 53.5 | 11.9 | 93.6 | ..... | ..... | 4 | 6 | 5 | ..... | ..... | 6 | 9 | ..... | ..... | 6 | 4.41 | 112.0 |
| Rockliffe | N. 46 10 | W. 77 48 | 6.57 a.m. | 418 | 127 | 29.56 | 750.8 | 30.01 | 762 2 | 50.5 | 10.3 | 80.4 | ..... | 9 | 2 | 1 | ..... | 1 | 5 | ..... | 12 | ..... | ..... | 4 | 2.97 | 75.4 |
| Saint Andrews | N. 43 04 | W. 81 06 | 6.34 a.m. | 47 | 14 | 29.98 | 761.5 | 30.03 | 762 7 | 53.1 | 11.7 | 85.5 | ..... | 10 | 1 | 4 | 2 | 2 | 1 | 3 | 7 | ..... | ..... | 4 | 1.80 | 45.7 |
| Saint John, N.B | N. 45 17 | W. 66 03 | 7.44 a.m. | 116 | 35 | 29.91 | 759.7 | 30.05 | 763.3 | 52.6 | 11.4 | 85.1 | 3d | 2 | 2 | 1 | 11 | 2 | 2 | ..... | 3 | ..... | ..... | 6 | 2.22 | 56.4 |
| Saint Pierre | N. 46 47 | W. 56 08 | 8.24 a.m. | ? | ? | ..... | ..... | 29.96 | 760.9 | 53.4 | 11.9 | ..... | 2 | 10 | 7 | 7 | 1 | 1 | 2 | ..... | ..... | ..... | ..... | ..... | 0.71 | 18.0 |
| Saugeen | N. 44 30 | W. 81 21 | 6.42 a.m. | 656 | 200 | 29.32 | 744.7 | 30.02 | 762.5 | 54.1 | 12.3 | 90.6 | 3 | 2 | 2 | 5 | 9 | 5 | 1 | 2 | 1 | 7037 | 11325 | 5 | 2.34 | 59.4 |
| Stratford | N. 43 23 | W. 81 00 | 6.44 a.m. | 1186 | 361 | 28.81 | 731.8 | 30.07 | 763.8 | 56.1 | 13.4 | 90.7 | ..... | 1 | 5 | 1 | 8 | 1 | 2 | ..... | 12 | ..... | ..... | 4 | 7.98 | 202.7 |
| Sydney | N. 46 08 | W. 60 10 | 8.07 a.m. | 37 | 11 | 29.93 | 760.2 | 29.99 | 761.7 | 54.5 | 12.5 | 83.6 | 1 | 5 | 3 | 14 | 3 | 1 | ..... | 1 | 2 | 7243 | 11656 | 6 | 2.04 | 51.8 |
| Toronto | N. 43 39 | W. 79 23 | 6.50 a.m. | 350 | 107 | 29.69 | 754.1 | 30.07 | 763.8 | 57.2 | 14.0 | 83.3 | 3 | 5 | 5 | 3 | ..... | 1 | 5 | 4 | 4 | 6021 | 9690 | 4 | 3.29 | 83.6 |
| Woodstock | N. 43 08 | W. 80 47 | 6.48 a.m. | 980 | 299 | 30.06 | 763.5 | 30.11 | 764.8 | 57.4 | 14.1 | 89.4 | 3 | 2 | 7 | 6 | 6 | 2 | 1 | 1 | 2 | ..... | ..... | 6 | 3.02 | 76.7 |
| Yarmouth | N. 43 50 | W. 66 02 | 7.44 a.m. | 61 | 19 | 30.00 | 762.0 | 30.09 | 764.3 | 54.3 | 12.4 | 90.3 | 4 | 4 | 1 | 4 | 7 | 1 | 5 | 1 | 3 | ..... | ..... | 5 | 1.57 | 39.9 |
| CAPE COLONY | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape St. Francis | S. 34 10 | E. 24 50 | 1.47 p.m. | 25 | 7 | 30.09 | 764.3 | 30.12 | 765.0 | 62.7 | 17.1 | 78.0 | ..... | ..... | ..... | 20 | 2 | 3 | 1 | 4 | ..... | ..... | ..... | 3 | 4.12 | 104.6 |
| Cape Town | S. 34 02 | E. 18 29 | 1.22 p.m. | ? | ? | 30.04 | 763.0 | ..... | ..... | 61.3 | 16.3 | 58.0 | 4 | 11 | 2 | 3 | 1 | 4 | ..... | 3 | 2 | ..... | ..... | 5 | 5.52 | 140.2 |
| Springbok a | S. 29 45 | E. 17 43 | 1.19 p.m. | ? | ? | 27.90 | 708.6 | ..... | ..... | 64.7 | 18.2 | 44.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.45 | 36.8 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for September, 1884. | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| CHILIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | 0–10 | | |
| Coquimbo | S. 29 56 | W. 71 21 | 7.22 a.m | 72 | 22 | 29.97 | 761.3 | 30.05 | 763 3 | 55.4 | 13.0 | 91.5 | 4 | ..... | 2 | 6 | 3 | 7 | 6 | 2 | ..... | ..... | ..... | 8 | 0.79 | 20.0 |
| Iquique. *a* | S. 20 12 | W. 70 11 | 7.27 a m | 26 | 8 | 30.00 | 762 0 | 30.03 | 762.7 | 62.1 | 16.7 | 72.5 | ..... | 3 | 2 | 14 | 1 | 2 | ..... | 7 | ..... | ..... | ..... | .. | ..... | ..... |
| Niebla | 4 39 53 | W. 73 25 | 7.14 a.m. | 98 | 30 | 29.60 | 751.7 | 29.70? | 754.4? | 45.7 | 7.6 | 90.0 | 2 | 4 | 4 | ..... | ..... | ..... | 20 | ..... | ..... | ..... | ..... | 6 | 11.17 | 283.7 |
| Punta Caldera | S 27 03 | W. 70 53 | 7.25 a.m. | 82 | 25 | 29.97 | 761.2 | 30.06 | 763 4 | 57.4 | 14.1 | 80.0 | 1 | 9 | ..... | 6 | 1 | 2 | ..... | 11 | .... | ..... | ..... | 6 | ..... | ..... |
| Punta Corona | S. 41 47 | W. 73 53 | 7.12 a.m | 174 | 53 | 29.92 | 759.9 | 30.11 | 764.7 | ..... | ..... | ..... | 4 | 6 | 4 | 3 | 5 | 4 | 2 | 2 | ..... | ..... | ..... | 6 | ..... | ..... |
| Quiriqnina | S. 36 37 | W. 73 03 | 7.25 a.m. | 187 | 57 | 29.84 | 758.0 | 30.04 | 763.1 | 51.1 | 10.6 | 77.0 | ..... | 4 | 3 | 3 | 6 | 10 | 3 | 1 | ..... | ..... | ..... | 7 | 4.54 | 115.4 |
| Valparaiso | S. 33 02 | W. 71 39 | 7.22 a.m. | 82 | 25 | 29.92 | 759.9 | 30.06 | 763.6 | 54.9 | 12.7 | 87.0 | 10 | ..... | 2 | ..... | 6 | ..... | 10 | 2 | ..... | ..... | ..... | 6 | 1.66 | 42.2 |
| CHINESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hong Kong | N. 22 18 | E. 114 04 | 7.45 p.m. | 110 | 33 | 29.68 | 753.9 | 29.80 | 756.9 | 80.8 | 27.1 | 79.1 | 3 | 3 | 4 | 1 | 1 | 5 | 13 | ..... | ..... | ..... | ..... | 4 | 12.37 | 314.2 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zi-Ka-Wei | N. 31 12 | E. 121 26 | 8.14 p.m. | 22 | 7 | 29.91 | 759.6 | 29.93 | 760.2 | 71.2 | 21.8 | 91 | 8 | 5 | 1 | ..... | ..... | 3 | 6 | 7 | ..... | ..... | ..... | 5 | 5.78 | 146.9 |
| DANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copenhagen | N. 55 41 | E. 12 36 | 0.58 p.m. | 43 | 13 | 30.00 | 761.9 | 30.04 | 763.1 | 63.0 | 17.2 | 77 | ..... | 4 | 2 | 6 | 8 | 4 | 4 | 1 | 1 | ..... | ..... | 6 | ..... | ..... |
| Fanöe | N. 55 27 | E. 8 24 | 0.42 p.m. | 20 | 6 | 29.98 | 761.5 | 30.00 | 762.0 | 64.0 | 17.8 | 77 | ..... | 2 | 5 | 9 | 2 | 5 | 6 | 1 | ..... | ..... | ..... | 6 | ..... | ..... |
| Stykkisholm | N. 65 05 | W. 22 46 | 10.37 a.m. | 36 | 11 | 29.48 | 748.9 | 29.53 | 750.0 | 46.2 | 7.9 | 80 | ..... | 2 | 1 | 2 | 4 | 7 | 9 | 5 | ..... | ..... | ..... | 8 | ..... | ..... |
| Thorshavn | N. 62 02 | W. 6 44 | 11.41 a.m. | 29 | 9 | 29.68 | 753.8 | 29.70 | 754.4 | 51.8 | 11.0 | 88 | 2 | ..... | 6 | 9 | 4 | 1 | .... | 1 | 7 | ..... | ..... | 8 | ..... | ..... |
| Vestervig | N. 56 47 | E. 8 20 | 0.41 p.m. | 82 | 25 | 29.89 | 759.1 | 29.98 | 761.4 | 61.3 | 16.3 | 81 | ..... | 4 | 3 | 3 | 4 | 6 | 7 | ..... | 3 | ..... | ..... | 8 | ..... | ..... |
| Egyptian. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cairo | N. 30 03 | E. 31 21 | 2.14 p.m. | ? | ? | 29.82 | 757 4 | ..... | ..... | 83.3 | 28.5 | ..... | 9 | 1 | ..... | ..... | ..... | ..... | ..... | 20 | ..... | ..... | ..... | 5 | ..... | ..... |
| FRENCH. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agen | N. 44 12 | E. 0 38 | 0.11 p.m. | 604 | 184 | 29.50 | 749.2 | 30.13 | 765.3 | 67.6 | 19.8 | 65.0 | 1 | 4 | 2 | 4 | 1 | 16 | ..... | 2 | ..... | ..... | ..... | 2 | ..... | ..... |
| Alençon | N. 48 26 | E. 0 05 | 0.09 p.m. | 476 | 145 | 29.56 | 750.7 | 30.08 | 764.0 | 67.1 | 19.5 | 73.3 | 1 | 4 | 2 | 6 | 1 | 5 | 1 | 10 | ..... | ..... | ..... | ..... | 1.62 | 41.2 |
| Arras | N. 50 18 | E. 2 46 | 0.19 p m | 223 | 68 | 29.80 | 756.8 | 30.03 | 762.8 | 67.5 | 19.7 | 64.1 | ..... | 4 | 6 | 6 | 1 | 4 | 5 | 4 | ..... | ..... | ..... | 6 | 1.19 | 30.2 |
| Avignon | N. 43 57 | E. 4 48 | 0.27 p.m | 65 | 20 | 30.02 | 762.5 | 30.10 | 764.5 | 73.9 | 23.3 | 62.5 | 12 | 9 | 2 | 1 | 3 | 2 | 1 | ..... | ..... | ..... | ..... | 6 | 1.79 | 45.4 |
| Bar-sur-Seine | N. 48 07 | E. 4 22 | 0.25 p.m. | 518 | 158 | 29.52 | 749.8 | 30.06 | 763 6 | 68.4 | 20.2 | 60.0 | ..... | 3 | 1 | 4 | 6 | 15 | 1 | ..... | ..... | ..... | ..... | 4 | 5.33 | 135.4 |
| Beauvais | N. 49 26 | E. 2 05 | 0.16 p.m. | 246 | 75 | 29.80 | 756.8 | 30.06 | 763.5 | 67.1 | 19.5 | 64.1 | ..... | 3 | 5 | 5 | 4 | 2 | 7 | 4 | ..... | ..... | ..... | 7 | 3.13 | 79.4 |
| Besançon | N. 47 14 | E. 6 02 | 0.32 p.m. | 846 | 258 | 29.17 | 741.0 | 30.06 | 763 4 | 69.3 | 20.7 | 79.9 | 3 | ..... | ..... | ..... | 4 | 8 | ..... | 2 | 13 | ..... | ..... | 6 | 1.24 | 31.6 |
| Bordeaux | N. 44 50 | E. 0 32 | 0.06 p.m. | 243 | 74 | 29.81 | 757.2 | 30.06 | 763 6 | 69.6 | 20.9 | 59.1 | 2 | 3 | 2 | 4 | 3 | 5 | 7 | 4 | ..... | ..... | ..... | 6 | 4.12 | 104.7 |
| Bourges | N. 47 10 | E. 2 26 | 0.17 p.m. | 510 | 156 | 29.51 | 749.6 | 30.05 | 763.3 | 69.6 | 20.9 | 58.1 | 3 | 2 | ..... | 7 | 0 | 2 | 5 | 5 | ..... | ..... | ..... | 6 | 2.49 | 63.3 |
| Brest | N. 48 24 | W. 4 30 | 11.50 a.m. | 210 | 64 | 29.85 | 758.2 | 30.10 | 764.4 | 68.5 | 20.3 | 74.9 | 4 | ..... | 4 | 8 | 2 | 2 | 1 | 3 | 6 | ..... | ..... | 6 | 1.93 | 49.1 |
| Caen | N. 49 11 | W. 0 21 | 0.07 p.m. | 69 | 21 | 29.96 | 760.9 | 30.03 | 762.7 | 67.6 | 19.8 | 76.0 | 5 | 3 | 8 | 8 | 2 | 1 | 2 | 1 | ..... | ..... | ..... | 6 | 4.14 | 105.2 |
| Châlons sur Marne | N. 48 57 | E. 4 21 | 0.25 p.m. | 292 | 89 | 29.09 | 754.1 | 30.00 | 762.0 | 68.4 | 20.2 | 81.0 | ..... | ..... | ..... | 5 | 2 | 9 | 7 | 3 | 3 | 2 | 4 | 5 | 2.09 | 53.1 |
| Charleville | N. 49 46 | E. 4 49 | 0.27 p.m. | 476 | 145 | 29.56 | 750.7 | 30.07 | 763.7 | 67.5 | 19.7 | 65.7 | 1 | 2 | 2 | 4 | 3 | 11 | 5 | 2 | ..... | ..... | ..... | 4 | 2.93 | 74.5 |
| Clermont-Fer'and | N. 45 46 | E. 3 05 | 0.20 p.m. | 1273 | 388 | 28.73 | 729.8 | 30.05 | 763.2 | 69.3 | 20.7 | 51.4 | 8 | 2 | 3 | 4 | 4 | 2 | 3 | 4 | ..... | ..... | ..... | 5 | 1.75 | 44.5 |
| Cluny | N. 46 26 | E. 4 39 | 0.27 p.m. | 787 | 240 | 29.27 | 743.4 | 30.09 | 764.3 | 69.4 | 20.8 | 62.9 | ..... | 2 | 2 | 5 | 8 | 2 | 11 | ..... | ..... | ..... | ..... | 6 | 2.76 | 70.1 |
| Commercy | N. 48 46 | E. 5 35 | 0.30 p.m. | 797 | 243 | 29.23 | 742.5 | 30.07 | 763.8 | 65.3 | 18.5 | 66.8 | ..... | ..... | 12 | 5 | 1 | 2 | 10 | ..... | ..... | ..... | ..... | 5 | 4.50 | 114.4 |
| Gap | N. 44 33 | E. 6 05 | 0.32 p.m. | 2424 | 739 | 27 61 | 701.2 | 30.08 | 763.9 | 67.5 | 19.7 | 56.8 | 4 | ..... | ..... | 5 | 21 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2.12 | 53.9 |
| Gréasque | N. 43 25 | E. 5 37 | 0.31 p.m. | 1056 | 322 | 28,99 | 736.3 | 30.08 | 764.0 | 71.4 | 21.9 | 59.2 | 6 | 5 | 1 | 2 | 3 | 9 | 3 | 1 | ..... | ..... | ..... | 4 | 3.66 | 92.9 |
| Grenoble | N. 45 12 | E. 5 43 | 0.31 p.m. | 715 | 218 | 29.32 | 744.7 | 30.09 | 764.2 | 70.5 | 21.4 | 73.6 | 3 | 6 | 9 | 3 | 1 | ..... | 3 | 5 | ..... | ..... | ..... | 4 | 2.66 | 67.5 |
| Guéret | N. 46 10 | E. 1 52 | 0.16 p.m. | 1486 | 453 | 28.51 | 724.1 | 30.06 | 763.5 | 64.0 | 17.8 | 74.6 | 1 | ..... | 8 | 8 | 13 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3.87 | 98.2 |
| Lamballe | N. 48 28 | W. 2 31 | 11.58 a.m. | 252 | 77 | 29.82 | 757.3 | 30.09 | 764.2 | 73.0 | 22.8 | 78.5 | 4 | 7 | 4 | 4 | 2 | 1 | 4 | 3 | 1 | ..... | ..... | 5 | 3.13 | 79.4 |
| Lescar | N. 43 20 | W. 0 26 | 0.06 p.m. | 525 | 160 | 29.52 | 749.9 | 30.07 | 763.7 | 72.1 | 22.3 | 67.6 | 2 | ..... | 14 | 3 | ..... | 5 | 3 | 3 | ..... | ..... | ..... | 5 | 1.05 | 26.6 |
| Lorient | N. 47 45 | W. 3 21 | 11.55 a.m. | 86 | 26 | 29.99 | 761.8 | 30.10 | 764.4 | 70.0 | 21.1 | 66.0 | ..... | 1 | 4 | 4 | 9 | 3 | 4 | 5 | ..... | ..... | ..... | 5 | 3.65 | 92.8 |
| Lyon | N. 45 41 | E. 2 30 | 0.25 p.m. | 981 | 299 | 29.05 | 737.9 | 30.08 | 764 1 | 68.4 | 20.2 | 58.9 | 4 | 4 | 1 | ..... | 4 | 9 | 5 | 3 | ..... | ..... | ..... | 5 | 2.94 | 74.8 |
| Mans | N. 48 01 | E. 0 12 | 0.09 p.m. | 285 | 87 | 29.78 | 756 4 | 30.11 | 764 7 | 67.6 | 19.8 | 73.1 | ..... | 3 | 7 | 5 | 2 | 6 | 5 | 2 | ..... | ..... | ..... | 5 | 3.84 | 97.4 |
| Marseille | N. 43 18 | E. 5 23 | 0.29 p.m. | 246 | 75 | 29.81 | 757.2 | 30.08 | 764.0 | 72.5 | 22.5 | 61.9 | ..... | 3 | 10 | 4 | 3 | 5 | 4 | 1 | ... | ..... | ..... | 5 | 2.28 | 57.9 |
| Montpellier | N. 43 37 | E. 3 53 | 0.24 p.m. | 118 | 36 | 29.91 | 759.6 | 30.02 | 762.5 | 73.2 | 22.9 | 77.6 | ..... | 4 | 2 | 3 | 1 | 12 | ..... | 4 | 4 | ..... | ..... | 4 | 3.10 | 78.6 |
| Nancy | N. 48 42 | E. 6 11 | 0.33 p.m. | 725 | 221 | 29.30 | 744.2 | 30.09 | 764.2 | 65.1 | 18.4 | 67.2 | 3 | 3 | 3 | 5 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 1.96 | 49.9 |
| Nantes | N. 47 13 | W. 1 33 | 0.02 p.m. | 134 | 41 | 29.93 | 760.3 | 30.10 | 764.4 | 69.1 | 20.6 | 64.5 | 2 | 3 | 6 | 1 | 3 | 3 | 7 | 5 | ..... | ..... | ..... | 9 | 2.19 | 55.6 |
| Perpignan | N. 42 42 | E. 2 53 | 0.19 p.m. | 105 | 32 | 29.98 | 761.4 | 30.09 | 764.2 | 72.0 | 22.2 | 64.4 | ..... | 8 | ..... | ..... | 1 | 6 | 10 | 5 | ..... | ..... | ..... | 6 | 4.24 | 107.7 |
| Pic du Midi (Sum- | N. 42 56 | W. 0 08 | 0.08 p.m. | 9380 | 2859 | 21.35 | 542.2 | ..... | ..... | 40.1 | 4.5 | ..... | ..... | 5 | 2 | 9 | 3 | ..... | 1 | 1 | 9 | ..... | ..... | 6 | 7.10 | 181.8 |
| Privas. [mit.) | N. 44 45 | E. 4 36 | 0.26 p.m. | 997 | 304 | 29.06 | 738.1 | 30.10 | 764.6 | 66.9 | 19.4 | 57.2 | 8 | 5 | ..... | 3 | 7 | 3 | ..... | 4 | ..... | ..... | ..... | 4 | 5.65 | 143.6 |
| Puy de Dôme | N. 45 46 | E. 2 58 | 0.20 p.m. | 4813 | 1467 | 25.26 | 641.5 | ..... | ..... | 50.0 | 10.0 | 85.9 | 2 | 2 | 4 | 4 | 5 | 8 | 3 | 2 | ..... | ..... | ..... | 3 | 5.95 | 151.1 |
| Rochefort | N. 45 56 | W. 0 58 | 0.04 p.m. | 29 | 9 | 30.06 | 763.6 | 30.10 | 764 4 | 69.6 | 20.9 | 70.7 | ..... | 1 | 5 | 3 | 6 | 8 | 4 | 3 | ..... | ..... | ..... | 5 | 3.89 | 98.8 |
| Roche-sur-Yon | N. 46 40 | W. 1 26 | 0.02 p.m. | 198 | 60 | 29.80 | 756.9 | 30.01 | 762.2 | 69.8 | 21.0 | 78.5 | 2 | 4 | 5 | 0 | 2 | 6 | 1 | 4 | ..... | ..... | ..... | 4 | 3.35 | 85.0 |
| Rodez | N. 44 21 | E. 2 34 | 0.18 p.m. | 2050 | 625 | 28.01 | 711.5 | 30.08 | 764 1 | 61.9 | 18.3 | 71.2 | 12 | 3 | ..... | ..... | ..... | 11 | 4 | ..... | ..... | ..... | ..... | 4 | 3.10 | 83.7 |
| Rouen | N. 49 26 | E. 1 05 | 0.12 p.m. | 39 | 12 | 30.01 | 762.3 | 30.06 | 763.5 | 68.5 | 20.3 | 71.1 | ..... | 3 | 7 | 6 | 3 | 6 | 1 | 4 | ..... | ..... | ..... | 5 | 4 12 | 104.6 |
| Saint Maur | N. 48 48 | E. 2 21 | 0.17 p.m. | 162 | 49 | 29.90 | 759.5 | 30.07 | 763.7 | 67.5 | 19.7 | 64.4 | 6 | 1 | 4 | 9 | 3 | 4 | 1 | 2 | ..... | ..... | ..... | 6 | 1.99 | 50.6 |
| Toulouse | N. 43 37 | E. 1 27 | 0.14 p.m. | 636 | 194 | 29.40 | 746.8 | 30.13 | 765.3 | 71.8 | 22.1 | 60.7 | 4 | 5 | 3 | ..... | 1 | 14 | 3 | ..... | ..... | ..... | ..... | 5 | 1.39 | 35.4 |
| Tours | N. 47 24 | E. 0 41 | 0.11 p.m. | 167 | 51 | 29.89 | 759.1 | 30.05 | 763.3 | 70.2 | 21.2 | 61.3 | 1 | ..... | 6 | 6 | 6 | 3 | 4 | 4 | ..... | ..... | ..... | 5 | 2.48 | 62.9 |
| Versailles | N. 48 48 | E. 2 07 | 0.16 p.m. | 400 | 122 | 29.61 | 752.1 | 30.06 | 763 5 | 66.2 | 19.0 | 64.1 | ..... | 7 | 6 | 3 | 1 | 1 | 11 | 1 | ..... | ..... | ..... | 5 | 1.30 | 33.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | 2.16 | 54.8 |
| St. Martin du Hinx. | N. 43 35 | W. 1 16 | 0.03 p.m. | 131 | 40 | 29.95 | 760.6 | 30.10 | 764.4 | 69.8 | 21.0 | 67.0 | 5 | 6 | 3 | 1 | 3 | 3 | 6 | 3 | ..... | ..... | ..... | 5 | | |
| GERMAN. | | | | | | | | | | | | | | | | | | | | | | | | 6 | 5.56 | 141.3 |
| Ansbach | N. 49 18 | E. 10 36 | 0.50 p.m. | 1358 | 414 | 28.68 | 728.4 | 30.09 | 764.3 | 66.9 | 19.4 | 44.7 | ..... | 1 | 7 | 4 | 3 | 4 | 5 | 2 | 4 | ..... | ..... | 4 | 0.37 | 9.4 |
| Bamberg | N. 49 54 | E. 10 54 | 0.51 p.m. | 787 | 240 | 29.26 | 743.2 | 30.11 | 764.7 | 66.6 | 19.2 | 53.7 | 1 | 4 | 6 | 3 | 7 | 5 | ..... | 1 | 3 | ..... | ..... | 3 | 0.66 | 16.8 |
| Berlin | N. 52 30 | E. 13 19 | 1.02 p.m. | 131 | 40 | 29.92 | 759.9 | 30.06 | 763.5 | 68.2 | 20.1 | 60.4 | 1 | 1 | 6 | 7 | 5 | 1 | 9 | ..... | ..... | ..... | ..... | 6 | 0.86 | 21.8 |
| Breslau | N. 51 07 | E. 17 02 | 1.17 p.m. | 482 | 147 | 29.61 | 752.1 | 30.14 | 765.6 | 67.3 | 19.6 | 50.7 | ..... | 4 | 8 | 1 | 2 | 7 | 8 | ..... | ..... | ..... | ..... | 4 | 0.95 | 24.1 |
| Carlsruhe | N. 49 01 | E. 8 25 | 0.42 p.m. | 413 | 126 | 29.64 | 752.9 | 30.09 | 764.3 | 68.0 | 20.0 | 59.4 | 3 | 1 | 2 | 11 | 2 | 2 | 4 | 5 | ..... | ..... | ..... | 4 | 1.44 | 36.5 |
| Cassel | N. 51 19 | E. 9 28 | 0.46 p.m. | 669 | 204 | 29.37 | 745.9 | 30.08 | 764.0 | 68.4 | 20.2 | 60.2 | 1 | 3 | 4 | 10 | 5 | 3 | 2 | 2 | ..... | ..... | ..... | 5 | 1.16 | 29.5 |
| Frankfort on M | N. 50 08 | E. 8 41 | 0.43 p.m. | 338 | 103 | 29.72 | 754.9 | 30.13 | 765.2 | 68.7 | 20.4 | 56.6 | 2 | ..... | ..... | ..... | 0 | 12 | ..... | 3 | 7 | ..... | ..... | 5 | 1.28 | 32.6 |
| Friedrichshafen | N. 47 39 | E. 9 29 | 0.46 p.m. | 1339 | 408 | 28 70 | 728.9 | 30.09 | 764 3 | 63.1 | 17.3 | 77.2 | ..... | 3 | 5 | 16 | 2 | 1 | 1 | 2 | ..... | ..... | ..... | 5 | 3.90 | 99.1 |
| Hamburg | N. 53 33 | E. 9 58 | 0.48 p.m. | 85 | 26 | 29.98 | 761.4 | 30.07 | 763.7 | 65.5 | 18.6 | 069.3 | 1 | 1 | 2 | 11 | 4 | 2 | 7 | 1 | 1 | ..... | ..... | 5 | 4.40 | 111.7 |
| Kiel | N. 54 19 | E. 10 04 | 0.48 p.m. | 13 | 4 | 30.03 | 762.8 | 30.05 | 763.2 | 63.9 | 17.7 | 71.0 | 1 | ..... | 3 | 9 | 4 | 2 | 5 | 5 | 1 | ..... | ..... | 6 | 2.33 | 59.2 |
| Leipsic | N. 51 20 | E. 12 24 | 0.58 p.m. | 390 | 119 | 29.69 | 754.1 | 30.10 | 764.6 | 67.1 | 19.5 | 60.8 | 1 | 3 | 5 | 6 | 3 | 4 | 0 | 2 | ..... | ..... | ..... | 5 | 1.54 | 39.0 |
| Magdeburg | N. 52 09 | E. 11 37 | 0.54 p.m. | 177 | 54 | 29.89 | 759.1 | 30.07 | 763.7 | 68.7 | 20.4 | 58.4 | ..... | ..... | ..... | 8 | 6 | 1 | 6 | 3 | ..... | ..... | ..... | 5 | 1.84 | 46.6 |
| Memel | N. 55 43 | E. 21 07 | 1.32 p.m. | 39 | 12 | 30.10 | 764.5 | 30.15 | 765.7 | 62.6 | 17.0 | 76.3 | 7 | 4 | 4 | 3 | 6 | 4 | 2 | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| Munich | N. 48 09 | E. 11 34 | 0.54 p.m. | 1732 | 528 | 28 29 | 718.6 | 30.16 | 766.1 | 65.3 | 18.5 | 56.0 | 1 | 10 | 2 | ..... | ..... | 2 | 4 | 6 | 5 | ..... | ..... | 3 | 1.33 | 33.8 |
| Neufahrwasser | N. 54 24 | E. 18 40 | 1.25 p.m. | 26 | 8 | 30.10 | 764.6 | 30.13 | 765.3 | 60.0 | 18.9 | 65.9 | 9 | 1 | 3 | 2 | 6 | 3 | 4 | 2 | ..... | ..... | ..... | 5 | 0.04 | 16.3 |
| Neustadt, *a* | N. 49 21 | E. 8 08 | 0.41 p.m. | 479 | 146 | 29.58 | 751.4 | 30.11 | 764.9 | 68.0 | 20.0 | 61.0 | 1 | 1 | 6 | 1 | 1 | ..... | 5 | 6 | 8 | ..... | ..... | 4 | 0.98 | 25.0 |
| Stuttgart | N. 48 47 | E. 9 11 | 0.45 p.m. | 833 | 254 | 29.20 | 741.6 | 30.04 | 763.9 | 66.9 | 19.4 | 60.5 | 4 | 5 | 1 | 6 | 1 | 4 | 2 | 7 | ..... | ..... | ..... | 4 | 0.94 | 24.0 |
| Wustrow | N. 54 21 | E. 12 24 | 0.58 p.m. | 23 | 7 | 30.06 | 763.4 | 30.08 | 764.0 | 64.4 | 18.0 | 82.2 | 2 | 1 | 3 | 9 | 6 | 4 | 5 | ..... | ..... | ..... | ..... | 5 | 1.25 | 31.7 |
| GREEK. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Athens | N. 37 58 | E. 23 44 | 1.43 p.m | 361 | 110 | 29.66 | 753.4 | 30.03 | 762.8 | 77.7 | 25.4 | 49.2 | 10 | 2 | 1 | 4 | 5 | 2 | ..... | 6 | ..... | ..... | ..... | 3 | 0.10 | 2.6 |
| INDIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kurrachee | N. 24 47 | E. 67 04 | 4.36 p.m. | 49 | 15 | 29.60 | 751.8 | 29.65 | 753 1 | 85.2 | 29.6 | 73 | 1 | 1 | 11 | 13 | 2 | ..... | 1 | 1 | ..... | ..... | ..... | 3 | 2.29 | 58.2 |
| Deesa | N. 24 16 | E. 72 14 | 4.57 p.m. | 466 | 142 | 29,18 | 741.2 | 29.65 | 753.1 | 84.1 | 28.9 | 70 | 2 | 4 | 7 | 10 | ..... | 3 | ..... | 4 | ..... | ..... | ..... | 8 | 16.68 | 423.7 |
| Bombay | N. 18 54 | E. 72 49 | 5.00 p.m. | 37 | 11 | 29.74 | 755.4 | 29.77 | 759 1 | 79.7 | 26.5 | 87 | ..... | 4 | 19 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 17.40 | 442.0 |
| Poona | N. 18 28 | E. 74 10 | 5.05 p.m. | 1849 | 564 | 27 92 | 709.2 | 29.79 | 756.7 | 73.9 | 23.3 | 80 | ..... | 2 | 18 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 4.63 | 117.6 |
| Belgaum | N. 15 52 | E. 74 42 | 5.07 p.m. | 2550 | 777 | 27.27 | 692.6 | 29.84 | 757.9 | 69.9 | 21.1 | 89 | ..... | 1 | 11 | 17 | 1 | ... | ..... | ..... | ..... | ..... | ..... | 8 | 4.72 | 119.9 |
| Lahore | N. 31 34 | E. 74 20 | 5.05 p.m. | 732 | 223 | 28.90 | 734.0 | 29.63 | 752.6 | 88.6 | 31.4 | 60 | 2 | 2 | 1 | 1 | ..... | ... | 5 | ..... | 19 | ..... | ..... | 2 | 3.29 | 83.6 |
| Roorkee | N. 29 52 | E. 77 56 | 5.20 p.m. | 887 | 270 | 28.75 | 730.2 | 29.64 | 752.8 | 83.4 | 28.6 | 78 | ..... | ..... | 2 | ..... | ..... | 1 | 4 | ..... | 23 | ..... | ..... | 4 | 12.99 | 329.9 |
| Agra | N. 27 10 | E. 78 05 | 5.20 p.m. | 555 | 169 | 29.06 | 738.1 | 29.61 | 752.1 | 85.0 | 29.4 | 75 | 1 | 1 | ..... | 1 | 1 | 2 | 21 | 3 | ..... | ..... | ..... | 7 | 10.01 | 254.2 |
| Nagpur | N. 21 09 | E. 79 11 | 5.24 p.m. | 1025 | 312 | 28.60 | 726.4 | 29.64 | 752.8 | 79.8 | 26.6 | 81 | 1 | 4 | 5 | 8 | ..... | ..... | 1 | 2 | 9 | ..... | ..... | 9 | 13.74 | 349.0 |
| Jubbulpore | N. 23 09 | E. 79 59 | 5.28 p.m. | 1341 | 409 | 28 28 | 718.3 | 29.62 | 752.3 | 80.2 | 26.8 | 80 | 2 | 8 | 6 | 2 | 4 | 1 | 1 | 3 | 3 | ..... | ..... | 8 | 14.04 | 356.6 |
| Lucknow | N. 26 50 | E. 81 00 | 5.32 p.m. | 369 | 113 | 29.28 | 743.7 | 29.65 | 753 1 | 85.2 | 29.6 | 76 | 9 | 2 | ..... | ..... | ..... | ..... | 2 | 3 | 14 | ..... | ..... | 5 | 12.13 | 308.1 |
| Allahabad | N. 25 26 | E. 81 52 | 5.35 p.m. | 307 | 94 | 29.30 | 744.2 | 29.61 | 752.1 | 83.6 | 28.7 | 83 | ..... | 2 | ..... | 2 | ..... | 4 | 6 | 10 | 6 | ..... | ..... | 6 | 7.31 | 185.7 |
| Patna | N. 25 37 | E. 85 08 | 5.49 p.m. | 183 | 56 | 29.46 | 748.3 | 29.65 | 753.1 | 85.5 | 29.7 | 74 | ..... | 1 | ..... | 1 | .... | 4 | 17 | 5 | 2 | ..... | ..... | 6 | 3.71 | 94.2 |
| Hazaribagh | N. 24 00 | E. 85 24 | 5.50 p.m. | 2007 | 612 | 27.64 | 702.0 | 29.65 | 753.1 | 76.8 | 24.9 | 94 | 2 | ..... | ..... | ..... | 2 | 13 | 9 | 3 | 1 | ..... | ..... | 8 | 8.46 | 214.9 |
| Cuttack | N. 20 29 | E. 85 54 | 5.52 p.m. | 80 | 24 | 29.57 | 751.1 | 29.65 | 753.1 | 82.6 | 28.1 | 79 | ..... | 1 | 4 | 3 | ..... | 2 | 2 | ..... | 18 | ..... | ..... | 7 | 7.89 | 200.4 |
| Calcutta | N. 22 33 | E. 88 21 | 6.01 p.m. | 21 | 6 | 29.63 | 752.6 | 29.66 | 753.4 | 80.6 | 27.0 | 88 | ..... | ..... | 1 | 7 | 6 | 10 | 4 | ..... | 2 | ..... | ..... | 8 | 16.63 | 422.4 |
| Chittagong | N. 22 21 | E. 91 50 | 6.15 p.m. | 87 | 26 | 29.63 | 752.6 | 29.72 | 754.9 | 80.3 | 26.8 | 88 | ..... | 1 | 1 | 8 | 8 | 5 | ..... | ..... | 2 | ..... | ..... | 7 | 12.98 | 329.7 |
| Sibsagar | N. 26 59 | E. 94 40 | 6.27 p.m. | 333 | 102 | 29.38 | 716.2 | 29.71 | 754.6 | 84.7 | 29.3 | 80 | ..... | 1 | ..... | 5 | ..... | 5 | ..... | 19 | ..... | ..... | ..... | 3 | 5.35 | 135.9 |
| Jeypore | N. 26 55 | E. 75 50 | 5.05 p.m. | 1431 | 436 | 28.21 | 716.5 | 29.64 | 752.8 | 82.7 | 28.2 | 72 | 2 | 2 | 3 | ..... | 2 | 4 | 10 | 5 | 2 | ..... | ..... | 7 | 14.72 | 373.9 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for September, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metrs | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| INDIAN—Cont'd. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bellary | N. 15 09 | E. 76 57 | 5.16 p.m. | 1455 | 444 | 28.27 | 718.0 | ..... | ..... | 86.1 | 30.1 | 49 | ..... | ..... | 22 | 8 | .. | ..... | ... | ..... | ..... | ..... | ..... | 8 | 0.29 | 7.4 |
| Trichinopoly | N. 10 50 | E. 78 44 | 5.23 p.m. | 475 | 84 | 29.51 | 749.5 | 29.78 | 756.4 | 91.5 | 33.1 | 44 | ..... | 10 | 14 | 4 | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 8 | 2.41 | 61.2 |
| ITALIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Udine | N. 46 04 | E. 13 13 | 1.01 p.m. | 381 | 116 | 29.71 | 754.7 | 30.11 | 764.9 | 71.2 | 21.8 | 57 | ..... | ..... | 1 | 5 | 1 | ..... | 6 | 6 | 11 | ..... | ..... | 5 | 5.43 | 138.0 |
| Milan | N. 45 28 | E. 9 11 | 0.45 p.m. | 482 | 147 | 29.60 | 751.9 | 30.11 | 764.8 | 70.5 | 21.4 | 63 | ..... | 3 | 1 | 7 | 2 | 7 | 5 | 5 | ..... | ..... | ..... | 6 | 6.76 | 171.8 |
| Padua | N. 45 24 | E. 11 53 | 0.56 p.m. | 102 | 31 | 30.00 | 761.9 | 30.10 | 764.6 | 71.2 | 21.8 | 62 | 4 | ..... | 3 | ..... | 6 | 3 | 8 | 4 | 2 | ..... | ..... | 5 | 2.52 | 64.0 |
| Moncalieri | N. 45 00 | E. 7 41 | 0.39 p.m. | 846 | 258 | 29.20 | 741.7 | 30.09 | 764.3 | 66.7 | 19.3 | 69 | 1 | 10 | ..... | ..... | 2 | 7 | 9 | 1 | .. | ..... | ..... | 6 | 6.64 | 168.6 |
| Genoa | N. 44 24 | E. 8 55 | 0.44 p.m. | 157? | 48? | 29.93 | 760.3 | 30.11 | 765.1 | 71.4 | 21.9 | 63 | 8 | 4 | .... | 5 | 4 | 7 | 2 | ..... | ..... | ..... | ..... | 4 | 7.61 | 193.3 |
| Pesaro | N. 43 55 | E. 12 53 | 1.00 p.m. | 46 | 14 | 30.05 | 763.2 | 30.10 | 764.4 | 70.0 | 21.1 | 71 | 10 | 2 | 1 | 1 | 1 | 7 | 7 | .... | ..... | ..... | ..... | 4 | 5.54 | 140.8 |
| Florence | N. 43 46 | E. 11 15 | 0.53 p.m. | 240 | 73 | 29.82 | 757 3 | 30.06 | 763.6 | 73.8 | 23.2 | 48 | 3 | 2 | 3 | 5 | 2 | 2 | 11 | ..... | ..... | ..... | ..... | 4 | 1.91 | 48.4 |
| Leghorn | N. 43 33 | E. 10 18 | 0.49 p.m. | 79 | 24 | 29.93 | 760.3 | 30.02 | 762 4 | 72.1 | 22.3 | 69 | ..... | 3 | 0 | 7 | 5 | 1 | 3 | 5 | ..... | ..... | ..... | 5 | 3.40 | 86.4 |
| Rome | N. 41 54 | E. 12 29 | 0.58 p.m. | 164 | 50 | 29.90 | 759.4 | 30.07 | 763.7 | 75.0 | 23.9 | 56 | 2 | 4 | 5 | 5 | 7 | 1 | 2 | 3 | 1 | ..... | ..... | 6 | 7.95 | 2 2.0 |
| Cosenza | N. 39 19 | E. 16 17 | 1.13 p.m. | 840 | 256 | 29.21 | 741 8 | 30.07 | 763.8 | 74.8 | 23.8 | 68 | 1 | 0 | 11 | 7 | 2 | 3 | ..... | ..... | ..... | ..... | ..... | 3 | 0.73 | 13.6 |
| Palermo | N. 38 07 | E. 13 21 | 1.02 p.m. | 236 | 72 | 29.85 | 758.1 | 30.09 | 764.3 | 77 4 | 25.2 | 51 | ..... | 7 | ..... | ..... | ..... | 1 | 5 | 17 | ..... | ..... | ..... | 3 | 0.38 | 9.7 |
| Syracuse | N. 37 03 | E. 15 15 | 1.09 p.m. | 72 | 22 | 29.99 | 701.8 | 30.04 | 762 9 | 78.4 | 25.8 | 61 | 3 | ..... | ..... | 2 | 8 | 2 | 12 | 3 | ..... | ..... | ..... | 4 | 0.65 | 16.6 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stelvio | N. 46 32 | E. 10 25 | 0.50 p.m. | 8343 | 2543 | 22.32 | 567.0 | ..... | ..... | 45.1 | 7.3 | 59.2 | 1 | 1 | 8 | 6 | 1 | ..... | 4 | 9 | ..... | ..... | ..... | 6 | 3.04 | 77.3 |
| Valdobbia | N. 45 47 | E. 7 51 | 0.40 p.m. | 8360 | 2548 | 22.37 | 568.1 | ..... | ..... | 43.5 | 6.4 | 77.5 | 6 | 6 | 3 | 6 | 2 | 2 | 3 | 2 | ..... | ..... | ..... | 8 | 7.52 | 191.0 |
| JAPANESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akita | N. 39 42 | E.140 07 | 9.28 p.m. | 32 | 10 | 29.94 | 760.5 | 29.98 | 761.4 | 64.7 | 18.2 | 89 | 5 | 3 | 1 | ... | 1 | 3 | 3 | ..... | 14 | ..... | ..... | 7 | 6.18 | 157.0 |
| Awomori | N. 40 51 | E.140 45 | 9.31 p.m. | 32 | 10 | 29.96 | 760.9 | 29.99 | 761.8 | 62.8 | 17.1 | 87 | 2 | 1 | 3 | 1 | 6 | 1 | 5 | 9 | 2 | 3416 | 5541 | 6 | 2.89 | 73.5 |
| Hokodate | N. 41 47 | E.140 44 | 9.31 p.m. | 10 | 3 | 30.00 | 762.0 | 30.01 | 762.3 | 60.7 | 15.9 | 90 | 2 | 1 | 1 | 1 | 2 | 7 | 9 | ..... | 7 | 0874 | 11052 | 7 | 6.58 | 167.2 |
| Hamamatsu | N. 34 43 | E.137 43 | 9.19 p.m. | 92 | 28 | 29.88 | 759.0 | 29.98 | 761.5 | 70.7 | 21.5 | 88 | 1 | ..... | 7 | ..... | ..... | ..... | 13 | 2 | 7 | ..... | ..... | 6 | 10.88 | 276.3 |
| Hiroshima | N. 34 23 | E.132 27 | 8.58 p.m. | 16 | 5 | 29.92 | 760.0 | 29.94 | 760.4 | 73.2 | 22.9 | 83 | 21 | ..... | 3 | ..... | 3 | ..... | ..... | ..... | 3 | 3602 | 5796 | 5 | 6.60 | 167.6 |
| Kanazawa | N. 36 33 | E.136 40 | 9.14 p.m. | 95 | 29 | 29.88 | 759 0 | 29.98 | 761.5 | 68.4 | 20.2 | 88 | 3 | 2 | ..... | 2 | 1 | 10 | 11 | 1 | ..... | 3795 | 6105 | 6 | 8.59 | 218.3 |
| Kagoshima | N. 31 35 | E.130 33 | 8.50 p.m. | 14 | 4 | 29.93 | 760.2 | 29.94 | 760.5 | 75.4 | 24.1 | 86 | 2 | 9 | ..... | 2 | ..... | 3 | 4 | 7 | 3 | ..... | ..... | 4 | 10.53 | 267.3 |
| Kioto | N. 35 01 | E.135 46 | 9.11 p.m. | 162 | 49 | 29.80 | 756.9 | 29.97 | 761.3 | 71.1 | 21.7 | 82 | 12 | 3 | ..... | ..... | 1 | ..... | 6 | 7 | 1 | 2603 | 4192 | 6 | 10.65 | 270.6 |
| Kochi | N. 33 33 | E.133 34 | 9.02 p.m. | 20 | 6 | 29.91 | 760.4 | 29.96 | 760 9 | 74.8 | 23.8 | 91 | 1 | 8 | 1C | 2 | ..... | 3 | 4 | 2 | ..... | ..... | ..... | 7 | 11.12 | 2 2.5 |
| Miyanka | N. 31 56 | E.131 26 | 8.54 p.m. | 26 | 8 | 29.93 | 760.3 | 29.96 | 761.0 | 75.0 | 23.9 | 87 | 7 | 2 | 4 | ..... | 2 | 4 | 10 | 1 | ..... | ..... | ..... | 6 | 10.97 | 278.7 |
| Miyako | N. 39 38 | E.141 59 | 9.36 p.m. | 98 | 30 | 29.91 | 759.6 | 30.02 | 762.4 | 62.1 | 16.7 | 95 | 7 | ..... | 10 | 2 | 3 | ..... | 4 | 1 | 3 | 1355 | 2180 | 8 | 13.20 | 336.8 |
| Nemuro | N. 43 20 | E.145 35 | 9.30 p.m. | 43 | 13 | 30.01 | 762.3 | 30.06 | 763.5 | 56.5 | 13.6 | 90 | 4 | ..... | ..... | ..... | 5 | 3 | 7 | ..... | 11 | 4812 | 7744 | 8 | 3.20 | 81.3 |
| Nagasaki | N. 32 44 | E.129 52 | 8.47 p.m. | 189 | 58 | 29.71 | 755.3 | 29.93 | 760.2 | 73.7 | 23.2 | 86 | 6 | 2 | ..... | ..... | 1 | 2 | 1 | 6 | 12 | ..... | ..... | 4 | 12.20 | 309.9 |
| Niigata | N. 37 55 | E.139 03 | 9.24 p.m. | 32 | 10 | 29.94 | 760.4 | 29.97 | 761.3 | 68.5 | 20.3 | 84 | 1 | ..... | 4 | 2 | 2 | 5 | 3 | 8 | 5 | 3729 | 6001 | 7 | 10.45 | 265.5 |
| Nobiru | N. 38 23 | E.141 11 | 9 32 p.m. | 15 | 5 | 29.66 | 761.0 | 29.98 | 761.4 | 66.2 | 19 0 | 89 | 5 | 1 | ..... | ..... | 8 | 5 | 4 | 5 | 2 | 7293 | 11737 | 8 | 9.22 | 234.1 |
| Numadzu | N. 35 06 | E.138 51 | 9.23 p.m. | 32 | 10 | 29.95 | 760.7 | 29.98 | 761.6 | 71.1 | 21.7 | 84 | 1 | 3 | 2 | 2 | 2 | 2 | 14 | 3 | 1 | ..... | ..... | 7 | 11.80 | 299.6 |
| Osaka | N. 34 42 | E.135 30 | 9.10 p.m. | 13 | 4 | 29.95 | 760 7 | 29.97 | 761.2 | 72.1 | 22.3 | 82 | 6 | 1 | 3 | ..... | 2 | 1 | 6 | 11 | ..... | 5850 | 9414 | 5 | 10.45 | 265.1 |
| Sagab | N. 33 12 | E.130 18 | 8.49 p.m. | 23 | 7 | 29.91 | 759.8 | 29.94 | 760.4 | 73.2 | 22.9 | 86 | 7 | 4 | 2 | ..... | 1 | 1 | ..... | 4 | 9 | ..... | ..... | 5 | 9.14 | 232.2 |
| Sakai | N. 35 33 | E.133 14 | 9.01 p.m. | 10 | 3 | 29.95 | 760.8 | 29.96 | 761.0 | 70.3 | 21.3 | 87 | 4 | 2 | 3 | ..... | ..... | ..... | 4 | 12 | 5 | ..... | ..... | 6 | 8.69 | 220.7 |
| Shimonoseki | N. 33 58 | E.130 56 | 8.52 p.m. | 134 | 41 | 29.82 | 757.3 | 29.96 | 761.0 | 72.0 | 22.2 | 86 | 3 | ..... | ..... | ..... | 1 | 1 | 6 | 3 | 16 | ..... | ..... | 5 | 5.45 | 138.5 |
| Sapporo | N. 43 04 | E.141 23 | 9.33 p m. | 60 | 18 | 29.95 | 760.6 | 30.00 | 762.1 | 59.2 | 15.1 | 92 | 1 | 3 | 2 | 4 | 1 | 15 | 1 | 1 | 2 | 5525 | 8895 | 0 | 4.38 | 111.2 |
| Tokei | N. 35 41 | E.139 46 | 9.27 p.m. | 69 | 21 | 29.92 | 759.9 | 29.99 | 761.8 | 70.2 | 21.2 | 86 | 2 | 1 | 1 | 1 | 7 | 3 | 11 | 4 | ..... | 5832 | 8582 | 7 | 7.01 | 193.2 |
| MAURITIUS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mauritius | S. 20 06 | E. 57 33 | 3.58 p.m. | 181 | 55 | 29.95 | 760.7 | 30.14 | 765.5 | 73.6 | 23.1 | 63.0 | 1 | 1 | 1 | 1 | 2 | 5 | 19 | ..... | ..... | ..... | ..... | 6 | 1.19 | 30.2 |
| MEXICAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leon | N. 21 07 | W.101 35 | 5.22 a.m. | 5901 | 1799 | 24 34 | 618.2 | 29.98 | 761.5 | 59.9 | 15.5 | 86.4 | 2 | 4 | 3 | 7 | 5 | 1 | ..... | 1 | 7 | ..... | ..... | 6 | 4.13 | 109.4 |
| Mazatlan | N. 23 11 | W.106 17 | 5.03 a.m. | 249 | 76 | 29.61 | 752.3 | 29.87 | 758.7 | 78.2 | 25.7 | 90.6 | 7 | 1 | 2 | ..... | ..... | 1 | 8 | 11 | ..... | ..... | ..... | 5 | 16.19 | 411.2 |
| NETHERLANDS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flushing | N. 51 24 | E. 3 35 | 0.22 p.m. | 0 | 0 | 30.05 | 763.2 | 30.05 | 763 2 | 67.8 | 19.9 | ..... | 1 | ..... | 5 | 6 | 7 | ..... | 8 | 3 | ..... | ..... | ..... | ..... | ..... | 1.32 | 33.6 |
| Groningen | N. 53 12 | E. 6 34 | 0.34 p.m. | ? | ? | 29.97 | 761.2 | 30.02 | 762.6 | 64.0 | 17.8 | ..... | 2 | 4 | 5 | 9 | 2 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 1.16 | 29.6 |
| Helder | N. 52 58 | E. 4 45 | 0.27 p.m. | 0 | 0 | 30.01 | 762.3 | 30.01 | 762.3 | 62.2 | 16.8 | ..... | 3 | 1 | 4 | 8 | 4 | 2 | 3 | 5 | ..... | ..... | ..... | ..... | ..... | 3.30 | 83.9 |
| Hellevoetsluis | N. 51 49 | E. 4 08 | 0.25 p.m. | 0 | 0 | 30.04 | 762.9 | 30.04 | 762.9 | 63.0 | 17.2 | 65.5 | 1 | ..... | 3 | 10 | 2 | 2 | 6 | 4 | 2 | ..... | ..... | ..... | ..... | 1.32 | 33.4 |
| Utrecht | N. 52 05 | E. 5 07 | 0.29 p.m. | 43 | 13 | 29.99 | 761.7 | 30.04 | 762.9 | 66.9 | 19.4 | 64.7 | ..... | 1 | 6 | 9 | 4 | 2 | 6 | 2 | ..... | ..... | ..... | 4 | 2.15 | 54.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Batavia | S. 6 11 | E.106 48 | 7.15 p.m. | 26 | 8 | ..... | ..... | 29.90 | 759.5 | 80.4 | 26.9 | 74.7 | 11 | 1 | ..... | ..... | ..... | 1 | ..... | 17 | ..... | ..... | ..... | 5 | 0.79 | 20.1 |
| NORWEGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bergen | N. 60 24 | E. 5 20 | 0.29 p.m. | 56 | 17 | 29.84 | 757.8 | 29.90 | 759.4 | 59.5 | 15.3 | 76.5 | 2 | 4 | 1 | 5 | 11 | 2 | ..... | 1 | 4 | ..... | ..... | 6 | 8.28 | 210.4 |
| Brono | N. 65 28 | E. 12 14 | 0.57 p.m. | 34 | 10 | 29.80 | 756 9 | 29.84 | 757 9 | 50.8 | 13.8 | 71.0 | 1 | 2 | 4 | 11 | 3 | 2 | 3 | 1 | 3 | ..... | ..... | 8 | 4.18 | 105.2 |
| Christiania | N. 59 55 | E. 10 45 | 0.51 p.m. | 134 | 41 | 29.80 | 756.8 | 29.94 | 760.4 | 62.4 | 16.9 | 07.0 | ..... | 1 | 1 | 15 | 5 | 3 | 2 | 3 | ..... | ..... | ..... | 6 | 2.23 | 56.7 |
| Gjæsvær | N. 71 07 | E. 25 22 | 1.49 p.m. | 23 | 7 | 29.69 | 754.1 | 29.71 | 754.7 | 48.6 | 9.2 | ..... | 1 | 1 | 5 | 8 | 5 | 1 | 1 | ..... | 8 | ..... | ..... | 7 | 2.15 | 54.7 |
| PORTUGUESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Funchal a | N. 32 38 | W. 16 55 | 11.00 a.m. | 82 | 25 | 30.08 | 764.1 | 30.17 | 766.3 | 74.5 | 23.6 | 61.4 | 1 | ..... | 1 | 16 | 4 | 5 | ..... | 1 | 1 | ..... | ..... | 6 | 0.18 | 4.6 |
| Lisbon | N. 38 42 | W. 9 08 | 11.31 a.m. | 312 | 95 | 29.76 | 755.9 | 30.09 | 764.2 | 70.9 | 21.6 | 62.5 | 3 | 4 | 2 | 11 | 2 | 1 | 1 | 6 | ..... | ..... | ..... | 5 | 1.98 | 50.2 |
| Ponta Delgada | N. 37 45 | W. 25 41 | 10.25 a.m. | 66 | 20 | 30.17 | 766.3 | 30.24 | 768.1 | 72.9 | 22.7 | 67.1 | 5 | 2 | 6 | 3 | 5 | ..... | 2 | 5 | 2 | ..... | ..... | 4 | 3.11 | 79.7 |
| Saint Paul de Loando | S. 8 49 | E. 13 07 | 1.00 p.m. | 193 | 59 | 29.80 | 756.9 | 30.00 | 762 0 | 75.6 | 24.2 | 75.4 | 2 | 12 | 16 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 0.01 | 0.2 |
| San Salvador | S. 6 17 | E. 14 53 | 1.07 p.m. | 1834 | 559 | 28 12 | 714.2 | 29.96 | 760.9 | 76.8 | 24.9 | 56.8 | ..... | 2 | 6 | 17 | 3 | 1 | 1 | ..... | ..... | ..... | ..... | 7 | 0 | 0 |
| Serra da Estrella | N. 40 25 | W. 7 35 | 11.37 a.m. | 4728 | 1441 | 25.39 | 644.8 | 30.07 | 763.8 | 54.3 | 12.4 | 78.3 | 1 | 4 | 9 | ..... | 3 | 3 | 9 | 1 | ..... | ..... | ..... | 7 | 6.30 | 160.1 |
| RUSSIAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akmolinski d | N. 51 12 | E. 71 23 | 4.54 p.m. | 843? | 306? | 28 70 | 728.9 | 29.76 | 756 0 | 52.7 | 11.5 | 50.7 | 2 | 6 | 9 | 5 | 2 | ..... | ..... | 1 | 1 | ..... | ..... | 5 | 0.88 | 22.3 |
| Archangel | N. 64 33 | E. 40 32 | 2.50 p.m. | 16 | 5 | 29.93 | 760.1 | 29.94 | 760.6 | 47.5 | 8.6 | 71.2 | 4 | 8 | 3 | 1 | 3 | 3 | ..... | 5 | 3 | ..... | ..... | 6 | 1.41 | 35.8 |
| Astrakhan | N.46 21 | E. 48 02 | 3.20 p.m. | 68 | 21 | 30.09 | 764.2 | 30.01 | 762.3 | 63.7 | 17.6 | 44 0 | 2 | 7 | 6 | 3 | 3 | 3 | 5 | 1 | ..... | ..... | ..... | 6 | 0.26 | 6.6 |
| Baku | N. 40 21 | E. 49 51 | 3.28 p.m. | 39 | 12 | 30.06 | 763.4 | 30.01 | 762.2 | 69.4 | 20.8 | 68.2 | 10 | ..... | ..... | ..... | 9 | 3 | 2 | 3 | 3 | ..... | ..... | 4 | 1.24 | 31.6 |
| Barnaul | N. 53 20 | E. 83 47 | 5.43 p.m. | 459? | 140? | 29.38 | 746.3 | 29.88 | 758.8 | 53.8 | 12.1 | 59.6 | 1 | 3 | 3 | 14 | 2 | 1 | ..... | 2 | 4 | ..... | ..... | 8 | 1.25 | 31.7 |
| Bielosersk | N. 60 02 | E. 37 47 | 2.39 p.m. | 430? | 131? | 29 56 | 750 9 | 30.03 | 762.8 | 50.5 | 10.3 | 72.9 | 3 | 11 | 6 | 3 | 1 | 2 | 1 | 1 | 2 | ..... | ..... | 7 | 0.96 | 24.3 |
| Dorpat | N. 58 23 | E. 26 43 | 1.55 p.m. | 223 | 68 | 29.86 | 758.3 | 30.10 | 764.4 | 61.5 | 16.4 | 58.5 | 4 | 6 | 2 | 4 | 5 | 5 | 2 | 2 | ..... | ..... | ..... | 6 | 0.58 | 14.8 |
| Ekaterinburg | N. 56 49 | E. 60 38 | 4.10 p.m. | 894? | 272? | 28.82 | 732.0 | 29.79 | 756.6 | 45.0 | 7.2 | 75.9 | 5 | 5 | 5 | 3 | 1 | 2 | 2 | 4 | 3 | ..... | ..... | 8 | 1.96 | 49.7 |
| Elisawetgrad | N. 48 31 | E. 32 17 | 2.17 p.m. | 417? | 127? | 29.66 | 753.3 | 30.10 | 764.6 | 62.6 | 17.0 | 60.3 | 6 | 8 | 2 | 1 | 2 | 3 | 3 | 4 | 1 | ..... | ..... | 6 | 3.04 | 77.3 |
| Kasalinsk | N. 45 46 | E. 62 07 | 4.16 p.m. | 147 | 45 | 29.70 | 754.5 | 29.88 | 759 0 | 61.6 | 18.1 | 42.5 | ..... | 9 | 7 | 5 | ..... | 3 | 2 | 3 | 1 | ..... | ..... | 4 | ..... | ..... |
| Kasan | N. 55 47 | E. 49 08 | 3.24 p.m. | 249 | 76 | 29.62 | 752.4 | 29.89 | 759.3 | 56.2 | 10.1 | 67.3 | 7 | 7 | 5 | 5 | 1 | 1 | ..... | 2 | 2 | ..... | ..... | 8 | 1.26 | 31.9 |
| Kem | N. 64 57 | E. 34 39 | 2.26 p.m. | 43 | 13 | 29.92 | 759 9 | 29.97 | 761.2 | 50.9 | 10.5 | 71.5 | ..... | 5 | 10 | 3 | 2 | ..... | 2 | 4 | 4 | ..... | ..... | 8 | 0.91 | 23.8 |
| Kerteh | N. 45 21 | E. 36 29 | 2.34 p.m. | 18? | 6? | 30.04 | 763.0 | 30.06 | 763.6 | 66.6 | 19.2 | 60.7 | 5 | 4 | 1 | ..... | ..... | 2 | 8 | 4 | 6 | ..... | ..... | 5 | 0.87 | 22.2 |
| Kieff | N. 50 27 | E. 30 30 | 2.10 p.m. | 600 | 183 | 29.45 | 748 0 | 30.08 | 763.9 | 60.8 | 16.0 | 61.8 | 6 | 8 | 3 | 1 | 2 | 5 | 2 | 3 | ..... | ..... | ..... | 6 | 2.42 | 61.5 |
| Koslov | N. 52 53 | E. 40 31 | 2.50 p.m. | 466? | 142? | 29.49 | 749.1 | 30.00 | 761.9 | 54.1 | 12.3 | 64.6 | 7 | 5 | 3 | 3 | 2 | ..... | 5 | 2 | 3 | ..... | ..... | 7 | 0.95 | 24.2 |
| Lgov | N. 51 41 | E. 35 17 | 2.29 p m. | 535? | 163? | 29.55 | 750.5 | 30.13 | 765.2 | 57.7 | 14.3 | 57.6 | 4 | 7 | 4 | 2 | 1 | ..... | 3 | 5 | 4 | ..... | ..... | 7 | 0.87 | 22.0 |
| Libau | N. 56 31 | E. 21 01 | 1.32 p.m. | 20 | 6 | 30.10 | 764.5 | 30.12 | 765.1 | 61.9 | 16.6 | 75.3 | .. | 7 | 0 | 7 | 5 | 3 | 2 | ..... | ..... | ..... | ..... | 5 | 1.11 | 28.3 |
| Lugan | N. 48 35 | E. 39 20 | 2.45 p.m. | 188? | 57? | 29.84 | 757.8 | 30.04 | 763.0 | 61.2 | 16.2 | 50.1 | ..... | 6 | 9 | 3 | 2 | 4 | 4 | ..... | ..... | ..... | ..... | 7 | 1.73 | 43.9 |
| Moscow | N. 55 46 | E. 37 40 | 2.39 p.m. | 448 | 136 | 29.56 | 750.9 | 30.04 | 762.9 | 54.7 | 12.6 | 63.3 | 8 | 4 | 5 | 4 | 2 | 1 | 1 | 1 | 4 | ..... | ..... | 5 | 1.56 | 39.5 |
| Nertchinsk | N. 51 19 | E.119 37 | 8.07 p.m. | ? | ? | 27.79 | 705 8 | 30.08 | 763.9 | 48.0 | 9.2 | 64.8 | ..... | 1 | ..... | 2 | ..... | ..... | ..... | 2 | 25 | ..... | ..... | 4 | 2.23 | 56.7 |
| Nikolaiev | N. 46 58 | E. 31 58 | 2.16 p.m. | 62 | 19 | 30.01 | 762.3 | 30.03 | 764.1 | 66.9 | 19.4 | 58.3 | 2 | 5 | 1 | 3 | 2 | 2 | 5 | 8 | 2 | ..... | ..... | 5 | 1.30 | 32.9 |
| Nikolaievsk f | N. 53 08 | E.140 45 | 9.31 p.m. | 59 | 18 | 29.94 | 760 5 | 30.03 | 762.7 | 48.7 | 9.3 | 82.2 | 3 | 2 | 2 | ..... | ..... | 1 | 3 | 3 | 10 | ..... | ..... | 3 | ..... | ..... |
| Pekin | N. 39 57 | E.116 28 | 7.54 p.m. | 123? | 38? | 29.86 | 758.3 | 30.00 | 761.9 | 67.8 | 19.9 | 80.2 | ..... | 1 | ..... | ..... | ..... | 1 | ..... | 1 | 27 | ..... | ..... | 5 | 2.93 | 74.5 |
| Petro-Alexandrovsk | N. 41 28 | E. 61 05 | 4.12 p.m. | 328 | 100 | 29.04 | 752.9 | 29.98 | 761.6 | 74.1 | 23.4 | 27.3 | 2 | 5 | 6 | ..... | 2 | 2 | ... | 8 | 5 | ..... | ..... | 2 | ..... | ..... |
| Petrozavodsk | N. 61 47 | E. 34 23 | 2.26 p m. | 180? | 55? | 29.80 | 757 0 | 30.00 | 762 0 | 52.9 | 11.6 | 71.3 | 2 | 10 | 2 | 5 | 1 | 7 | ..... | 3 | ..... | ..... | ..... | 6 | 2.10 | 53.4 |
| Pinsk | N. 52 07 | E. 26 06 | 1.52 p.m. | 459? | 140? | 29.63 | 752 7 | 30.12 | 765.1 | 04.9 | 18.3 | 56.3 | 5 | 6 | 2 | ..... | 4 | 4 | 5 | 3 | 1 | ..... | ..... | 6 | 0.62 | 15.8 |
| Poti | N. 42 09 | E. 41 37 | 2.54 p.m. | 406? | 142? | 29.98 | 761.4 | 30.01 | 762 2 | 70.7 | 21.5 | 81.7 | 1 | 8 | 7 | 6 | ..... | ..... | ..... | 4 | ..... | 4 | ..... | 6 | 5.72 | 145.2 |
| St. Petersburg | N. 59 56 | E. 30 16 | 2.09 p.m. | 20 | 6 | 30.01 | 763.0 | 30.06 | 763.6 | 57.0 | 13.9 | 61.2 | 3 | 9 | 5 | 4 | 2 | 5 | ..... | 2 | ..... | ..... | ..... | 6 | 1.03 | 26.2 |
| Samarkand | N. 39 39 | E. 66 57 | 4.36 p.m. | 2379? | 725? | 27 51 | 698.7 | 29.89 | 759.2 | 71.1 | 21.7 | 50.7 | ..... | 1 | ..... | ..... | ..... | 4 | 3 | 1 | 21 | ..... | ..... | 1 | ..... | ..... |
| Semipalatinsk | N. 50 24 | E. 80 13 | 5.29 p.m. | 607? | 185? | 29.25 | 743.0 | 29.89 | 759 3 | 60.3 | 15.7 | 41.9 | 2 | 3 | 6 | 1 | 1 | 1 | 1 | ..... | 15 | ..... | ..... | 6 | 0.37 | 9.4 |
| Sevastopol | N. 44 37 | E. 33 31 | 2.22 p.m. | 138? | 42? | 29.82 | 757.4 | 30.03 | 762.7 | 68.0 | 20.0 | 59.4 | 9 | 11 | 2 | 3 | ..... | 1 | 1 | 3 | ..... | ..... | ..... | 5 | 2.07 | 52.6 |
| Station Bykhov | N. 53 31 | E. 30 16 | 2.09 p.m. | 512 | 156 | 29.56 | 750.7 | 30.10 | 764.5 | 62.4 | 16.9 | 51.1 | 4 | 4 | 3 | ..... | 5 | 9 | 5 | ..... | ..... | ..... | ..... | 6 | 1.12 | 28.4 |
| Tashkend | N. 41 20 | E. 69 18 | 4.45 p.m. | 1607? | 490? | 28.29 | 718.5 | 29.88 | 758.9 | 77.4 | 25.2 | 36.8 | 1 | 4 | 1 | ..... | ..... | ..... | ..... | 24 | ..... | ..... | ..... | 1 | ..... | ..... |
| Tiflis | N. 41 43 | E. 44 47 | 3.07 p.m. | 1343 | 409 | 28.60 | 726.3 | 29.97 | 761.2 | 71.2 | 21.8 | 40.0 | 2 | 12 | 1 | 1 | 2 | 7 | 4 | ..... | 1 | ..... | ..... | 3 | 0.09 | 2.4 |
| Vernoe | N. 43 16 | E. 76 53 | 5.10 p.m. | 2401? | 732? | 27.36 | 694.8 | 29.78 | 756.4 | 65.1 | 18.4 | 51.7 | 1 | 1 | 1 | ..... | 1 | ..... | 5 | 2 | 19 | ..... | ..... | 3 | ..... | ..... |
| Viatka.g | N. 58 36 | E. 49 41 | 3.27 p.m. | 581? | 177? | 29.28 | 743.6 | 30.91 | 759.7 | 40.9 | 8.3 | 78.7 | 8 | 3 | 3 | 2 | 2 | 1 | ..... | 1 | 3 | ..... | ..... | 6 | 1.45 | 36.8 |
| Warsaw | N. 52 13 | E. 21 02 | 1.32 p.m. | 392 | 119 | 29.70 | 754.4 | 30.12 | 764.9 | 66.6 | 19.2 | 53.3 | 5 | 4 | 5 | 1 | ..... | 9 | ..... | 4 | 2 | ..... | ..... | 5 | 0.76 | 19.3 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for September, 1884. | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| RUSSIAN—Con. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | 0-10 | | |
| Yeniseisk | N. 58 27 | E. 92 06 | 6.16 p.m. | 262? | 80? | 29.67 | 753.6 | 29.95 | 760 8 | 48.7 | 9.3 | 72.1 | 1 | 6 | .... | 7 | 6 | 6 | 4 | ..... | ..... | ..... | ..... | 6 | 1.56 | 39.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Petrowsky Ac'y | N. 55 50 | E. 37 38 | 2.39 p.m. | 508 | 155 | 29.45 | 748 0 | 29.97 | 761 2 | 54.3 | 12.4 | 69.0 | 8 | 6 | 5 | 2 | 3 | 2 | 2 | 1 | 1 | ..... | ..... | 6 | 0.30 | 7.6 |
| SPANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barcelona | N. 41 23 | E. 2 15 | 0.16 p.m. | 138 | 42 | 29.91 | 759 6 | 30.08 | 763.9 | 71.6 | 22.0 | 74 | 4 | ..... | 3 | 2 | 4 | 5 | 7 | 5 | ..... | ..... | ..... | 6 | 2.94 | 74.6 |
| Bilbao | N. 43 15 | W. 2 59 | 11.56 a.m. | 52 | 16 | 30.03 | 762.8 | 30.09 | 764.3 | 72.0 | 22.2 | 60 | 1 | 11 | 1 | 1 | ..... | 8 | 1 | 1 | 6 | 1328 | 2138 | 6 | 2.10 | 50.7 |
| Burgos | N. 42 20 | W. 3 46 | 11.53 a.m. | 2821 | 860 | 27.16 | 689.9 | 30.08 | 764.0 | 64.6 | 18.1 | 70 | ... | .. | 5 | 6 | 7 | 1 | 3 | 8 | ..... | 4725 | 7609 | 5 | 2.74 | 69.6 |
| Madrid | N. 40 25 | W. 3 42 | 11.53 a.m. | 2152 | 656 | 27.88 | 708.2 | 30.06 | 763.5 | 71.6 | 22.0 | 55 | 2 | 2 | 1 | 12 | 2 | 2 | 6 | 3 | ..... | 6518 | 10490 | 6 | 3.56 | 90.3 |
| Murcia | N. 37 59 | W. 1 10 | 0.03 p.m. | 141 | 43 | 29.92 | 759 9 | 30.04 | 763.0 | 72.3 | 22.4 | 68 | ..... | 3 | 1 | 2 | 4 | 10 | 2 | 8 | ... | 1166 | 1876 | 7 | 6.12 | 155.4 |
| Santiago | N. 42 53 | W. 8 28 | 11.34 a.m. | 863 | 263 | 29.13 | 740.0 | 30.01 | 762.2 | 68.9 | 20.5 | 68 | 3 | 2 | 1 | 7 | 2 | 1 | 4 | 7 | 3 | 4848 | 7801 | 6 | 7.08 | 179.8 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Havana | N. 23 08 | W.82 28 | 7.39 a.m. | 62 | 19 | 29.95 | 760.6 | 30.01 | 762.2 | 77.0 | 25.0 | 85.6 | | ..... | ... | ..... | 4 | 8 | 15 | 3 | ... | ..... | ..... | 4 | 5.81 | 147.6 |
| Manilla | N. 14 35 | E.120 56 | 8.12 p.m. | 54 | 16 | 29.80 | 756.8 | 29.85 | 758.3 | 80.2 | 26.8 | 83.2 | 1 | ... | 10 | 10 | 3 | ..... | 4 | 2 | ..... | 7832 | 12604 | 7 | 7.56 | 192.2 |
| San Fernando | N. 36 28 | W. 6 13 | 11.43 a.m. | 95 | 29 | 30.00 | 762.0 | 30.10 | 764.5 | 75.2 | 24.0 | 66.0 | 1 | 4 | 14 | 1 | 3 | 1 | 4 | ..... | 2 | ..... | ..... | 7 | 7.56 | 192.2 |
| San Juan de Porto Rico | N. 18 30 | W.66 10 | 7.44 a.m. | 82 | 25 | 29.95 | 760.6 | 30.04 | 762.9 | 79.2 | 26.2 | 90 | ..... | ..... | .... | 1 | 2 | 5 | 4 | 1 | 17 | ..... | ..... | 8 | 5.98 | 152.0 |
| SWEDISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Haparanda | N. 65 47 | E. 24 03 | 1.44 p.m. | 29 | 9 | 29.86 | 758.5 | 29.90 | 759.5 | 53.2 | 11.8 | 77 | 2 | 4 | 1 | 6 | 14 | ..... | ..... | ..... | 3 | ..... | ..... | 7 | 1.26 | 32.1 |
| Umea | N. 63 50 | E. 20 17 | 1.29 p.m. | 39 | 12 | 29.87 | 758.8 | 29.93 | 760.1 | 57.0 | 13.9 | 72 | 1 | 9 | ..... | 15 | 4 | ..... | ... | 1 | ..... | ..... | ..... | 8 | 1.18 | 29.1 |
| Hernosand | N. 62 32 | E. 17 57 | 1.20 p.m. | 46 | 14 | 29.89 | 759.3 | 29.95 | 760.6 | 59.0 | 15.0 | 69 | 3 | 6 | 2 | 6 | 9 | 2 | 1 | ..... | 1 | ..... | ..... | 6 | 4.11 | 104.3 |
| Stockholm | N. 59 20 | E. 18 04 | 1.20 p.m. | 144 | 44 | 29.85 | 758.3 | 30.03 | 762.8 | 62.6 | 17.0 | 64 | ..... | 2 | 6 | 7 | 6 | 3 | 3 | ..... | 3 | ..... | ..... | 5 | 0.65 | 16.6 |
| Wisby | N. 57 39 | E. 18 19 | 1.21 p.m. | 52 | 16 | 29.98 | 761.6 | 30.04 | 763.1 | 62.8 | 17.1 | 74 | 5 | 2 | 9 | 5 | 3 | 3 | 2 | 1 | ..... | ..... | ..... | 6 | 0.33 | 8.4 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upsala | N 59 51 | E. 17 37 | 1.19 p.m. | 79 | 24 | 29.91 | 759.7 | 30.00 | 761.9 | 61.9 | 16.6 | 69.1 | 1 | 6 | 3 | 7 | 6 | 5 | 2 | ..... | ..... | ..... | ..... | 6 | 1.23 | 31.3 |
| SWISS. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Geneva | N. 46 12 | E 6 08 | 0.33 p m. | 1338 | 408 | 28.70 | 729.0 | 30.10 | 764.4 | 65.8 | 18.8 | 62.7 | 17 | ..... | 3 | ..... | 7 | ..... | 1 | 2 | ..... | ..... | ..... | 4 | 2.32 | 59.0 |
| TURKISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Constantinople | N 41 00 | E. 28 59 | 2.04 p.m. | 230 | 70 | ..... | ..... | 30.06 | 763.4 | 69.4 | 20.8 | 59 | 5 | 4 | ..... | 1 | 3 | ..... | ..... | 17 | ... | ..... | ..... | 6 | 3.82 | 97.1 |
| Valona | N. 40 27 | E. 19 27 | 1.26 p.m. | 105 | 32 | ..... | ..... | 30.22? | 767.7? | 74.5 | 23.6 | ..... | ..... | 12 | 8 | 9 | ..... | ... | 1 | ..... | ..... | ..... | ..... | 2 | 0.91 | 23.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beirut | N. 33 54 | E. 35 28 | 2.30 p.m. | 111 | 34 | ..... | ..... | 29.89 | 759.2 | 81.5 | 27.5 | 57.7 | 9 | 1 | 2 | 18 | ..... | ..... | ... | ..... | ... | ..... | ..... | 2 | 1.02 | 25.9 |
| UNITED STATES. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *New Eng'd states* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastport | N. 44 54 | W. 66 59 | 7.40 a.m. | 61 | 18 | 29.97 | 761.2 | 30.04 | 763.0 | 54.4 | 12.4 | 82.1 | 1 | 3 | 4 | 6 | 5 | ..... | 2 | 3 | 6 | 4239 | 6822 | 5 | 1.89 | 48.0 |
| Portland | N. 43 39 | W. 70 15 | 7.27 a.m. | 45 | 14 | 30.03 | 762.7 | 30.08 | 764.0 | 59.8 | 15.4 | 78.8 | 4 | 4 | 10 | 6 | 3 | ..... | 3 | ..... | ..... | 5087 | 8187 | 4 | 0.56 | 14.2 |
| Mt. Washington | N. 44 16 | W. 71 18 | 7.23 a.m. | 6279 | 1914 | 23.88 | 606.5 | 30.03 | 762.7 | 39.6 | 4.2 | 97.5 | ... | 16 | 9 | 3 | 1 | ..... | ..... | ..... | 1 | 29335 | 47209 | 1 | 7.58 | 192.5 |
| Boston | N. 42 21 | W. 71 04 | 7.24 a.m. | 142 | 43 | 29.95 | 760.7 | 30.10 | 764.5 | 61.3 | 16.3 | 76.4 | 2 | 6 | 7 | 8 | 1 | 2 | 1 | 2 | 1 | 6101 | 9818 | 3 | 0.31 | 7.9 |
| Block Id | N. 41 10 | W. 71 36 | 7.22 a.m. | 27 | 8 | 30.08 | 764.0 | 30.12 | 765.0 | 63.4 | 17.4 | 85.4 | 9 | 2 | 3 | 10 | 2 | 2 | ..... | 2 | ..... | 8668 | 13950 | 3 | 0.62 | 15.7 |
| New London | N. 41 21 | W. 72 05 | 7.20 a.m. | 47 | 14 | 30.08 | 764.0 | 30.13 | 765.3 | 64.2 | 17.9 | 82.2 | 9 | 6 | 1 | 9 | ..... | ..... | ..... | 1 | 4 | 3854 | 6197 | 2 | 1.32 | 33.5 |
| New Haven | N. 41 18 | W. 72 56 | 7.16 a.m. | 107 | 32 | 30.01 | 762.2 | 30.12 | 765.0 | 61.6 | 16.4 | 83.5 | 8 | 4 | 2 | 8 | 2 | ..... | ..... | 2 | 4 | 4047 | 6513 | 3 | 1.41 | 35.8 |
| *Mid. Atlan. states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Albany | N. 42 39 | W. 73 45 | 7.13 a.m. | 75 | 23 | 30.04 | 763.0 | 30.12 | 765.0 | 62.8 | 17.1 | 75.7 | 4 | 3 | 3 | 1 | 12 | ..... | 2 | 2 | 3 | 3759 | 6513 | 4 | 1.80 | 45.7 |
| New York City | N. 40 43 | W. 74 00 | 7.12 a.m. | 164 | 50 | 29.97 | 761.2 | 30.14 | 765.5 | 64.6 | 18.1 | 81.3 | 5 | 4 | 58 | 7 | 2 | 1 | 1 | 2 | ..... | 6203 | 9983 | 2 | 0.15 | 3.8 |
| Philadelphia | N. 39 57 | W. 75 09 | 7.07 a.m. | 117 | 36 | 30.03 | 762.7 | 30.15 | 765.8 | 64.6 | 18.1 | 80.9 | 0 | 1 | 2 | 2 | 11 | ..... | ..... | 3 | 2 | 5769 | 9285 | 3 | 0.20 | 5.1 |
| Sandy Hook | N. 40 28 | W. 74 00 | 7.12 a.m. | 28 | 8 | 30.11 | 764.8 | 30.14 | 765 5 | 66.0 | 18.9 | 79.8 | 4 | 4 | 5 | 9 | 5 | ..... | 2 | 1 | ..... | 9740 | 15675 | 4 | 0.03 | 0.8 |
| Atlantic City | N. 39 22 | W. 74 25 | 7.10 a.m. | 13 | 4 | 30.11 | 764.8 | 30.12 | 765.0 | 66.8 | 19.3 | 83.0 | 3 | 3 | 2 | 11 | 7 | ... | 1 | 3 | ..... | 5732 | 9225 | 2 | 0.34 | 8.6 |
| Barnegat City | N. 39 46 | W. 74 06 | 7.12 a.m. | 22 | 7 | 30.11 | 764.8 | 30.13 | 765.3 | 67.8 | 19.9 | 84.1 | 5 | 3 | 11 | 5 | 1 | ..... | 3 | 2 | ..... | 8978 | 14449 | 4 | 1.05 | 26.7 |
| Cape May | N. 38 56 | W. 74 58 | 7.08 a.m. | 27 | 8 | 30.11 | 764.8 | 30.14 | 765.5 | 67.9 | 19.9 | 83.3 | 4 | 1 | 1 | 12 | 6 | 1 | 2 | 3 | ..... | 9218 | 14835 | 2 | 0.31 | 7.9 |
| Del. Breakwater | N. 38 48 | W. 75 10 | 7.07 a.m. | 20 | 6 | 30.12 | 765.0 | 30.14 | 765.5 | 67.3 | 19.6 | 86.0 | ..... | 3 | 3 | 15 | 1 | 1 | 1 | 6 | ..... | 10697 | 17215 | 2 | 0.99 | 25.1 |
| Baltimore | N. 39 18 | W. 76 37 | 7.02 a.m. | 45 | 14 | 30.10 | 764.5 | 30.16 | 766.1 | 65.8 | 18.8 | 72.5 | 7 | 2 | 3 | 7 | 6 | 2 | 1 | 2 | ..... | 3576 | 5755 | 3 | 0.09 | 2.3 |
| Washington City | N. 38 54 | W. 77 02 | 7.00 a.m. | 106 | 32 | 30.05 | 763.3 | 30.16 | 766.1 | 64.6 | 18.1 | 80.5 | 4 | 4 | ..... | 8 | 7 | ..... | ..... | 1 | 6 | 3486 | 5610 | 3 | 0.14 | 3.6 |
| Chincoteague | N. 37 55 | W. 75 23 | 7.06 a.m. | 8 | 2 | 30.14 | 765.5 | 30.15 | 765.8 | 69.2 | 20.7 | 87.0 | 6 | 2 | 2 | 2 | 11 | 3 | ..... | 3 | 1 | 5832 | 9386 | 2 | 0.33 | 8.4 |
| Cape Henry | N. 36 56 | W. 76 00 | 7.04 a.m. | 16 | 5 | 30.13 | 765.3 | 30.15 | 765.8 | 69.8 | 21.0 | 84.5 | 2 | 1 | 3 | 7 | 9 | ..... | ..... | 7 | 1 | 8407 | 13530 | 3 | 0.42 | 10.7 |
| Lynchburg | N. 37 25 | W. 79 09 | 6.52 a.m. | 652 | 199 | 29.48 | 748.8 | 30.16 | 766.1 | 64.8 | 18.2 | 76.9 | ... | 2 | 2 | 1 | 2 | ..... | ..... | 6 | 17 | 1860 | 2993 | 4 | 1.24 | 31.5 |
| Norfolk | N. 36 51 | W. 76 17 | 7.03 a.m. | 30 | 9 | 30.11 | 764 8 | 30.14 | 765 5 | 69.4 | 20.8 | 84.0 | 1 | 1 | ..... | 7 | 7 | 1 | 1 | 6 | 6 | 4716 | 7590 | 3 | 0.17 | 4.3 |
| *S. Atlantic states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kittyhawk | N. 36 00 | W. 75 42 | 7.05 a.m. | 22 | 7 | 30.14 | 765 5 | 30.16 | 766.1 | 72.6 | 22.6 | 85.0 | 1 | ..... | 5 | 3 | 7 | 1 | 4 | 8 | 1 | 9372 | 15082 | 4 | 0.15 | 3.8 |
| Hatteras | N. 35 15 | W. 75 40 | 7.05 a.m. | 12 | 4 | 30.11 | 764.8 | 30.12 | 765.0 | 73.7 | 23.2 | 83.1 | 1 | ..... | 3 | 2 | 1 | 5 | 5 | 11 | 2 | 5972 | 9611 | 5 | 1.01 | 25.7 |
| Fort Macon | N. 34 42 | W. 76 40 | 7.01 a.m. | 11 | 3 | 30.12 | 765.0 | 30.14 | 765 5 | 73.2 | 22.9 | 85.7 | 7 | 3 | 2 | 1 | 2 | 5 | 4 | 6 | ..... | 9936 | 15990 | 4 | 5.56 | 141.2 |
| Smithville | N. 33 55 | W. 78 01 | 6.56 a.m. | 34 | 10 | 30.09 | 764.3 | 30.13 | 765.3 | 72.4 | 22.4 | 89.3 | 3 | 2 | .. | 2 | 1 | 5 | 4 | 11 | ..... | 7278 | 11713 | 3 | 3.11 | 79.0 |
| Wilmington | N. 34 14 | W. 77 57 | 6.56 a.m. | 52 | 16 | 30.08 | 764.0 | 30.13 | 765.3 | 70.6 | 21.4 | 87.0 | 1 | 1 | 1 | 1 | 2 | 1 | 4 | 12 | 7 | 3528 | 5678 | 4 | 9.34 | 237.2 |
| Charlotte | N. 35 13 | W. 80 51 | 6.44 a.m | 808 | 246 | 29.32 | 744.7 | 30.16 | 766.1 | 66.1 | 18.9 | 85.0 | 4 | ..... | ... | 7 | 3 | 4 | 2 | 9 | 1 | 3345 | 5383 | 5 | 3.57 | 90.7 |
| Charleston | N. 32 47 | W. 79 56 | 6.48 a.m. | 52 | 16 | 30.04 | 763.0 | 30.08 | 764.0 | 73.2 | 22.9 | 91.5 | 4 | 2 | 2 | 1 | 1 | ..... | 1 | 15 | 4 | 6003 | 9661 | 3 | 11.03 | 280.2 |
| Augusta | N. 33 28 | W. 81 54 | 6.40 a.m. | 183 | 56 | 29.97 | 761.2 | 30.16 | 766.1 | 70.1 | 21.2 | 88.1 | 7 | 1 | 1 | 1 | 2 | 2 | 2 | 6 | 8 | 2861 | 4604 | 4 | 4.24 | 107.7 |
| Savannah | N. 32 05 | W. 81 05 | 6.44 a.m. | 87 | 26 | 30.01 | 762.2 | 30.10 | 764.5 | 72.2 | 22.3 | 88.1 | 12 | 4 | 4 | 1 | 1 | ..... | 2 | 5 | 1 | 4832 | 7776 | 3 | 4.55 | 115 6 |
| Jacksonville | N. 30 20 | W. 81 39 | 6.42 a.m. | 43 | 13 | 30.04 | 763.0 | 30.08 | 764.0 | 73.9 | 23.3 | 93.4 | 3 | 1 | 2 | 2 | .... | 1 | 5 | 10 | 6 | 4133 | 6651 | 4 | 5.68 | 144.3 |
| *Florida penin'la.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cedar Keys | N. 29 08 | W. 83 02 | 6.36 a.m. | 22 | 7 | 30.04 | 763.0 | 30.06 | 763.5 | 76.4 | 24.7 | 83.9 | 9 | 1 | 2 | ..... | ..... | 5 | 6 | 7 | ..... | 6281 | 10108 | 2 | 3.63 | 92.2 |
| Key West | N. 24 34 | W. 81 49 | 6.41 a.m. | 20 | 6 | 30.00 | 762.0 | 30.02 | 762.5 | 80.6 | 27.0 | 82.0 | .... | 2 | 1 | 1 | 2 | 6 | 7 | 10 | 1 | 6337 | 10198 | 6 | 7.08 | 179.8 |
| Sanford | N. 28 48 | W. 81 23 | 6.42 a.m. | 35 | 11 | 30.00 | 764.0 | 30.04 | 763.0 | 76.4 | 24.7 | 90.4 | 5 | 2 | 2 | 5 | 1 | ..... | 1 | 14 | ..... | 4307 | 6931 | 5 | 3.83 | 97.3 |
| *East Gulf states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atlanta | N. 33 45 | W. 84 23 | 6.31 a.m. | 1129 | 344 | 28.59 | 736.3 | 30.16 | 766.1 | 67.3 | 19.6 | 78.3 | 2 | 2 | 1 | ..... | 4 | 8 | 7 | 6 | ..... | 5672 | 9128 | 2 | 0.08 | 2.0 |
| Pensacola | N. 30 25 | W. 87 13 | 6.19 a.m. | 30 | 9 | 30.03 | 762.7 | 30.06 | 763.5 | 74.9 | 23.8 | 87.0 | 2 | ..... | 1 | ... | 1 | ..... | 12 | 11 | 3 | 3964 | 6379 | 3 | 4.83 | 122.7 |
| Mobile | N. 30 41 | W. 88 02 | 6.16 a.m. | 35 | 11 | 30.04 | 763.0 | 30.08 | 764.0 | 73.0 | 22.8 | 89.2 | 6 | 8 | ..... | ..... | ..... | 1 | 7 | 7 | 1 | 4498 | 7239 | 2 | 1.78 | 45.2 |
| Montgomery | N. 32 23 | W. 86 18 | 6.23 a.m. | 219 | 66 | 29.88 | 758.9 | 30.10 | 764.5 | 70.9 | 21 6 | 84.3 | 1 | 1 | 1 | 2 | 5 | 3 | 13 | 2 | 2 | 3130 | 5037 | 2 | 0.50 | 14.7 |
| Vicksburg | N. 32 22 | W. 90 53 | 6.04 a.m. | 244 | 74 | 29.83 | 757.7 | 30.08 | 764.0 | 71.2 | 21.8 | 86.6 | 3 | 1 | ..... | ..... | ..... | 11 | 11 | 2 | 2 | 3467 | 5580 | 2 | 5.12 | 130.1 |
| New Orleans | N. 29 58 | W. 90 04 | 6.08 a.m. | 52 | 16 | 29.98 | 761.5 | 30.03 | 762.7 | 77.5 | 25.3 | 84.4 | 3 | 1 | 2 | ..... | 1 | 4 | 15 | 3 | 1 | 4576 | 7365 | 3 | 3.12 | 79.2 |
| *West Gulf states* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shreveport | N. 32 30 | W. 93 40 | 5.53 a.m. | 227 | 69 | 29.81 | 757.2 | 30.05 | 763.3 | 72.7 | 22.6 | 86.3 | 1 | ..... | ..... | 1 | 10 | 10 | 3 | 3 | 2 | 3296 | 5305 | 4 | 2.10 | 53.3 |
| Fort Smith | N. 35 22 | W. 94 24 | 5.50 a.m. | 451 | 137 | 29.55 | 750.6 | 30.02 | 762.5 | 69.2 | 20.7 | 88.2 | 1 | ..... | ..... | ..... | 2 | ..... | 17 | 2 | 8 | 3078 | 4954 | 4 | 5.03 | 127.8 |
| Little Rock | N. 34 45 | W. 92 06 | 6.00 a.m. | 298 | 91 | 29.74 | 755.4 | 30.05 | 763.3 | 70.1 | 21.2 | 91.3 | 1 | 1 | ..... | ..... | 2 | 2 | 1 | 1 | 22 | 1678 | 2701 | 4 | 5.00 | 127.0 |
| Galveston | N. 29 18 | W. 94 47 | 5.49 a.m. | 40 | 12 | 29.96 | 761.0 | 30.00 | 762.0 | 80.9 | 27.2 | 80.1 | 2 | 2 | ..... | 2 | 10 | 11 | 2 | 1 | ..... | 6419 | 10330 | 4 | 7.04 | 178.8 |
| Indianola | N. 28 32 | W. 96 31 | 5.42 a.m. | 26 | 8 | 29.95 | 760 7 | 29.98 | 761.5 | 78.0 | 25.6 | 90.4 | 3 | ..... | 1 | ..... | 8 | 7 | 3 | 3 | 5 | 6290 | 10123 | 4 | 9.60 | 243.8 |
| Palestine | N. 31 45 | W. 95 40 | 5.45 a.m. | 533 | 162 | 29.48 | 748 8 | 30.03 | 762.7 | 72.2 | 22.3 | 92.4 | 1 | ..... | ..... | 1 | 14 | 5 | 7 | 2 | ..... | 5736 | 9231 | 3 | 4.00 | 101.6 |
| *Rio Grande valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brownsville | N. 25 53 | W. 97 26 | 5.38 a.m | 57 | 17 | 29.88 | 758.9 | 29.94 | 760.5 | 75.3 | 24.1 | 95.6 | 3 | ..... | ..... | ..... | 8 | 9 | 2 | 5 | 3 | 4822 | 7760 | 3 | 8.96 | 227.6 |
| Rio Grande City | N. 26 22 | W. 98 45 | 5.33 a.m. | 230 | 70 | 29.75 | 755.6 | 29.99 | 761 7 | 75.4 | 24.1 | 90.8 | ..... | ..... | ..... | ..... | 1 | 16 | 9 | ..... | 4 | 4580 | 7371 | 1 | 7.30 | 185.4 |
| *Ohio val. & Tenn.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chattanooga | N. 35 04 | W. 85 15 | 6.27 a.m. | 783 | 239 | 29.32 | 744.7 | 30.13 | 765.3 | 65.5 | 18.6 | 93.4 | 3 | 4 | 3 | 2 | 2 | 3 | 4 | 4 | 5 | 2675 | 4305 | 4 | 2.00 | 50.8 |
| Knoxville | N. 35 56 | W. 83 58 | 6.32 a.m | 980 | 299 | 29.14 | 740.1 | 30.16 | 766.1 | 64.2 | 17.9 | 88.7 | 3 | ..... | 1 | ..... | ..... | 2 | 1 | 18 | 5 | 2856 | 4596 | 4 | 0.66 | 16.8 |
| Memphis | N. 35 09 | W. 90 03 | 6.08 a.m. | 321 | 98 | 29.74 | 755.4 | 30.08 | 764.0 | 70.4 | 21.3 | 84.0 | 1 | 6 | ... | 1 | 3 | 11 | 1 | 6 | 1 | 3345 | 5383 | 5 | 4.29 | 109.0 |
| Nashville | N. 36 10 | W. 86 47 | 6.21 a.m. | 549 | 167 | 29.53 | 750.0 | 30.10 | 764.5 | 67.3 | 19.6 | 83.8 | 1 | 4 | 2 | 2 | 3 | 5 | 9 | 4 | ..... | 3182 | 5121 | 5 | 2.36 | 59.9 |
| Louisville | N. 38 15 | W. 85 45 | 6.25 a.m. | 530 | 162 | 29.53 | 750.0 | 30.10 | 764.5 | 67.5 | 19.7 | 82.4 | 5 | 2 | 2 | ..... | 7 | 6 | 1 | 2 | 5 | 4152 | 6682 | 5 | 5.90 | 149.9 |
| Indianapolis | N. 39 46 | W. 86 10 | 6.23 a.m. | 753 | 229 | 29.28 | 743.7 | 30.07 | 763.8 | 65.4 | 18.6 | 74.2 | 1 | 2 | ..... | 3 | 11 | 2 | 2 | 4 | 4 | 3664 | 5896 | 6 | 3.09 | 78.5 |
| Cincinnati | N. 39 06 | W. 84 30 | 6.30 a.m. | 620 | 189 | 29.46 | 748.3 | 30.11 | 764.8 | 67.4 | 19.7 | 75.8 | 1 | 2 | ..... | 7 | 6 | 6 | 4 | 4 | ..... | 3210 | 5166 | 5 | 3.87 | 98.3 |
| Columbus | N. 39 58 | W. 83 00 | 6.36 a.m. | 805 | 245 | 29.26 | 743.2 | 30.10 | 764 5 | 63.2 | 17.3 | 81.2 | 2 | 3 | 2 | 3 | 12 | ..... | 3 | 4 | 1 | 3679 | 5921 | 4 | 3.46 | 87.9 |
| Pittsburg | N. 40 32 | W. 80 02 | 6.48 a.m. | 766 | 233 | 29.31 | 744.5 | 30.10 | 764.5 | 61.6 | 16.4 | 83.0 | 7 | 8 | ..... | 2 | 4 | 1 | 1 | 4 | 3 | 3587 | 5773 | 3 | 1.17 | 29.7 |
| *Lower lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Roche-ter | N. 43 08 | W. 77 42 | 6.57 a.m. | 621 | 189 | 29.42 | 747.3 | 30.07 | 763.8 | 60.0 | 15.6 | 77.9 | 1 | 2 | 4 | 18 | 3 | 1 | ..... | ..... | 1 | 7611 | 12248 | 6 | 1.90 | 48.3 |
| Buffalo | N. 42 53 | W. 78 53 | 6.52 a.m | 690 | 210 | 29.35 | 745.5 | 30.08 | 764.0 | 62.6 | 17.0 | 87.7 | 1 | 2 | 5 | 6 | 7 | 1 | 4 | 4 | ..... | 7051 | 11347 | 4 | 1.77 | 45.0 |
| Oswego | N. 43 29 | W. 76 35 | 7.02 a m. | 334 | 102 | 29.71 | 754.6 | 30.06 | 763.5 | 60.8 | 16.0 | 77.1 | 2 | 2 | 1 | 6 | 7 | 9 | 1 | 1 | 1 | 6610 | 10638 | 6 | 1.92 | 48.8 |
| Erie | N. 42 07 | W. 80 05 | 6.48 a.m. | 681 | 208 | 29.36 | 745.7 | 30.07 | 763 8 | 64.3 | 17.9 | 75.5 | 2 | 3 | ..... | 7 | 12 | 5 | ..... | 1 | ..... | 6175 | 9938 | 4 | 3.92 | 99.6 |
| Sandusky | N 41 25 | W. 82 40 | 6.37 a.m. | 639 | 195 | 29.41 | 747.0 | 30.08 | 764.0 | 64.6 | 18.1 | 74.7 | 1 | 1 | 3 | 17 | 4 | 1 | 1 | 2 | ..... | 8167 | 13143 | 5 | 3.17 | 80.5 |
| Cleveland | N. 41 30 | W. 81 42 | 6.41 a.m. | 690 | 210 | 29.36 | 745.7 | 30.08 | 764.0 | 62.9 | 17.2 | 75.5 | ..... | 3 | ..... | 6 | 6 | 13 | 1 | 1 | ..... | 6218 | 10007 | 4 | 3.76 | 95.5 |
| Toledo | N. 41 40 | W. 83 34 | 6.34 a.m. | 651 | 198 | 29.37 | 746.0 | 30.05 | 763 3 | 63.7 | 17.6 | 78.6 | 3 | 1 | 3 | 4 | 14 | 1 | 3 | ..... | 1 | 5731 | 9223 | 4 | 1.02 | 25.9 |
| Detroit | N. 42 20 | W. 83 03 | 6.36 a.m. | 661 | 201 | 29.37 | 746.0 | 30.06 | 763.5 | 63.5 | 17.5 | 74.6 | 1 | 4 | 3 | 5 | 13 | 1 | 1 | 2 | ..... | 5945 | 9567 | 3 | 2.70 | 68.6 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea | | Result of Simultaneous Observations for September, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| U. S.—Continued. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Upper lake region.* | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Alpena | N. 45 05 | W. 83 30 | 6.34 a.m. | 609 | 185 | 29.33 | 745.0 | 29.98 | 761.5 | 55.9 | 13.3 | 84 2 | 1 | 2 | 10 | 4 | 4 | 5 | 1 | 1 | 2 | 6291 | 10124 | 4 | 4.83 | 122.7 |
| Escanaba | N. 45 48 | W. 87 05 | 6.20 a.m. | 613 | 187 | 29.28 | 743.7 | 29.94 | 760.5 | 55.9 | 13.3 | 83.6 | 5 | 3 | 4 | 2 | 11 | 1 | 1 | 1 | 2 | 6256 | 10069 | 6 | 8.77 | 222.8 |
| Grand Haven | N. 43 05 | W. 86 18 | 6.23 a.m. | 620 | 189 | 29.36 | 745.7 | 30.03 | 762.7 | 61.3 | 16.6 | 81.6 | 5 | 1 | 2 | 1 | 11 | 4 | 3 | 3 | ..... | 7939 | 12762 | 5 | 4.15 | 105.4 |
| Mackinaw City | N. 45 05 | W. 84 39 | 6.30 a.m. | 605 | 184 | 29.32 | 744.7 | 29 97 | 761.2 | 57.8 | 14.3 | 81.3 | 1 | 2 | 3 | 6 | 7 | 4 | 0 | 1 | ... | 7016 | 11291 | 6 | 1.96 | 49.8 |
| Marquette | N. 45 47 | W. 87 24 | 6.18 a.m. | 673 | 205 | 29.21 | 741 9 | 29.93 | 760 2 | 56.4 | 13.6 | 75.1 | 2 | 3 | 7 | 12 | ..... | 2 | ..... | 1 | 3 | 6769 | 10894 | 5 | 4.91 | 124.7 |
| Port Huron | N. 46 34 | W. 82 26 | 6.38 a.m | 633 | 193 | 29.38 | 746 2 | 30.00 | 763.5 | 60.2 | 15.7 | 87.0 | 1 | 5 | 2 | 3 | 11 | 3 | 2 | 1 | 2 | 5823 | 9371 | 5 | 1.87 | 47.5 |
| Chicago | N. 43 00 | W. 82 26 | 6.38 a.m. | 661 | 201 | 29.33 | 745 0 | 30.02 | 762.5 | 64.2 | 17.9 | 77.4 | 2 | 2 | 4 | 7 | 6 | 2 | 2 | 5 | 2 | 5800 | 9334 | 4 | 2.29 | 58.2 |
| Milwaukee | N. 41 52 | W. 87 38 | 6.18 a.m. | 697 | 212 | 29.26 | 743.2 | 30.00 | 762.0 | 59.9 | 15.5 | 84.9 | 4 | 4 | 4 | 10 | 4 | 1 | 1 | 2 | ..... | 7336 | 11806 | 5 | 2.82 | 71.6 |
| Duluth | N. 43 02 | W. 87 54 | 6.16 a.m. | 687 | 209 | 29.17 | 740.9 | 29.91 | 759.7 | 53.7 | 12.1 | 86.4 | 2 | 4 | 7 | 8 | ..... | ..... | 2 | 5 | 2 | 6306 | 10149 | 6 | 4.70 | 119.4 |
| | N. 46 48 | W. 92 06 | 6.00 a.m. | 801 | 244 | | | | | | | | | | | | | | | | | | | | | |
| *Upper Miss. val.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saint Paul | N. 44 58 | W. 93 03 | 5.56 a.m. | | | 29.06 | 738.1 | 29.91 | 759.7 | 57.6 | 14.2 | 84.9 | 1 | 3 | 2 | 2 | 3 | 11 | 2 | ..... | 6 | 5894 | 9485 | 5 | 4.48 | 113.8 |
| La Crosse | N. 43 49 | W. 91 15 | 6.03 a.m. | 725 | 221 | 29.19 | 741.4 | 29.96 | 761.0 | 60.8 | 16.0 | 85.8 | 2 | 2 | 3 | 2 | 12 | 3 | 1 | 1 | 4 | 5599 | 9011 | 4 | 10.01 | 254.2 |
| Davenport | N. 41 30 | W. 90 38 | 6.06 a.m. | 615 | 187 | 29.35 | 745.5 | 30.00 | 762.0 | 63.4 | 17.4 | 81.3 | 2 | 3 | 1 | 7 | 8 | 3 | 3 | 2 | 1 | 6130 | 9865 | 4 | 4.79 | 121.7 |
| Des Moines | N. 41 35 | W. 93 37 | 5.54 a.m. | 849 | 259 | 29.09 | 738 9 | 29.98 | 761.5 | 61.0 | 16.1 | 84.5 | 5 | 1 | 1 | 7 | 11 | 2 | ..... | 1 | 2 | 4168 | 6708 | 5 | 5.46 | 138.7 |
| Dubuque | N. 42 30 | W. 90 44 | 6.05 a.m. | 665 | 203 | 29.30 | 744 2 | 30.00 | 762 0 | 61.1 | 16.2 | 80.9 | 1 | 1 | 4 | ..... | 15 | 3 | ..... | ..... | 1 | 3750 | 6035 | 4 | 4.07 | 103.4 |
| Keokuk | N. 40 22 | W. 91 26 | 6.02 a.m. | 618 | 188 | 29.36 | 745.7 | 30.01 | 762 2 | 64.2 | 17.9 | 82.9 | 4 | 2 | 2 | 1 | 6 | 8 | 1 | 1 | 2 | 6378 | 10264 | 4 | 4.25 | 108.0 |
| Cairo | N. 37 00 | W. 89 10 | 6.11 a.m. | 377 | 115 | 29.70 | 754 4 | 30.08 | 764.0 | 68.4 | 20.2 | 87.3 | 5 | 1 | ..... | 3 | 10 | 7 | 2 | 2 | 1 | 4363 | 7022 | 4 | 5.02 | 127.5 |
| Springfield | N. 39 48 | W. 89 39 | 6.10 a.m. | 644 | 196 | 29.39 | 740 5 | 30.03 | 763 5 | 64.2 | 17.9 | 81.2 | 3 | 3 | 1 | 4 | 13 | 2 | 2 | 2 | ..... | 5780 | 9302 | 4 | 6.85 | 174.2 |
| Saint Louis | N. 38 38 | W. 90 12 | 6.07 a.m. | 583 | 178 | 29.45 | 748.0 | 30.06 | 763.5 | 68.2 | 20.1 | 83.0 | 3 | 1 | 2 | 1 | 10 | 9 | 2 | 1 | 1 | 8174 | 13154 | 4 | 6.04 | 153.4 |
| *Missouri valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leavenworth | N. 39 19 | W. 94 57 | 5.48 a.m. | 842 | 256 | 29.07 | 738 4 | 29 95 | 760.7 | 64.4 | 18.0 | 81.0 | 4 | 2 | ..... | ..... | 13 | 6 | 1 | ..... | 4 | 5586 | 8990 | 4 | 5.38 | 136.6 |
| Omaha | N. 41 16 | W. 95 56 | 5.44 a.m. | 1113 | 339 | 28.79 | 731.3 | 29.90 | 761.0 | 62.0 | 16.7 | 84.4 | 3 | 6 | ..... | 1 | 10 | 7 | 1 | 2 | ..... | 6857 | 11035 | 4 | 4.91 | 124.7 |
| Fort Bennett | N. 44 43 | W. 100 39 | 5.26 a.m. | 1510 | 457 | 28.31 | 719.1 | 29.90 | 759.4 | 51.6 | 10.9 | 77.0 | 3 | 10 | 1 | 1 | ..... | 10 | ..... | 1 | 4 | 6877 | 11067 | 5 | 0.68 | 17.3 |
| Huron | N. 44 21 | W. 98 09 | 5.35 a.m. | 1305 | 398 | 28.51 | 724.1 | 29.89 | 759.2 | 51.2 | 10.7 | 80.2 | 7 | 1 | 2 | 1 | 4 | 11 | ..... | 3 | 1 | 7921 | 12748 | 5 | 1.26 | 32.0 |
| Yankton | N. 42 54 | W. 97 28 | 5.38 a.m. | 1228 | 374 | 28.61 | 726.7 | 29.96 | 759.4 | 56.8 | 13.8 | 82.3 | 4 | 3 | 2 | 4 | 6 | 3 | 2 | 2 | 4 | 6168 | 9926 | 4 | 0.28 | 7.1 |
| *Extreme N'thwest.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moorhead | N. 46 52 | W. 96 44 | 5.41 a.m. | 923 | 281 | 28.88 | 733.5 | 29.87 | 758.7 | 49.9 | 9.9 | 84.6 | 4 | 5 | 5 | 1 | 4 | 6 | 1 | 2 | 2 | 7906 | 12724 | 5 | 2.49 | 63.2 |
| Saint Vincent | N. 48 56 | W. 97 14 | 5.39 a.m. | 804 | 245 | 29.00 | 730.0 | 29.80 | 758.4 | 40.2 | 7.9 | 90.9 | 2 | 6 | 6 | 4 | 7 | 1 | 3 | 1 | ..... | 6662 | 10721 | 5 | 3.44 | 87.4 |
| Bismarck | N. 46 47 | W. 100 38 | 5.26 a.m. | 1694 | 516 | 28 07 | 713 0 | 29.87 | 758.7 | 48.9 | 9.4 | 87.1 | 4 | 6 | 3 | 1 | 1 | 1 | 6 | ..... | 6 | 6187 | 9957 | 5 | 2.31 | 59.4 |
| Fort Buford | N. 48 00 | W. 103 56 | 5.12 a.m. | 1930 | 588 | 27.85 | 707.4 | 29.87 | 758.7 | 44.2 | 6.8 | 84.2 | ..... | 3 | 8 | 3 | 4 | ..... | 3 | 7 | 2 | 7516 | 12093 | 7 | 0.53 | 13.5 |
| Fort Tottend | N. 47 57 | W. 98 57 | 5.32 a.m. | 1500 | 457 | 28.27 | 718.0 | ..... | ..... | 56.0 | 7.8 | 86.7 | 1 | 2 | 6 | 3 | 6 | 5 | 2 | 1 | ..... | 8445 | 13591 | 5 | 1.32 | 33.5 |
| *Northern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Assinaboine | N. 48 32 | W. 109 42 | 4.49 a.m. | 2720 | 829 | 27.08 | 687.8 | 29.94 | 760.5 | 43.8 | 6.6 | 70.9 | ..... | 8 | 3 | 7 | ..... | ..... | 6 | 1 | 5 | 6722 | 10818 | 5 | 2.69 | 68.3 |
| Fort Benton | N. 47 50 | W. 110 40 | 4.45 a.m. | 2681 | 817 | 27.17 | 690.1 | 30.00 | 762.0 | 43.3 | 6.3 | 76.6 | 1 | ..... | 1 | 13 | 2 | ..... | 2 | 1 | 6 | 5059 | 8142 | 5 | 1.44 | 36.6 |
| Fort Custer | N. 45 42 | W. 107 34 | 4.58 a.m. | 3040 | 926 | 26 78 | 680.2 | 29.90 | 759.4 | 45.1 | 7.3 | 81.0 | 4 | 3 | 4 | 3 | 2 | 5 | 2 | 3 | 4 | 4903 | 7408 | 6 | 1.42 | 36.1 |
| Fort Maginnis | N. 47 12 | W. 109 10 | 4.51 a.m. | 4340 | 1324 | 25.52 | 648.2 | 29.91 | 760.0 | 40.2 | 4.6 | 56.6 | 1 | 7 | 11 | 1 | ..... | ..... | 1 | 9 | ..... | 7422 | 11944 | 6 | 0.20 | 5.6 |
| Fort Shaw | N. 47 31 | W. 111 48 | 4.41 a.m. | 3550 | 1082 | 26.32 | 668.5 | 29.93 | 760.2 | 40.1 | 4.5 | 77.3 | 1 | 1 | 20 | ..... | 2 | ..... | 2 | 1 | 3 | 6322 | 10174 | 4 | 2.29 | 58.2 |
| Helena | N. 46 34 | W. 112 04 | 4.40 a.m. | 4044 | 1234 | 25 80 | 655.3 | 29.92 | 760.0 | 44.6 | 7.0 | 69.3 | 3 | 3 | 7 | 16 | ..... | ..... | ..... | 1 | 5 | 4543 | 7279 | 6 | 1.30 | 33 0 |
| Poplar Rivere | N. 48 08 | W 105 10 | 5.07 a.m. | 2030 | 619 | ..... | ..... | ..... | ..... | 41.1 | 5.1 | 87.0 | 2 | 2 | 14 | ... | 1 | 1 | 3 | 2 | ..... | 2532 | 4075 | 5 | 0.04 | 10.3 |
| Deadwood | N. 44 23 | W. 103 43 | 5.13 a.m. | 4600 | 1402 | 25.34 | 643 6 | 29.90 | 759.4 | 49.7 | 8.2 | 72.5 | ..... | 1 | 3 | 8 | 5 | 2 | 2 | 3 | 0 | 2532 | 4075 | 4 | 1.99 | 50.6 |
| Cheyenne | N. 41 08 | W. 104 48 | 5.09 a.m. | 6105 | 1861 | 24.02 | 610.1 | 29.90 | 759.4 | 46.0 | 7.8 | 57.8 | 2 | 21 | 3 | 3 | 1 | ..... | ..... | ..... | ..... | 8596 | 13334 | 3 | 1.25 | 31.8 |
| North Platte | N. 41 08 | W. 100 45 | 5.25 a.m. | 2841 | 866 | 27.01 | 686.0 | 29.89 | 759.2 | 55.5 | 13.1 | 80.0 | 3 | 2 | 4 | 2 | 2 | 6 | 5 | 2 | 4 | 8500 | 13770 | 4 | 0.08 | 2.0 |
| *Middle slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pike's Peak | N. 38 50 | W. 105 02 | 5.08 a.m. | 14134 | 4308 | 17.93 | 455.4 | 29.91 | 759.7 | 27.4 | —2.6 | 75.5 | 3 | 3 | 15 | 9 | ..... | ..... | ..... | ..... | ..... | 16517 | 26581 | 2 | 0.49 | 12.4 |
| Denver | N. 39 45 | W. 105 00 | 5.08 a.m. | 5294 | 1614 | 24.74 | 628.4 | 29.85 | 758 2 | 53.6 | 12.0 | 56.6 | 4 | 1 | 1 | 4 | 17 | ..... | ..... | 1 | 2 | 4544 | 7313 | 2 | 0.13 | 3.3 |
| W. Las Animas | N. 38 04 | W. 103 07 | 5.16 a.m. | 3905 | 1190 | 25.99 | 660.1 | 29.81 | 757.2 | 54.2 | 12.3 | 65.2 | 3 | 6 | 7 | 4 | 3 | 2 | 2 | 2 | 1 | 5978 | 9021 | 3 | 0.00 | 1.5 |
| Dodge City | N. 37 45 | W. 100 00 | 5.28 a.m. | 2517 | 767 | 27.36 | 694.9 | 29.91 | 759.7 | 61.4 | 16.3 | 79.0 | ..... | 6 | 1 | ..... | 3 | 17 | 1 | 2 | ..... | 11296 | 18179 | 3 | 0.23 | 5.8 |
| Fort Elliott | N. 35 30 | W. 100 21 | 5.27 a.m. | 2050 | 808 | 27 23 | 691.6 | 29.92 | 760.0 | 63.5 | 17.5 | 79.1 | 3 | ..... | ..... | 1 | 10 | 7 | ..... | 3 | 6 | 8144 | 13106 | 3 | 0.84 | 21.3 |
| *Southern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Sill | N. 34 40 | W. 98 23 | 5.34 a.m. | 1200 | 366 | 28.75 | 730.2 | 29.97 | 761.2 | 68.0 | 20.0 | 87.3 | 2 | ..... | ..... | ..... | 10 | 9 | ..... | 2 | 7 | 8206 | 13206 | 5 | 2.24 | 56.9 |
| Fort Concho | N. 31 25 | W. 100 24 | 5.26 a.m. | 1900 | 579 | 23.10 | 713.7 | 30.00 | 762.0 | 69.0 | 20.6 | 80.1 | 1 | ..... | 1 | 1 | 13 | 3 | 2 | 3 | 0 | 5875 | 9457 | 4 | 3.60 | 91.4 |
| Fort Stockton | N. 30 53 | W. 102 53 | 5.16 a.m. | 3010 | 917 | 26.98 | 685.3 | 29.94 | 760.5 | 66.4 | 19.1 | 86.3 | ..... | ..... | ..... | 3 | 18 | 3 | ..... | ..... | 6 | 5453 | 8776 | 4 | 5.84 | 148.3 |
| Fort Davis | N. 30 38 | W. 103 50 | 5.12 a.m. | 4928 | 1502 | 25 24 | 641.1 | 29.93 | 760.2 | 60.3 | 15.7 | 80.8 | 2 | ..... | ..... | 3 | 1 | 3 | 3 | 1 | 17 | 3362 | 5410 | 4 | 3.74 | 95.0 |
| *Southern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Thomas | N. 33 04 | W. 110 02 | 4.48 a.m. | 2710 | 826 | 27.23 | 691.6 | 29.87 | 758 7 | 59.2 | 15.1 | 69.0 | ..... | 1 | 4 | 5 | 10 | ..... | ..... | ..... | 10 | ..... | ..... | 4 | 0.91 | 23.1 |
| Fort Apache | N. 33 48 | W. 109 57 | 4.48 a.m. | 5050 | 1539 | 25.05 | 636 3 | 29.85 | 758.2 | 44.8 | 9.3 | 84.9 | 1 | 2 | ..... | 1 | 1 | 6 | 10 | 9 | ..... | 4202 | 6762 | 3 | 1.50 | 38.1 |
| Fort Grant | N. 32 39 | W. 109 57 | 4.48 a.m. | 4856 | 1480 | 25 23 | 640.8 | 29.83 | 757.7 | 62.9 | 17.2 | 54.0 | 2 | 2 | ..... | 1 | ..... | 2 | 7 | 14 | 2 | 4225 | 6799 | 2 | 0.98 | 24.9 |
| Prescott | N. 34 33 | W. 112 28 | 4.38 a.m. | 5389 | 1642 | 24.74 | 628.4 | 29.88 | 758.9 | 48.6 | 9.2 | 69.3 | 1 | 1 | ..... | 1 | 7 | 3 | 1 | 2 | 14 | 4774 | 7083 | 1 | 0.99 | 25.1 |
| Yuma | N. 32 45 | W. 114 36 | 4.30 a.m. | 141 | 43 | 29.05 | 753.1 | 29.79 | 756.7 | 69.7 | 20.9 | 67.6 | ..... | 8 | 1 | 2 | 2 | 4 | 5 | 4 | 4 | 2069 | 4295 | 1 | inap. | inap. |
| El Paso | N. 31 47 | W. 106 30 | 5.02 a.m. | 3764 | 1147 | 26.25 | 666 7 | 29.90 | 759.4 | 64.2 | 17.9 | 69.8 | ..... | 2 | 9 | ..... | ..... | ..... | 1 | 2 | 10 | 1556 | 2504 | 2 | 3.68 | 93.5 |
| *Middle plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salt Lake City | N. 40 46 | W. 111 54 | 4.40 a.m. | 4348 | 1325 | 25.60 | 650.2 | 29.85 | 758.2 | 52.0 | 11.1 | 52.7 | 2 | 3 | ..... | 1 | 2 | 5 | 2 | 1 | 14 | 3844 | 6186 | 4 | 1.91 | 48.5 |
| *Northern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boisé City | N. 43 37 | W. 116 08 | 4.24 a.m. | 2750 | 838 | 27.17 | 690.1 | 29.94 | 760.5 | 47.1 | 8.4 | 78.5 | 1 | 4 | 7 | 1 | 2 | 4 | 3 | 2 | 6 | 2712 | 4364 | 4 | 2.11 | 53.6 |
| Lewiston | N. 46 28 | W. 117 05 | 4.20 a.m. | 780 | 238 | 29.19 | 741.4 | 30.02 | 762.5 | 49.0 | 9.4 | 77.1 | ..... | 2 | ..... | 3 | ..... | ..... | 2 | 9 | 14 | 1706 | 2742 | 4 | 1.01 | 25.7 |
| Spokane Falls | N. 47 40 | W. 117 25 | 4.18 a.m. | 1910? | 582? | 27.94 | 709.7 | 29.93 | 761 5 | 43.6 | 6.4 | 70.6 | 2 | 1 | ..... | 11 | 2 | 1 | 2 | 1 | 10 | 3289 | 5293 | 5 | 2.43 | 61.7 |
| Dayton | N. 46 19 | W. 117 56 | 4.16 a.m. | 1667 | 508 | 28.24 | 717.3 | 29.99 | 761.7 | 40.3 | 7.9 | 78.4 | ..... | ..... | ..... | 16 | 1 | 6 | ..... | 5 | 2 | 4176 | 6721 | 4 | 1.40 | 35.6 |
| *N. Pac. coast reg'n* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Canby | N. 46 16 | W. 124 04 | 3.52 a.m. | 179 | 51 | 29.80 | 756.9 | 30.03 | 762 0 | 53.7 | 12.1 | 90.3 | 5 | 1 | 5 | ..... | 8 | 4 | 4 | 3 | ..... | 6767 | 1.890 | 4 | 6.28 | 159.5 |
| Olympia | N. 47 03 | W. 122 53 | 3.57 a.m. | 36 | 11 | 29.97 | 761.2 | 30.01 | 762 2 | 50.6 | 10.3 | 85.7 | ..... | ..... | ..... | 4 | 5 | 2 | ..... | ..... | 19 | 1641 | 2641 | 9 | 3.06 | 77.7 |
| Tatoosh Id | N. 48 23 | W. 124 44 | 3.49 a.m. | 86 | 26 | 29.77 | 758.7 | 29.96 | 761 0 | 50.9 | 10.5 | 92.7 | 1 | ..... | 4 | 3 | 4 | 2 | 15 | ..... | 1 | 6351 | 10221 | 8 | 6.15 | 156.2 |
| Portland | N. 45 32 | W. 122 43 | 3.57 a.m | 67 | 20 | 29.94 | 760.5 | 30.00 | 762.0 | 50.5 | 10.3 | 89.7 | 2 | 2 | 6 | 2 | 7 | 1 | ..... | 1 | 9 | 3101 | 5087 | 7 | 4.25 | 107.9 |
| *Mid. Pac. coast reg* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape Mendocino | N. 40 26 | W. 124 24 | 3.50 a.m. | 637 | 194 | 29.33 | 745.0 | 30.01 | 762 2 | 52.9 | 11.6 | 82.7 | 1 | 2 | ..... | 2 | 3 | ..... | ..... | ..... | 22 | 13119 | 21595 | 4 | 1.18 | 30.0 |
| Red Bluff | N. 40 10 | W. 122 15 | 3.59 a.m. | 332 | 101 | 29.59 | 751.6 | 29.91 | 760.5 | 57.4 | 14.1 | 63.7 | 22 | 1 | ..... | 1 | 1 | 4 | ..... | ..... | 1 | 4521 | 7270 | 1 | 0.39 | 9.1 |
| Sacramento | N. 38 35 | W. 121 30 | 4.02 a.m. | 64 | 19 | 29.86 | 758.4 | 29.93 | 760.2 | 56.5 | 13.6 | 77.1 | 20 | 6 | ... | ..... | 1 | ..... | 1 | ..... | 2 | 4847 | 7800 | 0 | 0.66 | 15.2 |
| San Francisco | N. 37 48 | W. 122 26 | 3.58 a.m. | 60 | 18 | 29.90 | 759.4 | 29.97 | 761.2 | 55.0 | 12.8 | 89.1 | 1 | 4 | 1 | 2 | 2 | 19 | ..... | 1 | ..... | 7200 | 11587 | 3 | 0.33 | 8.4 |
| *S. Pac. coast reg'n.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Los Angeles | N. 34 03 | W. 118 15 | 4.15 a.m. | 299 | 91 | 29.50 | 750 8 | 29.95 | 760.7 | 56.7 | 13.7 | 82.2 | 1 | 3 | 1 | 4 | 13 | 2 | 2 | ..... | ..... | 3583 | 5774 | 3 | inap. | inap. |
| San Diego | N. 32 43 | W. 117 10 | 4.19 a.m. | 67 | 20 | 29.84 | 757.9 | 29.91 | 759.7 | 60.2 | 15.7 | 84.6 | 1 | 1 | 4 | ..... | ..... | 2 | 1 | 1 | 14 | 4195 | 6751 | 4 | 0.07 | 1.8 |
| *Alaska stations.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ft Saint Michael | N. 63 48 | W. 162 00 | 1.20 a.m. | 30 | 9 | 29.76 | 755.9 | 29.79 | 756.7 | 39.8 | 4.3 | 92.7 | 3 | 4 | 3 | 2 | 4 | 6 | 3 | 3 | 2 | 10553 | 16983 | 7 | 5.04 | 128.0 |
| Sitka | N. 57 03 | W. 135 19 | 3.07 a.m. | 63 | 19 | 29.79 | 756 7 | 29.85 | 758.2 | 40.9 | 8.3 | 80.5 | 1 | 1 | 4 | ..... | 2 | 1 | 1 | 14 | 6 | 4710 | 7580 | 6 | 13.20 | 335.3 |
| Unalashka | N 53 53 | W. 166 32 | 1.02 a.m. | 13 | 4 | 29.80 | 758 4 | 29.87 | 758.7 | 46.1 | 7.8 | 82.6 | 10 | 4 | 2 | 4 | 2 | 1 | 2 | 4 | 1 | 8386 | 13490 | 8 | 11.23 | 285.2 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Behring Island | N. 55 12 | E. 165 55 | 11.12 p.m. | 20 | 6 | 29.95 | 760 7 | 29.97 | 761.2 | 43.5 | 6.4 | 89.6 | 5 | 1 | ..... | 9 | 6 | 2 | 2 | 1 | 4 | 6721 | 10818 | 6 | 1.70 | 43.2 |
| Bluefields | N. 12 00 | W. 83 43 | 6.31 a.m. | 20 | 6 | 29.90 | 759.4 | 29.92 | 760.0 | 75.3 | 24.1 | 92.9 | 3 | 17 | 6 | 1 | ..... | ..... | ..... | 1 | 2 | ..... | ..... | 7 | 5.82 | 147.8 |
| Bogota | N. 4 36 | W. 74 14 | 7.11 a.m. | 8655 | 2638 | 22.03 | 559.5 | ..... | ..... | 53.1 | 11.7 | 81.0 | 5 | 1 | 4 | 2 | 4 | 2 | 1 | 2 | 9 | 2252 | 3624 | 6 | 2.21 | 56.1 |
| Paramaribo | N. 5 50 | W. 55 13 | 8.27 a.m. | 6 | 2 | 30.00 | 793.5 | 30.06 | 793.5 | 79.9 | 26.6 | 78.0 | ..... | ..... | ..... | ..... | ..... | ..... | 13 | 17 | ..... | ..... | ..... | 8 | 2.20 | 55.9 |
| Puerto Berrioc | N. 6 22 | W. 74 28 | 7.10 a.m. | 542 | 165 | 29.52? | 749.8? | 30.08? | 764.0? | 79.0 | 26.1 | 89.0 | 1 | 1 | ..... | 2 | 8 | 7 | ..... | ..... | 8 | ..... | ..... | 7 | 10.48 | 266.2 |
| Rivas | N. 11 26 | W. 85 47 | 6.25 a.m. | 150 | 46 | 29.79 | 756.7 | 29.95 | 760.7 | 76.9 | 24.9 | 87.2 | ..... | 3 | ..... | 3 | ..... | 1 | ..... | 23 | ..... | ..... | ..... | 5 | 4.43 | 113 8 |

## OCEAN SQUARE DATA FOR SEPTEMBER, 1884.

| Location of Centre of each Square. | Barometer. | | Temperature. | | Wind Frequency. | | | | | | | | | | Wind force 0–10. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch. | Mill. | Fah. | Cent. | N. | NW. | W. | SW. | S. | SE. | E. | NE. | Calm. | Blank. | |
| ° ° | | | | | | | | | | | | | | | |
| N. 12.5 W. 22.5 | 29.97 | 761.2 | 81.0 | 27.2 | 2 | ..... | ..... | ..... | 3 | 7 | 21 | 6 | ..... | ..... | 3.8 |
| 12.5 27.5 | 29.99 | 761.7 | 82.4 | 28.0 | 2 | ..... | ..... | ..... | 5 | 4 | 15 | 4 | ..... | ..... | 3.9 |
| 12.5 32.5 | 29.99 | 761.7 | 82.0 | 27.8 | 4 | ..... | 1 | 1 | 1 | 1 | 14 | 6 | 2 | ..... | 3.8 |
| 12.5 37.5 | 30.01 | 762.2 | 82.1 | 27.8 | 6 | ..... | ..... | ..... | 1 | 3 | 16 | 4 | ..... | ..... | 3.7 |
| 12.5 42.5 | 30.02 | 762.5 | 82.9 | 28.3 | 4 | ..... | ..... | ..... | 3 | 5 | 11 | 6 | 1 | ..... | 3.4 |
| 12.5 47.5 | 30.03 | 762.7 | 83.1 | 28.4 | 2 | ..... | 1 | 2 | 3 | 4 | 9 | 8 | 1 | ..... | 3.1 |
| 12.5 52.5 | 30.03 | 762.7 | 83.3 | 28.5 | 4 | ..... | 1 | ..... | 1 | 6 | 9 | 8 | 1 | ..... | 3.5 |
| 17.5 22.5 | 30.01 | 762.2 | 79.6 | 26.4 | ..... | ..... | ..... | ..... | ..... | 2 | 21 | 7 | ..... | ..... | 4.0 |
| 17.5 27.5 | 30.02 | 762.5 | 80.2 | 26.8 | ..... | ..... | ..... | ..... | ..... | 2 | 24 | 4 | ..... | ..... | 4.4 |
| 17.5 32.5 | 30.02 | 762.5 | 80.7 | 27.1 | 1 | ..... | ..... | ..... | 1 | 1 | 20 | 7 | ..... | ..... | 4.5 |
| 17.5 37.5 | 30.03 | 762.7 | 81.1 | 27.3 | 1 | ..... | ..... | ..... | 1 | 1 | 15 | 12 | ..... | ..... | 4.0 |
| 17.5 42.5 | 30.05 | 763.3 | 81.8 | 27.7 | 2 | ..... | ..... | ..... | 1 | 6 | 15 | 6 | ..... | ..... | 3.5 |
| 17.5 47.5 | 30.06 | 763.5 | 82.0 | 27.8 | 2 | 2 | ..... | 1 | 4 | 3 | 15 | 3 | ..... | ..... | 3.5 |
| 17.5 52.5 | 30.05 | 763.3 | 82.5 | 28.1 | 1 | 1 | ..... | ..... | 2 | 6 | 11 | 9 | ..... | ..... | 3.6 |
| 17.5 57.5 | 30.03 | 762.7 | 83.0 | 28.3 | 1 | 1 | ..... | 1 | 1 | 7 | 14 | 5 | ..... | ..... | 3.9 |
| 22.5 22.5 | 30.07 | 763.8 | 78.2 | 25.7 | ..... | ..... | ..... | ..... | ..... | 1 | 19 | 10 | ..... | ..... | 3.7 |
| 22.5 27.5 | 30.08 | 764.0 | 78.9 | 26.1 | ..... | ..... | ..... | ..... | ..... | 3 | 22 | 5 | ..... | ..... | 4.0 |
| 22.5 32.5 | 30.07 | 763.8 | 79.8 | 26.6 | 1 | ..... | ..... | ..... | ..... | 4 | 23 | 2 | ..... | ..... | 4.4 |
| 22.5 37.5 | 30.09 | 764.3 | 80.4 | 26.9 | 1 | ..... | 1 | ..... | ..... | 2 | 20 | 6 | ..... | ..... | 3.9 |
| 22.5 42.5 | 30.10 | 764.5 | 80.6 | 27.0 | 2 | ..... | 1 | ..... | 1 | 6 | 18 | 2 | ..... | ..... | 3.5 |
| 22.5 47.5 | 30.10 | 764.5 | 80.6 | 27.0 | 4 | ..... | 2 | ..... | 2 | 7 | 13 | 2 | ..... | ..... | 3.4 |
| 22.5 52.5 | 30.09 | 764.3 | 81.1 | 27.3 | 3 | 1 | 2 | ..... | 3 | 3 | 14 | 1 | ..... | ..... | 3.3 |
| 22.5 57.5 | 30.07 | 763.8 | 81.9 | 27.7 | 1 | 2 | 2 | ..... | 4 | 3 | 16 | 2 | ..... | ..... | 3.5 |
| 22.5 62.5 | 30.07 | 763.8 | 82.3 | 27.9 | 2 | 1 | 1 | ..... | 1 | 10 | 13 | 2 | ..... | ..... | 3.6 |
| 22.5 67.5 | 30.06 | 763.5 | 82.5 | 28.1 | ..... | ..... | ..... | ..... | 2 | 15 | 11 | 2 | ..... | ..... | 3.9 |
| 22.5 72.5 | 30.06 | 763.5 | 83.0 | 28.3 | ..... | ..... | 1 | ..... | 3 | 11 | 12 | 3 | ..... | ..... | 3.5 |
| 27.5 22.5 | 30.13 | 765.3 | 78.5 | 25.8 | 1 | ..... | ..... | ..... | 1 | 2 | 13 | 12 | 1 | ..... | 3.4 |
| 27.5 27.5 | 30.15 | 765.8 | 77.5 | 25.3 | 1 | ..... | ..... | ..... | ..... | 7 | 15 | 6 | 1 | ..... | 3.6 |
| 27.5 32.5 | 30.14 | 765.5 | 78.6 | 25.9 | 1 | 2 | ..... | ..... | 2 | 5 | 16 | 4 | ..... | ..... | 3.7 |
| 27.5 37.5 | 30.14 | 765.5 | 79.2 | 26.2 | 1 | 1 | ..... | ..... | 1 | 8 | 24 | 4 | 1 | ..... | 3.8 |
| 27.5 42.5 | 30.15 | 765.8 | 79.0 | 26.1 | 2 | 1 | 2 | 2 | 3 | 5 | 11 | 4 | ..... | ..... | 3.5 |
| 27.5 47.5 | 30.15 | 765.8 | 79.1 | 26.2 | 2 | 3 | 2 | 3 | 1 | 5 | 12 | 2 | ..... | ..... | 3.3 |
| 27.5 52.5 | 30.15 | 765.8 | 79.4 | 26.3 | ..... | 4 | 4 | 2 | 3 | 5 | 10 | 2 | ..... | ..... | 3.1 |
| 27.5 57.5 | 30.12 | 765.0 | 80.2 | 26.8 | ..... | 5 | 3 | 2 | 4 | 5 | 9 | 1 | 1 | ..... | 3.0 |
| 27.5 62.5 | 30.10 | 764.5 | 80.7 | 27.1 | 4 | 2 | 2 | 3 | 1 | 8 | 9 | 6 | ..... | ..... | 2.8 |
| 27.5 67.5 | 30.10 | 764.5 | 81.4 | 27.4 | 4 | ..... | ..... | 4 | ..... | 10 | 6 | 6 | ..... | ..... | 3.9 |
| 27.5 72.5 | 30.08 | 764.0 | 81.8 | 27.7 | ..... | ..... | 2 | 2 | 5 | 8 | 9 | 4 | ..... | ..... | 4.2 |
| 27.5 77.5 | 30.07 | 763.8 | 81.0 | 27.2 | 1 | 2 | 2 | 1 | 7 | 10 | 6 | 1 | ..... | ..... | 2.7 |
| 32.5 12.5 | 30.13 | 765.3 | 74.9 | 23.8 | 12 | 1 | 4 | 1 | 2 | 2 | 1 | 7 | ..... | ..... | 2.8 |
| 32.5 17.5 | 30.17 | 766.3 | 74.4 | 23.6 | 4 | 3 | 4 | 2 | 3 | 3 | 3 | 8 | ..... | ..... | 2.5 |
| 32.5 22.5 | 30.19 | 766.8 | 74.4 | 23.6 | 7 | ..... | ..... | 1 | 2 | 4 | 5 | 11 | ..... | ..... | 3.3 |
| 32.5 27.5 | 30.20 | 767.1 | 75.5 | 24.2 | 2 | ..... | ..... | 2 | 4 | 2 | 8 | 12 | ..... | ..... | 3.8 |
| 32.5 32.5 | 30.19 | 766.8 | 76.5 | 24.7 | 1 | ..... | 4 | 1 | 3 | 5 | 10 | 6 | ..... | ..... | 3.9 |
| 32.5 37.5 | 30.19 | 766.8 | 77.1 | 25.1 | 1 | 1 | 3 | 3 | 3 | 4 | 10 | 5 | ..... | ..... | 3.7 |
| 32.5 42.5 | 30.18 | 766.6 | 76.6 | 24.8 | 1 | 2 | 1 | 6 | 4 | 6 | 6 | 3 | ..... | 1 | 3.7 |
| 32.5 47.5 | 30.17 | 766.3 | 76.2 | 24.6 | ..... | 2 | 9 | 1 | 6 | 2 | 9 | ..... | ..... | 1 | 3.6 |
| 32.5 52.5 | 30.15 | 765.8 | 76.4 | 24.7 | 3 | 2 | 8 | 2 | 8 | 2 | 4 | 1 | ..... | ..... | 3.4 |
| 32.5 57.5 | 30.12 | 765.0 | 77.2 | 25.1 | 6 | 4 | 3 | 3 | 7 | 3 | 1 | 3 | ..... | ..... | 3.4 |
| 32.5 62.5 | 30.11 | 764.8 | 77.7 | 25.4 | 6 | 2 | 5 | 2 | 4 | 5 | 1 | 4 | 1 | ..... | 2.8 |
| 32.5 67.5 | 30.10 | 764.5 | 78.4 | 25.8 | 4 | 3 | 2 | ..... | 4 | 4 | 6 | 9 | ..... | ..... | 3.6 |
| 32.5 72.5 | 30.12 | 765.0 | 78.6 | 25.9 | 1 | ..... | 1 | 2 | 5 | 8 | 9 | 4 | ..... | ..... | 4.1 |
| 32.5 77.5 | 30.10 | 764.5 | 75.1 | 23.9 | 4 | ..... | 1 | ..... | 2 | 6 | 7 | 10 | ..... | ..... | 3.5 |
| 37.5 12.5 | 30.11 | 764.8 | 71.1 | 21.7 | 8 | 5 | 7 | 3 | 1 | 1 | 2 | 3 | ..... | ..... | 3.2 |
| 37.5 17.5 | 30.15 | 765.8 | 70.6 | 21.4 | 8 | 5 | 7 | 1 | 3 | 1 | 2 | 3 | ..... | ..... | 3.1 |
| 37.5 22.5 | 30.21 | 767.3 | 71.2 | 21.8 | 8 | 7 | 1 | 2 | 4 | 1 | 2 | 5 | ..... | ..... | 3.3 |
| 37.5 27.5 | 30.24 | 768.1 | 72.4 | 22.4 | 3 | 4 | 6 | 4 | 4 | 2 | 1 | 5 | 1 | ..... | 3.1 |
| 37.5 32.5 | 30.19 | 766.8 | 75.4 | 24.1 | 4 | 3 | 4 | 7 | 4 | 2 | 2 | 3 | ..... | 1 | 3.7 |
| 37.5 37.5 | 30.16 | 766.1 | 73.2 | 22.9 | 3 | 1 | 5 | 9 | 4 | 3 | 3 | 2 | ..... | ..... | 3.7 |
| 37.5 42.5 | 30.13 | 765.3 | 72.4 | 22.4 | 1 | 2 | 6 | 11 | 4 | 1 | 4 | 1 | ..... | ..... | 3.9 |
| 37.5 47.5 | 30.11 | 764.8 | 71.8 | 22.1 | 1 | 5 | 5 | 8 | 5 | 3 | 2 | 1 | ..... | ..... | 4.1 |
| 37.5 52.5 | 30.09 | 764.3 | 72.0 | 22.2 | 5 | 4 | 6 | 6 | 4 | 2 | ..... | 3 | ..... | ..... | 4.0 |
| 37.5 57.5 | 30.09 | 764.3 | 72.4 | 22.4 | 5 | 4 | 7 | 4 | 4 | 2 | ..... | 4 | ..... | ..... | 4.1 |
| 37.5 62.5 | 30.09 | 764.3 | 72.7 | 22.6 | 7 | 7 | 6 | 1 | 4 | 2 | 3 | ..... | ..... | ..... | 4.1 |
| 37.5 67.5 | 30.12 | 765.0 | 72.1 | 22.3 | 4 | 7 | 4 | 1 | 5 | 2 | 1 | 6 | ..... | ..... | 3.8 |
| 37.5 72.5 | 30.15 | 765.8 | 71.9 | 22.2 | 2 | 2 | 1 | 8 | 5 | ..... | 3 | 8 | 1 | ..... | 3.5 |
| 42.5 12.5 | 30.06 | 763.5 | 67.7 | 19.8 | 3 | 7 | 6 | 1 | 5 | 2 | 2 | 4 | ..... | ..... | 3.3 |
| 42.5 17.5 | 30.10 | 764.5 | 66.8 | 19.3 | 6 | 9 | 4 | 4 | 2 | 2 | ..... | 3 | ..... | ..... | 3.9 |
| 42.5 22.5 | 30.13 | 765.3 | 67.2 | 19.6 | 3 | 8 | 7 | 6 | 3 | 1 | ..... | 2 | ..... | ..... | 3.5 |
| 42.5 27.5 | 30.12 | 765.0 | 67.6 | 19.8 | 2 | 5 | 11 | 9 | 3 | ..... | ..... | ..... | ..... | ..... | 4.1 |
| 42.5 32.5 | 30.08 | 764.0 | 68.0 | 20.0 | ..... | 3 | 14 | 8 | 2 | 2 | ..... | 1 | ..... | ..... | 4.3 |
| 42.5 37.5 | 30.05 | 763.3 | 67.8 | 19.9 | 1 | 5 | 10 | 10 | 2 | 1 | 1 | ..... | ..... | ..... | 4.8 |
| 42.5 42.5 | 30.04 | 763.0 | 66.2 | 19.0 | 3 | 7 | 8 | 10 | 1 | 1 | ..... | ..... | ..... | ..... | 4.9 |
| 42.5 47.5 | 30.03 | 762.7 | 64.7 | 18.2 | 4 | 7 | 6 | 7 | 4 | 1 | 1 | ..... | ..... | ..... | 5.0 |
| 42.5 52.5 | 30.04 | 763.0 | 63.9 | 17.7 | 7 | 5 | 4 | 5 | 5 | 2 | ..... | 2 | ..... | ..... | 4.6 |
| 42.5 57.5 | 30.03 | 762.7 | 64.4 | 18.0 | 7 | 5 | 5 | 7 | 2 | 1 | 2 | 1 | ..... | ..... | 4.6 |
| 42.5 62.5 | 30.07 | 763.8 | 63.4 | 17.4 | 4 | 9 | 4 | 5 | 2 | 3 | 1 | 2 | ..... | ..... | 4.2 |
| 42.5 67.5 | 30.08 | 764.0 | 61.1 | 16.2 | 4 | 8 | 4 | 5 | 2 | 2 | 2 | 3 | ..... | ..... | 3.5 |
| 47.5 12.5 | 30.03 | 762.7 | 63.3 | 17.4 | ..... | 4 | 10 | 5 | 3 | 4 | 1 | 3 | ..... | ..... | 4.6 |
| 47.5 17.5 | 30.02 | 762.5 | 62.8 | 17.1 | ..... | 6 | 10 | 6 | 2 | 4 | ..... | 2 | ..... | ..... | 5.1 |
| 47.5 22.5 | 29.99 | 761.7 | 64.0 | 17.8 | ..... | 4 | 12 | 7 | 4 | ..... | 3 | ..... | ..... | ..... | 5.1 |
| 47.5 27.5 | 29.94 | 760.5 | 60.8 | 16.0 | 1 | 7 | 6 | 10 | 4 | 2 | ..... | ..... | ..... | ..... | 5.2 |
| 47.5 32.5 | 29.92 | 760.0 | 60.6 | 15.9 | ..... | 8 | 8 | 8 | 4 | 1 | 1 | ..... | ..... | ..... | 5.4 |
| 47.5 37.5 | 29.89 | 759.2 | 59.6 | 15.3 | 1 | 8 | 10 | 6 | 5 | ..... | ..... | ..... | ..... | ..... | 5.2 |
| 47.5 42.5 | 29.88 | 758.9 | 56.0 | 13.3 | 2 | 5 | 17 | 5 | ..... | 1 | ..... | ..... | ..... | ..... | 5.5 |
| 47.5 47.5 | 29.91 | 759.7 | 52.2 | 11.2 | 1 | 7 | 11 | 8 | ..... | 1 | ..... | 1 | 1 | ..... | 5.0 |
| 52.5 12.5 | 29.93 | 760.2 | 58.7 | 14.8 | ..... | 5 | 9 | 9 | 3 | 2 | 1 | 1 | ..... | ..... | 5.0 |
| 52.5 17.5 | 29.85 | 758.2 | 57.4 | 14.1 | ..... | 4 | 6 | 13 | 2 | 3 | 1 | 1 | ..... | ..... | 5.7 |
| 52.5 22.5 | 29.79 | 756.7 | 56.3 | 13.5 | 2 | 5 | 8 | 7 | 3 | 5 | ..... | ..... | ..... | ..... | 6.0 |
| 52.5 27.5 | 29.77 | 756.1 | 54.6 | 12.6 | ..... | 5 | 7 | 7 | 5 | 6 | ..... | ..... | ..... | ..... | 6.3 |
| 52.5 32.5 | 29.73 | 755.1 | 53.7 | 12.1 | ..... | 7 | 7 | 9 | 4 | 1 | 2 | ..... | ..... | ..... | 5.8 |
| 52.5 37.5 | 29.70 | 754.4 | 51.9 | 11.1 | 1 | 5 | 7 | 10 | 3 | 1 | 1 | 2 | ..... | ..... | 6.0 |
| 52.5 42.5 | 29.68 | 753.9 | 49.8 | 9.9 | 1 | 8 | 9 | 9 | 1 | 1 | ..... | 1 | ..... | ..... | 5.8 |
| 52.5 47.5 | 29.69 | 754.1 | 46.7 | 8.2 | 2 | 12 | 7 | 6 | 3 | ..... | ..... | ..... | ..... | ..... | 5.8 |
| 57.5 12.5 | 29.75 | 755.6 | 54.6 | 12.6 | 3 | 3 | 5 | 12 | 1 | 4 | ..... | ..... | 1 | 1 | 5.7 |
| 57.5 17.5 | 29.07 | 753.6 | 52.9 | 11.6 | 3 | 2 | 6 | 8 | 8 | 3 | ..... | ..... | ..... | ..... | 5.8 |
| 57.5 22.5 | 29.62 | 752.3 | 52.4 | 11.3 | 1 | 3 | 8 | 8 | 5 | 3 | 1 | ..... | ..... | 1 | 5.9 |
| 57.5 27.5 | 29.60 | 751.8 | 49.9 | 9.9 | 1 | 4 | 8 | 5 | 6 | 4 | 1 | 1 | ..... | ..... | 6.1 |
| 57.5 32.5 | 29.59 | 751.6 | 49.8 | 9.9 | 1 | 5 | 5 | 8 | 6 | 2 | 1 | 2 | ..... | ..... | 5.6 |
| 57.5 37.5 | 29.57 | 751.1 | 46.8 | 8.2 | 2 | 5 | 4 | 6 | 8 | 1 | 2 | 1 | ..... | 1 | 5.6 |
| 57.5 42.5 | 29.57 | 751.1 | 45.2 | 7.3 | 1 | 5 | 6 | 3 | 5 | 2 | ..... | 4 | ..... | 4 | 5.6 |
| 57.5 47.5 | 29.59 | 751.6 | 43.5 | 6.4 | 4 | 10 | 2 | 4 | 3 | 1 | 2 | ..... | ..... | 4 | 5.4 |

## REVIEW.

### INTERNATIONAL METEOROLOGY FOR SEPTEMBER, 1884.

[*Pressure expressed in inches and millimetres; temperature in degrees, Fahrenheit and Centigrade; wind-force by scale of* 0–10.]

The following description refers to chart ii for the month of September, 1884. This chart continues the series of international charts begun in January, 1877, and exhibits the mean pressure, mean temperature, and the prevailing wind-directions over the northern hemisphere, as determined from one simultaneous observation taken each day at 7 a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time.

The areas of least mean pressure occupy, respectively, the northern part of the north Atlantic Ocean and British India; the first of these is indicated by the isobar for 29.6 (751.8), which extends from Iceland southwestward to about N. 56°, W. 30°, and thence westward and northwestward to Davis Strait; the lowest mean pressure for the month being 29.53 (750.0), at Stykkisholm, Iceland. The second area is enclosed by the isobar for 29.7 (754.4), and occupies that part of British India lying north of the twentieth parallel, the means ranging from 29.61 (752.1) to 29.66 (753.4). In southern Hindostan the mean pressure varies from 29.77 (756.1) to 29.85 (758.2). South of the region of least pressure in the Atlantic, the means gradually increase to 30.0 (762.0), the isobar for that value extending from Nova Scotia eastward along the forty-fifth parallel to about W. 35°, when it trends northeastward and crosses southern England and the North Sea to northern Europe. In the North American continent the mean pressure is least in Manitoba, over the northern part of the Gulf of California, and over that part of the United States lying west of the hundredth meridian.

The areas of barometric maxima are three in number; the first is that of the north Atlantic Ocean, and is situated in the vicinity of the Azores, where the means range from 30.2 (767.1) to 30.24 (768.1). The second area, 30.1 (764.5), occupies central Europe, extending from about 8° E. eastward and northeastward to about the thirtieth meridian east of Greenwich. The third is a small area of high pressure, also enclosed by the isobar for 30.1 (764.5), situated over the northern part of the Bay of Biscay and the extreme western part of France (Brittany). Between these high areas the means range from 30.01 (762.2) to 30.09 (764.3); over Scandinavia and that part of Russia lying east of 40° E. the means are below 30.0 (762.0).

Compared with the chart for the preceding month (August, 1884), there has been a slight decrease of pressure in the upper lake region, the region between the Rocky Mountains and the Mississippi River, and in the Canadian Maritime Provinces; in all other districts of the United States the means for September, 1884, are slightly above those of the preceding month. The high area of the Atlantic Ocean has moved eastward to the Azores and has become contracted in size, while there has been a general decrease of pressure over the ocean, except over the regions near the American and African coasts, where there appears to have been a slight increase. In Europe the pressure has decreased in Scandinavia and Denmark; it has remained unchanged over the British Isles, but has increased in all other countries of the continent, the increase being greatest in Italy, Austro-Hungary, and in eastern Russia. There has been a slight increase of pressure throughout Asia.

Compared with the corresponding month of previous years, the mean atmospheric pressure over the United States was slightly above the normal in the Atlantic and Pacific coast districts, and in Tennessee, and the east Gulf states; in other districts it was less than the normal, the greatest deficiency occurring in the Missouri Valley and the Northwest. In Canada it was normal, or slightly below. In Europe the mean pressure was generally above the normal. In British India it was .03 below the seven years' mean.

The following table shows the mean pressure and mean temperature for September, 1884, in the several countries of the eastern hemisphere, and the departures as compared with the means determined from observations taken during the last seven years.

| Countries. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Sept. mean of 7 (1877–'83) years. | Sept., 1884. | Departure. | Sept. mean of 7 (1877–'83) years. | Sept., 1884. | Departure. |
| | | | | ° | ° | ° |
| Algeria | 30.02 | ..... | ..... | 81.8 | ..... | ..... |
| Austro-Hungary | 29.95 | 30.09 | + 0.14 | 66.1 | 67.5 | + 1.4 |
| British Isles | 29.94 | 29.99 | + 0.05 | 58.1 | 62.2 | + 4.1 |
| Denmark | 29.90 | 30.01 | + 0.11 | 59.1 | 62.8 | + 3.7 |
| France | 29.99 | 30.07 | + 0.08 | 67.0 | 68.9 | + 1.9 |
| Germany | 29.97 | 30 10 | + 0.13 | 63.3 | 66.4 | + 3.1 |
| India | 29.70 | 29.67 | − 0.03 | 82.9 | 82.4 | − 0.5 |
| Italy | 29.96 | 30.08 | + 0.12 | 73.8 | 72.3 | − 1.5 |
| Norway | 29.84 | 29.89 | + 0.05 | 56.4 | 59.6 | + 3.2 |
| Portugal* | 30.03 | ..... | ..... | 74.4 | ..... | ..... |
| Russia | 29.98 | 30.05 | + 0.07 | 63.1 | 59.3 | − 3.8 |
| Spain* | 30.02 | 30.07 | + 0.05 | 73.3 | 70.9 | − 2.4 |
| Sweden | 29.91 | 29.98 | + 0.07 | 56.1 | 59.4 | + 3.3 |

* Means for six years only.

The accompanying table shows the deviations in pressure and temperature at isolated stations during the month of September, 1884, as compared with the means for seven years:

| Stations. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Sept. mean of 7 (1877–'83) years. | Sept., 1884. | Departure. | Sept. mean of 7 (1877–'83) years. | Sept., 1884. | Departure. |
| | | | | ° | ° | ° |
| Astrakhan, Russia | 30.04 | 30.01 | − 0.03 | 70.4 | 63.7 | − 6.7 |
| Archangel, Russia | 29.93 | 29.94 | + 0.01 | 50.5 | 47.5 | − 3.0 |
| Angra, Azores | ..... | ..... | ..... | ..... | ..... | ..... |
| Athens, Greece | 29.96 | 30.03 | + 0.07 | 82.6 | 77.7 | − 4.9 |
| Beirut, Turkey in Asia | 29.88 | 29.89 | + 0.01 | 84.6 | 81.5 | − 3.1 |
| Barnaul, Siberia, Asia | 29.92 | 29.88 | − 0.04 | 55.6 | 53.8 | − 1.8 |
| Bridgetown, Barbadoes,* | 29.96 | 30.00 | + 0.04 | 83.1 | 82.9 | − 0.2 |
| Cape Town, Cape of Good Hope* | 30.13 | ..... | ..... | 65.8 | 61.3 | − 4.5 |
| Cagliari, Sardinia, Italy | 29.95 | ..... | ..... | 78.0 | ..... | ..... |
| Ekaterinburg, Russia | 29.93 | 29.79 | − 0.14 | 52.6 | 45.0 | − 7.6 |
| Fort Napier, Natal, South Africa* | 29.93 | 29.96 | + 0.03 | 73.7 | 75.3 | + 1.6 |
| Freetown, Sierra Leone | 29.89 | 29.86 | − 0.03 | 82.8 | 82.2 | − 0.6 |
| Funchal, Madeira Islands | 30.13 | 30.17 | + 0.04 | 75.3 | 74.5 | − 0.8 |
| Gibraltar* | 30.03 | 30.05 | + 0.02 | 75.8 | 74.2 | − 1.6 |
| Godthaab, Greenland | 29.70 | ..... | ..... | 37.6 | ..... | ..... |
| Havana, Cuba, W. I. | 29.97 | 30.01 | + 0.04 | 80.2 | 77.0 | − 3.2 |
| Malta, Mediterranean Sea | 29.96 | 30.02 | + 0.06 | 81.1 | 77.0 | − 4.1 |
| Mauritius, Indian Ocean | 30.16 | 30.14 | − 0.02 | 72.9 | 73.6 | + 0.7 |
| Melbourne, New South Wales | 30.01 | 29.99 | − 0.02 | 52.4 | 52.3 | − 0.1 |
| Mexico, Mexico | ..... | ..... | ..... | ..... | ..... | ..... |
| Nassau, Bahamas, W. I. | 30.00 | 30.08 | + 0.08 | 83.0 | 81.8 | − 1.2 |
| Nikolaevsk on the Amoor, Asia | ..... | ..... | ..... | ..... | 48.7 | ..... |
| Paramaribo, D. Guiana, S. A. | 30.04 | 30.06 | + 0.02 | 81.4 | 79.9 | − 1.5 |
| Pekin, China | 29.97 | 30.00 | + 0.03 | 67.2 | 67.8 | + 0.6 |
| Ponta Delgado, Azores | 30.19 | 30.24 | + 0.05 | 73.5 | 72.9 | − 0.6 |
| Sandwick Manse, Orkney Islands | 29.90 | 29.83 | − 0.07 | 54.0 | 55.9 | + 1.9 |
| San Juan de Puerto Rico, W. I. | 29.98 | 30.04 | + 0.06 | 81.2 | 79.2 | − 2.0 |
| Stykkisholm, Iceland | 29.65 | 29.53 | − 0.12 | 46.0 | 46.2 | + 0.2 |
| Tashkend, Toorkistan, Asia | 29.95 | 29.88 | − 0.07 | 69.1 | 77.4 | + 8.3 |
| Thorshavn, Färöe Islands | 29.79 | 29.70 | − 0.09 | 51.2 | 51.8 | + 0.6 |
| Tiflis, Russia | 29,95 | 29.97 | + 0.02 | 75.8 | 71.2 | − 4.6 |
| Tokei, Japan | 29.96 | 29.99 | + 0.03 | 70.1 | 70.2 | + 0.1 |
| Yeniseisk, Siberia, Asia | 29.97 | 29.95 | − 0.02 | 46.8 | 48.7 | + 1.9 |
| York Factory, B. A. | 29.97 | ..... | ..... | 36.9 | ..... | ..... |
| Zi-Ka-Wei, China | 29.94 | 29.93 | − 0.01 | 71.1 | 71.2 | + 0.1 |

* Means for six years only.

The mean temperature of the air was above the normal over the United States east of the Rocky Mountains, while it was deficient in the districts to the westward of those mountains. In Canada it was above the normal, except in the Maritime Provinces, where it ranged from 0 to 2° below the normal. In Europe the temperature was above the normal in all districts, except the southern peninsulas and Russia. In Hindostan it was 0°.5 below the seven years' mean; the highest mean temperature reported was 91°.5 Fahr. (33°.1 Cent.), at Trichinopoly, and the lowest was 69°.9 Fahr. (21°.1 Cent.), at Belgaum.

The following are some of the extremes reported at isolated stations:

| Highest. | Fahr. | Cent. | Lowest. | Fahr. | Cent. |
|---|---|---|---|---|---|
| | ° | ° | | ° | ° |
| Cairo, Egypt | 83.3 | 28.5 | Fort Saint Michaels, Alaska | 39.8 | 4.3 |
| Bridgetown, Barbadoes | 82.9 | 28.3 | Behring Island, Behring Sea | 43.5 | 6.4 |
| Freetown, Sierra Leone | 82.2 | 27.9 | Fort Garry, Manitoba | 44.8 | 7.1 |
| Nassau, Bahamas | 81.8 | 27.7 | Ekaterinburg, Russia | 45.0 | 7.2 |
| Beirut, Turkey in Asia | 81.5 | 27.5 | Unalashka, Alaska | 46.1 | 7.8 |

In the United States the prevailing winds were from south to west, except along the south Atlantic coast and in Florida, where they were northerly and northeasterly. Over the Atlantic the winds were southwest, west, and northwest over the region north of the thirty-fifth parallel; south of that parallel they were easterly and northeasterly. In Europe they were mostly from south to southwest, west, and northwest.

The rainfall during September, 1884, was less than the average in the Atlantic and Gulf coast districts of the United States, and also on the eastern slope of the Rocky Mountains. In the central valleys, southern Texas, and over the region west of the Rocky Mountains it was considerably in excess of the average. In Canada it was generally less than the average, In Europe the rainfall was less than the average.

### STORM-TRACKS FOR SEPTEMBER, 1884.

Chart iii exhibits the paths of the principal depressions which appeared in the northern hemisphere during September, 1884. This chart continues the series of international charts begun in November, 1877, and in its preparation the following data have been used, viz.: Chart i for each day of the month, containing the data of one simultaneous observation taken at 7 a. m., Washington, or 0h. 8m., p. m., Greenwich mean time, as heretofore published in the DAILY INTERNATIONAL BULLETIN; abstracts of ships' logs; special reports, and other miscellaneous data on file at this office.

For September, 1884, the paths of forty-five depressions are shown on the chart, and in addition to these are also given the tracks of two typhoons which occurred in the China Sea during that month. The latter are taken from the "Bulletin Mensuel," published by the Rev. M. Dechevrens, S. J., director of the observatory at Zi-Ka-Wei, near Shanghai, China, and from the tri-daily weather maps of the Imperial Meteorological Observatory at Tokio, Japan, under direction of Mr. I. Arai.

Fourteen depressions (numbers i to xiv, inclusive) are traced over the North American continent; six of the above depressions approached the United States from the British Northwest Territories, and moved in a southeasterly direction toward the Lake region and thence eastward and northeastward to the Gulf of Saint Lawrence. Four depressions, of which two (iii*a* and x*a*) were subsidiary to disturbances in the Northwest, apparently developed in Kansas and Colorado, whence they moved northeastward to the Lake region and by the usual course to the Gulf of Saint Lawrence. One disturbance, number vi, presented all the features of a tropical hurricane and is remarkable on account of its abnormal path. It apparently developed near the coast of Florida on the 10th, during which date it entered Georgia and moved slowly northward and westward; on the 11th its course changed to easterly and southerly, and it again passed into the Atlantic off the South Carolina coast. It remained for several days over the ocean between W. 72° and the coast-line, and then finally took up a northeasterly movement and passed along the course of the Gulf Stream. This disturbance was attended by very heavy rains and strong gales at the coast stations, but the depression attained its greatest depth, and the winds their maximum force, after the storm-centre had left the coast. This disturbance is described as number vii under "Areas of low barometer," and as number 8 of the "North Atlantic storms," in the MONTHLY WEATHER REVIEW for September, 1884, since which writing, no additional data referring thereto have been received at this office.

The remaining depressions (numbers iii, iv, vii, xi, and xiv) which appeared in the United States were developed over the region lying west of the one hundred and tenth meridian, as indicated on the chart.

Sixteen depressions (xv to xxx, inclusive), an unusually large number for September, are traced over the north Atlantic Ocean. Seven of these are continuations of storms which had previously traversed the North American continent, that traced as number xxiii being the hurricane referred to above as number vi; two storms (xvii and xxi) appeared over the region south of 30° N. and west of 45° W, and were both of tropical origin, they are described as numbers 2 and 7 under "North Atlantic storms," in the MONTHLY WEATHER REVIEW for September, 1884. Three depressions, numbers xv, xx, and xxvii, appeared over the ocean between 40° and 45° N. and 40° and 60° W.; one (number xxiv) developed between 10° and 15° W. and pursued a somewhat peculiar course, moving first northeastward to about the seventh meridian west of Greenwich and then northwestward, touching the extreme southwestern point of Ireland.

The depression charted as number xix was probably identical with the severe storm which caused great destruction in Iceland on September 11th, as shown by the following press-report.

LONDON, *October* 3.—Intelligence has just been received here of a terrible and disastrous hurricane in Iceland on the 11th of last September. The accounts thus far received show that nineteen trading vessels and sixty fishing boats were lost, and thirty-two vessels disabled. The most appalling feature of the hurricane was the loss of life. The exact number of those who perished has not yet been ascertained, but it is known to have been very great.

At the simultaneous observation of the 11th the barometer at Stykkisholm, Iceland, read 29.2 (741.7), wind se., force 9.

The remaining depressions, numbers xvi, xxviii, and xxix, are traced over the ocean north of the fifty-fifth parallel.

The general direction of movement of the depressions which traversed the Atlantic was about northeasterly until the thirtieth meridian was reached, when the course became more northerly and the storm-centres passed to the northward of the sixtieth parallel. Number xvii, however, pursued the parabolic course common to tropical hurricanes, moving first to the westward and then curving to the northeastward in about 20° N., 58° W.

Nearly all of these disturbances were attended by strong gales during their passage over the Atlantic, the barometer near the storm-centres in every case ranging from 29.0 (736.6) to 29.4 (746.7). During the passage of numbers xxvi and xxvii the pressure decreased to 28.6 (726.4), on the 25th, and to 28.35 (720.1), in Iceland, on the 26th, and during these dates unusually steep barometric gradients covered the ocean north of the fiftieth parallel, and gales of hurricane force were reported. Descriptions of the more important of these depressions will be found under "North Atlantic storms," in the WEATHER REVIEW for September, 1884.

Eight depressions are traced over Europe; three of these are shown in the eastern part of the continent, numbers xxxvi and xxxvii having moved southeastward from northern Scandinavia to eastern and central Russia and thence into Siberia, while one, number xxxi, developed in central Russia and moved eastward and northeastward, disappearing in the Ural region. Three, numbers xxxiii, xxxiv and xxxviii, appeared in southern Europe, the first passing over northern Italy to the Adriatic, the second from Austro-Hungary southeastward to the Black Sea and Caucasus regions, and the third over the western part of the Black Sea at the close of the month. In the depressions just enumerated the barometer ranged from 29.35 (745.5) to 29.8 (756.9); the minima occurring after the centre of disturbance had passed into Siberia. The remaining depressions, numbers xxxii and xxxv, appeared in western Europe and were the most severe of the storms traced in Europe during this month; the first developed over the Bay of Biscay on the 3d, and moved, with rapidly decreasing pressure, northeastward over northwestern France to the North Sea, where the barometer near the storm-centre fell to 29.3 (744.2), and unsettled, stormy weather prevailed over the adjacent land areas. On the 5th the depression, with a further decrease of pressure at the centre, was shown off the southwestern coast of Norway, the barometer at Bergen reading 29.16 (740.7). By the 6th the centre of disturbance had moved northwestward to the vicinity of the Färöe Islands where it disappeared. The second depression (xxxv) appeared off the Irish coast on the 6th, with barometer 29.2 (741.7); it passed

east-northeastward over Ireland and England, and on the 7th it occupied the North Sea, causing fresh to strong gales and rainy weather. On the 8th it was shown over the Danish Peninsula, the pressure having increased to 29.7 (754.4), and on the following day it filled up in northern Germany.

Of the depressions traced over Asia and the Pacific Ocean, one (xxxix) appeared in western Siberia on the 12th and moved northeastward, passing into northeastern Siberia after the 13th; the lowest pressures were 29.33 (745.0), at Akmolinski, on the 12th, and 29.34 (745.2), at Yeniseisk, on the 13th. Number xl was a depression of moderate intensity which passed over Korea and the Sea of Japan during the 3d and 4th, and over northern Niphon on the 5th, when it apparently moved southeastward over the Pacific. Number xli appeared over the Sea of Okhotsk on the 9th, and moved eastward over Behring Sea; the lowest pressure, 29.4 (746.7), was reported on the 12th, over the Aleutian Archipelago. Number xlii was a very severe storm which appeared off the southern coast of Japan on the 14th, and followed the course charted, causing great damage to property and loss of life during its passage. A description of this storm, by Mr. E. Knipping, of the Tokio Meteorological Observatory, will be found below. The three depressions which appeared in the Pacific Ocean during the last decade of the month were attended by strong gales, with pressure ranging from 29.3 (744.2) to 29.6 (751.8).

As noteworthy features of the chart for September, 1884, may be mentioned: 1st, the unusually large number of depressions, generally well-defined, and of considerable intensity, which traversed the North American continent. 2d, the equally large number of severe storms in the north Atlantic Ocean, and the remarkably stormy weather which prevailed over that ocean south of the fortieth parallel. 3d, the comparative infrequency of severe storms in the continent of Europe which was, during the greater part of the month, occupied by areas of high barometer.

Concerning the typhoons of the China Sea and vicinity during the month, the Rev. M. Dechevrens, in the "Bulletin Mensuel," for September, 1884, says of the first (8th to 17th, over China, Japan, and adjoining seas), that it displayed great violence during the 10th and 11th in the vicinity of Hong Kong and Macao, the barometer falling to 28.9 (734.1). The typhoon appears to have diminished in violence as it passed over the land, but on reaching the sea again, it resumed its former energy and passed over Japan as a violent storm, (see report of Mr. Knipping, below). The second typhoon (19th to 26th) moved west-northwestward to Formosa, where it apparently divided, one segment continuing to move northward, while the other, after moving northward along the eastern coast of Formosa, appears to have recurved and passed into the southern part of the China Sea, where it remained, without displaying any great storm-energy, until the beginning of October, when it disappeared. That part of the typhoon which moved northward was not so violent as its predecessor, although the barometer fell to 28.98 (736.0) at stations in Formosa; the winds varied in force from 7 to 10.

The following, furnished by Mr. E. Knipping, of the Imperial Meteorological Observatory at Tokio, Japan, is from "The Japan Daily Mail," of October 24, 1884:

*Notes on the storms of September* 15, 17, and 18, 1884.

Within the short space of two days southern Japan was visited by two very heavy storms, the first crossing southeastern Nippon from southwest to northeast, the second passing over the whole south, going from Nagasaki over the Inland Sea, straight on over Tokiyo and into the Pacific. Happily the second storm, although very severe in the west, lost some of its violence when reaching that part of Japan traversed by the first. With regard to intensity, as shown by the atmospheric pressure, the first was the "leader," as in all cases of twin-storms observed and compared until now in Japan.

The weather maps for Sunday, September 14th, 9 p. m., showed only a slight general gradient from east to west of about ½ to 1; near Kii peninsula somewhat higher values, about 2; the winds were, on the eastern portion of the south coast, easterly, on the western portion northeasterly, light or moderate. Only Ozaka noted strong east wind, Kochi, in Shikoku, light west wind. The barometric changes from 2 to 9 p. m. had been slight, the greatest amounts being a fall of 2 mm. at one station, Miyasaki, in Kiushiu; 1 mm. rise at Numadzu and in the extreme north. The temperature was rather high all over Japan; with rain-clouds or slight rain on the south coast, elsewhere the weather was mostly clear.

Nine hours later, on the 15th September, at 6 a. m., a very deep depression was off Kii peninsula, with very steep gradients and a fall of 14 mm. at Wakayama, the station nearest the centre and yet about 50 n. miles away from it.

This is the first time since the publication of the weather maps that such a heavy fall occurred without previous indications. In former storms the consecutive fall was, for instance, 3, 4, 13; or, 4, 4, 3, 15; 1, 5, 18, etc., in about equal periods; while in this instance we have 2 and 14, without intermediate values.

The explanation appears to be that this storm did not come from the sea developed, but grew in the immediate vicinity of the coast. The rapidity of its appearance and other circumstances make it even probable that it was first developed in the higher, and then descended into the lower, strata of the atmosphere.

The centre was at 6 a. m. on the 15th quite near Oshima, the southern extremity of Kii peninsula, travelled northeast, and was at 2 p. m. west of Tokiyo, north of Numadzu; at 9 p. m. it had passed out into the Pacific south of Nobiru. The track is a straight line from Oshima to Toyama. The speed was 25 n. miles and 30 n. miles, respectively, per hour.

Its diameter increased till at 3 to 5. p. m. it exceeded certainly 250 n. miles; in the morning it was considerably less.

The steamship "Suminoye Maru," Captain P. Frahm, near Ichiyemisaki, not far from Oshimo, observed the lowest barometer reading at 6 a. m., 734 mm.,* with a hurricane from the northwest; Kashinosaki lighthouse, 731 mm., at 7 a. m.; barque "Hans," Captain A. Thomson, in 33° 5′ N., 137° E., 717–720 mm.,* at 8.45 a. m.; the steamship "Suruga Maru," Captain Pender, near Hamamatsu, 708 mm.;* station Hamamatsu, 717 mm., at 11.30 a. m.; Numadzu, 731 mm., at 1.30 p. m.; Tokio, 732 mm., at 3 p. m.; Nobiru, 743 mm., at 8 p. m.

The readings are thus 734, 731, 717, 708, 717, 731, 732, 743, and show plainly the quick fall and later rise near the centre. Working backwards with these figures, we find that the storm developed between midnight and 3 a. m.

The heaviest fall of barometer was observed on board the "Suruga Maru," from 8 a. m. to noon, 33 mm.; noon to 0.30 p. m.,† 12 mm.; or 45 mm. in 4½ hours.

On board the "Hans" the fall was, from midnight to 8 a. m., 15 mm.; 8 to 8.45 a. m., 22 mm.; or 37 mm. in 8¾ hours.

It took the central calm space four minutes to pass Hamamatsu, which would make the diameter 2 n. miles.

The barometric gradients were 22 for Gifu-Hamamatsu, 27 for Numadzu-Hamamatsu. This barometric slope is seven times the amount of an ordinary gale.

Remarkable is also the great in-draught of the wind towards the centre; it has been noticed before in these seas in the "wake" of quickly advancing storms, but never as in this instance, in front of one with strong winds.‡ What a difference this makes in the managing of ships will be plain from an example.

The "Suruga Maru," at 6 a. m. on the 15th, had northeast wind about, thus the centre would be supposed to bear southeast, while actually it bore southwest.

In whirls of small diameter and great height such great in-draughts of air have been often observed, and we may thus conclude that this storm had also a great height. The velocity of the wind registered at Tokio was 30 metres, but exceeded 40 metres in the gusts.

The steamship "Hiogo Maru," Captain R. N. Walker, at Kobe, noted the strongest wind, east-northeast, 7, at 7 a. m.; the lowest barometer at 9 a. m.

The steamship "Urado Maru," also at Kobe, Captain Motegi, noted force 9 from north to northwest, 7 to 10 a. m.

The steamship "Tokai Maru," Captain Carrew, at Yokkaichi, had the strongest wind north-northeast, 9–10, at about 8 a. m., while the barometer reached the lowest point at 10.30 a. m.

The steamship "Niigata Maru," Captain Hubbard, off Kawatsu, on the southeast coast, had from 3 p. m. a hurricane from south-southeast, the lowest barometer at 5 p. m.

The steamship "Sekirio Maru," Captain Davison, observed strong northeast wind and sea off Hachinohe, northeast Nippon, on the 15th, at 4 a. m., together with lowest barometer.

The most noteworthy facts in regard to this storm are its sudden outbreak, extreme violence, and great in-draught of wind.

After the passage of this storm the pressure remained rather low in the west; temperature high in the whole south, and before the damage done to the telegraph lines on the 15th could be repaired, a second storm developed near western Kiushiu on the 16th, at night.

The centre passed in the immediate vicinity of Nagasaki on the 17th of September, at 10.45 a. m.; was at 2 p. m. in northern Kiushiu, at 7 p. m. it passed Hiroshima, in the Inland Sea, skirted the northern shore of it, passed Osaka on the 18th, at 2 a. m., Gifu at 4, Tokio at 9 a. m., thence it travelled about due east into the Pacific, where the "Otsego," Captain Ewalt, near Inuboye Saki, observed a north gale at 10 a. m.

The rate until 2 p. m. was about 20 n. miles per hour; to 9 p. m., 17 n. miles, to 6 a. m. on the 18th, 30 n. miles, and the same speed to 9 a. m.

* Aneroid corrected.

† The time does not agree with the observations at Hamamatsu.

‡ If this in-draught is not taken into account the general direction of tracks may be at times 90° wrong.

The "City of Tokio," Commodore Maury, from San Francisco to Yokohama, encountered, 1,400 miles east of Tokio, in 35°.4 N., 170°.4 E., on the 27th of September, a strong gale from the south; later, east-southeast and north, with the barometer down to 746 mm. If this should prove to have been the same storm, its progress in the Pacific was much less than in Japan, namely, about 150 n. miles per day, or 6 to 7 n. miles, only, per hour.

The lowest readings were, at Nagasaki, 729 mm.;* Saga, 733 mm.; Hiroshima, 743; Gifu, 744; Tokio, 742 mm.

This storm had in the west much in common with the first; the in-draught of wind was considerable and the fall on the approach of the storm also very sudden, the consecutive amounts of fall for about equal periods at Nagasaki being 1, 1, 12 mm.

Iwoshima lighthouse, outside of Nagasaki, noted a fall of barometer of 27 mm. in five and one-half hours, Kageno lighthouse, of 25 mm. in eight hours, Nagasaki, 21 mm. in seven and three-quarter hours.

The gradients were also steep, 13 for Saga-Nagasaki, 15 for Miyasaki-Nagasaki.

The lowest barometer and highest wind force were observed at Nagasaki by Captain Ekstrand, of the "Kanagawa Maru," on the 17th at 9.40; wind force 12.

At Susaki, Shikoku, by Captain Motegi, steamship "Urado Maru," on the 17th at 7 p. m.; wind force 11.

In 36° N., 132° E., in the Sea of Japan, southwest of Oki Islands, by Captain Thomas, steamship "Toyoshima Maru," on the 17th at 8 p. m.; strongest wind, 7.

At Kobe, by Captain Frahm, steamship "Suminoye Maru," on the 18th at 1 a. m.; force 9.

Off Hinomisaki, in Kii Channel, by Captain Swain, steamship "Tokio Maru," at 2 a. m.; wind force 10.

At Toba, by Captain Tanita, "Mikuni Maru," at 4 a. m.; force 11.

In 34° N., 138° E., by Captain Hubbard, steamship "Niigata Maru," at 6 a. m. on the 18th; force 10.

At Yokohama, by Captain Thomsen, "Hans," and by Captain R. N. Walker, steamship "Hiogo Maru," at 9.30 a. m.; force 8.

At Yokosuka, by Captain Dithlefsen, steamship "Owari Maru," and at Niigata, by Captain Cleary, steamship "Ise Maru," at noon on the 18th; the latter observation with heavy sea from northeast.

In 40° N., 142° E., Captain Davison, steamship "Sekirio Maru;" noticed also heavy east-northeast sea.

Thus the wind force decreased from 12, the highest figure in the scale, in the west to about 8 in southeastern Nippon; and to the north of the track gales did not extend more than 100 or 120 n. miles.

The greatest amount of rain in both storms fell near the track, thus on the 15th on the southeast coast, at Numaduzu, 136 mm. in 8 hours. The exceptions during the second storm were Ozaka and Kochi, which stations had only 1 and 4 mm. rain in the 2 days. Hiroshima observed 83 mm. on the 17th from 2 to 9 p, m.; Gifu the same amount during the night.

Both storms developed probably very near the coast of Japan, and their maximum speed was about the same, 30 n. miles.

The following figures may serve as a comparison:

| Interval barely 24 hours. | First storm. | Second storm. |
|---|---|---|
| | *Mill.* | *Mill.* |
| The lowest barometer was | 708‖ | 729‖ |
| The greatest fall was, in 4½ hours | 45 | |
| The greatest fall was, in 5½ hours | | 27 |
| The greatest fall was, in 8 hours (regular observations) | 21 | 17 |
| The greatest fall was, in 24 hours (regular observations) | 25 | 21 |
| The steepest gradient was | 27 | 15 |

‖Aneroid corrected.

This pair was altogether more severe than the one described in the "Japan Mail," of October 22, 1883, when the interval was about three days.

E. KNIPPING.

## STORM-TRACKS FOR NOVEMBER, 1882.

Chart iii for November, 1882, shows the paths of thirty-nine of the more important depressions which appeared in the northern hemisphere during that month. The track of the typhoon that passed over Manila and the China Sea is taken from the Rev. M. Dechevrens' paper "The typhoons of 1882" (second part).

The above depressions are distributed, geographically, as follows: Five (i to v) are traced over the United States and Canada; eleven (vi to xvi) are shown over the Atlantic Ocean; sixteen (xvii to xxxii) are traced over the European continent, and seven (xxxiii to xxxix) appeared in Asia and over the north Pacific Ocean.

Of the depressions traced over the American continent, two, numbers i and ii, first appeared on the Pacific coast, whence they moved eastward to the Lake region where the first filled in, while the second moved northeastward and passed into the Atlantic from the coast of Labrador. Number iv developed in Dakota and passed east-northeastward over the Lake region and down the Saint Lawrence valley to the Gulf. Two storms, which developed considerable energy on reaching the Atlantic, first appeared near the Rio Grande Valley and moved eastward along the northern shore of the Gulf of Mexico and into the Atlantic Ocean from the Florida coast. In the above storms the pressure near the centres of disturbance ranged from 29.5 (749.3) to 29.8 (756.9) until the centres approached the Atlantic, when a decrease of pressure set in; they were, however, generally accompanied by high winds to moderate and strong gales, owing to the somewhat steep gradients caused by the close proximity of the high areas. Descriptions of these depressions will be found under "Areas of low barometer," in the MONTHLY WEATHER REVIEW for November, 1882.

Of the depressions shown over the Atlantic, four, viz., numbers xi, xiii, xiv, and xvi, were continuations of storms which had previously moved over the North American continent; two, numbers ix and x, developed over the region north of the sixtieth parallel, the first moving southeastward to about N. 56°, W. 17° and then northeastward along the northwestern coasts of the British Isles, while the second disappeared in the vicinity of Iceland. Two depressions (vi and vii), the first of which was a continuation of number xx of the October chart, are shown near N. 55° and between the meridians of 30° and 40° W. The remaining depressions, numbers viii, xii, and xv, appeared over the western part of the Atlantic; the first appears to have originated in the neighborhood of the Bahama Islands, whence it moved slowly east-northeastward over the Atlantic at a comparatively low latitude; number xii developed near Bermuda, and after moving slowly northeastward for two days it curved to the northward and westward and disappeared in the Gulf of Saint Lawrence; the last (xv) appeared south of Nova Scotia and moved first northeastward and then northward, finally disappearing in southern Greenland.

All the disturbances were attended by moderate to strong gales (force 8–10), the atmospheric depression being rather deep and ranging from 29.0 (736.6) to 29.5 (749.3). The following are the lowest pressures reported, with the wind-force and directions at the time:

| Depression. | Date. | Lat. N. Lon. W. (About.) | Barometer. | | Wind. | |
|---|---|---|---|---|---|---|
| | | | Inches. | Mill. | Direction. | Force. |
| | | ° ′ ° ′ | | | | |
| VI | 1 | 54 0 29 0 | 29.06 | 738.1 | wsw. | 10 |
| | 3 | Stykkisholm .. | 28.85 | 732.8 | no. | 10 |
| | 4 | Thorshavn ..... | 28.66 | 728.0 | no. | 4 |
| VII | 2 | 52 0 35 0 | 29.24 | 742.7 | sw. | 8 |
| VIII | 10 | 42 0 32 0 | 29.06 | 738.1 | s.; w. | 4–8 |
| IX | 7 | 55 0 20 0 | 29.25 | 742.9 | nw. | 10 |
| | 8 | Thorshavn ..... | 28.87 | 733.3 | no. | 4–8 |
| X | 14 | Stykkisholm ... | 28.85 | 732.8 | s. | 6 |
| XI | 19 | Thorshavn ..... | 28.75 | 730.2 | sw. | 6 |
| XII | 19 | 45 0 55 0 | 29.13 | 739.9 | ne.; sw. | 8–10 |
| XIII | 23 | 45 0 54 0 | 29.04 | 737.6 | sw.; nw. | 6–10 |
| XIV | 26 | 46 0 58 0 | 29.56 | 750.8 | w. | 6–8 |
| XV | 28 | 48 0 50 0 | 29.26 | 743.2 | s. | 10 |
| | 29 | Ivigtut..... | 29.21 | 741.9 | no. | 6 |
| XVI | 30 | Sydney, C. B... | 29.49 | 749.0 | sw. | 4 |

The most violent gales generally occurred over the region south of the storm-centres, between N. 45° and 50°, the direction of the winds being mostly from sw. to w. and nw.

Of the sixteen depressions traced over Europe, six (numbers xvii, xx, xxiii, xxiv, xxvii, and xxix) developed near the coasts of, and passed over, the British Isles; one (xxviii) entered Scandinavia from the Atlantic; four (xxi, xxii, xxx, and xxxi) first appeared in the North Sea; one (xvii) in the White Sea region, and two (numbers xix and xxxii) near the shores of the Black Sea; of the remaining two, one (number xxv) appeared in eastern Prussia and moved north-northwestward over the Baltic to Scandinavia, and the other (xxvi) appeared over the northern part of the Italian Peninsula and moved

* Aneroid corrected.

southwestward to the Gulf of Genoa. The general direction of movement of the European depressions charted during November, 1882, was southeasterly or east-southeasterly, changing to northeasterly after the disturbances had entered Russia. These depressions were mostly deep and of great storm-energy, and were consequently attended by rainy weather and strong gales, especially during their transit over the British Isles and western Europe. The more important were the following: Number xvii, in Ireland on the 1st, barometer 29.2 (741.7), with sw. and w. gales of force 8 to 10 over the Channel and the northern part of the Bay of Biscay. Number xx, which passed over England, the North Sea and Denmark during the 5th and 6th, causing strong gales from sw. to w. and nw. over northern Germany, Denmark, and the Baltic; lowest barometer, 28.92 (734.6), at Wisby, on the 6th. Number xxiii, passing over the North Sea on the 9th and Denmark on the 10th, and causing fresh to strong gales in all quadrants; lowest barometer, 28.8 (731.5), on the 9th. Number xxiv, passing southeastward over the British Isles and western Europe between the 15th and 17th, and causing strong sw. to nw. gales in France, se. to e. gales in Germany and the Netherlands and over the northern part of the North Sea, with ne. to n. gales in England, and nw. gales in the Channel; lowest barometer, 29.16 (740.7), at Chatham, England, on the 16th; on the 17th, when the centre of this depression was in northern Italy, the barometer read 29.2 (741.7). Number xxix, which passed over Scotland, Denmark, and the Baltic during the period from the 25th to 27th. During its passage the barometer remained about 29.0 (736.6), and strong breezes to moderate gales occurred in the districts to the south and west of the track. In addition to the gales produced by the depressions which entered Europe, generally stormy weather, with frequent heavy gales, occurred over the British Isles and the North Sea, caused by the passage of the depressions which moved northeastward and eastward along, or to the northward of, the British coasts.

Of the depressions shown in Asia, one (xxxiii) appeared in northern Siberia at the close of the month, with pressure varying from 29.68 (753.9) to 29.78 (756.4); the remaining depressions (numbers xxxiv to xxxviii, inclusive) passed over northeastern China and Japan, the most important being numbers xxxvii and xxxviii; in the first, the barometer fell to 29.5 (749.3) as the storm-centre passed over northern Japan, and in the second, it touched 29.45 (748.8), on the 29th.

The prominent features of the chart for November, 1882, are: 1st, the small number of depressions that appeared in the North American continent, and 2d, the frequent passage of deep depressions of great storm energy in Europe, especially over the British Isles and the western part of the continent; while Scandinavia and the northern districts remained comparatively free from severe storms.

Referring to the typhoon which occurred in the China Sea and vicinity during the month, the Rev. Marc Dechevrens states that it passed over Luzon during the 5th, and, although not so violent as its predecessor on October 20th, it was, however, sufficiently violent to blow down the structures that were being rebuilt. The velocity of translation when passing over Luzon varied from eleven to fourteen miles an hour; and the central region was apparently about eleven miles in diameter. After crossing Luzon the typhoon appears to have remained in the China Sea until the 12th, causing during that period generally stormy weather along the Chinese coasts and moderate to heavy gales at sea; the lowest pressure reported was 29.25 (742.9), on the 6th and 7th. On the 13th, 14th, and 15th the typhoon passed out into the Pacific, its track being at a considerable distance south of Japan.

## SPECIAL NOTES.

### DAILY BULLETIN.

On and after July 1, 1884, the DAILY BULLETIN OF SIMULTANEOUS METEOROLOGICAL OBSERVATIONS will be discontinued. The daily chart accompanying this bulletin, or international chart No. i., will continue to be issued as heretofore, but on an enlarged scale, and will contain data referring to pressure (at sea-level), temperature, wind-direction, and state of weather for each day at all reporting stations in the northern hemisphere, and over the northern portions of the Atlantic and Pacific oceans, as heretofore published in the DAILY BULLETIN.

The observations are taken at 7 h. 0 m., a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time, except at the following stations, viz.: Arlon, Belgium, at 1 p. m., local time, or 28 minutes late; Upernavik, Greenland, at 8 a. m., local time, or 24 minutes early; Ivigtut, Greenland, at 8 a. m., or 56 minutes early; Brono, Norway, at 2 p. m., or 63 minutes late.

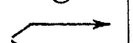
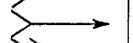
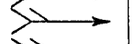
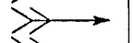
All data referring to force, velocity, or pressure (in pounds per square foot) of the wind, are reduced to the scale of 0-10, and the approximate value is indicated by the number of feathers on the arrow (see below). The state of the weather is indicated by the following symbols:

○ clear; ◔ fair; ◕ cloudy; ● precipitation (rain, snow, hail, sleet).

### INTERNATIONAL CHARTS.

International chart i. shows the atmospheric pressure at sea-level in English inches, the isobars being drawn for every two-tenths of an inch; temperature (by figures only) in degrees Fahrenheit.

Arrows show direction of, and fly with, the wind; force is shown as follows:

| SYMBOLS. | FORCE. | VELOCITY. | |
|---|---|---|---|
| | | MILES PER HOUR. | METRES PER SECOND. |
| ○ | 0 | 0 | 0 |
|  | 1, 2 | 0 to 9 | 0 to 4 |
|  | 3, 4 | 9.1 to 22.5 | 4.1 to 10.1 |
|  | 5, 6 | 22.6 to 40.5 | 10.1 to 18.1 |
|  | 7, 8 | 40.6 to 67.5 | 18.1 to 30.2 |
| | 9, 10 | 67.6 up. | 30.2 and over. |

International chart ii. (monthly mean chart) shows the mean pressure at sea-level in English inches; the mean temperature in degrees, Fahrenheit; the mean force and prevailing direction of the wind, as determined from observations taken at 7 a. m., Washington mean time.

International chart iii. shows the tracks of centres of low barometer. The Arabic numerals show the location of the centres of low barometer at 7 a. m., Washington mean time of that date.

In the above charts, broken lines indicate that the lines so drawn are doubtful.

### MONTHLY SUMMARY OF INTERNATIONAL SIMULTANEOUS METEOROLOGICAL OBSERVATIONS.

The positions of stations (latitude and longitude) are obtained from Keith Johnson's "Index Geographicus," except where more exact information is furnished. The elevations of stations are obtained either from the annual, semi-annual, and monthly publications of the various meteorological bureaus here represented, or from the original forms upon which are entered the daily observations. In the United States series the elevations are computed from the latest surveys, and are carefully revised each month, in order to note any change in the elevation of the barometer-cistern at any station. It is believed for the most part that, throughout the European and other series, the elevations as given represent the height of the barometer-cistern above sea-level; at least this should be the case. The local time, where omitted or not given correctly in the original, is carefully computed at this office. A letter placed opposite the name of a station or some portion of the data credited thereto, indicates that a certain number of observations are missing, corresponding to the relative position in the English alphabet of the letter so used.

At Hobart Town, Tasmania, the observations are taken at 9 p. m. instead of at 9.57 p. m.

At Astrakhan, Ashurada, and Baku the barometer-cisterns are below sea-level.

On and after July 1, 1884, all stations in the United States series will be grouped by states and territories under each district, in the following order:

NEW ENGLAND: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

MIDDLE ATLANTIC STATES: New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia.

SOUTH ATLANTIC STATES: North Carolina, South Carolina, Georgia, Florida.

EASTERN GULF STATES: Georgia, Florida, Alabama, Mississippi, Louisiana.

WESTERN GULF STATES: Louisiana, Arkansas, Indian Territory, Texas.

RIO GRANDE VALLEY: Texas.

OHIO VALLEY AND TENNESSEE: Tennessee, Kentucky, Illinois, Indiana, Ohio, West Virginia, Pennsylvania.

LOWER LAKES: New York, Pennsylvania, Ohio, Michigan.

UPPER LAKES: Michigan, Indiana, Illinois, Wisconsin, Minnesota.

UPPER MISSISSIPPI VALLEY: Minnesota, Wisconsin, Iowa, Illinois, Missouri.

MISSOURI VALLEY: Missouri, Kansas, Nebraska, Iowa, Dakota.

EXTREME NORTHWEST: Minnesota, Dakota.

NORTHERN SLOPE: Montana, Dakota, Wyoming, Nebraska.

MIDDLE SLOPE: Nebraska, Colorado, Kansas, Indian Territory, Texas, New Mexico.

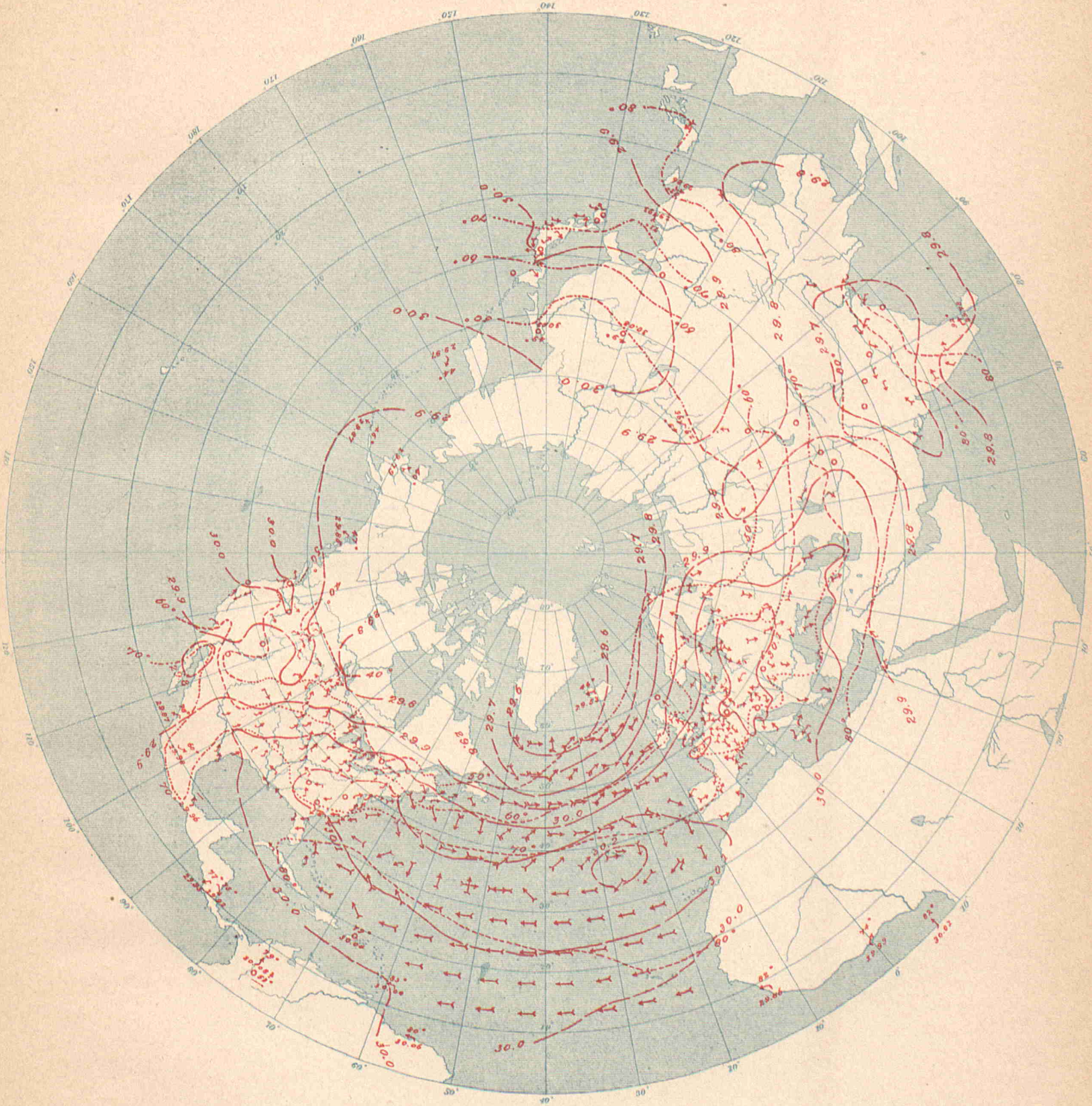
SOUTHERN SLOPE: Indian Territory, Texas, New Mexico.
SOUTHERN PLATEAU: New Mexico, Arizona, California, Nevada.
MIDDLE PLATEAU: California, Nevada, Utah, Colorado, Wyoming.
NORTHERN PLATEAU: Wyoming, Montana, Idaho, Oregon, Washington.
NORTH PACIFIC COAST: Washington, Oregon.
MIDDLE PACIFIC COAST: California.
SOUTH PACIFIC COAST: California.

OCEAN SQUARES.—The table of ocean square data shows (1) the location of the centres of squares whose sides extend 5° each in latitude and longitude, (2) the monthly mean pressure and temperature of the air, and the mean force and total frequency of the wind at 7 a. m., Washington time, computed for the centre of each square from daily readings as obtained by interpolation between the isobars and isotherms of the daily international simultaneous weather maps.

PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

W. B. HAZEN,
*Brig. & Bvt. Maj. Gen'l,*
*Chief Signal Officer, U. S. A.*

# International Chart II. September, 1884. Isobars, Isotherms, and Winds.



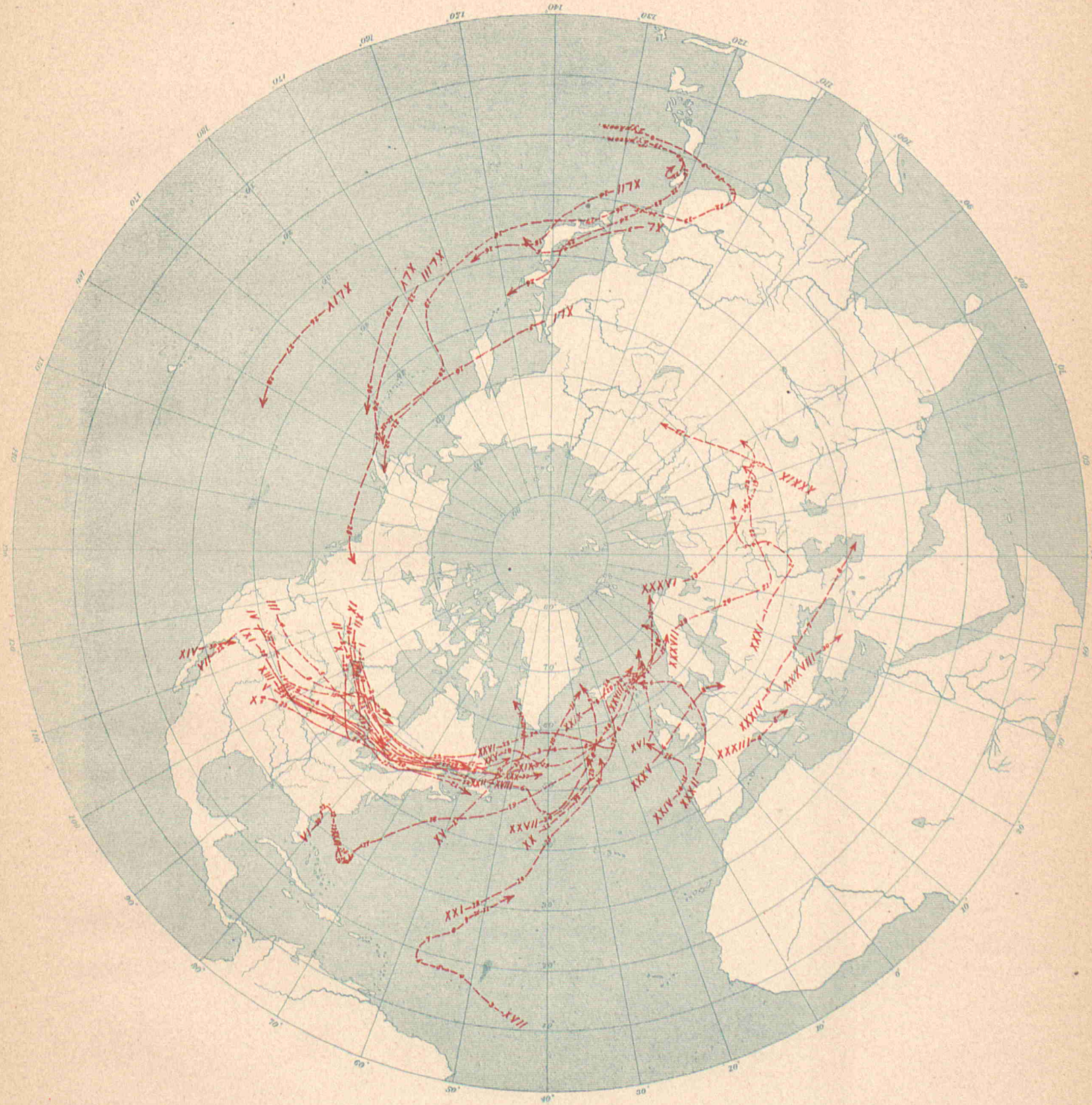
UNITED STATES OF AMERICA.

By Order of the Secretary of War.

W. B. Hazen, Chief Signal Officer.

Signal Office 14th.

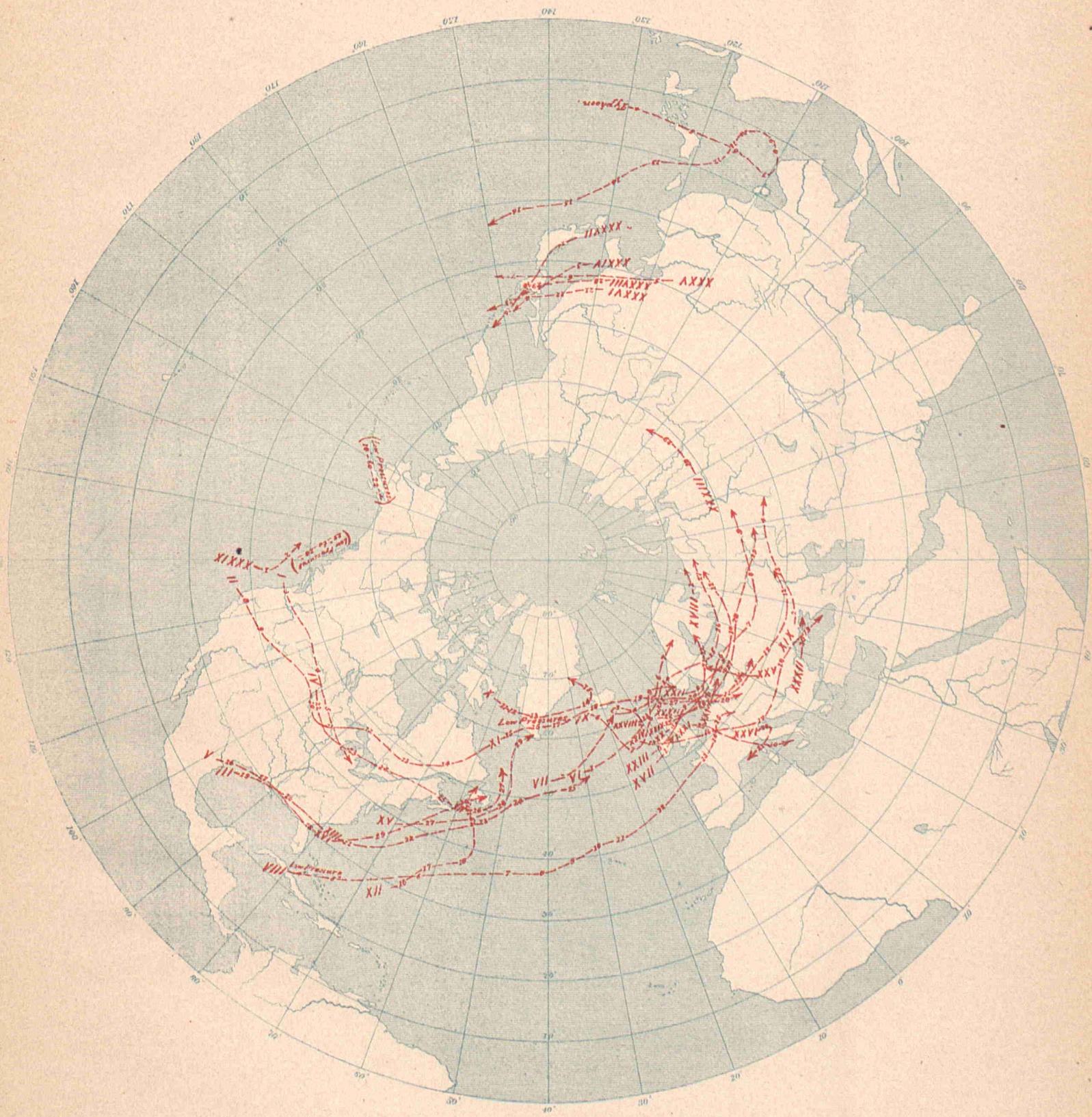
# International Chart III. September, 1884. Storm-Tracks.



UNITED STATES OF AMERICA.

By Order of the Secretary of War:
W.B.Hazen Chief Signal Officer.
Signal Office 14th.

# International Chart III. November, 1882. Storm-Tracks.



UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B.Hazen, Chief Signal Officer.
Signal Office Lith.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY OF THE UNITED STATES.

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# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS

## FOR THE MONTH OF OCTOBER, 1884.

*PRINTED FOR EXCHANGE WITH CO-OPERATING OBSERVERS.*

WASHINGTON, D. C.,
NOVEMBER, 1885.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## OCTOBER, 1884.

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for October, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| AUSTRALIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Adelaide | S. 34 57 | E. 138 35 | 9.22 p.m. | 140 | 42 | ..... | ..... | 30.09 | 764.3 | 56.2 | 13.4 | 68 | ..... | 1 | 4 | 7 | 8 | 5 | 5 | 1 | ..... | 7778 | 12517 | 5 | 1.32 | 33.5 |
| Hobart Town.*a* | S. 42 53 | E. 147 20 | 9.57 p.m. | 190 | 58 | 29.62 | 752 3 | 29.81 | 757.2 | 49.1 | 9.5 | 84 | 3 | 5 | 4 | 6 | 6 | 2 | 1 | ..... | 3 | ..... | ..... | 5 | 1.39 | 35.3 |
| Melbourne | S. 37 50 | E. 144 58 | 9.47 p.m. | 91 | 28 | 29.88 | 758 9 | 29.97 | 761.2 | 52.5 | 11.4 | 79 | 3 | 2 | 3 | 6 | 8 | 7 | ..... | 2 | ..... | ..... | ..... | 5 | 2.87 | 72.9 |
| AUSTRIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agram | N. 45 48 | E. 15 53 | 1.12 p.m. | 536 | 163 | 29.50 | 749.3 | 30.05 | 763.3 | 55.0 | 12.8 | 57.3 | ..... | 2 | 2 | 9 | 5 | 1 | 2 | 10 | ..... | ..... | ..... | 7 | 4.82 | 122.4 |
| Cracow | N. 50 04 | E. 20 00 | 1.28 p.m. | 722 | 220 | 29.22 | 742.1 | 29.99 | 761.7 | 50.7 | 10.4 | 71.5 | 1 | 2 | 6 | 10 | 1 | ..... | 9 | 2 | ..... | ..... | ..... | 8 | 3.33 | 84.5 |
| Eperies | N. 48 58 | E. 21 15 | 1.33 p.m. | 820 | 250 | 29.13 | 739.8 | 30.01 | 762.2 | 46.6 | 8.1 | 79.2 | 4 | ..... | ..... | ..... | 6 | ..... | ..... | ..... | 21 | ..... | ..... | 8 | 1.96 | 49.9 |
| Gratz | N. 47 04 | E. 15 28 | 1.10 p.m. | 1171 | 357 | 28.79 | 731.2 | 30.05 | 763.2 | 52.9 | 11.6 | 76.2 | 2 | 7 | 1 | 8 | 3 | 3 | 3 | 2 | 2 | ..... | ..... | 6 | 5.08 | 129.0 |
| Hermannstadt | N. 45 47 | E. 24 13 | 1.45 p.m. | 1352 | 412 | 28.60 | 726.4 | 30.03 | 762.8 | 55.0 | 12.8 | 58.0 | 3 | 7 | 2 | ..... | 7 | 7 | 5 | ..... | ..... | ..... | ..... | 7 | 1.07 | 27.1 |
| Kremsmunster | N. 48 03 | E. 14 08 | 1.04 p.m. | 1260 | 384 | 28 69 | 728 6 | 30.04 | 763.0 | 49.8 | 9.9 | 78.7 | ..... | 3 | 19 | 2 | ..... | ..... | 4 | 2 | 1 | ..... | ..... | 8 | 5.24 | 133.1 |
| Lemberg | N. 49 50 | E. 24 00 | 1.44 p.m. | 978 | 298 | 29.01 | 736.8 | 30.00 | 762.1 | 50.2 | 10.1 | 71.2 | 1 | 4 | 2 | 9 | 5 | 7 | 2 | 1 | ..... | ..... | ..... | 7 | 2.56 | 65.1 |
| Pola | N. 44 52 | E. 13 51 | 1.04 p.m. | 105 | 32 | 29.91 | 759.8 | 30.03 | 762.7 | 60.6 | 15.9 | 64.6 | ..... | 1 | 5 | 4 | 5 | 5 | 6 | 5 | ..... | ..... | ..... | 5 | 3.79 | 96.2 |
| Szathmar | N. 47 46 | E. 22 53 | 1.39 p.m. | 430 | 131 | 29.52 | 749.9 | 29.59 | 761.7 | 54.0 | 12.2 | 68.0 | 7 | ..... | 6 | 3 | 11 | ..... | 4 | ..... | ..... | ..... | ..... | 6 | 3.28 | 83.2 |
| Szegedin.*a* | N. 46 15 | E. 20 10 | 1.29 p.m. | 256 | 78 | 29.72 | 754.9 | 30.00 | 762.0 | 56.1 | 13.4 | 71.9 | 3 | 4 | 7 | 3 | 5 | 3 | 1 | ..... | 4 | ..... | ..... | 7 | 3.17 | 80.5 |
| Trieste | N. 45 39 | E. 13 46 | 1.04 p.m. | 85 | 26 | 29.95 | 760.7 | 30.05 | 763.2 | 60.8 | 16.0 | 56.1 | ..... | 8 | 3 | 5 | ..... | ..... | 2 | 2 | 11 | ..... | ..... | 7 | 3.65 | 92.8 |
| Vienna | N. 48 12 | E. 16 22 | 1.14 p.m. | 663 | 202 | 29.31 | 744.5 | 30.03 | 762.8 | 52.2 | 11.2 | 67.4 | 2 | 1 | 18 | ... | 1 | 3 | 3 | 2 | 1 | ..... | ..... | 8 | 4.91 | 124.8 |
| BELGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arlon | N. 49 40 | E. 5 48 | 0.32 p.m. | ? | ? | ..... | ..... | ..... | ..... | 48.4 | 9.1 | 83.1 | ..... | 2 | 7 | 9 | ..... | 5 | 7 | 1 | ..... | ..... | ..... | 6 | 2.83 | 71.8 |
| Brussels | N. 50 51 | E. 4 22 | 0.26 p.m. | 187 | 57 | 29.85 | 758.1 | 30.04 | 763 1 | 52.7 | 11.5 | 75.9 | 1 | 3 | 9 | 11 | 2 | 1 | 2 | 2 | ..... | ..... | ..... | 7 | 4.10 | 104.2 |
| Furnes.*a* | N. 51 04 | E. 2 40 | 0.19 p.m. | 20 | 6 | 30.02 | 762.4 | 30.03 | 762.8 | 54.9 | 12.7 | 80.0 | 1 | 12 | 5 | 1 | 3 | 1 | 3 | 4 | ..... | ..... | ..... | 7 | 3.58 | 90.9 |
| Maeseyck | N. 51 06 | E. 5 48 | 0.32 p.m. | 115 | 35 | 29.91 | 759 6 | 30.03 | 762.7 | 55.4 | 13.0 | 74.1 | 2 | 8 | 8 | 6 | 2 | 1 | 3 | 1 | ..... | ..... | ..... | 8 | 2.11 | 53.5 |
| BRITISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aberdeen | N. 57 10 | W. 2 06 | 0.00 m. | 89 | 27 | 29.80 | 756.9 | 29.90 | 759 4 | 50.5 | 10.3 | 69.9 | ..... | 5 | 12 | 2 | 9 | 2 | ..... | 1 | ..... | ..... | ..... | 6 | 2.31 | 58.7 |
| Bidston | N. 53 24 | W. 3 04 | 11.56 a.m. | 197 | 60 | ..... | ..... | 30.05 | 763.3 | 52.4 | 11.3 | 69.4 | 2 | 6 | 13 | ..... | 2 | 5 | 2 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Bolton | N. 53 35 | W. 2 28 | 11.58 a.m. | 500 | 152 | 29.50 | 749.3 | 30.03 | 762.7 | 50.3 | 10.2 | 75.5 | ..... | 7 | 6 | 7 | 5 | 2 | 1 | 3 | ..... | ..... | ..... | 8 | ..... | ..... |
| Bradford | N. 53 48 | W. 1 47 | 0.01 p.m. | 366 | 111 | 29.62 | 752.3 | 30.01 | 762.2 | 51.0 | 10.6 | 76.6 | 1 | 9 | 6 | 8 | 1 | 2 | ..... | 4 | ..... | ..... | ..... | 8 | 1.50 | 38.1 |
| Bridgetown | N. 13 04 | W. 59 37 | 8.10 a.m. | 28 | 9 | 29.96 | 761.0 | 29.99 | 761.7 | 82.2 | 27.9 | 77.0 | ..... | ..... | ..... | ..... | ..... | 2 | 7 | 22 | ..... | ..... | ..... | 5 | ..... | ..... |
| Cardington | N. 52 08 | W. 0 27 | 0.06 p.m. | 109 | 33 | 29.96 | 761.0 | 30.08 | 764.0 | 52.0 | 11.1 | 83.6 | 4 | 6 | 10 | 5 | 2 | 2 | ..... | 2 | ..... | ..... | ..... | 7 | ..... | ..... |
| Chatham | N. 51 25 | E. 0 33 | 0.10 p.m. | 160 | 49 | 29.89 | 759.2 | 30.06 | 763.5 | 54.0 | 12.2 | 69.4 | 7 | 2 | 3 | 6 | 1 | 1 | ..... | ..... | 11 | ..... | ..... | 7 | ..... | ..... |
| Falmouth | N. 50 09 | W. 5 04 | 11.48 a.m. | 211 | 64 | 29.93 | 760.2 | 30.16 | 766.1 | 55.2 | 12.9 | 73.5 | 1 | 13 | 5 | 3 | 3 | 2 | 3 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Fort Napier | S. 30 | E. 31 | 2.12 p.m. | 2205 | 672 | 27.61 | 701.3 | 29.93 | 760.2 | 73.8 | 23.2 | 50.4 | 5 | ..... | ..... | ..... | 3 | 13 | 5 | 5 | ..... | ..... | ..... | 5 | ..... | ..... |
| Freetown | N. 8 30 | W. 13 14 | 11.15 a.m. | 224 | 68 | 29.63 | 752 6 | 29.86 | 758 4 | 85.5 | 29.7 | 80.9 | 9 | ..... | 4 | 2 | 11 | 1 | 4 | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Galway | N. 53 15 | W. 9 03 | 11.32 a.m. | 32 | 10 | 30.01 | 762.2 | 30.05 | 763.3 | 51.4 | 10.8 | 90.9 | 1 | 4 | 8 | 11 | 6 | 1 | ..... | ..... | ..... | ..... | ..... | 6 | 2.46 | 62.5 |
| Gibraltar | N. 36 09 | W. 5 21 | 11.47 a.m. | 50 | 15 | 29.94 | 760.5 | 30.06 | 763 5 | 67.4 | 19.7 | 84.5 | ..... | 5 | 4 | 1 | ..... | ..... | 10 | 10 | 1 | ..... | ..... | 5 | ..... | ..... |
| Greenwich | N. 51 29 | 0 00 | 0.08 p.m. | 159 | 48 | 29.90 | 759.4 | 30.07 | 763.8 | 54.0 | 12.2 | 71.6 | 5 | 3 | 7 | 8 | 2 | 2 | 2 | 2 | ..... | ..... | ..... | 7 | ..... | ..... |
| Guernsey | N. 49 27 | W. 2 41 | 11.58 a.m. | 275 | 84 | 29.85 | 758.2 | 30.14 | 765.5 | 55.2 | 12.9 | 75.2 | 6 | 6 | 7 | 4 | 1 | ..... | 3 | 3 | 1 | ..... | ..... | 6 | 2.13 | 54.1 |
| Kew | N. 51 28 | W. 0 19 | 0.07 p.m. | 34 | 10 | 30.05 | 763.3 | 30.09 | 764.3 | 53.3 | 11.8 | 67.0 | 2 | 7 | 7 | 3 | 5 | 2 | 4 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Leicester | N. 52 39 | W. 1 08 | 0.04 p.m. | 245 | 75 | 29.79 | 756 7 | 30.05 | 763 3 | 53.3 | 11.8 | 70.6 | 1 | 7 | 6 | 9 | 2 | 2 | ..... | 4 | ..... | ..... | ..... | 8 | ..... | ..... |
| Malta | N. 36 00 | E. 14 30 | 1.06 p.m. | 70 | 21 | 29.90 | 759 4 | 29.97 | 761.2 | 72.5 | 22.5 | 69.8 | ..... | 11 | 1 | 1 | ..... | 7 | ..... | 11 | ..... | ..... | ..... | 6 | ..... | ..... |
| Nassau | N. 25 04 | W. 77 22 | 6.58 a.m. | 44 | 13 | 29 93 | 760.2 | 29.98 | 761.5 | 78.4 | 25.8 | 79.2 | ..... | 2 | 1 | : | ..... | 2 | 13 | 12 | ..... | ..... | ..... | 6 | ..... | ..... |
| Oxford | N. 51 46 | W. 1 17 | 0.03 p.m. | 210 | 64 | 29.86 | 758.4 | 30.09 | 764 3 | 53.2 | 11.8 | 70.6 | 3 | 5 | 8 | 5 | 5 | 2 | 1 | 1 | 1 | ..... | ..... | 7 | ..... | ..... |
| Plymouth | N. 50 22 | W. 4 10 | 11.51 a.m. | 69 | 21 | 30.06 | 763.5 | 30.13 | 765.3 | 55.3 | 12.9 | 84.0 | 3 | 9 | 2 | 6 | 2 | 1 | 1 | 4 | 3 | ..... | ..... | 8 | ..... | ..... |
| Sandwick Manse | N. 59 05 | W. 3 20 | 11.54 a.m. | 94 | 29 | 29.74 | 754.6 | 29.81 | 757.2 | 48.9 | 9.4 | 83.8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 | ..... | ..... |
| Scutari Cemet'y | N 41 00 | E. 29 03 | 2.04 p.m. | 60 | 18 | 29.95 | 760.7 | 30.01 | 762.2 | 65.5 | 18.6 | 67.6 | 7 | 1 | 1 | 7 | 3 | ..... | ..... | 8 | 4 | ..... | ..... | 7 | ..... | ..... |
| Sheffield | N. 53 23 | W. 1 28 | 0.02 p.m. | 260 | 79 | 29.72 | 754.9 | 30.02 | 762.5 | 52.7 | 11.5 | 71.2 | ..... | 5 | 7 | 10 | 1 | ..... | ..... | 7 | 1 | ..... | ..... | 6 | ..... | ..... |
| Silloth Rectory | N. 54 52 | W. 3 22 | 11.54 a.m. | 28 | 9 | 29.97 | 761.2 | 30.00 | 762 0 | 52.5 | 11.4 | 77.8 | 7 | 2 | 8 | 9 | 3 | ..... | 2 | ..... | ... | ..... | ..... | 7 | 2.41 | 61.2 |
| Stonyhurst | N. 53 51 | W. 2 28 | 11.58 a.m. | 361 | 110 | ..... | ..... | 30.05 | 763.3 | 49.1 | 9.5 | 72.4 | 1 | 3 | 14 | 4 | 3 | 1 | 1 | 4 | ..... | ..... | ..... | 8 | 3.97 | 100.8 |
| Strathfield | N. 51 17 | W. 0 53 | 0.04 p.m. | 197 | 60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Valencia | N. 51 55 | W. 10 18 | 11.27 a.m. | 23 | 7 | 30.12 | 765.0 | 30.15 | 765.8 | 54.1 | 12.3 | 78.8 | 7 | 6 | 1 | 11 | 2 | 4 | ..... | ..... | ..... | ..... | ..... | 7 | ..... | ..... |
| *Sub-series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gozo | N. 36 01 | E. 14 16 | 1.05 p.m. | 364 | 111 | 29.69 | 754.1 | 30.07 | 763.8 | 71.6 | 22.0 | 65.3 | 1 | 10 | 5 | 2 | 5 | .. .. | 5 | 3 | ..... | 3420 | 5506 | 6 | 1.63 | 41.4 |
| CANADIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bathurst.*d* | N. 47 39 | W. 65 43 | 7.45 a.m. | 35 | 11 | 29.98 | 761 5 | 30.02 | 762 5 | 37.9 | 3.3 | ..... | ..... | ..... | 1 | 3 | 4 | 8 | ..... | 11 | ..... | ..... | ..... | 6 | 1.58 | 40.1 |
| Charlottetown | N. 46 14 | W. 63 10 | 7.55 a.m. | 38 | 12 | 29.96 | 761.0 | 30.00 | 762.0 | 42.7 | 5.9 | 81.6 | 6 | 9 | 4 | 5 | 5 | ..... | ..... | 1 | 1 | 6780 | 10921 | 7 | 2.81 | 71.4 |
| Chatham | N. 47 03 | W. 65 29 | 7.45 a.m. | 56 | 17 | 29.95 | 760.7 | 30.02 | 762.5 | 36.6 | 2.6 | 81.4 | 2 | 9 | 6 | 8 | 2 | ..... | 1 | 3 | ..... | 4576 | 7364 | 6 | 2.54 | 64.5 |
| Cornwall | N. 45 01 | W. 74 43 | 7.09 a.m. | 175 | 53 | 29.85 | 758.2 | 30.04 | 763.0 | 43.3 | 6.3 | 85.1 | 4 | 13 | 5 | 2 | ..... | ..... | 6 | 1 | ..... | ..... | ..... | 7 | 2.62 | 66.5 |
| Dalhousie.*e* | N. 48 04 | W. 66 22 | 7.32 a.m. | 45 | 14 | 29.95 | 760.7 | 30.00 | 762.0 | 30.4 | 2.4 | ..... | ..... | 2 | 19 | ..... | ..... | 1 | 2 | ..... | 4 | ..... | ..... | 4 | 1.00 | 25.4 |
| Father Point | N. 48 31 | W. 68 28 | 7.34 a.m. | 20 | 6 | 29.97 | 761.2 | 29.99 | 761.7 | 37.0 | 2.8 | 74.1 | 6 | 5 | 5 | 5 | 3 | 2 | ..... | 2 | 3 | 11076 | 17825 | 8 | 1.91 | 48.5 |
| Fort Garry | N. 49 51 | W. 97 07 | 5.39 a.m. | 754 | 230 | 29.13 | 739 9 | 29.99 | 761.7 | 34.0 | 1.1 | 85.9 | 6 | 5 | 4 | 3 | 5 | 4 | 3 | 1 | ..... | 9884 | 15900 | 7 | 1.52 | 38 6 |
| Fredericton | N. 45 57 | W. 66 38 | 7.41 a.m. | 59 | 18 | 30.01 | 762.2 | 30.07 | 763.8 | 39.1 | 3.9 | 78.0 | 1 | 17 | 3 | 4 | ..... | 2 | 1 | 3 | ..... | ..... | ..... | 5 | 2.69 | 68.3 |
| Grand Manan | N. 44 46 | W. 66 45 | 7.41 a.m. | 49 | 15 | 30.01 | 762.2 | 30.07 | 763.8 | 44.7 | 7.1 | 75.2 | 14 | 2 | 3 | 6 | 2 | 1 | 2 | 1 | ..... | 10828 | 17426 | 6 | 1 52 | 38.6 |
| Granton | N. 43 12 | W. 81 21 | 6.43 a.m. | 1015 | 309 | 29.02 | 737.1 | 30.14 | 765.5 | 44.2 | 6.8 | ..... | ..... | 5 | 2 | 2 | 5 | 2 | 1 | 1 | 13 | ..... | ..... | 5 | 3.95 | 100.3 |
| Halifax | N. 44 39 | W. 63 36 | 7.53 a.m. | 122 | 37 | 29.91 | 759.7 | 30.06 | 763.5 | 44.0 | 6.7 | 87.2 | 11 | 3 | 8 | 3 | 4 | ..... | ..... | 1 | 1 | ..... | ..... | 6 | 2.17 | 55.1 |
| Hamilton | N. 43 16 | W. 79 53 | 6.49 a.m. | 350 | 107 | 29.07 | 753.6 | 30.08 | 764.0 | 49.8 | 9.9 | 90.4 | ..... | 5 | 4 | 17 | ..... | ..... | 1 | 3 | 1 | ..... | ..... | 6 | 2.28 | 57.9 |
| Kingston | N. 44 14 | W. 76 30 | 7.02 a.m. | 307 | 94 | 29.75 | 755.6 | 30.09 | 764 3 | 46.3 | 7.9 | 83.6 | 7 | 2 | 6 | 5 | 2 | ..... | 2 | 7 | ..... | 5676 | 9135 | 6 | 1.44 | 36.6 |
| LittleGlace Bay | N. 46 12 | W. 59 58 | 8.08 a.m. | 34 | 10 | 29.91 | 759.7 | 29.95 | 760.7 | 44.2 | 6.8 | 75.2 | 5 | 5 | 3 | 7 | 4 | ..... | 2 | 5 | ..... | ..... | ..... | 8 | ..... | ..... |
| London | N. 43 00 | W. 81 15 | 6.43 a.m. | 816 | 248 | 29.26 | 743 2 | 30.16 | 766.1 | 44.6 | 7.0 | 89.3 | ..... | 3 | 3 | 3 | 2 | ..... | 1 | ..... | 19 | ..... | ..... | 4 | 4.37 | 111.0 |
| Medicine Hat.*b* | N. 50 01 | W. 110 37 | 4.46 a.m. | 2136 | 651 | 27.50 | 700.0 | 29.87 | 758 7 | 37.9 | 3.3 | 73.1 | 1 | ... | 3 | 5 | 6 | 2 | 1 | 4 | 7 | 8622 | 13876 | 4 | 0.25 | 6.3 |
| Minnedosa | N. 50 13 | W. 99 48 | 5.29 a.m. | 1796 | 545 | 27.99 | 710.9 | 29.97 | 761 2 | 30.8 | —0.7 | 84.5 | 2 | 12 | ..... | 3 | 1 | 2 | 4 | 5 | 2 | ..... | ..... | 6 | 1.87 | 47.5 |
| Montreal | N. 45 31 | W. 73 33 | 7.13 a.m. | 187 | 57 | 29.87 | 758.7 | 30.08 | 764.0 | 43.6 | 6.4 | 79.6 | 3 | 4 | 5 | 6 | 6 | 1 | 2 | 4 | ..... | ..... | ..... | 7 | 2.67 | 67.8 |
| Ottawa | N. 45 26 | W. 75 41 | 7.05 a.m. | 200 | 61 | 29.85 | 758.2 | 30.07 | 763 8 | 41.7 | 5.4 | 88.5 | 10 | 4 | 2 | 6 | 3 | ..... | 3 | 3 | ..... | ..... | ..... | 7 | 2.73 | 69.3 |
| Parry Sound | N. 45 19 | W. 80 01 | 6.48 a.m. | 635 | 194 | 29.38 | 746.2 | 30.09 | 764.3 | 42.9 | 6.1 | 87.5 | 5 | ..... | 8 | 3 | 2 | 6 | 3 | 3 | 1 | 7697 | 12387 | 6 | 5.20 | 133.6 |
| Peterboro.*e* | N. 44 17 | W. 78 18 | 6.54 a.m. | 688 | 210 | 29.34 | 745.2 | 30.09 | 764.3 | 43.5 | 6.4 | 88.7 | 2 | 2 | 2 | 4 | 1 | ..... | 2 | 1 | 12 | ..... | ..... | 5 | 1.21 | 30.7 |
| Port Arthur | N. 48 27 | W. 89 12 | 6.11 a.m. | 642 | 196 | 29.27 | 743.4 | 29.99 | 761.7 | 37.9 | 3.3 | 86.9 | 4 | 5 | 2 | 1 | 2 | ..... | ..... | ..... | 17 | 3867 | 6223 | 6 | 4.92 | 125.0 |
| Port Dover | N. 42 47 | W. 80 13 | 6.47 a.m. | 635 | 194 | 29.43 | 747.5 | 30.13 | 765.3 | 48.4 | 9.1 | 91.1 | 3 | 5 | 6 | 7 | 3 | 2 | ..... | 5 | ..... | 5640 | 9076 | 6 | 2.35 | 59.7 |
| Port Stanley | N. 42 40 | W. 81 13 | 6.43 a.m. | 592 | 180 | 29.47 | 748.5 | 30.12 | 765 0 | 46.6 | 8.1 | 87.5 | 5 | ..... | 14 | 2 | 3 | ..... | 4 | 2 | 1 | ..... | ..... | 5 | 1.65 | 41.9 |
| Qu' Appelle | N. 50 44 | W. 103 42 | 5.13 a.m. | 2115 | 646 | 27.65 | 702.3 | 29.99 | 761.7 | 28.8 | —1.8 | 84.8 | 1 | 5 | 5 | 6 | 4 | 4 | 2 | 1 | 3 | 9508 | 15301 | 5 | 0.39 | 9.9 |
| Quebec | N. 46 48 | W. 71 12 | 7.23 a.m. | 293 | 89 | 29.68 | 753.9 | 30.05 | 763 3 | 38.5 | 3.6 | 88.4 | 4 | ..... | 10 | 7 | ..... | ..... | ..... | 4 | 6 | ..... | ..... | 9 | 2.80 | 71.1 |
| Rockliffe | N. 46 10 | W. 77 48 | 6.57 a.m. | 418 | 127 | 29.59 | 751.6 | 30.06 | 763.5 | 39.3 | 4.1 | 86.0 | ..... | 10 | 3 | ..... | ..... | 9 | 3 | 1 | 5 | ..... | ..... | 7 | 3.39 | 86.1 |
| Saint Andrews | N. 43 04 | W. 81 06 | 6.34 a.m. | 47 | 14 | 30.00 | 762.0 | 30.05 | 763.3 | 41.8 | 5.4 | 81.0 | 6 | 10 | 2 | 5 | 2 | ..... | 1 | 3 | 2 | ..... | ..... | 4 | 1.96 | 49.8 |
| Saint John, N.B | N. 45 17 | W. 66 03 | 7.44 a.m. | 116 | 35 | 29.91 | 759.7 | 30.06 | 763.5 | 44.0 | 6.7 | 83.5 | 56 | 11 | 2 | ..... | 7 | 1 | 1 | 1 | ..... | ..... | ..... | 6 | 1.83 | 46.5 |
| Saint Pierre.*n* | N. 46 47 | W. 56 08 | 8.24 a.m. | ? | ? | ..... | ..... | 30.04 | 763.0 | 42.3 | 5.7 | ..... | 3 | 2 | 3 | 3 | ..... | 2 | ..... | 4 | ... | ..... | ..... | ..... | 3.62 | 92.0 |
| Saugeen | N. 44 30 | W. 81 21 | 6.42 a.m. | 656 | 200 | 29.36 | 745.7 | 30.09 | 764.3 | 45.9 | 7.7 | 84.8 | 2 | 1 | 3 | 7 | 7 | 2 | 1 | 2 | 6 | 9312 | 14986 | 7 | 4.60 | 116.8 |
| Stratford | N. 43 23 | W. 81 00 | 6.44 a.m. | 1186 | 361 | 28.84 | 732.5 | 30.14 | 765.5 | 44.2 | 6.8 | 88.1 | ..... | 2 | 5 | 7 | 4 | ..... | 3 | 1 | 9 | ..... | ..... | 6 | 6.50 | 165.1 |
| Sydney | N. 46 08 | W. 60 10 | 8.07 a.m. | 37 | 11 | 29.93 | 760.2 | 29.99 | 761.7 | 42.8 | 6.0 | 80.0 | 3 | 10 | 2 | 9 | 2 | ..... | ..... | 1 | 4 | 7401 | 11910 | 8 | 2.25 | 57.1 |
| Toronto | N. 43 39 | W. 79 23 | 6.50 a.m. | 350 | 107 | 29.74 | 755.4 | 30.13 | 765.3 | 45.1 | 7.3 | 84.5 | 5 | 6 | 7 | 5 | 1 | 1 | 2 | 4 | ..... | 7731 | 12442 | 6 | 1.50 | 38.1 |
| Woodstock | N. 43 08 | W. 80 47 | 6.48 a.m. | 980 | 299 | 29.06 | 738.1 | 30.15 | 765 8 | 44.8 | 7.1 | 88.8 | 2 | 5 | 5 | 11 | 2 | 2 | 3 | 1 | ..... | ..... | ..... | 6 | 4.86 | 123.4 |
| Yarmouth | N. 43 50 | W. 66 02 | 7.44 a.m. | 61 | 19 | 30.00 | 762.0 | 30.10 | 764.5 | 44.5 | 6.9 | 87.5 | 7 | 7 | ..... | 5 | 4 | 1 | 3 | 3 | 1 | ..... | ..... | 5 | 2.13 | 54.1 |
| CAPE COLONY | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape St. Francis.*a* | S. 34 10 | E. 24 50 | 1.47 p.m. | 25 | 8 | 30.04 | 763 0 | 30.07 | 763.8 | 64.0 | 17.8 | 82.0 | ..... | ..... | ..... | 16 | 1 | 5 | 2 | 6 | ..... | ..... | ..... | 5 | ..... | ..... |
| Cape Town | S. 34 02 | E. 18 29 | 1.22 p.m. | ? | ? | 29.97 | 761.2 | ..... | ..... | 64.9 | 18.3 | 56.8 | 2 | 13 | ..... | 1 | ..... | 5 | 1 | 7 | 2 | ..... | ..... | 3 | 3.84 | 97.5 |
| Springbok.*a* | S. 29 45 | E. 17 43 | 1.19 p.m. | ? | ? | 27.91 | 708.9 | ..... | ..... | 70.7 | 21.5 | 38.8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ... | ..... | ..... | ..... | 0.78 | 19.8 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | RESULT OF SIMULTANEOUS OBSERVATIONS FOR OCTOBER, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | TOTAL PRECIPITATION. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | WIND. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | | Inch. | Mill. |
| CHILIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coquimbo | S. 29 56 | W. 71 21 | 7.22 a m | 72 | 22 | 29.97 | 761.1 | 30.04 | 763.1 | 57.2 | 14.0 | 90.0 | 3 | 3 | ..... | 5 | ..... | 6 | 9 | 5 | ..... | ..... | ..... | 5 | 0.02 | 0.6 |
| Iquique. *a.* | S. 20 12 | W. 70 11 | 7.27 a.m | 26 | 8 | 30.00 | 762.1 | 30.03 | 762.8 | 63.5 | 17.5 | 69.0 | 1 | ..... | ..... | 19 | 1 | 2 | 1 | 6 | ..... | ..... | ..... | 4 | ..... | ..... |
| Niebla | S 39 53 | W. 73 25 | 7.14 a.m. | 98 | 30 | 29.59 | 751.5 | 29.69 | 754 2 | 51.1 | 10.6 | 88.5 | 2 | 4 | 4 | ..... | ..... | ..... | 21 | ..... | ..... | ..... | ..... | 6 | 8.97 | 227.8 |
| Punta Caldera | S 27 03 | W. 70 53 | 7.25 a.m. | 82 | 25 | 29.97 | 761.1 | 30.05 | 763 3 | 53.5 | 11.7 | 78.0 | 1 | 5 | ..... | 19 | 1 | 2 | ..... | 3 | ..... | ..... | ..... | 7 | ..... | ..... |
| Punta Corona | S. 41 47 | W. 73 53 | 7.12 a.m. | 174 | 53 | 29.93 | 760.1 | 30.11 | 764.9 | ..... | ..... | ..... | 4 | 5 | 1 | 9 | 3 | 3 | 1 | 5 | ..... | ..... | ..... | 5 | 3.12 | 79.3 |
| Quiriquina | S. 36 37 | W. 73 03 | 7.25 a.m. | 187 | 57 | 29.88 | 759.0 | 30.08 | 764.0 | 56.3 | 13.5 | 74.0 | 3 | 4 | 2 | 6 | 10 | 5 | 1 | ..... | ..... | ..... | ..... | 5 | 4.58 | 116.2 |
| Valparaiso | S. 33 02 | W. 71 39 | 7.22 a.m. | 82 | 25 | 29.93 | 760.1 | 30.01 | 762 3 | 56.5 | 13.6 | 85.0 | 8 | ..... | 2 | 2 | 8 | 1 | 7 | 3 | ..... | ..... | ..... | ..... | 0.02 | 0.4 |
| CHINESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hong-Kong | N. 22 18 | E. 114 04 | 7.45 p.m. | 110 | 33 | 29.92 | 760.0 | 30.03 | 762.7 | 76.8 | 24.9 | 75.4 | 5 | ..... | ..... | ..... | 2 | 2 | 16 | 6 | ..... | ..... | ..... | 4 | 3.09 | 78.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zi-Ka-Wei | N. 31 12 | E. 121 26 | 8.14 p.m. | 23 | 7 | 30.15 | 765 8 | 30.17 | 766.4 | 61.2 | 16.2 | 85.6 | 5 | 5 | ..... | ..... | 1 | 2 | 6 | 11 | 1 | ..... | ..... | 7 | 5.87 | 149.2 |
| DANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copenhagen | N. 55 41 | E. 12 36 | 0.58 p.m. | 43 | 13 | 29.77 | 756.1 | 29.82 | 757.3 | 51.3 | 10.7 | 81 | ..... | 7 | 3 | 6 | 5 | 4 | 2 | 4 | ..... | ..... | ..... | 8 | ..... | ..... |
| Fanöe | N. 55 27 | E. 8 24 | 0.42 p.m. | 20 | 6 | 29.82 | 757 3 | 29.84 | 757.8 | 52.3 | 11.3 | 79 | 3 | 7 | 8 | 3 | 4 | 3 | 2 | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Stykkisholm | N. 65 05 | W. 22 46 | 10.37 a.m. | 36 | 11 | 29.53 | 750.1 | 29.57 | 751 0 | 37.2 | 2.9 | 84 | ..... | ..... | 3 | 4 | 1 | 6 | 6 | 7 | 4 | ..... | ..... | 7 | ..... | ..... |
| Thorshavn | N. 62 02 | W. 6 44 | 11.41 a.m. | 29 | 9 | 29.65 | 753.2 | 29.68 | 753 8 | 45.3 | 7.4 | 83 | 4 | 3 | 6 | 12 | 2 | 1 | 1 | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Vestervig | N. 56 47 | E. 8 20 | 0.41 p.m. | 82 | 25 | 29.71 | 754.5 | 29.80 | 756 8 | 51.1 | 10.6 | 81 | 1 | 6 | 6 | 4 | 2 | 4 | 2 | 5 | 1 | ..... | ..... | 7 | ..... | ..... |
| Egyptian. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cairo | N. 30 03 | E. 31 21 | 2.14 p.m. | ? | ? | 29.87 | 758.7 | ..... | ..... | 81.1 | 27.3 | ..... | 11 | 1 | 1 | ..... | 1 | ..... | 17 | ..... | ..... | ..... | ..... | 2 | 0 | 0 |
| FRENCH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agen | N. 44 12 | E. 0 38 | 0.11 p.m. | 604 | 184 | 29.57 | 751.1 | 30.22 | 767 6 | 58.6 | 14.8 | 72.6 | 5 | 8 | 6 | 3 | 2 | 4 | 1 | 2 | ..... | ..... | ..... | ..... | 0.38 | 9.6 |
| Alençon | N. 48 26 | E. 0 05 | 0.09 p.m. | 476 | 145 | 29.60 | 751.7 | 30.13 | 765.3 | 54.0 | 12.2 | 78.8 | 7 | 2 | 1 | 7 | 6 | 1 | 1 | 6 | ..... | ..... | ..... | 5 | 1.05 | 27.0 |
| Arras | N. 50 18 | E. 2 46 | 0.19 p.m | 223 | 68 | 29.82 | 757.5 | 30.06 | 763.6 | 54.3 | 12.4 | 75.5 | 1 | 1 | 19 | 1 | ..... | 1 | 4 | 4 | ..... | ..... | ..... | 5 | 1.73 | 43.9 |
| Avignon | N. 43 57 | E. 4 48 | 0.27 p.m | 65 | 20 | 30.07 | 763.7 | 30.15 | 765.7 | 62.6 | 17.0 | 54.6 | 15 | 13 | ..... | ..... | 1 | 1 | 1 | ..... | ..... | ..... | ..... | 2 | 0.84 | 21.2 |
| Bar-sur-Seine | N. 48 07 | E. 4 22 | 0.25 p.m. | 518 | 158 | 29.57 | 751.0 | 30.13 | 765.3 | 52.9 | 11.6 | 75.3 | ..... | 2 | 1 | 7 | 6 | 8 | 3 | 4 | ..... | ..... | ..... | 8 | 1.90 | 48.2 |
| Beauvais | N. 49 26 | E. 2 05 | 0.16 p.m. | 246 | 75 | 29.85 | 758.2 | 30.12 | 765 0 | 54.5 | 12.5 | 69.1 | 1 | 5 | 8 | 4 | 3 | 2 | 5 | 3 | ..... | ..... | ..... | 4 | 0.78 | 19.9 |
| Besançon | N. 47 14 | E. 6 02 | 0.32 p.m. | 846 | 258 | 29.15 | 740.5 | 30.12 | 765 0 | 55.8 | 13.2 | 82.1 | 12 | 2 | ..... | 13 | ..... | ..... | ..... | 4 | ..... | ..... | ..... | ..... | 3.11 | 79.0 |
| Bordeaux | N. 44 50 | E. 0 32 | 0.06 p.m. | 243 | 74 | 29.85 | 758.3 | 30.17 | 766 2 | 59.4 | 15.2 | 65.7 | 6 | 4 | 2 | 4 | 4 | 5 | 3 | 3 | ..... | ..... | ..... | 6 | 1.34 | 34.0 |
| Bourges | N. 47 10 | E. 2 26 | 0.17 p.m. | 510 | 156 | 29.60 | 751.8 | 30.16 | 766.0 | 55.2 | 12.9 | 76.1 | 10 | 4 | 3 | 8 | 1 | ..... | 3 | 2 | ..... | ..... | ..... | 7 | 0.68 | 17.3 |
| Brest | N. 48 24 | W. 4 30 | 11.50 a.m. | 210 | 64 | 29.97 | 761.3 | 30.22 | 767.5 | 57.4 | 14.1 | 78.6 | 10 | 4 | 4 | 4 | 1 | 2 | 2 | 2 | ..... | ..... | ..... | 7 | 1.63 | 41.5 |
| Caen | N. 49 11 | W. 0 21 | 0.07 p.m. | 69 | 21 | 30.01 | 762.2 | 30.08 | 764 1 | 57.0 | 13.9 | 82.3 | 3 | 4 | 9 | 8 | 4 | 2 | 1 | ..... | ..... | ..... | ..... | 4 | 3.48 | 88.4 |
| Châlons sur Marne | N. 48 57 | E. 4 21 | 0.25 p.m. | 292 | 89 | 29.74 | 755 5 | 30.11 | 764 7 | 53.6 | 12.0 | 85.9 | 5 | 5 | 1 | 5 | 5 | 5 | 2 | 1 | ..... | ..... | ..... | 6 | 1 77 | 44.9 |
| Charleville | N. 49 46 | E. 4 49 | 0.27 p.m. | 476 | 145 | 29.56 | 750.9 | 30.08 | 764 1 | 53.1 | 11.7 | 70.5 | 4 | 2 | 10 | 4 | 7 | 1 | 2 | 1 | ..... | ..... | ..... | 5 | 1.89 | 47.7 |
| Clermont-Fer'and | N. 45 46 | E. 3 05 | 0.20 p.m. | 1273 | 388 | 28.78 | 730.9 | 30.13 | 765.3 | 56.1 | 13.4 | 63.2 | 13 | 7 | 2 | 4 | 1 | 1 | ..... | 3 | ..... | ..... | ..... | 7 | 1.73 | 44.0 |
| Cluny | N. 46 26 | E. 4 39 | 0.27 p.m. | 787 | 240 | 29.29 | 743.9 | 30.14 | 765.6 | 55.0 | 12.8 | 71.8 | 3 | 2 | 6 | 7 | 1 | ..... | 1 | 10 | 1 | ..... | ..... | 8 | 0.78 | 19.8 |
| Commercy | N. 48 46 | E. 5 35 | 0.30 p.m. | 797 | 243 | 29 26 | 743.2 | 30.15 | 765.7 | 50.9 | 10.5 | 77.9 | 1 | 7 | 8 | 7 | 1 | ..... | 6 | 1 | ..... | ..... | ..... | 7 | 2.76 | 70.1 |
| Gap | N. 44 33 | E. 6 05 | 0.32 p.m. | 2424 | 739 | 27.56 | 699.9 | 30.08 | 763.9 | 57.4 | 14.1 | 48.3 | 3 | 1 | 1 | 2 | 1 | ..... | 2 | 1 | 20 | ..... | ..... | 2 | 0.09 | 2.2 |
| Gréasque | N. 43 25 | E. 5 37 | 0.31 p.m. | 1056 | 322 | 28.93 | 734.9 | 30.05 | 763.3 | 61.2 | 16.2 | 51.2 | 7 | 11 | 3 | 1 | 1 | 1 | 2 | 5 | ..... | ..... | ..... | 3 | 2.06 | 52.2 |
| Grenoble | N. 45 12 | E. 5 43 | 0.31 p.m. | 715 | 218 | 29.31 | 744.5 | 30.11 | 764 7 | 58.5 | 14.7 | 69.5 | 4 | 11 | 5 | ..... | 2 | 1 | 8 | ..... | ..... | ..... | ..... | 3 | 0.24 | 6.1 |
| Guéret | N. 46 10 | E. 1 52 | 0.16 p.m. | 1486 | 453 | 28.55 | 725.2 | 30.13 | 765.3 | 51.6 | 10.9 | 75.9 | 3 | 1 | 5 | 9 | 3 | 3 | ..... | 2 | 5 | ..... | ..... | ..... | 1.62 | 41.2 |
| Lamballe | N. 48 28 | W. 2 31 | 11.58 a.m. | 252 | 77 | 29.91 | 759.6 | 30.18 | 766.6 | 56.5 | 13.6 | 78.2 | 10 | 8 | 2 | 6 | ..... | 3 | 1 | 1 | ..... | ..... | ..... | 4 | 4.48 | 113.9 |
| Lescar | N. 43 20 | W. 0 26 | 0.06 p.m. | 525 | 160 | 29.60 | 751.8 | 30.15 | 765.7 | 63.9 | 17.7 | 57.0 | 9 | 2 | 7 | 2 | ..... | 2 | 7 | 2 | ..... | ..... | ..... | 4 | 1.59 | 40.4 |
| Lorient | N. 47 45 | W. 3 21 | 11.55 a.m. | 86 | 26 | 30.11 | 764.7 | 30.21 | 767.3 | 60.3 | 15.7 | 65.1 | 10 | 5 | 2 | 4 | 2 | 1 | 2 | 3 | 2 | ..... | ..... | 7 | 0.83 | 21.1 |
| Lyon | N. 45 41 | E. 2 30 | 0.25 p.m. | 981 | 299 | 29.08 | 738.5 | 30.14 | 765 5 | 55.2 | 12.9 | 63.4 | 10 | 4 | 2 | 1 | 2 | 4 | 2 | 6 | ..... | ..... | ..... | 5 | 0.24 | 6.2 |
| Mans | N. 48 01 | E. 0 12 | 0.09 p.m. | 285 | 87 | 29.85 | 758.2 | 30.16 | 766 1 | 55.6 | 13.1 | 72.6 | 3 | 9 | 6 | 2 | ..... | 3 | 5 | 3 | ..... | ..... | ..... | 6 | 0.66 | 16.7 |
| Marseille | N. 43 18 | E. 5 23 | 0.29 p.m. | 246 | 75 | 29.79 | 756.7 | 30.06 | 763.5 | 62.6 | 17.0 | 54.3 | ..... | 13 | 6 | 5 | 1 | 1 | 3 | 1 | 1 | ..... | ..... | 4 | 1.54 | 39.2 |
| Montpellier | N. 43 37 | E. 3 53 | 0.24 p.m. | 118 | 36 | 29.95 | 760.8 | 30.06 | 763.6 | 65.5 | 18.6 | 66.0 | ..... | 12 | 5 | 3 | 1 | 2 | 1 | 5 | ..... | ..... | ..... | 2 | 0.26 | 6.7 |
| Nancy | N. 48 42 | E. 6 11 | 0.33 p.m. | 725 | 221 | 29.31 | 744.5 | 30.10 | 764.6 | 50.4 | 10.2 | 73.7 | 5 | 5 | 5 | 5 | 8 | ..... | ..... | 3 | ..... | ..... | ..... | ..... | 1.31 | 33.2 |
| Nantes | N. 47 13 | W. 1 33 | 0.02 p.m. | 134 | 41 | 30.04 | 763.1 | 30.21 | 767.2 | 57.9 | 14.4 | 71.0 | 7 | 7 | 5 | 4 | 2 | 1 | 3 | 2 | ..... | ..... | ..... | 8 | 1.03 | 26.1 |
| Perpignan | N. 42 42 | E. 2 53 | 0.19 p.m. | 105 | 32 | 30.01 | 762.3 | 30.12 | 765.1 | 63.5 | 17.5 | 56.2 | 8 | 11 | 1 | ..... | ..... | 1 | 4 | 2 | 4 | ..... | ..... | 3 | 0.97 | 24.7 |
| Pic du Midi (Sum- | N. 42 56 | W. 0 08 | 0.08 p.m. | 9380 | 2859 | 21.26 | 540 0 | ..... | ..... | 24.4 | -4.2 | ..... | ..... | 6 | 3 | 4 | ..... | 1 | 1 | 10 | 6 | ..... | ..... | 2 | 2.92 | 74.2 |
| Privas. [mit.) | N. 44 45 | E. 4 36 | 0.26 p.m. | 997 | 304 | 29.05 | 737.8 | 30.12 | 765.1 | 57.7 | 14.3 | 58.0 | 22 | 5 | ..... | ..... | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0.12 | 3.0 |
| Puy de Dôme | N. 45 46 | E. 2 58 | 0.20 p.m. | 4813 | 1467 | 25.22 | 640.5 | ..... | ..... | 37.6 | 3.1 | 92.4 | 10 | 8 | 2 | 2 | 1 | 1 | 4 | 3 | ..... | ..... | ..... | 8 | 3.51 | 89.2 |
| Rochefort | N. 45 56 | W. 0 58 | 0.04 p.m. | 29 | 9 | 30.18 | 766.6 | 30.21 | 767 3 | 59.4 | 15.2 | 75.1 | 2 | 8 | 3 | 3 | 2 | 2 | 4 | 7 | ..... | ..... | ..... | 6 | 1.34 | 34.0 |
| Roche-sur-Yon | N. 46 40 | W. 1 26 | 0.02 p.m. | 259 | 79 | 29.93 | 760.1 | 30.20 | 767.0 | 59.4 | 15.2 | 77.9 | 6 | 4 | 4 | 3 | 3 | 3 | 3 | 5 | ..... | ..... | ..... | 4 | 1.79 | 45.4 |
| Rodez | N. 44 21 | E. 2 34 | 0.18 p.m. | 2050 | 625 | 28.01 | 711.4 | 30.15 | 765.7 | 53.1 | 11.7 | 72.1 | 16 | 8 | ..... | 1 | ..... | 3 | 2 | 1 | ..... | ..... | ..... | ..... | 2.02 | 51.3 |
| Rouen | N. 49 26 | E. 1 05 | 0.12 p.m. | 39 | 12 | 30.07 | 763.8 | 30.12 | 765.0 | 55.6 | 13.1 | 76.9 | 4 | 7 | 6 | 3 | 2 | 2 | 3 | 4 | ..... | ..... | ..... | 5 | 1.42 | 36.0 |
| Saint Maur | N. 48 48 | E. 2 21 | 0.17 p.m. | 162 | 49 | 29.96 | 761 0 | 30.13 | 765.2 | 54.0 | 12.2 | 73.9 | 6 | 6 | 6 | 8 | ..... | 1 | 3 | 1 | ..... | ..... | ..... | 8 | 0.65 | 16.6 |
| Toulouse | N. 43 37 | E. 1 27 | 0.14 p.m. | 636 | 194 | 29.47 | 748.6 | 30.20 | 767.0 | 60.3 | 15.7 | 65.0 | 4 | 11 | 5 | ..... | 1 | 8 | ..... | 2 | ..... | ..... | ..... | 4 | 2.06 | 52.4 |
| Tours | N. 47 24 | E. 0 41 | 0.11 p.m. | 167 | 51 | 29.97 | 761.1 | 30.14 | 765.6 | 56.8 | 13.8 | 69.0 | 4 | 6 | 5 | 6 | 1 | ..... | ..... | 9 | ..... | ..... | ..... | ..... | 0.99 | 25.1 |
| Versailles | N. 48 48 | E. 2 07 | 0.16 p.m. | 400 | 122 | 29.68 | 753.9 | 30.11 | 764.9 | 52.9 | 11.6 | 74.9 | 2 | 11 | 7 | 2 | ..... | 1 | 3 | 5 | ..... | ..... | ..... | ..... | 1.02 | 25.8 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| St. Martin du Hinx. | N. 43 35 | W. 1 16 | 0.03 p.m. | 131 | 40 | 30.04 | 762.9 | 30 19 | 766 7 | 61.2 | 16.2 | 67 | 4 | 3 | 5 | 4 | 1 | 2 | 7 | 5 | ..... | ..... | ..... | 5 | 3.43 | 87.0 |
| GERMAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ansbach | N. 45 18 | E. 10 36 | 0.50 p.m. | 1358 | 414 | 28.61 | 726.7 | 30.08 | 764.0 | 48.4 | 9.1 | 75.2 | ..... | 2 | 12 | 6 | ..... | ..... | 1 | 6 | 4 | ..... | ..... | 8 | 3.14 | 79.8 |
| Bamberg | N. 49 54 | E. 10 54 | 0.51 p.m. | 787 | 240 | 29.14 | 740.1 | 29.98 | 761.4 | 50.0 | 10.0 | 74.2 | 2 | 7 | 7 | 7 | 3 | ..... | 2 | 2 | ..... | ..... | ..... | 8 | 2.72 | 69.1 |
| Berlin | N. 52 30 | E. 13 19 | 1.02 p.m. | 131 | 40 | 29.76 | 755.9 | 29.91 | 759.6 | 51.3 | 10.7 | 72.3 | 1 | 5 | 8 | 6 | 4 | 2 | 3 | 2 | ..... | ..... | ..... | 8 | 3.80 | 96.5 |
| Breslau | N. 51 07 | E. 17 02 | 1.17 p.m. | 482 | 147 | 29.46 | 748.2 | 29.99 | 761.7 | 50.4 | 10.2 | 68.9 | 1 | 3 | 12 | 3 | 4 | 5 | 2 | 1 | ..... | ..... | ..... | 7 | 2.17 | 55.0 |
| Carlsruhe | N. 49 01 | E. 8 25 | 0.42 p.m. | 413 | 126 | 29.63 | 752.6 | 30.09 | 764.3 | 52.5 | 11.4 | 75.5 | ..... | ..... | 2 | 20 | ..... | 1 | 3 | 5 | ..... | ..... | ..... | 9 | 3.40 | 86.3 |
| Cassel | N. 51 19 | E. 9 28 | 0.46 p.m. | 669 | 204 | 29.28 | 743.6 | 29.99 | 761.7 | 50.4 | 10.2 | 71.3 | 3 | 6 | 7 | 7 | 4 | 1 | ..... | 3 | ..... | ..... | ..... | 7 | 3.50 | 88.8 |
| Frankfort on M | N. 50 08 | E. 8 41 | 0.43 p.m. | 338 | 103 | 29.67 | 753.6 | 30.09 | 764.3 | 52.5 | 11.4 | 73.0 | 2 | 4 | 5 | 7 | 6 | 3 | 1 | 3 | ..... | ..... | ..... | 8 | 1.80 | 45.6 |
| Friedrichshafen | N. 47 39 | E. 9 29 | 0.46 p.m. | 1339 | 408 | 28.67 | 728.3 | 30.11 | 764.7 | 52.3 | 11.3 | 73.4 | 1 | ..... | 4 | 16 | 4 | .. | .. | 0 | ..... | ..... | ..... | 7 | 3.16 | 80.2 |
| Hamburg | N. 53 33 | E. 9 58 | 0.48 p.m. | 85 | 26 | 29.84 | 757.8 | 29.93 | 760.1 | 51.8 | 11.0 | 81.1 | 2 | 5 | 1 | 6 | 7 | 2 | 2 | 5 | ..... | ..... | ..... | 8 | 4.35 | 110.4 |
| Kiel | N. 54 19 | E. 10 04 | 0.48 p.m. | 13 | 4 | 29.86 | 758.4 | 29.87 | 758.8 | 52.0 | 11.1 | 75.1 | 1 | 5 | 8 | 7 | 3 | ..... | 3 | 4 | ..... | ..... | ..... | 6 | 3.26 | 82.7 |
| Leipsic | N. 51 20 | E. 12 24 | 0.58 p.m. | 390 | 119 | 29.57 | 751.1 | 30.00 | 761.9 | 50.9 | 10.5 | 76.7 | 1 | 5 | 7 | 8 | 3 | 3 | 2 | 2 | ..... | ..... | ..... | 8 | 3.90 | 99.0 |
| Magdeburg | N. 52 09 | E. 11 37 | 0.54 p.m. | 177 | 54 | 29.76 | 755.8 | 29 95 | 760.8 | 52.5 | 11.4 | 73.5 | 1 | 5 | 9 | 7 | 2 | 3 | 2 | 2 | ..... | ..... | ..... | 8 | 3.17 | 80.6 |
| Memel | N. 55 43 | E. 21 07 | 1.32 p.m. | 39 | 12 | 29.83 | 757.7 | 29.88 | 758.9 | 50.2 | 10.1 | 73.7 | 1 | 4 | 5 | 5 | 6 | 6 | 3 | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Munich | N. 48 09 | E. 11 34 | 0.54 p.m. | 1732 | 528 | 28.23 | 717.0 | 30.10 | 764.4 | 48.9 | 9.4 | 72.3 | 1 | 17 | 2 | ..... | 1 | ..... | 4 | 5 | 1 | ..... | ..... | 8 | 5.22 | 132.7 |
| Neufahrwasser | N. 54 24 | E. 18 40 | 1.25 p.m. | 36 | 11 | 29.87 | 758.8 | 29.91 | 759.6 | 50.7 | 10.4 | 72.5 | 1 | 4 | 5 | 4 | 8 | 7 | 2 | ..... | ..... | ..... | ..... | 7 | 2.32 | 58.9 |
| Neustadt. *b* | N. 49 21 | E. 8 08 | 0.41 p.m. | 479 | 146 | 29.54 | 750.4 | 30.07 | 763.7 | 53.1 | 11.7 | 75.0 | 2 | 1 | 5 | 7 | 2 | ..... | 1 | 2 | 9 | ..... | ..... | 8 | 2.31 | 58.7 |
| Stuttgart | N. 48 47 | E. 9 11 | 0.45 p.m. | 833 | 254 | 29.18 | 741.1 | 30.08 | 764.0 | 51.8 | 11.0 | 72.2 | 2 | 7 | 6 | 7 | ..... | 1 | ..... | 7 | 1 | ..... | ..... | 8 | 1.50 | 38.2 |
| Wustrow | N. 54 21 | E. 12 24 | 0.58 p.m. | 23 | 7 | 29.86 | 758.4 | 29.88 | 759.0 | 52.0 | 11.1 | 82.2 | 2 | 9 | 3 | 3 | 7 | 3 | 2 | 2 | ..... | ..... | ..... | 8 | 2.52 | 64.0 |
| GREEK. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Athens | N. 37 58 | E. 23 44 | 1.43 p.m | 361 | 110 | 29.65 | 753.1 | 30.03 | 762.7 | 71.8 | 22.1 | 58.3 | 7 | 2 | 1 | 3 | 10 | 2 | 2 | 4 | ..... | ..... | ..... | 4 | 0.18 | 4.7 |
| INDIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kurrachee | N. 24 47 | E. 67 04 | 4.36 p.m. | 49 | 15 | 29.83 | 757.7 | 29.88 | 758 9 | 84.1 | 28.9 | 66 | ..... | 1 | 11 | 18 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 0 | 0 | 0 |
| Deesa | N. 24 16 | E. 72 14 | 4.57 p.m. | 466 | 142 | 29.43 | 747.5 | 29.00 | 759.4 | 86.7 | 30.4 | 38 | 2 | 2 | 4 | 6 | 5 | 3 | 2 | 7 | ..... | ..... | ..... | 2 | 0 | 0 |
| Bombay | N. 18 54 | E. 72 49 | 5.00 p.m. | 37 | 11 | 29.85 | 758.2 | 29.88 | 758 9 | 82.7 | 28.2 | 75 | 5 | 20 | 3 | ..... | 2 | .. | .. | 1 | ..... | ..... | ..... | 3 | 2.22 | 56.4 |
| Poona | N. 18 28 | E. 74 10 | 5.05 p.m. | 1849 | 564 | 28.04 | 712.2 | 29.89 | 759.2 | 79.1 | 26.2 | 57 | 3a | 5 | 2 | 1 | 1 | 3 | 8 | 7 | ..... | ..... | ..... | 4 | 7.49 | 190.2 |
| Belgaum | N. 15 52 | E. 74 42 | 5.07 p.m. | 2550 | 777 | 27.34 | 694.4 | 29 88 | 758.9 | 76.0 | 24.4 | 63 | 2 | 1 | 4 | 5 | 1 | 1 | 4 | 5 | 8 | ..... | ..... | 5 | 4.40 | 111.8 |
| Lahore | N. 31 34 | E. 74 20 | 5.05 p.m. | 732 | 223 | 29.14 | 740.1 | 29.88 | 758.9 | 82.0 | 27.8 | 46 | 4 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 25 | ..... | ..... | 1 | 0.24 | 6.1 |
| Roorkee | N. 29 52 | E. 77 56 | 5.20 p.m. | 887 | 270 | 28.98 | 736.1 | 29.89 | 759.2 | 76.9 | 24.9 | 62 | ..... | ..... | 11 | ..... | ..... | 3 | ..... | 17 | ..... | ..... | ..... | 1 | 1.30 | 33.0 |
| Agra | N. 27 10 | E. 78 05 | 5.20 p.m. | 555 | 169 | 29.33 | 745.0 | 29.00 | 759.4 | 83.0 | 28.3 | 49 | 1 | 17 | 7 | ..... | 1 | 2 | 2 | ..... | 1 | ..... | ..... | 1 | 4.54 | 115.3 |
| Nagpur | N. 21 09 | E. 79 11 | 5.24 p.m. | 1025 | 312 | 28.83 | 732.3 | 29.87 | 758.7 | 81.9 | 27.7 | 46 | 1 | 2 | ..... | ..... | ..... | ..... | 2 | 6 | 20 | ..... | ..... | 3 | 0.22 | 5.6 |
| Jubbulpore | N. 23 09 | E. 79 59 | 5.28 p.m. | 1341 | 409 | 28.53 | 724.6 | 29.90 | 759.4 | 78.3 | 25.7 | 57 | ..... | 2 | 1 | ..... | ..... | ..... | 1 | 3 | 24 | ..... | ..... | 2 | 2.33 | 59.2 |
| Lucknow | N. 26 50 | E. 81 00 | 5.32 p.m. | 369 | 113 | 29.51 | 749.5 | 29.89 | 759 2 | 80.3 | 26.8 | 59 | 6 | 2 | ..... | ..... | ..... | ..... | ..... | 1 | 22 | ..... | ..... | 2 | 2.87 | 72.9 |
| Allahabad | N. 25 26 | E. 81 52 | 5.35 p.m. | 307 | 94 | 29.57 | 751.1 | 29.88 | 758.9 | 75.2 | 24.0 | 79 | 1 | 3 | ..... | 1 | ..... | 1 | ..... | 25 | ..... | ..... | ..... | 2 | 6.59 | 167.4 |
| Patna | N. 25 37 | E. 85 08 | 5.49 p.m. | 183 | 56 | 29.70 | 751.4 | 29.88 | 758 9 | 79.7 | 26.5 | 68 | ..... | 11 | 4 | ..... | ..... | ..... | 4 | 5 | 7 | ..... | ..... | 3 | 4.17 | 105.9 |
| Hazaribagh | N. 24 00 | E. 85 24 | 5.50 p.m. | 2007 | 612 | 27.86 | 707.6 | 29.89 | 759.2 | 73.7 | 23.2 | 66 | 8 | 7 | 2 | 1 | ..... | 2 | 5 | 3 | 3 | ..... | ..... | 3 | 2.01 | 51.1 |
| Cuttack | N. 20 29 | E. 85 54 | 5.52 p.m. | 80 | 24 | 29.79 | 756.7 | 29.88 | 758.9 | 81.9 | 27.7 | 71 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 29 | ..... | ..... | ..... | 3 | 1.84 | 46.7 |
| Calcutta | N. 22 33 | E. 88 21 | 6.01 p.m. | 21 | 6 | 29.84 | 757.9 | 29.86 | 758 4 | 70.6 | 26.4 | 77 | 8 | 5 | 2 | 1 | 1 | 2 | 4 | 1 | 7 | ..... | ..... | 4 | 3.71 | 94.2 |
| Chittagong | N. 22 21 | E. 91 50 | 6.15 p.m. | 87 | 26 | 29.80 | 756.9 | 29.89 | 759.2 | 78.9 | 26.1 | 84 | ..... | 2 | 4 | ..... | 2 | 3 | 1 | ..... | 19 | ..... | ..... | 4 | 8.19 | 213.1 |
| Sibsagar | N. 26 59 | E. 94 40 | 6.27 p.m. | 333 | 102 | 29.57 | 751.1 | 29.91 | 759.7 | 77.6 | 25.3 | 83 | ..... | ..... | ..... | ..... | 8 | 1 | 4 | ..... | 17 | 1 | ..... | 4 | 3.75 | 95.2 |
| Jeypore | N. 26 55 | E. 75 50 | 5.05 p.m. | 1431 | 436 | 28.46 | 722.9 | 29.90 | 759 4 | 83.2 | 28.4 | 37 | 7 | 10 | 4 | 1 | ..... | 3 | 4 | 2 | ..... | ..... | ..... | 3 | 0 | 0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for October, 1884. | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity | Wind. | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| INDIAN—Cont'd. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bellary | N. 15 09 | E. 76 57 | 5.16 p.m. | 1455 | 444 | 28.36 | 720.3 | 29.82 | 757.4 | 83.7 | 28.7 | 49 | 6 | 4 | 2 | 2 | 1 | 2 | 6 | 8 | ..... | ..... | ..... | 6 | 0.10 | 2.5 |
| Trichinopoly | N. 10 50 | E. 78 44 | 5.23 p.m. | 275 | 84 | 29.58 | 751.3 | 29.86 | 758.4 | 83.9 | 28.8 | 68 | ..... | 7 | 7 | ..... | ..... | 2 | 12 | 3 | ..... | ..... | ..... | 8 | 11.28 | 286.5 |
| ITALIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Udine | N. 46 04 | E. 13 13 | 1.01 p.m. | 381 | 116 | 29.63 | 752.6 | 30.04 | 763.0 | 58.5 | 14.7 | 57 | 2 | ..... | 3 | 1 | 2 | 3 | 4 | 8 | 8 | ..... | ..... | 7 | 5.19 | 131.8 |
| Milan | N. 45 28 | E. 9 11 | 0.45 p.m. | 482 | 147 | 29.53 | 750.1 | 30.05 | 763.2 | 58.8 | 14.9 | 58 | 1 | 6 | 6 | 6 | 4 | 4 | 2 | 2 | ..... | ..... | ..... | 5 | 0.76 | 19.3 |
| Padua | N. 45 24 | E. 11 53 | 0.56 p.m. | 102 | 31 | 29.92 | 759.9 | 30.02 | 762.6 | 58.3 | 14.6 | 61 | 4 | 5 | 4 | 2 | 3 | 2 | 5 | 6 | ..... | ..... | ..... | 6 | 2.70 | 68.6 |
| Moncalieri | N. 45 00 | E. 7 41 | 0.39 p.m. | 846 | 258 | 29.11 | 739.4 | 30.02 | 762.5 | 56.7 | 13.7 | 61 | 2 | 3 | 3 | 2 | 4 | 5 | 5 | 7 | ..... | ..... | ..... | 4 | 0.24 | 6.0 |
| Genoa | N. 44 24 | E. 8 55 | 0.44 p.m. | 167? | 48? | 29.83 | 757.7 | 30.02 | 762.6 | 62.4 | 16.9 | 59 | 9 | 1 | ..... | 1 | 7 | 10 | 1 | 2 | ..... | ..... | ..... | 4 | 2.83 | 71.8 |
| Pesaro | N. 43 55 | E. 12 53 | 1.00 p.m. | 46 | 14 | 29.98 | 761.5 | 30.03 | 762.7 | 60.3 | 15.7 | 66 | 7 | 5 | 7 | 2 | 1 | 5 | ..... | 4 | ..... | ..... | ..... | 5 | 4.29 | 109.0 |
| Florence | N. 43 46 | E. 11 15 | 0.53 p.m. | 240 | 73 | 29.76 | 756.0 | 30.02 | 762.4 | 61.9 | 16.6 | 45 | 3 | 4 | 2 | 6 | 5 | ..... | 1 | 10 | ..... | ..... | ..... | 0 | 0.91 | 23.9 |
| Leghorn | N. 43 33 | E. 10 18 | 0.49 p.m. | 79 | 24 | 29.91 | 759.8 | 30.00 | 762.0 | 62.8 | 17.1 | 59 | 3 | 1 | 5 | 6 | 4 | ..... | 5 | 7 | ..... | ..... | ..... | 1 | 1.96 | 49.8 |
| Rome | N. 41 54 | E. 12 29 | 0.58 p.m. | 164 | 50 | 29.94 | 758.0 | 30.02 | 762.4 | 63.7 | 17.6 | 53 | 10 | ..... | ..... | 4 | 5 | 6 | ..... | 1 | 5 | ..... | ..... | 6 | 3.09 | 78.5 |
| Lecce | N. 40 22 | E. 18 12 | 1.21 p.m. | 236 | 72 | 29.77 | 756.2 | 30.02 | 762 6 | 66.2 | 19 0 | 53 | 14 | 2 | 4 | 6 | 1 | ..... | ..... | 4 | ..... | ..... | ..... | 5 | 3.15 | 79.9 |
| Cosenza | N. 39 19 | E. 16 17 | 1.13 p.m. | 840 | 256 | 29.14 | 740.2 | 30.03 | 762.8 | 63.3 | 17.4 | 68 | 1 | 10 | 10 | ..... | 5 | 4 | 1 | ..... | ..... | ..... | ..... | 6 | 4.30 | 109.3 |
| Cagliari | N. 39 30 | E. 9 00 | 0.45 p.m. | 180 | 55 | 29.82 | 757.5 | 30.02 | 762.4 | 67.1 | 19.5 | 58 | ..... | 16 | 1 | ..... | 5 | 6 | ..... | ..... | 3 | ..... | ..... | 4 | 3.18 | 80.9 |
| Palermo | N. 38 07 | E. 13 21 | 1.02 p.m. | 236 | 72 | 29.79 | 756.7 | 30.04 | 763.0 | 69.1 | 20.6 | 57 | 2 | 3 | 4 | 4 | ..... | ..... | ..... | 18 | ..... | ..... | ..... | 6 | 3.45 | 87.6 |
| Syracuse | N. 37 03 | E. 15 15 | 1.09 p.m. | 72 | 22 | 29.97 | 761.3 | 30.02 | 762.4 | 70.9 | 21.6 | 66 | 7 | 3 | 5 | ..... | 4 | 4 | 2 | 6 | ..... | ..... | ..... | 6 | 6.68 | 169.7 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Naples, *b* | N. 40 52 | E. 14 15 | 1.05 p.m. | 489 | 149 | 29.51 | 749 5 | ..... | ..... | 63.3 | 17.4 | 66.6 | 2 | 2 | 1 | 6 | 5 | 8 | 2 | 3 | ..... | ..... | ..... | 5 | 4.05 | 102.8 |
| Stelvio | N. 46 32 | E. 10 25 | 0.50 p.m. | 8343 | 2543 | 22.15 | 562.6 | ..... | ..... | 32.0 | 0.0 | 65.9 | ..... | ..... | 7 | 4 | 2 | 3 | 4 | 11 | ..... | ..... | ..... | 6 | 2.72 | 69.0 |
| Valdobbia | N. 45 47 | E. 7 51 | 0.40 p.m. | 8360 | 2548 | 22.16 | 563.0 | ..... | ..... | 34.5 | 1.4 | 62.8 | 6 | 4 | 12 | 2 | 1 | ..... | 2 | 4 | ..... | ..... | ..... | 5 | 0.08 | 2.0 |
| JAPANESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akita | N. 39 42 | E.140 07 | 9.28 p.m. | 32 | 10 | 30.04 | 763.1 | 30.07 | 763.8 | 49.9 | 9.9 | 86 | 3 | 3 | 4 | ..... | ..... | 2 | 4 | 1 | 14 | ..... | ..... | 7 | 7.32 | 185.9 |
| Awomori | N. 40 51 | E.140 45 | 9.31 p.m. | 32 | 10 | 30.02 | 762.5 | 30.06 | 763.5 | 47.9 | 8.8 | 82.9 | ..... | 2 | 3 | 14 | 7 | 1 | 2 | 2 | ..... | d4327 | d6962 | 6 | 6.04 | 153.2 |
| Hokodate | N 41 47 | E.140 44 | 9.31 p m. | 10 | 3 | 30.03 | 762 7 | 30.04 | 763.0 | 47.5 | 8.6 | 80.0 | 9 | 8 | 8 | ..... | 1 | 3 | 1 | 1 | 6894 | 11095 | 5 | 3.85 | 98.1 |
| Hamamatsu | N. 34 43 | E.137 43 | 9.19 p.m. | 92 | 28 | 29.98 | 761.6 | 30.08 | 764.1 | 58.6 | 14.8 | 80 | 3 | 3 | 8 | ..... | ..... | ..... | 1 | 3 | 13 | ..... | ..... | 5 | 2.89 | 73.4 |
| Hiroshima | N. 34 23 | E.132 27 | 8.58 p m. | 16 | 5 | 30.11 | 764.7 | 30.12 | 765.1 | 59.5 | 15.3 | 79 | 22 | 1 | 3 | ..... | 1 | ..... | ..... | 3 | 1 | 4505 | 7249 | 6 | 2.02 | 51.2 |
| Kanazawa | N. 36 33 | E.136 40 | 9.14 p.m. | 95 | 29 | 30.02 | 762.5 | 30.12 | 765.1 | 54.5 | 12.5 | 85.7 | 2 | ..... | 2 | 5 | 1 | 10 | 5 | 6 | ..... | 4849 | 7802 | 6 | 12.13 | 308.0 |
| Kagoshima | N. 31 35 | E.130 33 | 8.50 p.m. | 14 | 4 | 30.10 | 764.5 | 30.11 | 764.9 | 64.1 | 17.8 | 83.1 | 6 | 7 | 1 | 1 | ..... | ..... | 2 | 12 | 2 | ..... | ..... | 5 | 3.22 | 81.6 |
| Kioto | N. 35 01 | E.135 46 | 9.11 p.m. | 162 | 49 | 29.94 | 760.6 | 30.12 | 765.0 | 54.8 | 12.7 | 86.0 | 16 | 2 | 1 | ..... | ..... | 1 | 3 | 7 | 1 | 1889 | 3040 | 5 | 1.27 | 32.2 |
| Kochi | N. 33 33 | E.133 34 | 9.02 p.m. | 20 | 6 | 30.09 | 764.3 | 30.11 | 764.8 | 61.7 | 16.5 | 84.7 | 1 | 8 | 14 | 1 | 1 | 1 | 1 | 4 | ..... | ..... | ..... | 6 | 2.96 | 75.2 |
| Misaka | N. 31 56 | E.131 26 | 8.54 p.m. | 26 | 8 | 30.10 | 764.5 | 30.13 | 765.2 | 62.1 | 16.7 | 83.5 | 14 | 3 | 9 | 1 | ..... | ..... | 2 | 2 | ..... | ..... | ..... | 5 | 7.34 | 186.5 |
| Miyako | N. 39 38 | E.141 59 | 9.36 p.m. | 98 | 30 | 29.95 | 761.0 | 30.07 | 763.8 | 47.6 | 8.7 | 92 | 1 | 1 | 18 | 6 | 2 | ..... | ..... | ..... | 3 | 1615 | 2600 | 4 | 5.52 | 140.1 |
| Nemuro | N. 43 20 | E.145 35 | 9.50 p.m. | 43 | 13 | 29.93 | 760.2 | 29.98 | 761.5 | 47.4 | 8.6 | 82 | 1 | 4 | 4 | 3 | 2 | 2 | 2 | 1 | 12 | 5889 | 8934 | 6 | 2.70 | 68.7 |
| Nagasaki | N. 32 44 | E.129 52 | 8.47 p.m. | 189 | 58 | 29.92 | 760 0 | 30.13 | 765 2 | 60.2 | 15.7 | 80.8 | 6 | 2 | ..... | 2 | ..... | ..... | ..... | 10 | 11 | b3090 | b4973 | 5 | 4.97 | 125.9 |
| Nilgata | N. 37 55 | E.139 03 | 9.24 p.m. | 32 | 10 | 30.05 | 763.5 | 30.10 | 764.4 | 56.1 | 13.4 | 80.3 | 1 | 3 | 9 | 5 | 1 | 7 | 2 | 3 | ..... | 5120 | 8240 | 7 | 6.62 | 168.3 |
| Nobiru | N. 38 23 | E.141 11 | 9 32 p.m. | 15 | 5 | 30.05 | 763.4 | 30.07 | 763.8 | 51.4 | 10.8 | 86.3 | 19 | 7 | ..... | ..... | 2 | ..... | 1 | ..... | 2 | 6814 | 10967 | 6 | 2.90 | 73.6 |
| Numadzu | N. 35 06 | E.138 51 | 9.23 p.m. | 32 | 10 | 30.03 | 762.7 | 30.06 | 763.6 | 59.6 | 15.3 | 79.7 | 1 | ..... | 2 | 2 | 2 | ..... | 22 | 2 | ..... | ..... | ..... | 6 | 5.01 | 127.9 |
| Osaka | N. 34 42 | E.135 30 | 9.10 p.m. | 13 | 4 | 30.11 | 764.7 | 30.12 | 765.1 | 57.3 | 14.0 | 81.5 | 8 | 2 | 1 | 1 | 1 | ..... | 2 | 16 | ..... | 4976 | 8038 | 5 | 1.00 | 25.4 |
| Saga | N. 33 12 | E.130 18 | 8.49 p.m. | 23 | 7 | 30.10 | 764.5 | 30.12 | 765.1 | 59.5 | 15.3 | 82.4 | 4 | 3 | ..... | ..... | ..... | 1 | ..... | 4 | 19 | ..... | ..... | 5 | 3.99 | 101.1 |
| Sakai | N. 35 33 | E.133 14 | 9.01 p.m. | 10 | 3 | 30.12 | 765.1 | 30.13 | 765.3 | 57.6 | 14.2 | 79 | 4 | 2 | 7 | 2 | 3 | ..... | 4 | 3 | 6 | ..... | ..... | 7 | 4.71 | 119.8 |
| Shimonoseki | N. 33 58 | E.130 56 | 8.52 p.m. | 134 | 41 | 29.19 | 761.8 | 30.14 | 765.5 | 59.8 | 15.4 | 80 | ..... | ..... | 2 | 3 | ..... | ..... | 1 | 3 | 22 | ..... | ..... | 5 | 3.05 | 77.5 |
| Sapporo | N. 43 04 | E.141 23 | 9.33 p m. | 60 | 18 | 29.91 | 760.4 | 30.00 | 762.0 | 44.0 | 6.7 | 87 | ..... | 2 | 6 | 2 | 8 | 12 | ..... | 1 | ..... | 4655 | 7492 | 6 | 6.32 | 160.4 |
| Tokei | N. 35 41 | E.139 46 | 9.27 p.m. | 69 | 21 | 30.00 | 762.1 | 30.08 | 761.0 | 58.3 | 14.7 | 82.9 | 11 | 4 | 1 | ..... | 6 | 1 | 3 | 4 | 1 | 5242 | 8435 | 6 | 3.10 | 78.6 |
| Wakayama | N. 34 14 | E.135 09 | 9.09 p.m. | 48 | 15 | 30.05 | 763.4 | 30.11 | 764.7 | 60.8 | 16.0 | 73.8 | 3 | 1 | ..... | ..... | 1 | ..... | 8 | 5 | 13 | 2229 | 3588 | 6 | 1.32 | 33.6 |
| MAURITIUS. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mauritius | S. 20 06 | E. 57 33 | 3.58 p.m. | 181 | 55 | 29.96 | 758.4 | 30.05 | 763.3 | 75.4 | 24.1 | 65.1 | 2 | 2 | 1 | 1 | ..... | 5 | 13 | 7 | ..... | ..... | ..... | 6 | 2.85 | 72.4 |
| MEXICAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Guanajuato | N. 21 01 | W.101 10 | 5.23 a.m. | 6762 | 2061 | 23.69 | 601.8 | 29.91 | 759.8 | 55.9 | 13.3 | 81 | *d* | ..... | ..... | 3 | 1 | ..... | ..... | 22 | 1 | ..... | ..... | 4 | 2.30 | 58.5 |
| Leon | N. 21 07 | W.101 36 | 5.22 a.m. | 5902 | 1799 | 24.34 | 618.2 | 30.07 | 763.7 | 55.8 | 13.2 | 84 | 2 | 10 | 2 | 9 | ..... | 2 | 1 | 1 | 4 | ..... | ..... | 5 | 2.00 | 50.7 |
| Mazatlan | N. 23 11 | W.106 17 | 5.03 a.m. | 249 | 76 | 29.63 | 752.7 | 29.89 | 759.3 | 70.3 | 24.6 | 69 | 1 | 2 | ..... | 1 | ..... | 4 | 17 | 6 | ..... | ..... | ..... | 5 | 3.99 | 99.0 |
| Mexico | N. 19 26 | W. 99 00 | 5.32 a.m. | 7490 | 2283 | 23.08 | 586.1 | 30.11 | 764.9 | 51.1 | 10.6 | 88 | ..... | 6 | ..... | ..... | ..... | ..... | ..... | 25 | ..... | 4976 | 8038 | 8 | 3.11 | 79.1 |
| Puebla | N. 19 03 | W. 98 03 | 5.36 a.m. | 7113 | 2168 | 23.40 | 594 3 | 30.15 | 765.9 | 52.9 | 11.6 | 68 | 7 | 9 | 1 | ..... | ..... | ..... | 1 | 2 | 11 | ..... | ..... | 3 | 2.30 | 58.3 |
| NETHERLANDS. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flushing | N. 51 24 | E. 3 36 | 0.22 p.m. | 0 | 0 | 30.05 | 763.2 | 30.05 | 763 2 | 55.2 | 12.9 | ..... | 1 | 4 | 11 | 6 | 4 | 1 | 2 | 2 | ..... | ..... | ..... | ..... | 3.82 | 97.0 |
| Groningen | N. 53 12 | E. 6 34 | 0.34 p.m. | ? | ? | 29.88 | 759.0 | 29.94 | 760.4 | 52.0 | 11.1 | ..... | 5 | 7 | 5 | 8 | 1 | 1 | 2 | 2 | ..... | ..... | ..... | ..... | 3.57 | 90.6 |
| Helder | N. 52 58 | E. 4 45 | 0.27 p.m. | 0 | 0 | 29.97 | 761.1 | 29.97 | 761.1 | 53.8 | 12.1 | ..... | 2 | 0 | 8 | 7 | 3 | ..... | 2 | 2 | ..... | ..... | ..... | ..... | 1.61 | 40.9 |
| Hellevoetsluis | N. 51 49 | E. 4 08 | 0.25 p.m. | 0 | 0 | 30.02 | 762.5 | 30.02 | 762.5 | 55.0 | 12.8 | 73.4 | 1 | 5 | 8 | 9 | 1 | 1 | 2 | 2 | ..... | ..... | ..... | ..... | 2.42 | 61.6 |
| Utrecht | N. 52 05 | E. 5 07 | 0.29 p.m. | 43 | 13 | 29.97 | 761.1 | 30.01 | 762 3 | 54.9 | 12.7 | 75.0 | 2 | 9 | 5 | 8 | 2 | 2 | 1 | 2 | ..... | ..... | ..... | 6 | 2.68 | 68.1 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Batavia | S. 6 11 | E.106 48 | 7.15 p.m. | 26 | 8 | ..... | ..... | 29.89 | 759.1 | 80.1 | 26.7 | 77.7 | 11 | 1 | ..... | 3 | 3 | 1 | 1 | 11 | ..... | ..... | ..... | 7 | 2.39 | 60.8 |
| NORWEGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bergen | N. 60 24 | E. 5 20 | 0.29 p.m. | 56 | 17 | 29.64 | 752.8 | 29.70 | 754.4 | 48.6 | 9.2 | 80.1 | 6 | 2 | 2 | 3 | 9 | 1 | ..... | 1 | 7 | ..... | ..... | 8 | 15.06 | 382.6 |
| Brono | N. 65 28 | E. 12 14 | 0.57 p.m. | 34 | 10 | 29.52 | 749.7 | 29.56 | 750.7 | 46.6 | 8.1 | 71.5 | 5 | 2 | 3 | 6 | 6 | 2 | 2 | 3 | ..... | ..... | ..... | 8 | 5.63 | 127.7 |
| Christiania | N. 59 55 | E. 10 45 | 0.51 p.m. | 134 | 41 | 29.54 | 750 4 | 29.69 | 754 1 | 50.0 | 10.0 | 66.2 | 2 | 4 | 4 | 5 | 3 | 2 | 4 | 2 | 5 | ..... | ..... | 6 | 1.09 | 27.7 |
| Gjæsvær | N. 71 07 | E. 25 22 | 1.49 p.m. | 23 | 7 | 29.44 | 747.7 | 29.46 | 748.3 | 38.3 | 3.5 | ..... | 2 | 3 | 5 | 5 | 6 | 2 | 3 | 4 | 1 | ..... | ..... | 8 | 4.14 | 105.2 |
| PORTUGUESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Funchal | N. 32 38 | W. 16 55 | 11.00 a.m. | 82 | 25 | 30.02 | 762.4 | 30.10 | 764.6 | 71.1 | 21.7 | 58.9 | 1 | 1 | ..... | 11 | 1 | 5 | 2 | 7 | 3 | ..... | ..... | 6 | 3.61 | 91.6 |
| Lisbon | N. 38 42 | W. 9 08 | 11.31 a.m. | 312 | 95 | 29.78 | 756.5 | 30.12 | 765.0 | 64.8 | 18.2 | 54.9 | 16 | ..... | 1 | 2 | 2 | ..... | 1 | 9 | ..... | ..... | ..... | 3 | 1.20 | 30.6 |
| Ponta Delgada | N. 37 45 | W. 25 41 | 10.25 a.m. | 66 | 20 | 30.21 | 767.3 | 30.28 | 769.1 | 69.8 | 21.0 | 62.6 | 3 | ..... | 1 | ..... | ..... | 4 | 7 | 10 | 6 | ..... | ..... | 4 | 0.72 | 18.3 |
| Saint Paul de Loando | S. 8 49 | E. 13 07 | 1.00 p.m. | 193 | 59 | 29.72 | 755.0 | 29.93 | 760.1 | 78.6 | 25.9 | 73.0 | ..... | 10 | 19 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 0 | 0 |
| San Salvador | S. 6 17 | E. 14 53 | 1.07 p.m. | 1831 | 559 | 28 08 | 713.1 | 29.90 | 759.5 | 79.7 | 26.5 | 58.0 | 2 | 2 | 7 | 11 | 7 | ..... | 1 | 1 | ..... | ..... | ..... | 6 | 0.80 | 20.4 |
| Serra da Estrella | N. 40 25 | W. 7 35 | 11.37 a.m. | 4728 | 1441 | 25.38 | 644.7 | 30.13 | 765.4 | 48.2 | 9.0 | 69.6 | ..... | 1 | 4 | 1 | 2 | 5 | 16 | ..... | 2 | ..... | ..... | 4 | 3.34 | 135.5 |
| RUSSIAN | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akmolinski | N. 51 12 | E. 71 23 | 4.54 p.m. | 843? | 305? | 29.02 | 737 2 | 30.13 | 765.2 | 41.7 | 5.4 | 67.9 | 1 | 4 | 7 | 5 | 1 | 1 | 2 | 4 | 6 | ..... | ..... | 6 | 0.44 | 11.3 |
| Archangel | N. 64 33 | E. 40 32 | 2.50 p.m. | 16 | 5 | 29.68 | 753.9 | 29.70 | 754.4 | 42.3 | 5.7 | 80.1 | ..... | 2 | 6 | 4 | 16 | 2 | ..... | 1 | ..... | ..... | ..... | 8 | 1.42 | 36.1 |
| Astrakhan | N. 46 21 | E. 48 02 | 3.20 p.m. | 68 | 21 | 30.32 | 770.0 | 30.24 | 768.2 | 57.6 | 14.2 | 54.1 | ..... | 3 | 3 | 2 | 2 | 9 | 10 | 2 | ..... | ..... | ..... | 4 | 0.52 | 13.3 |
| Baku | N. 40 21 | E. 49 51 | 3.28 p.m. | 39 | 12 | 30.21 | 767.3 | 30.16 | 766.1 | 65.8 | 18.8 | 69.9 | 7 | ..... | ..... | 2 | 7 | 4 | 3 | 2 | 6 | ..... | ..... | 4 | 0.04 | 1.0 |
| Barnaul | N. 53 20 | E. 83 47 | 5.43 p.m. | 459? | 140? | 29.72 | 754.9 | 30.24 | 768.0 | 40.5 | 4.7 | 72.6 | ..... | 2 | 2 | 12 | 3 | ..... | ..... | ..... | 12 | ..... | ..... | 7 | 0.48 | 12.1 |
| Bielosersk | N. 60 02 | E. 37 47 | 2.39 p.m. | 430? | 131? | 29.44 | 747.7 | 29.91 | 759.7 | 45.5 | 7.5 | 80.0 | ..... | 3 | 6 | 8 | 8 | 5 | ..... | ..... | 1 | ..... | ..... | 7 | 1.01 | 25.6 |
| Dorpat | N. 58 23 | E. 26 43 | 1.55 p.m. | 223 | 68 | 29.61 | 752.1 | 29.86 | 758.3 | 43.4 | 9.1 | 75.6 | 1 | 2 | 3 | 8 | 8 | 8 | ..... | 1 | ..... | ..... | ..... | 8 | 2.32 | 58.9 |
| Ekaterinburg | N. 56 49 | E. 60 38 | 4.10 p.m. | 894? | 272? | 29.10 | 739 1 | 30.08 | 764.0 | 41.4 | 5.2 | 71.9 | 2 | 8 | 11 | 5 | 3 | ..... | ..... | ..... | 2 | ..... | ..... | 9 | 1.00 | 25.4 |
| Elissawetgrad | N. 48 31 | E. 32 17 | 2.17 p.m. | 417? | 127? | 29.66 | 753.3 | 30.11 | 764.7 | 54.7 | 12.6 | 67.1 | 1 | 2 | 4 | 3 | 5 | 5 | 3 | 3 | ..... | ..... | ..... | 7 | 0.74 | 18.8 |
| Kwalinsk | N. 45 46 | E. 62 07 | 4.16 p.m. | 147 | 45 | 30.00 | 762.1 | 30.18 | 766.6 | 54.9 | 12.7 | 41.0 | 6 | 5 | 4 | 2 | 2 | 1 | 4 | 5 | 2 | ..... | ..... | 3 | ..... | ..... |
| Kasan | N. 55 47 | E. 49 08 | 3.24 p.m. | 249 | 76 | 29.85 | 758.2 | 30.13 | 765.2 | 47.7 | 8.7 | 67.0 | 1 | 3 | 7 | 6 | 9 | 4 | ..... | ..... | 1 | ..... | ..... | 7 | 0.78 | 19.9 |
| Kem | N. 64 57 | E. 34 39 | 2.26 p.m. | 43 | 13 | 29.62 | 752.4 | 29.67 | 753.7 | 43.2 | 6.2 | 78.0 | ..... | 4 | 12 | 7 | 3 | 2 | ..... | ..... | 3 | ..... | ..... | 8 | 0.90 | 22.9 |
| Kertch | N. 45 21 | E. 36 29 | 2.34 p.m. | 18? | 6? | 30.12 | 764.9 | 30.14 | 765.5 | 61.0 | 16.1 | 73.1 | 1 | 2 | 1 | 2 | ..... | 1 | 8 | 4 | 12 | ..... | ..... | 6 | 1.10 | 27.9 |
| Kieff | N. 50 27 | E. 30 30 | 2.10 p.m. | 600 | 183 | 29.41 | 746.9 | 30.05 | 763.2 | 49.8 | 9.9 | 73.2 | 1 | 5 | 3 | 4 | 2 | 8 | 4 | 4 | ..... | ..... | ..... | 7 | 1.87 | 47.5 |
| Koslov. *a* | N. 52 53 | E. 40 31 | 2.50 p.m. | 466? | 142? | 29.59 | 751.6 | 30.10 | 764.6 | 49.5 | 9.7 | 73.1 | 2 | 2 | 5 | 4 | 7 | 4 | 3 | 1 | 2 | ..... | ..... | 6 | 1.50 | 38.2 |
| Lgov | N. 51 41 | E. 35 17 | 2.29 p m. | 535? | 163? | 29.55 | 750.6 | 30.14 | 765.5 | 50.9 | 10.5 | 65.0 | ..... | 2 | 4 | 5 | 3 | 7 | 6 | 3 | 1 | ..... | ..... | 6 | 1.03 | 26.1 |
| Libau | N. 56 31 | E. 21 01 | 1.32 p.m. | 20 | 6 | 29.81 | 757.2 | 29.84 | 757.8 | 50.7 | 10.4 | 72.6 | ..... | 3 | 5 | 7 | 3 | 6 | 5 | 1 | 1 | ..... | ..... | 7 | 5.59 | 142.1 |
| Lugan | N. 48 35 | E. 39 20 | 2.45 p.m. | 188? | 57? | 29.94 | 760.5 | 30.14 | 765.6 | 57.6 | 14.2 | 56.6 | 1 | 1 | 3 | 8 | 2 | 5 | 8 | 3 | ..... | ..... | ..... | 7 | 1.19 | 30.3 |
| Moscow | N. 55 46 | E. 37 40 | 2.39 p.m. | 448 | 136 | 29.56 | 750.9 | 30.05 | 763.2 | 47.7 | 8.7 | 71.1 | 2 | 3 | 6 | 8 | 6 | 1 | 1 | ..... | 4 | ..... | ..... | 6 | 1.40 | 35.5 |
| Nertchinsk | N. 51 19 | E.119 37 | 8.07 p.m. | ? | ? | 27.89 | 708.5 | 30.31 | 769.8 | 25.3 | -3.7 | 60.5 | 3 | 4 | 3 | 2 | ..... | ..... | 1 | 1 | 17 | ..... | ..... | 4 | 0.82 | 20.8 |
| Nikolaiev | N. 46 58 | E. 31 58 | 2.16 p.m. | 62 | 19 | 30.02 | 762.4 | 30.09 | 764.2 | 57.6 | 14.2 | 72.1 | ..... | 3 | 2 | 4 | 5 | 2 | 7 | 3 | 5 | ..... | ..... | 5 | 0.70 | 17.7 |
| Nikolaievsk. *c* | N. 53 08 | E.140 45 | 9.31 p.m. | 59 | 18 | 29.90 | 759.5 | 29.99 | 761.7 | 31.6 | -0.2 | 75.7 | 2 | 1 | 9 | ..... | ..... | ..... | 1 | 1 | 11 | ..... | ..... | 6 | ..... | ..... |
| Petro-Alexandrovsk | N. 41 28 | E. 61 05 | 4.12 p.m. | 328 | 100 | 29.91 | 759.6 | 30.26 | 768 5 | 61.5 | 16.4 | 26.4 | 2 | 3 | ..... | ..... | ..... | ..... | 3 | ..... | 14 | 9 | ..... | 2 | ..... | ..... |
| Petrozavodsk | N. 61 47 | E. 34 23 | 2.26 p m. | 180? | 55? | 29.60 | 751.7 | 29.80 | 755.8 | 45.0 | 7.2 | 77.0 | 1 | 1 | 8 | 5 | 9 | 5 | 3 | ..... | ..... | ..... | ..... | 7 | 1.43 | 36.3 |
| Pinsk | N. 52 07 | E. 26 06 | 1.52 p.m. | 459? | 140? | 29.51 | 749.6 | 30.01 | 762.3 | 50.5 | 10.3 | 68.6 | ..... | 3 | 4 | 6 | 5 | 7 | 5 | ..... | 1 | ..... | ..... | 7 | 3.18 | 80.8 |
| Poti | N. 42 09 | E. 41 37 | 2.54 p.m. | 466? | 142? | 30.04 | 763.1 | 30.08 | 763 9 | 70.7 | 21.5 | 81.5 | ..... | 1 | 3 | 8 | ..... | 1 | 11 | ..... | 7 | ..... | ..... | 6 | 5.05 | 128.3 |
| St. Petersburg | N. 59 56 | E. 30 16 | 2.09 p.m. | 20 | 6 | 29.82 | 757.3 | 29.84 | 757.9 | 47.5 | 8.6 | 71 2 | 2 | 5 | 4 | 5 | 8 | 7 | ..... | ..... | ..... | ..... | ..... | 7 | 0.98 | 24.9 |
| Samarkand. *a* | N. 39 39 | E. 66 57 | 4.36 p.m. | 2379? | 725? | 27 71 | 703.9 | 30.17 | 766.3 | 59.7 | 15.4 | 51.3 | 1 | ..... | 2 | ..... | ..... | 2 | 1 | ..... | 24 | ..... | ..... | 1 | ..... | ..... |
| Semipalatinsk | N. 50 24 | E. 80 13 | 5.29 p.m. | 607? | 185? | 29.60 | 751.7 | 30.27 | 768.9 | 43.0 | 6.1 | 60.5 | 1 | 1 | 1 | 4 | ..... | 2 | ..... | 1 | 21 | ..... | ..... | 5 | 0.32 | 8.2 |
| Sevastopol | N. 44 37 | E. 33 31 | 2.22 p.m. | 138? | 42? | 29.83 | 757.6 | 30.04 | 762 9 | 62.8 | 17.1 | 66.2 | 4 | 3 | 5 | 3 | 7 | 3 | ..... | 6 | ..... | ..... | ..... | 5 | 3.26 | 82.9 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for October, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0-10 | Inch. | Mill. |
| Russian—Con. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Staroi Bykhov | N. 53 31 | E. 30 16 | 2.09 p.m. | 512 | 156 | 29.46 | 748 2 | 30.02 | 762 4 | 48.7 | 9.3 | 73.4 | 1 | ..... | 3 | 4 | 6 | 13 | 2 | 2 | ..... | ..... | ..... | 8 | 2.70 | 68.7 |
| Tashkend .a | N. 41 20 | E. 69 18 | 4.45 p.m. | 1607? | 490? | 28.55 | 725.1 | 30.20 | 767.2 | 62.2 | 16.8 | 38.0 | ..... | 5 | ..... | ..... | ..... | ..... | ..... | 1 | 24 | ..... | ..... | 2 | ..... | ..... |
| Tiflis | N. 41 43 | E. 44 47 | 3.07 p.m. | 1343 | 409 | 28.73 | 729 7 | 30.12 | 765.0 | 67.1 | 19.5 | 43.4 | ..... | 3 | 1 | ..... | 5 | 20 | ..... | 1 | 1 | ..... | ..... | 6 | 0.13 | 3.4 |
| Vernoe | N. 43 16 | E. 76 53 | 5.16 p.m. | 2401? | 732? | 27.60 | 700 9 | 30.12 | 765.1 | 48.4 | 9.1 | 60.7 | ..... | 1 | 1 | ..... | ..... | ..... | 1 | ..... | 28 | ..... | ..... | 4 | ..... | ..... |
| Viatka | N. 58 36 | E. 49 41 | 3.27 p.m. | 581? | 177? | 29.40 | 746.8 | 30.04 | 763.0 | 43.9 | 6.6 | 77.7 | ..... | 5 | 10 | 6 | 9 | ..... | ..... | ..... | 1 | ..... | ..... | 7 | 1.00 | 25.3 |
| Warsaw | N. 52 13 | E. 21 02 | 1.32 p.m. | 392 | 119 | 29.53 | 750.0 | 29.96 | 760 9 | 49.6 | 9.8 | 68.9 | 1 | 4 | 4 | 5 | 2 | 8 | 3 | ..... | 4 | ..... | ..... | 6 | 2.51 | 63.7 |
| Yeniseisk | N. 58 27 | E. 92 06 | 6.16 p.m. | 262? | 80? | 29.98 | 761.5 | 30.28 | 769.1 | 34.9 | 1.6 | 83.2 | 1 | 2 | 2 | 3 | 4 | 4 | 2 | 2 | 11 | ..... | ..... | 7 | 0.80 | 20.3 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Petrowsky Ac'y | N. 55 50 | E. 37 38 | 2.39 p.m. | 508 | 155 | 29.44 | 747.8 | 30.05 | 763 3 | 47.2 | 8.4 | 73.8 | 1 | 1 | 8 | 6 | 11 | 4 | ..... | 6 | ..... | ..... | ..... | 7 | 0.70 | 17.8 |
| Spanish. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barcelona | N. 41 23 | E. 2 15 | 0.16 p.m. | 138 | 42 | 29.95 | 760.8 | 30.12 | 765.1 | 63.3 | 17.4 | 68 | 4 | 1 | 4 | 3 | 6 | 1 | 10 | 2 | ..... | ..... | ..... | 5 | 1.35 | 34.2 |
| Bilbao | N. 43 15 | W. 2 59 | 11.56 a.m. | 52 | 16 | 30.12 | 765.1 | 30.18 | 766.6 | 64.8 | 18.2 | 68 | 1 | 10 | ... | ..... | 1 | 10 | ..... | 2 | 7 | 851 | 1369 | 6 | 7.13 | 181.2 |
| Burgos | N. 42 20 | W. 3 46 | 11.53 a.m. | 2821 | 860 | 27.21 | 691.1 | 30.19 | 766.8 | 55.2 | 12.9 | 68 | 4 | 1 | 3 | 2 | 4 | ..... | 6 | 11 | ... | 3627 | 5837 | 5 | 0.52 | 13.2 |
| Madrid | N. 40 25 | W. 3 42 | 11.53 a.m. | 2152 | 656 | 27.92 | 709 1 | 30.13 | 765 3 | 60.6 | 15.9 | 58.9 | 2 | 1 | 1 | 3 | 1 | 5 | 9 | 9 | ..... | 5167 | 8316 | 5 | 2.42 | 61.4 |
| Murcia | N. 37 59 | W. 1 10 | 0.03 p.m. | 141 | 43 | 29.96 | 760 9 | 30.08 | 764.0 | 62.6 | 17.0 | 72.0 | ... | 7 | ..... | 1 | 6 | 2 | 9 | 6 | 5 | 921 | 1482 | 7 | 2.95 | 75.0 |
| Santiago | N. 42 53 | W. 8 28 | 11.34 a.m. | 863 | 263 | 29.22 | 742.2 | 30.11 | 764.8 | 63.0 | 17.2 | 67 | 2 | 1 | ..... | 1 | ..... | 2 | 1 | 21 | 3 | 5614 | 9035 | 5 | 1.21 | 30 7 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Havana | N. 23 08 | W.82 28 | 7.39 a.m. | 62 | 19 | 29.02 | 759.9 | 29.98 | 761.5 | 75.7 | 24.3 | 82.9 | 5 | .... | ..... | ..... | 2 | 3 | 21 | ..... | ..... | ..... | ..... | 4 | 3. 0 | 78.6 |
| Manilla | N. 14 35 | E.120 56 | 8.12 p.m. | 54 | 16 | 29.89 | 759.1 | 29.94 | 760.5 | 79.5 | 26.4 | 82.1 | 1 | .... | ..... | ..... | 1 | 7 | 14 | 7 | 1 | 3734 | 6009 | 4 | 1.69 | 43.0 |
| San Fernando | N. 36 28 | W. 6 13 | 11.43 a.m. | 95 | 29 | 30.00 | 762.0 | 30.10 | 764.5 | 69.8 | 21.0 | 67.5 | 1 | 2 | 8 | ..... | 4 | ..... | 13 | ..... | 3 | ..... | ..... | 5 | 3.00 | 76.1 |
| San Juan de Porto Rico | N. 18 30 | W.66 10 | 7.44 a.m. | 82 | 25 | 29.85 | 758.3 | 29.95 | 760.6 | 78.4 | 25.8 | 89 | ..... | 2 | ..... | .... | 3 | 11 | 1 | ..... | 14 | ..... | ..... | 8 | 8.00 | 203.1 |
| Swedish. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Haparanda | N. 65 47 | E. 24 03 | 1.44 p.m. | 29 | 9 | 29.57 | 751.1 | 29.61 | 752.1 | 41.2 | 5.1 | 86 | 3 | 5 | 3 | 5 | 8 | 3 | ..... | 1 | 3 | ..... | ..... | 7 | 2.69 | 68.4 |
| Umea | N. 63 50 | E. 20 17 | 1.29 p.m. | 39 | 12 | 29.60 | 751.8 | 29.65 | 753.1 | 44.2 | 6.8 | 80 | 4 | 5 | 3 | 13 | 1 | ..... | 2 | 1 | 2 | ..... | ..... | 7 | 2.35 | 59.6 |
| Hernosand | N. 62 32 | E. 17 57 | 1.20 p.m. | 46 | 14 | 29.63 | 752.5 | 29.68 | 753.8 | 45.9 | 7.7 | 78 | 6 | 3 | 4 | 6 | 6 | ... | 1 | ..... | 5 | ..... | ..... | 7 | 2.53 | 64.3 |
| Stockholm | N. 59 20 | E. 18 04 | 1.20 p.m. | 144 | 44 | 29.58 | 751.2 | 29.75 | 755.7 | 48.2 | 9.0 | 75 | 1 | 4 | 5 | 2 | 8 | 6 | ..... | 2 | 3 | ..... | ..... | 6 | 3.03 | 76.9 |
| Wisby | N. 57 39 | E. 18 19 | 1.21 p.m. | 52 | 16 | 29.72 | 754.9 | 29.78 | 756.4 | 50.2 | 10.1 | 74 | 1 | 6 | 4 | 4 | 6 | 4 | 4 | 1 | 1 | ..... | ..... | 7 | 2.36 | 59.9 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upsala | N 59 51 | E. 17 37 | 1.19 p.m. | 79 | 24 | 29.63 | 752.5 | 29.71 | 754.7 | 47.1 | 8.4 | 80.3 | 3 | 5 | 2 | 3 | 11 | 6 | ..... | 1 | ..... | ..... | ..... | 7 | 3.01 | 76.4 |
| Swiss. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Geneva | N. 46 12 | E 6 08 | 0.33 p m. | 1338 | 408 | 28.70 | 729.0 | 30.13 | 765.2 | 55.0 | 12.8 | 59.4 | 16 | 3 | 2 | 1 | 7 | ..... | ..... | 2 | ..... | ..... | ..... | 5 | 1.16 | 29.6 |
| Turkish. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Constantinople | N 41 00 | E. 28 59 | 2.04 p.m. | 230 | 70 | ..... | ..... | 30.06 | 763.5 | 64.8 | 18.2 | 66 | 8 | 5 | 1 | 2 | 7 | 1 | 1 | 6 | ..... | ..... | ..... | 7 | 2.09 | 53.1 |
| Valona | N. 40 27 | E. 19 27 | 1.26 p.m. | 105 | 32 | ..... | ..... | 30.14? | 765.5? | 69.1 | 20.6 | ..... | 1 | 13 | 6 | 6 | 4 | ..... | ... | 1 | ..... | ..... | ..... | 5 | 7.95 | 202.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beirut | N. 33 54 | E. 35 28 | 2.30 p.m. | 111 | 34 | ..... | ..... | 29.98 | 761.4 | 77.9 | 25.5 | 61.3 | 8 | 6 | ..... | 10 | ... | ..... | ..... | 7 | ..... | ..... | ..... | 3 | 1.94 | 49.3 |
| United States. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *New Eng'd states* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastport | N. 44 54 | W. 66 59 | 7.40 a.m. | 61 | 18 | 29.98 | 761.5 | 30.05 | 763.3 | 43.6 | 6.4 | 77.5 | 8 | 8 | 1 | 5 | 4 | 1 | 1 | 2 | 1 | 7569 | 12229 | 5 | 1.88 | 47.8 |
| Portland | N. 43 39 | W. 70 15 | 7.27 a.m. | 45 | 14 | 30.05 | 763 3 | 30.10 | 764.5 | 47.4 | 8.6 | 75.4 | 3 | 8 | 4 | 9 | 1 | 1 | ..... | 4 | 1 | 6256 | 10068 | 5 | 2.21 | 56.1 |
| Mt. Washington | N. 44 16 | W. 71 18 | 7.23 a.m. | 6279 | 1914 | 23.74 | 603.0 | 30.08 | 764.0 | 27.2 | —2.7 | 93.0 | ..... | 15 | 11 | 3 | 1 | ..... | ..... | 1 | ..... | 25475 | 40997 | 4 | 12.91 | 327.9 |
| Boston | N. 42 21 | W. 71 04 | 7.24 a.m. | 125 | 38 | 29.99 | 761.7 | 30.13 | 765.3 | 49.3 | 9.6 | 72.2 | 2 | 7 | 9 | 9 | 1 | ..... | 2 | 1 | ..... | 9288 | 14947 | 5 | 3.17 | 80.5 |
| Block Id | N. 41 10 | W. 71 36 | 7.22 a.m. | 27 | 8 | 30.11 | 764 8 | 30.14 | 765.5 | 53.3 | 11.8 | 81.0 | 8 | 2 | 6 | 6 | 2 | 1 | 1 | 3 | 2 | 11491 | 17773 | 5 | 3.89 | 98.8 |
| New London | N. 41 21 | W. 72 05 | 7.20 a.m. | 47 | 14 | 30.11 | 764.8 | 30.16 | 766.1 | 51.8 | 11.0 | 86.3 | 10 | 4 | 4 | 7 | 1 | ..... | ..... | 2 | 3 | 5244 | 8439 | 4 | 3.53 | 89.7 |
| New Haven | N. 41 18 | W. 72 56 | 7.16 a.m. | 107 | 32 | 30.04 | 763.0 | 30.16 | 766.1 | 49.1 | 9.5 | 80.1 | 7 | 7 | 3 | 7 | 1 | ..... | ..... | 4 | 2 | 5737 | 9233 | 5 | 2.49 | 63.2 |
| *Mid. Atlan. states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Albany | N. 42 39 | W. 73 45 | 7.13 a.m. | 83 | 25 | 30.06 | 763.5 | 30.15 | 765.8 | 47.1 | 8.4 | 70.9 | 8 | 3 | 1 | 12 | 3 | ..... | 1 | 2 | 1 | 5604 | 9019 | 6 | 2.64 | 67.1 |
| New York City | N. 40 43 | W. 74 00 | 7.12 a.m. | 164 | 50 | 30.00 | 762.0 | 30.18 | 766.6 | 51.9 | 11.1 | 78.3 | 2 | 3 | 11 | 5 | 3 | 1 | 3 | 3 | ..... | 8644 | 13911 | 4 | 3.63 | 92.2 |
| Philadelphia | N. 39 57 | W. 75 09 | 7.07 a.m. | 117 | 36 | 30.06 | 763.5 | 30.19 | 766.8 | 52.3 | 11.3 | 78.1 | 13 | 1 | 2 | .... | 8 | 1 | 1 | 3 | 2 | 7173 | 11544 | 4 | 1.54 | 39.1 |
| Sandy Hook | N. 40 28 | W. 74 00 | 7.12 a.m. | 28 | 8 | 30.15 | 765.8 | 30.18 | 766.6 | 53.7 | 12.1 | 74.9 | 4 | 7 | 3 | 6 | 2 | ..... | 3 | 6 | ..... | 12831 | 20649 | 5 | 4.21 | 106.9 |
| Atlantic City | N. 39 22 | W. 74 25 | 7.10 a.m. | 13 | 4 | 30.15 | 765.8 | 30.16 | 766.1 | 55.7 | 13.2 | 79.6 | 4 | 8 | 6 | 5 | 5 | 1 | ..... | 2 | ..... | 6644 | 10692 | 4 | 2.94 | 74.7 |
| Barnegat City | N. 39 46 | W. 74 06 | 7.12 a.m. | 22 | 7 | 30.14 | 765.5 | 30.16 | 766.1 | 55.7 | 13.2 | 84.7 | 8 | 5 | 8 | 4 | 1 | ..... | 3 | 2 | ..... | 10371 | 16690 | 5 | 2.19 | 55.6 |
| Cape May | N. 38 56 | W. 74 58 | 7.08 a.m. | 27 | 8 | 30.14 | 765.5 | 30.17 | 766.3 | 58.3 | 14.6 | 77.4 | 9 | 1 | 2 | 7 | 5 | ..... | 3 | 4 | ... | 11618 | 18697 | 4 | 1.33 | 33.8 |
| Del. Breakwater | N. 38 48 | W. 75 10 | 7.07 a.m. | 20 | 6 | 30.16 | 766.1 | 30.18 | 766.6 | 57.9 | 14.4 | 81.1 | 1 | 8 | 1 | 10 | 3 | 1 | 1 | 6 | ..... | d10697 | d17215 | 3 | 1.12 | 28.4 |
| Baltimore | N. 39 18 | W. 76 37 | 7.02 a.m. | 45 | 14 | 30.15 | 765.8 | 30.20 | 767.1 | 54.8 | 12.7 | 75.0 | 10 | 1 | 6 | 2 | 4 | ..... | 4 | 3 | 1 | 3905 | 6284 | 4 | 1.42 | 36.1 |
| Washington City | N. 38 54 | W. 77 02 | 7.00 a.m. | 106 | 32 | 30.10 | 764.5 | 30.22 | 767.6 | 53.4 | 11.9 | 80.2 | 7 | 3 | 3 | 3 | 7 | ..... | ..... | 3 | 5 | 3990 | 6421 | 4 | 1.73 | 43.9 |
| Chincoteague | N. 37 55 | W. 75 23 | 7.06 a.m. | 8 | 2 | 30.18 | 766.6 | 30.19 | 766.8 | 59.6 | 15.3 | 81.3 | 12 | 4 | 1 | 2 | 7 | 1 | 2 | 2 | ..... | 7399 | 11907 | 4 | 1.12 | 28.4 |
| Cape Henry | N. 36 56 | W. 76 00 | 7.04 a.m. | 16 | 5 | 30.17 | 766.3 | 30.19 | 766.8 | 61.1 | 16.2 | 79.5 | 9 | 3 | 1 | 8 | 4 | 2 | 1 | 3 | ..... | 9722 | 15646 | 3 | 0.74 | 18.8 |
| Lynchburg | N. 37 25 | W. 79 09 | 6.52 a.m. | 652 | 199 | 29.52 | 749.8 | 30.21 | 767.3 | 55.0 | 12.8 | 77.0 | ..... | 2 | 5 | 1 | 3 | 2 | 2 | 5 | 11 | 2098 | 3376 | 3 | 0.54 | 13.7 |
| Norfolk | N. 36 51 | W. 76 17 | 7.03 a.m. | 30 | 9 | 30.18 | 766.6 | 30.20 | 767.1 | 59.7 | 15.4 | 81.0 | 5 | ..... | 3 | 4 | 4 | 2 | 3 | 8 | 2 | 5023 | 8084 | 3 | 0.47 | 11.9 |
| *S. Atlantic states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kittyhawk | N. 36 00 | W. 75 42 | 7.05 a.m. | 22 | 7 | 30.16 | 766.1 | 30.18 | 766.6 | 63.6 | 17.6 | 81.2 | 2 | 3 | 4 | 3 | 2 | 3 | 4 | 10 | ..... | 10278 | 16540 | 4 | 1.23 | 31.2 |
| Hatteras | N. 35 15 | W. 75 40 | 7.05 a.m. | 12 | 4 | 30.15 | 765.8 | 30.16 | 766.1 | 65.7 | 18.7 | 82.8 | 5 | 4 | 2 | 3 | ..... | 1 | 2 | 13 | 1 | 6610 | 10638 | 4 | 1.23 | 31.2 |
| Fort Macon | N. 34 42 | W. 76 40 | 7.01 a.m. | 11 | 3 | 30.17 | 766.3 | 30.18 | 766.6 | 64.8 | 18.2 | 82.2 | 7 | 4 | 3 | 3 | .... | ..... | 4 | 10 | ..... | 9224 | 14844 | 4 | 0.34 | 8.6 |
| Smithville | N. 33 55 | W. 78 01 | 6.56 a.m. | 34 | 10 | 30.15 | 765.8 | 30.19 | 766.8 | 64.2 | 17.9 | 82.1 | 10 | 4 | 3 | ... | ..... | 2 | 4 | 8 | .... | 5993 | 9645 | 3 | 0.73 | 5.8 |
| Wilmington | N. 34 14 | W. 77 57 | 6.56 a.m. | 52 | 16 | 30.13 | 765.3 | 30.18 | 766.6 | 63.6 | 17.6 | 81.7 | 3 | 1 | 2 | 1 | ..... | ..... | 5 | 13 | 6 | 3370 | 5423 | 5 | 0.63 | 16.0 |
| Charlotte | N. 35 13 | W. 80 51 | 6.44 a.m | 808 | 246 | 29.36 | 745.7 | 30.22 | 767.6 | 59.5 | 15.3 | 77.7 | 6 | 2 | 1 | 3 | 1 | 2 | 4 | 8 | 4 | 3254 | 5237 | 3 | 1.51 | 38.4 |
| Charleston | N. 32 47 | W. 79 56 | 6.48 a.m. | 52 | 16 | 30.09 | 764.3 | 30.15 | 765.8 | 67.1 | 19.5 | 86.1 | 5 | 3 | 2 | 1 | ..... | ..... | 4 | 16 | ... | 5401 | 8692 | 3 | 0.35 | 8.9 |
| Augusta | N. 33 28 | W. 81 54 | 6.40 a.m. | 183 | 56 | 30.03 | 762.7 | 30.22 | 767.6 | 63.2 | 17.3 | 80.2 | 5 | 3 | ..... | 1 | 3 | 1 | 5 | 5 | 8 | 2319 | 3732 | 2 | 0.83 | 21.1 |
| Savannah | N. 32 05 | W. 81 05 | 6.44 a.m. | 87 | 26 | 30.07 | 763.8 | 30.16 | 766.1 | 65.1 | 18.4 | 84.3 | 12 | 1 | 4 | 1 | 1 | ..... | 2 | 9 | 1 | 4978 | 7011 | 2 | 2.29 | 58.2 |
| Jacksonville | N. 30 20 | W. 81 39 | 6.42 a.m. | 43 | 13 | 30.08 | 764.0 | 30.12 | 765.0 | 68.6 | 20.3 | 87.8 | 2 | 3 | ..... | 2 | ..... | ..... | 5 | 14 | 5 | 4659 | 7498 | 3 | 4.12 | 104.6 |
| *Florida penin'la.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cedar Keys | N. 29 08 | W. 83 02 | 6.36 a.m. | 22 | 7 | 30.08 | 764.0 | 30.10 | 764.5 | 69.3 | 20.7 | 83.7 | 11 | 4 | ..... | ..... | ..... | ..... | 3 | 12 | 1 | 7285 | 11724 | 1 | 0.13 | 3.3 |
| Key West | N. 24 34 | W. 81 49 | 6.41 a.m. | 20 | 6 | 29.98 | 761.5 | 30.00 | 762.0 | 76.6 | 24.8 | 82.1 | 3 | 1 | ..... | ..... | ..... | ..... | 1 | 26 | ..... | 10614 | 17081 | 4 | 3.17 | 80.5 |
| Sanford | N. 28 48 | W. 81 23 | 6.42 a.m. | 35 | 11 | 30.01 | 762.2 | 30.05 | 763.3 | 71.8 | 22.1 | 83.0 | 11 | 5 | 2 | ..... | ..... | 1 | 1 | 11 | ..... | 6198 | 9975 | 3 | 3.02 | 76.7 |
| *East Gulf states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atlanta | N. 33 45 | W. 84 23 | 6.31 a.m. | 1129 | 344 | 29.02 | 737.1 | 30.22 | 767.6 | 60.5 | 15.8 | 76.7 | ..... | 6 | 5 | 1 | 2 | 3 | 11 | 3 | ..... | 6442 | 10367 | 3 | 0.70 | 17.8 |
| Pensacola | N. 30 25 | W. 87 13 | 6.19 a.m. | 30 | 9 | 30.09 | 764.3 | 30.12 | 765.0 | 68.5 | 20.3 | 78.6 | 5 | 3 | 1 | ..... | ... | 3 | 5 | 12 | 2 | 4822 | 7760 | 3 | 2.43 | 61.7 |
| Mobile | N. 30 41 | W. 88 02 | 6.16 a.m. | 35 | 11 | 30.10 | 764.5 | 30.14 | 765.5 | 66.4 | 19.1 | 83.9 | 8 | 8 | ..... | .... | 1 | 1 | 4 | 6 | 3 | 4310 | 6936 | 2 | 5.36 | 136.1 |
| Montgomery | N. 32 23 | W. 86 18 | 6.23 a.m. | 219 | 66 | 29.94 | 760 5 | 30.17 | 766.3 | 63.0 | 17.2 | 77.9 | 3 | 5 | 1 | 1 | ..... | 2 | ..... | 18 | 1 | 3643 | 5863 | 3 | 1.87 | 47.5 |
| Vicksburg | N. 32 22 | W. 90 53 | 6.04 a.m. | 244 | 74 | 29.92 | 760.0 | 30.18 | 766.6 | 62.2 | 16.8 | 84.6 | 10 | 4 | ..... | 1 | 1 | 5 | 7 | 1 | 2 | 3456 | 5562 | 3 | 1.08 | 27.4 |
| New Orleans | N. 29 58 | W. 90 04 | 6.08 a.m. | 52 | 16 | 30.04 | 763.0 | 30.09 | 764.3 | 70.5 | 21.4 | 80.7 | 9 | ..... | 2 | ..... | 1 | 3 | 6 | 10 | ..... | 5041 | 8112 | 3 | 5.60 | 142.2 |
| *West Gulf states* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shreveport | N. 32 30 | W. 93 40 | 5.53 a.m. | 227 | 69 | 29.91 | 759.7 | 30.15 | 765.8 | 60.7 | 15.9 | 89.1 | 8 | 2 | ..... | ..... | 2 | 9 | 1 | 3 | 6 | 3086 | 4966 | 4 | 0.54 | 13.7 |
| Fort Smith | N. 35 22 | W. 94 24 | 5.50 a.m. | 451 | 137 | 29.68 | 753.9 | 30.16 | 766.1 | 56.7 | 13.7 | 90.0 | 3 | ..... | 1 | ..... | ..... | 1 | 9 | 3 | 14 | 2510 | 4039 | 4 | 1.32 | 33.5 |
| Little Rock | N. 34 45 | W. 92 06 | 6.00 a.m. | 298 | 91 | 29.84 | 757.9 | 30.16 | 766.1 | 59.6 | 15.3 | 91.2 | 4 | 6 | 1 | ..... | 1 | 2 | ..... | ..... | 17 | 2559 | 4118 | 3 | 1.30 | 33.0 |
| Galveston | N. 29 18 | W. 94 47 | 5.49 a.m. | 40 | 12 | 30.05 | 763.3 | 30.09 | 764.3 | 72.1 | 22.3 | 80.7 | 4 | 1 | 1 | ..... | ..... | ..... | 11 | 4 | 10 | 6760 | 10879 | 4 | 7.37 | 187.2 |
| Indianola | N. 28 32 | W. 96 31 | 5.42 a.m. | 26 | 8 | 30.06 | 763.5 | 30.08 | 764.0 | 70.7 | 21.5 | 89.7 | 9 | ..... | 1 | ..... | 2 | 5 | 5 | 8 | 1 | 8878 | 14288 | 4 | 7.94 | 201.7 |
| Palestine | N. 31 45 | W. 95 40 | 5.45 a.m. | 533 | 162 | 29.59 | 751.6 | 30.15 | 765.8 | 60.2 | 15.7 | 90.0 | 6 | ..... | 1 | ..... | 2 | 7 | 4 | 11 | .... | 5501 | 8853 | 4 | 1.45 | 36.8 |
| *Rio Grande valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brownsville | N. 25 53 | W. 97 26 | 5.38 a.m | 57 | 17 | 29.97 | 761.2 | 30.03 | 762.7 | 69.4 | 20 8 | 95.3 | 10 | 1 | ..... | 2 | ..... | 4 | 2 | 1 | 11 | 3934 | 6331 | 5 | 15.71 | 399.0 |
| Rio Grande City | N. 26 22 | W. 98 45 | 5.33 a m. | 230 | 70 | 29.86 | 758.4 | 30.10 | 764.5 | 67.8 | 19.9 | 90.7 | 5 | 1 | ..... | ..... | ..... | 5 | 10 | 3 | 7 | 3692 | 5942 | 3 | 4.45 | 113.0 |
| *Ohio val. & Tenn.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chattanooga | N. 35 04 | W. 85 15 | 6.27 a.m. | 783 | 239 | 29.37 | 746.0 | 30.20 | 767 1 | 58.9 | 14.9 | 84.9 | 2 | 7 | 3 | 2 | ..... | 3 | 4 | 6 | 4 | 3427 | 5515 | 3 | 1.83 | 46.5 |
| Knoxville | N. 35 56 | W. 83 58 | 6.32 a.m | 980 | 299 | 29.18 | 741.2 | 30.22 | 767.6 | 56.0 | 13.3 | 89.0 | 5 | 2 | 1 | 1 | ..... | 3 | 2 | 10 | 7 | 2750 | 4426 | 2 | 2.05 | 52.1 |
| Memphis | N. 35 09 | W. 90 03 | 6.08 a.m. | 321 | 98 | 29.83 | 757.7 | 30.17 | 766.3 | 59.9 | 15.5 | 86.4 | 1 | 13 | ..... | 4 | ..... | 6 | 2 | 3 | 2 | 3620 | 5826 | 4 | 2.83 | 71.9 |
| Nashville | N. 36 10 | W. 86 47 | 6.21 a.m. | 549 | 167 | 29.60 | 751.8 | 30.18 | 766.6 | 58.1 | 14.5 | 85.5 | 2 | 4 | 4 | 1 | 4 | 3 | 6 | 7 | ..... | 3869 | 6226 | 4 | 2.43 | 61.7 |
| Louisville | N. 38 15 | W. 85 45 | 6.25 a.m. | 530 | 162 | 29.62 | 752.3 | 30.21 | 767.3 | 57.0 | 13.9 | 83.9 | 8 | 2 | 1 | 2 | 5 | 5 | 2 | 3 | 3 | 4522 | 7277 | 4 | 2.00 | 50.8 |
| Greencastle | N. 39 39 | W. 86 51 | 6.21 a.m. | 897 | 273 | 29.23 | 742.4 | ..... | ..... | 52.3 | 11.3 | 83.9 | .... | ..... | 6 | 9 | 4 | 2 | 8 | 2 | ..... | 3845 | 6188 | 3 | 1.27 | 32.3 |
| Indianapolis | N. 39 46 | W. 86 10 | 6.23 a.m. | 753 | 229 | 29.37 | 746.0 | 30.18 | 766.6 | 52.0 | 11.1 | 84.5 | 2 | 4 | 2 | 4 | 6 | 3 | 2 | 5 | 3 | 3481 | 5601 | 4 | 2.31 | 58.7 |
| Cincinnati | N. 39 06 | W. 84 30 | 6.30 a.m. | 620 | 189 | 29.54 | 750.3 | 30.19 | 766.8 | 55.4 | 13.0 | 82.0 | 4 | 3 | 2 | 2 | 2 | 4 | 5 | 2 | 7 | 3300 | 5311 | 3 | 1.35 | 34.3 |
| Columbus | N. 39 58 | W. 83 00 | 6.36 a.m. | 805 | 245 | 29.32 | 744.7 | 30.18 | 766.6 | 52.3 | 11.3 | 83.1 | 3 | 7 | 5 | 3 | 5 | 3 | 1 | 4 | ..... | 4451 | 7163 | 4 | 1.66 | 42.2 |
| Pittsburg | N. 40 32 | W. 80 02 | 6.48 a.m. | 766 | 233 | 29.35 | 745.5 | 30.17 | 766.3 | 52.5 | 11.4 | 83 4 | 3 | 9 | 5 | 3 | 2 | 1 | 1 | 7 | ..... | 4046 | 6511 | 5 | 2.02 | 51.3 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea | | Result of Simultaneous Observations for October, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| U. S.—Continued. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Lower lake region.* | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Rochester | N. 43 08 | W. 77 42 | 6.57 a.m. | 621 | 189 | 29.45 | 748.0 | 30.12 | 765.0 | 48.2 | 9.0 | 77.8 | 3 | 1 | 9 | 11 | 6 | ..... | 1 | ..... | ..... | 8789 | 14144 | 7 | 1.87 | 47.5 |
| Buffalo | N. 42 53 | W. 78 53 | 6.52 a.m. | 690 | 210 | 29.39 | 746.5 | 30.14 | 765.5 | 49.4 | 9.7 | 85.6 | 2 | 2 | 9 | 5 | 6 | ..... | 4 | 2 | 1 | 8993 | 14456 | 6 | 1.54 | 39.1 |
| Oswego | N. 43 29 | W. 76 35 | 7.02 a.m. | 334 | 102 | 29.74 | 755.4 | 30.10 | 764.5 | 48.0 | 8.9 | 75.4 | 3 | 3 | 5 | 2 | 7 | 9 | 1 | 1 | ..... | 8612 | 13859 | 7 | 3.21 | 81.5 |
| Erie | N. 42 07 | W. 80 05 | 6.48 a.m. | 681 | 208 | 29.41 | 747 0 | 30.14 | 765.5 | 52.8 | 11.6 | 76.2 | 1 | 5 | 3 | 5 | 8 | 4 | 2 | 3 | ..... | 8243 | 13266 | 6 | 3.23 | 82.0 |
| Sandusky | N 41 25 | W. 82 40 | 6.37 a.m. | 639 | 195 | 29.47 | 748.5 | 30.16 | 766.1 | 52.7 | 11.5 | 75.2 | 3 | 1 | 5 | 14 | 1 | 4 | 1 | 2 | ..... | 9215 | 14830 | 4 | 1.18 | 30.0 |
| Cleveland | N. 41 30 | W. 81 42 | 6.41 a.m. | 690 | 210 | 29.41 | 747.0 | 30.15 | 765.8 | 51.8 | 11.0 | 76.2 | 2 | 2 | 3 | 6 | 9 | 5 | 4 | ..... | ..... | 7006 | 11275 | 5 | 1.97 | 50.2 |
| Toledo | N. 41 40 | W. 83 34 | 6.34 a.m. | 651 | 198 | 29.44 | 747.8 | 30.14 | 765.5 | 51.3 | 10.7 | 81.7 | 1 | 4 | 4 | 7 | 10 | 2 | 2 | 1 | ..... | 6014 | 9678 | 6 | 2.14 | 54.4 |
| Detroit | N. 42 20 | W. 83 03 | 6.36 a.m. | 661 | 201 | 29.42 | 747.3 | 30.13 | 765.3 | 51.9 | 11.1 | 68.6 | 4 | 5 | 4 | 4 | 10 | ..... | 1 | 3 | ..... | 7254 | 11674 | 5 | 1.96 | 49.8 |
| *Upper lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alpena | N. 45 05 | W. 83 30 | 6.34 a.m. | 609 | 185 | 29.39 | 746.5 | 30.06 | 763 5 | 45.0 | 7.2 | 84.0 | 1 | 5 | 11 | 3 | 6 | 3 | 1 | 1 | 1 | 7769 | 12503 | 6 | 3.75 | 95.2 |
| Escanaba | N. 45 48 | W. 87 05 | 6.20 a.m. | 613 | 187 | 29.37 | 746 0 | 30.04 | 763.0 | 43.2 | 6.2 | 81.0 | 3 | 7 | 5 | 3 | 10 | 1 | 1 | 3 | ..... | 8034 | 12929 | 5 | 7.97 | 202.4 |
| Grand Haven | N. 43 05 | W. 86 18 | 6.23 a.m. | 620 | 189 | 29.44 | 747.8 | 30.11 | 764.8 | 51.2 | 10.7 | 78.2 | 4 | 2 | 3 | 2 | 9 | 3 | 4 | 2 | 1 | 9585 | 15425 | 6 | 6.10 | 154.9 |
| Mackinaw City | N. 45 47 | W. 84 39 | 6.30 a.m. | 605 | 184 | 29.40 | 746.7 | 30.07 | 763.8 | 46.0 | 7.8 | 79.1 | 2 | 9 | 2 | 6 | 4 | 4 | 2 | 2 | ..... | 9246 | 14880 | 7 | 3.85 | 97.8 |
| Marquette | N. 46 34 | W. 87 24 | 6.18 a.m. | 673 | 205 | 29.36 | 744 2 | 30.04 | 763.0 | 44.6 | 7.0 | 71.2 | 2 | 7 | 6 | 7 | 2 | 3 | 2 | 1 | 1 | 8110 | 13052 | 6 | 6.02 | 152.9 |
| Port Huron | N. 43 00 | W. 82 26 | 6.38 a.m. | 633 | 193 | 29.44 | 747 8 | 30.13 | 765.3 | 47.1 | 8.4 | 84.2 | 2 | 4 | 3 | 5 | 10 | 4 | ..... | 2 | 1 | 6967 | 11218 | 5 | 4.86 | 123.4 |
| Chicago | N. 41 52 | W. 87 38 | 6.18 a.m. | 661 | 201 | 29.42 | 747.3 | 30.13 | 765.3 | 51.6 | 10.9 | 77.1 | 3 | 2 | 7 | 9 | 6 | 2 | 1 | 1 | ..... | 5745 | 9246 | 4 | 3.59 | 91.2 |
| Milwaukee | N. 43 02 | W. 87 54 | 6.16 a.m. | 697 | 212 | 29.35 | 745.5 | 30.11 | 764.8 | 49.6 | 9.8 | 80.3 | 3 | 6 | 5 | 11 | 3 | ..... | 2 | 1 | ..... | 8713 | 14022 | 5 | 2.15 | 55.4 |
| Duluth | N. 46 48 | W. 92 06 | 6.00 a.m. | 687 | 209 | 29.28 | 743.7 | 30.04 | 763.0 | 42.7 | 5.9 | 81.5 | 8 | 2 | 8 | 8 | ..... | ..... | ..... | 4 | 1 | 6883 | 11075 | 6 | 3.47 | 88.1 |
| *Upper Miss. val.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saint Paul | N. 44 58 | W. 93 03 | 5.56 a.m. | 801 | 244 | 29.17 | 740.9 | 30.04 | 763.0 | 46.7 | 8.2 | 79.9 | ..... | 7 | 3 | 3 | 8 | 4 | ..... | 1 | 5 | 6051 | 9738 | 5 | 2.43 | 61.7 |
| La Crosse | N. 43 49 | W. 91 15 | 6.03 a.m. | 725 | 221 | 29.29 | 744 0 | 30.08 | 764 0 | 49.5 | 9.7 | 80.3 | 3 | 3 | 6 | 2 | 13 | 1 | 1 | 1 | 1 | 6508 | 10473 | 5 | 2.31 | 58.7 |
| Davenport | N. 41 30 | W. 90 38 | 6.06 a.m. | 615 | 187 | 29.46 | 748 3 | 30.12 | 765 0 | 52.0 | 11.1 | 84.4 | ..... | 7 | 2 | 8 | 3 | 4 | 4 | 3 | ..... | 6683 | 9789 | 3 | 7.17 | 182.1 |
| Des Moines | N. 41 35 | W. 93 37 | 5.54 a.m. | 849 | 259 | 29.21 | 741.9 | 30.13 | 765.3 | 49.4 | 9.7 | 81.1 | 3 | 5 | 2 | 5 | 6 | 2 | 1 | 3 | 4 | 4431 | 7131 | 3 | 5.33 | 135.4 |
| Dubuque | N. 42 30 | W. 90 44 | 6.05 a.m. | 665 | 203 | 29.40 | 746.7 | 30.12 | 765.0 | 49.5 | 9.7 | 81.1 | 1 | 3 | 5 | 4 | 12 | 2 | 2 | ..... | 2 | 3773 | 6072 | 4 | 4.16 | 105.7 |
| Keokuk | N. 40 22 | W. 91 26 | 6.02 a.m. | 618 | 188 | 29.48 | 748 8 | 30.15 | 765.8 | 52.3 | 11.3 | 85.7 | 1 | 3 | 5 | 6 | 4 | 4 | 3 | 3 | 3 | 5426 | 8732 | 3 | 3.35 | 85.1 |
| Cairo | N. 37 00 | W. 89 10 | 6.11 a.m. | 377 | 115 | 29.80 | 756.9 | 30.18 | 766.6 | 57.3 | 14.1 | 87.0 | 4 | 3 | 1 | 3 | 6 | 3 | 5 | 4 | 2 | 4395 | 7073 | 3 | 1.89 | 48.0 |
| Springfield | N. 39 48 | W. 89 39 | 6.10 a.m. | 644 | 196 | 29 50 | 749 3 | 30.19 | 766.8 | 53.9 | 12.2 | 78.8 | 3 | 4 | 2 | 4 | 7 | 8 | 1 | 2 | ..... | 5097 | 8203 | 3 | 2.74 | 69.6 |
| Saint Louis | N. 38 38 | W. 90 12 | 6.07 a.m. | 583 | 178 | 29.56 | 750.8 | 30.17 | 766.3 | 56.6 | 13.7 | 82.2 | 4 | 4 | 2 | 1 | 6 | 7 | 2 | 4 | 1 | 7590 | 12215 | 4 | 2.48 | 63 0 |
| *Missouri valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leavenworth | N. 39 19 | W. 94 57 | 5.48 a.m. | 842 | 256 | 29.21 | 742.7 | 30.14 | 765.5 | 52.6 | 11.4 | 82.5 | 4 | 2 | ..... | ..... | 15 | 2 | 1 | ..... | 7 | 4373 | 7038 | 3 | 3.41 | 86.6 |
| Omaha | N. 41 16 | W. 95 56 | 5.44 a.m. | 1113 | 339 | 28.92 | 734.6 | 30.12 | 765.0 | 51.1 | 10.6 | 73.4 | 4 | 6 | 1 | 1 | 13 | 4 | 1 | ..... | 1 | 7125 | 11466 | 4 | 5.81 | 147.6 |
| Fort Bennett | N. 44 43 | W. 100 39 | 5.26 a.m. | 1510 | 457 | 28.45 | 722.6 | 30.07 | 763.8 | 42.0 | 5.6 | 76.1 | ..... | 15 | ..... | 2 | ..... | 7 | ..... | ..... | 7 | 6270 | 10100 | 4 | 0.96 | 24.4 |
| Huron | N. 44 21 | W. 98 09 | 5.35 a.m. | 1305 | 398 | 28.64 | 727.4 | 30.07 | 763.8 | 41.6 | 5.3 | 78.6 | 6 | 8 | 2 | ..... | 4 | 10 | ..... | ..... | 1 | 8101 | 13037 | 5 | 1.52 | 38.6 |
| Yankton | N. 42 54 | W. 97 28 | 5.38 a.m. | 1228 | 374 | 28.74 | 730 0 | 30.07 | 763.8 | 46.4 | 8.0 | 77.1 | 4 | 5 | 6 | 3 | 4 | 4 | 2 | 2 | 1 | 7485 | 12046 | 4 | 1.97 | 50.0 |
| *Extreme N'thwest.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moorhead | N. 46 52 | W. 96 44 | 5.41 a.m. | 923 | 281 | 29.00 | 736.6 | 30.02 | 762.5 | 37.2 | 2.9 | 80.0 | 5 | 7 | 1 | 3 | 7 | 5 | ..... | 2 | 1 | 9843 | 15840 | 6 | 3.70 | 94.0 |
| Saint Vincent | N. 48 56 | W. 97 14 | 5.39 a.m. | 804 | 245 | 29.12 | 739.6 | 30.02 | 762.5 | 36.0 | 2.2 | 85.8 | 1 | 11 | 3 | 3 | 4 | 7 | 2 | ..... | ..... | 8467 | 13620 | 5 | 1.15 | 29.2 |
| Bismarck | N. 46 47 | W. 100 38 | 5.26 a.m. | 1694 | 516 | 28.18 | 715.8 | 30.06 | 763 5 | 39.2 | 4.0 | 79.2 | 4 | 10 | 2 | ..... | 3 | 4 | 3 | 1 | 4 | 7037 | 11325 | 3 | 0.92 | 23.4 |
| Fort Buford | N. 48 00 | W. 103 56 | 5.12 a.m. | 1930 | 588 | 27.94 | 709.7 | 30.04 | 763.0 | 35.5 | 1.9 | 75.5 | ..... | 6 | 7 | 5 | 3 | 2 | 3 | 4 | 1 | 7320 | 11780 | 5 | 0.44 | 11.2 |
| Fort Totten | N. 47 57 | W. 98 57 | 5.32 a.m. | 1500 | 457 | 28.36 | 720.3 | ..... | ..... | 35.6 | 2.0 | 83.1 | 2 | 10 | 2 | 1 | 8 | 8 | ..... | ..... | ..... | 11696 | 18922 | 4 | 0.92 | 23.4 |
| *Northern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Assiniboine | N. 48 32 | W. 109 42 | 4.49 a.m. | 2720 | 829 | 27.12 | 688.8 | 30.05 | 763.3 | 38.6 | 3.7 | 60.9 | ..... | 4 | 10 | 4 | ..... | 3 | 7 | 3 | ..... | 9647 | 15525 | 4 | 0.41 | 10.4 |
| Fort Benton | N. 47 50 | W. 110 40 | 4.45 a.m. | 2681 | 817 | 27.21 | 691.1 | 30.11 | 764.8 | 35.4 | 1.9 | 67.2 | ..... | ..... | 4 | 10 | 2 | 1 | 3 | 4 | 4 | 6894 | 11095 | 6 | 0.36 | 9.1 |
| Fort Custer | N. 45 42 | W. 107 34 | 4.58 a.m. | 3040 | 926 | 26.84 | 681.7 | 30.08 | 764.0 | 38.6 | 3.7 | 80.2 | 2 | 4 | 3 | 4 | ..... | 11 | 4 | 1 | 2 | 4697 | 7559 | 4 | 0.66 | 16.8 |
| Fort Maginnis | N. 47 12 | W. 109 10 | 4.51 a.m. | 4340 | 1324 | 25.55 | 649 0 | 30.09 | 764.3 | 34.0 | 1.1 | 58.7 | 2 | 6 | 9 | 2 | ..... | ..... | ..... | 12 | ..... | 9229 | 14852 | 5 | 0.33 | 8.4 |
| Fort Shaw | N. 47 31 | W. 111 48 | 4.41 a.m. | 3550 | 1082 | 26 33 | 668.8 | 30.03 | 762.7 | 38.7 | 3.7 | 65.4 | 1 | 4 | 13 | 10 | 3 | ..... | ..... | ..... | ..... | 8759 | 14096 | 3 | 0 39 | 9.9 |
| Helena | N. 46 34 | W. 112 04 | 4.40 a.m. | 4044 | 1234 | 25 84 | 656.3 | 30.09 | 764.3 | 41.4 | 5.2 | 62.0 | 2 | 5 | 21 | 3 | ..... | ..... | ..... | ..... | ..... | 4631 | 7453 | 4 | 0.49 | 12.4 |
| Poplar River | N. 48 08 | W 105 10 | 5.07 a.m. | 2030 | 619 | 27.78 | 705 6 | 30.00 | 762.0 | 30.5 | —0.8 | 87.0 | 3 | 3 | 13 | 2 | 3 | 4 | 2 | 1 | ..... | 6071 | 9770 | 5 | 0.46 | 11.7 |
| Deadwood | N. 44 23 | W. 103 43 | 5.13 a.m. | 4600 | 1402 | 25.40 | 645.1 | 30.08 | 764 0 | 44.0 | 6.7 | 62.5 | ..... | ..... | 1 | 16 | 2 | 2 | 1 | 3 | 6 | 3024 | 4867 | 2 | 1.48 | 37.6 |
| Cheyenne | N. 41 08 | W. 104 48 | 5.09 a.m. | 6105 | 1861 | 24.08 | 611.6 | 30.12 | 765 0 | 38.4 | 3.6 | 63.4 | 2 | 14 | 9 | 2 | 2 | ..... | ..... | 1 | 1 | 7473 | 12026 | 3 | 0.50 | 12.7 |
| North Platte | N. 41 08 | W. 100 45 | 5.25 a.m. | 2841 | 866 | 27.14 | 689.3 | 30.10 | 764.5 | 44.7 | 7.1 | 75.8 | 2 | 6 | 5 | 1 | 3 | 6 | 2 | ..... | 6 | 7307 | 11759 | 4 | 0.74 | 18.8 |
| *Middle slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pike's Peak | N. 38 50 | W. 105 02 | 5.08 a.m. | 14134 | 4308 | 17.92 | 455.2 | 30.20 | 767.1 | 21.7 | —5.7 | 82.3 | 2 | 7 | 9 | 9 | 1 | ..... | ..... | 1 | 2 | 10614 | 17081 | 1 | 0.99 | 25.1 |
| Denver | N. 39 45 | W. 105 00 | 5.08 a.m. | 5294 | 1614 | 24.82 | 630.4 | 30.08 | 764.0 | 45.4 | 7.4 | 64.9 | 4 | 4 | ..... | 1 | 20 | 1 | ..... | ..... | 1 | 4140 | 6663 | 3 | 0.21 | 5.3 |
| W. Las Animas | N. 38 04 | W. 103 07 | 5.16 a.m. | 3905 | 1190 | 26.10 | 662 9 | 30.03 | 762.7 | 43.5 | 6.4 | 82.3 | 2 | 3 | 12 | 3 | 6 | ..... | 2 | 2 | 1 | 5256 | 8459 | 4 | 0.43 | 10.9 |
| Dodge City | N. 37 45 | W. 100 00 | 5.28 a.m. | 2517 | 767 | 27.50 | 698.5 | 30.13 | 765.3 | 50.4 | 10.2 | 85.9 | 2 | 4 | 5 | 1 | 5 | 12 | 1 | 1 | ..... | 10248 | 16492 | 4 | 1.50 | 38.1 |
| Fort Elliott | N. 35 30 | W. 100 21 | 5.27 a.m. | 2650 | 808 | 27.35 | 694.7 | 30.14 | 765.5 | 52.1 | 11.2 | 88.0 | 5 | 2 | 2 | ..... | 9 | 4 | ..... | ..... | 9 | 7238 | 11648 | 4 | 5.54 | 140.7 |
| *Southern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Sill | N. 34 40 | W. 98 23 | 5.34 a.m. | 1200 | 366 | 28.92 | 734.6 | 30.18 | 766.6 | 54.5 | 12.5 | 93.1 | 7 | ..... | ..... | ..... | 8 | 2 | 1 | ..... | 13 | 5317 | 8557 | 5 | 5.01 | 127.3 |
| Fort Concho | N. 31 25 | W. 100 24 | 5.26 a.m. | 1900 | 579 | 28.22 | 716.8 | 30 17 | 766.3 | 56.6 | 13.7 | 88.9 | ..... | 2 | 4 | 4 | 5 | 4 | ..... | 7 | 5 | 5681 | 9142 | 4 | 5.49 | 139.4 |
| Fort Stockton | N. 30 53 | W. 102 53 | 5.16 a.m. | 3010 | 917 | 27.08 | 687.8 | 30.11 | 764.8 | 56.0 | 13.3 | 89.3 | 1 | ..... | ..... | 6 | 6 | 8 | 2 | 2 | 6 | 6859 | 11038 | 4 | 6.25 | 158.7 |
| Fort Davis | N. 30 38 | W. 103 56 | 5.12 a.m. | 4928 | 1502 | 25 28 | 642.1 | 30.12 | 765.0 | 50.5 | 10.3 | 89.3 | 2 | ..... | ..... | 5 | 4 | 3 | 3 | 4 | 10 | 4512 | 7261 | 6 | 4.35 | 110.5 |
| *Southern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Thomas | N. 33 04 | W. 110 02 | 4.48 a.m. | 2710 | 826 | 27 28 | 692.9 | 29.99 | 761.7 | 55.1 | 12.8 | 65.7 | ..... | 2 | 1 | 1 | 9 | 10 | 2 | ..... | 6 | ..... | ..... | 4 | 0.69 | 17.5 |
| Fort Apache | N. 33 48 | W. 109 57 | 4.48 a.m. | 5050 | 1539 | 25.07 | 636.8 | 29.96 | 761.0 | 46.9 | 8.3 | 84 4 | 2 | ... | 1 | 2 | 1 | 7 | 4 | 14 | ..... | 4813 | 7746 | 3 | 2.02 | 51.3 |
| Fort Grant | N. 32 39 | W. 109 57 | 4.48 a.m. | 4856 | 1480 | 25 24 | 641.1 | 29.94 | 760.5 | 57.2 | 14.0 | 63.8 | 2 | ..... | ..... | ..... | 2 | 12 | 6 | 8 | 1 | 6840 | 11008 | 4 | 3.06 | 77.7 |
| Prescott | N. 34 33 | W. 112 28 | 4.38 a.m. | 5389 | 1642 | 24.74 | 628.4 | 29.94 | 760.5 | 43.5 | 6.4 | 73.7 | ..... | 1 | ..... | 1 | 5 | 6 | 4 | 1 | 13 | 4174 | 6717 | 1 | 1.42 | 36.1 |
| Yuma | N. 32 45 | W. 114 36 | 4.30 a.m. | 141 | 43 | 29.73 | 755.1 | 29.87 | 758.7 | 62.7 | 17.1 | 68.0 | ..... | 6 | ..... | 3 | ..... | ..... | 4 | 11 | 7 | 3461 | 5570 | 2 | inap. | inap. |
| El Paso | N. 31 47 | W. 106 30 | 5.02 a.m. | 3764 | 1147 | 26.32 | 668 5 | 30.06 | 763.5 | 56.2 | 13.4 | 84.8 | 2 | ..... | 2 | ..... | ..... | ..... | 5 | 3 | 19 | 1539 | 2477 | 4 | 5.15 | 130.8 |
| *Middle plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salt Lake City | N. 40 46 | W. 111 54 | 4.40 a.m. | 4348 | 1325 | 25 67 | 652.0 | 30.07 | 763.8 | 47.1 | 8.4 | 61.6 | 6 | 2 | ..... | 1 | 2 | 8 | 4 | 4 | 4 | 3947 | 6352 | 4 | 0.36 | 9.1 |
| *Northern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boisé City | N. 43 37 | W. 116 08 | 4.24 a.m. | 2750 | 838 | 27.24 | 691.9 | 30.10 | 764 5 | 43.2 | 6.2 | 76.2 | 1 | 4 | 5 | 1 | 3 | 7 | 3 | 1 | 6 | 3556 | 5723 | 4 | 1.52 | 38.6 |
| Lewiston | N. 46 28 | W. 117 05 | 4.20 a.m. | 780 | 238 | 29.26 | 743 2 | 30 11 | 764.8 | 44.4 | 6.9 | 83.7 | ..... | 2 | ..... | 2 | ..... | 1 | ..... | 5 | 21 | 1149 | 1849 | 4 | 2.08 | 52.8 |
| Spokane Falls | N. 47 40 | W. 117 25 | 4.18 a.m. | 1910? | 582? | 28.00 | 711 2 | 30.05 | 764.0 | 39.3 | 4.1 | 86.6 | 1 | ..... | ..... | 9 | 4 | ..... | 1 | 5 | 11 | 2675 | 4305 | 5 | 1.82 | 46.2 |
| Dayton | N. 46 19 | W. 117 56 | 4.16 a.m. | 1667 | 508 | 28 30 | 718 8 | 30.09 | 764.3 | 44.4 | 6.9 | 78.4 | 1 | ..... | 1 | 14 | ..... | 6 | 2 | 6 | 1 | 4244 | 6830 | 4 | 3.45 | 87.6 |
| *N. Pac. coast reg'n* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Canby | N. 46 16 | W. 124 04 | 3.52 a.m. | 179 | 54 | 29.84 | 757.9 | 30.04 | 763.0 | 50.5 | 10.3 | 89.7 | 8 | ..... | 1 | 1 | 10 | 3 | 5 | 3 | ..... | 8868 | 14271 | 4 | 6.24 | 158.5 |
| Olympia | N. 47 03 | W. 122 53 | 3.57 a.m. | 36 | 11 | 30.00 | 762.0 | 30.04 | 763 0 | 46.7 | 8.2 | 85.4 | 1 | ..... | ..... | 2 | 7 | ..... | ..... | 1 | 20 | 1723 | 2773 | 6 | 4.30 | 109.2 |
| Tatoosh Id. | N. 48 23 | W. 124 44 | 3.49 a.m. | 86 | 26 | 29.91 | 759.7 | 30.03 | 762.0 | 48.7 | 6.3 | 89.5 | ..... | ..... | 1 | 5 | 3 | 11 | 10 | 1 | ..... | 10190 | 16409 | 6 | 9.03 | 229.4 |
| Portland | N. 45 32 | W. 122 43 | 3.57 a.m. | 67 | 20 | 29.98 | 761.5 | 30.05 | 763 3 | 46.6 | 8.1 | 92.1 | 3 | 2 | 1 | 4 | 9 | 1 | ..... | 1 | 10 | 3211 | 5168 | 6 | 4.01 | 101.9 |
| Roseburg | N. 43 13 | W. 123 20 | 3.55 a.m. | 523 | 159 | ..... | ..... | ..... | ..... | 45.9 | 7.7 | 89.8 | ..... | ..... | 3 | 2 | 1 | 1 | 2 | 2 | 20 | 1302 | 2095 | 5 | 1.15 | 29.2 |
| *Mid Pac. coast reg* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape Mendocino | N. 40 26 | W. 124 24 | 3.50 a.m. | 637 | 194 | 29.35 | 745.5 | 30.04 | 763 0 | 50.7 | 10.4 | 83.5 | 20 | ..... | ..... | ..... | 1 | 3 | ..... | 3 | 4 | 12964 | 20863 | 3 | 0.52 | 13.2 |
| Red Bluff | N. 40 10 | W. 122 15 | 3.59 a.m. | 332 | 101 | 29.66 | 753 4 | 30.02 | 762 5 | 53.1 | 11.7 | 67.4 | 13 | 11 | ..... | ..... | ..... | ..... | ..... | 2 | 2 | 3920 | 6308 | 0 | 0.90 | 22.9 |
| Sacramento | N. 38 35 | W. 121 30 | 4.02 a.m. | 64 | 19 | 29.91 | 759.7 | 29.98 | 761.5 | 52.6 | 11.4 | 81.2 | 6 | 3 | 1 | ..... | 4 | 11 | 1 | ..... | 5 | 3195 | 5624 | 2 | 2.01 | 51.1 |
| San Francisco | N. 37 48 | W. 122 26 | 3.58 a.m. | 60 | 18 | 29.93 | 760 2 | 30.00 | 762.0 | 53.7 | 12.1 | 91.5 | 3 | 4 | 2 | 12 | 1 | 6 | ..... | ..... | 3 | 4922 | 7921 | 5 | 2.55 | 64.8 |
| *S. Pac. coast reg'n.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Los Angeles | N. 34 03 | W. 118 15 | 4.15 a.m. | 299 | 91 | 29.59 | 751.6 | 29.99 | 761.7 | 54.1 | 12.3 | 83.2 | 2 | ..... | 5 | ..... | ..... | ..... | ..... | 17 | 6 | 3707 | 5966 | 1 | 0.39 | 9.9 |
| San Diego | N. 32 43 | W. 117 10 | 4.19 a.m. | 67 | 20 | 29.88 | 758.9 | 29.95 | 760.7 | 56.5 | 13.6 | 80.4 | 12 | 1 | 3 | 1 | 1 | 1 | 3 | 8 | 1 | 4034 | 6492 | 4 | 0.35 | 8.9 |
| *Alaska st tions.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ft. St. Michael's | N. 63 48 | W. 162 00 | 1.20 a.m. | 30 | 9 | 29.79 | 756.7 | 29.82 | 757.4 | 22.2 | —5.4 | 89.5 | 5 | 2 | 1 | 3 | 2 | 1 | 9 | 7 | 1 | 8321 | 13391 | 5 | 1.46 | 37.1 |
| Sitka | N. 57 03 | W. 135 19 | 3.07 a.m. | 63 | 19 | 29.02 | 752.3 | 29.68 | 753.9 | 41.2 | 5.1 | 80.8 | ..... | 3 | 1 | 2 | ..... | 12 | 1 | 8 | 4 | 7516 | 12096 | 8 | 14.56 | 369.8 |
| Unalashka | N 53 53 | W. 166 32 | 1.02 a.m. | 13 | 4 | 29.68 | 753.9 | 29.70 | 754.4 | 39.7 | 4.3 | 82.5 | 2 | 6 | 4 | 13 | 3 | 1 | 2 | ..... | ..... | 8501 | 13681 | 8 | 11.85 | 301.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bluefields | N. 12 00 | W. 83 43 | 6.31 a.m. | 20 | 6 | 29.90 | 759.4 | 29.92 | 760.0 | 74.4 | 23.6 | 93.7 | 6 | 13 | 5 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 4.99 | 126.7 |
| Bogota | N. 4 36 | W. 74 14 | 7.11 a.m. | 8655 | 2638 | 22.01 | 559.1 | ..... | ..... | 52.7 | 11.5 | 86.0 | ..... | ..... | 2 | 1 | 1 | 1 | ..... | ..... | 26 | 1379 | 2219 | 4 | 8.46 | 214.9 |
| Paramaribo | N. 5 50 | W. 55 13 | 8.27 a.m. | 6 | 2 | 30.02 | 762 5 | 30.02 | 762 5 | 81.1 | 27.3 | 75.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 0.29 | 7.4 |
| Puerto Berrio | N. 6 22 | W. 74 28 | 7.10 a.m. | 542 | 165 | ..... | ..... | ..... | ..... | 77.0 | 25.0 | 91.0 | ..... | ..... | ..... | 3 | 18 | 1 | ..... | 6 | ..... | ..... | ..... | 9 | 17.56 | 446.0 |
| Rivas | N. 11 26 | W. 85 47 | 6.25 a.m. | 150 | 46 | 29.82 | 757.4 | 29.98 | 761 5 | 74.8 | 23.8 | 87.2 | 1 | 2 | 2 | 8 | ..... | 3 | 1 | 14 | ..... | ..... | ..... | 7 | 15.83 | 402.1 |

OCEAN SQUARE DATA FOR OCTOBER, 1884.

| Location of Centre of each Square. | Barometer. | | Temperature. | | Wind Frequency. | | | | | | | | | | Wind force 0–10. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch. | Mill. | Fah. | Cent. | N. | NW. | W. | SW. | S. | SE. | E. | NE. | Calm. | Blank. | |
| N. 12.5 W. 22.5 | 29.98 | 761.5 | 81.3 | 27.4 | 2 | | | 1 | 2 | 1 | 5 | 15 | | 5 | 3.4 |
| 12.5 27.5 | 29.99 | 761.7 | 81.6 | 27.6 | 2 | | | | 1 | 5 | 10 | 8 | 1 | 4 | 3.4 |
| 12.5 32.5 | 30.00 | 762.0 | 82.0 | 27.8 | 1 | | | | 3 | 4 | 15 | 6 | | 2 | 3.5 |
| 12.5 37.5 | 30.01 | 762.2 | 83.1 | 28.4 | | | | | 2 | 6 | 20 | 2 | | 1 | 3.3 |
| 12.5 42.5 | 30.03 | 762.7 | 83.5 | 28.6 | | | | | 4 | 7 | 17 | 1 | | 2 | 3.7 |
| 12.5 47.5 | 30.02 | 762.5 | 83.4 | 28.6 | | | | | 7 | 9 | 12 | | | 3 | 4.0 |
| 12.5 52.5 | 30.03 | 762.7 | 83.2 | 28.4 | | | | | 4 | 13 | 3 | | | 1 | 3.6 |
| 17.5 22.5 | 30.02 | 762.5 | 79.1 | 26.2 | 1 | | | | | 1 | 10 | 16 | | 3 | 3.8 |
| 17.5 27.5 | 30.04 | 763.0 | 80.1 | 26.7 | | | | | 1 | 2 | 15 | 11 | | 2 | 3.9 |
| 17.5 32.5 | 30.04 | 763.0 | 80.9 | 27.2 | | | | 1 | | 4 | 23 | 1 | 1 | 1 | 3.6 |
| 17.5 37.5 | 30.06 | 763.5 | 81.3 | 27.4 | | | | | 4 | 4 | 22 | 1 | | | 3.9 |
| 17.5 42.5 | 30.05 | 763.3 | 81.0 | 27.6 | 1 | | | 1 | 7 | 8 | 14 | | | | 4.1 |
| 17.5 47.5 | 30.04 | 763.0 | 82.0 | 27.8 | | 1 | | 4 | 5 | 5 | 14 | | | 2 | 4.4 |
| 17.5 52.5 | 30.02 | 762.5 | 82.0 | 27.8 | | | 1 | 2 | 6 | 8 | 11 | 1 | 2 | | 3.8 |
| 17.5 57.5 | 30.00 | 762.0 | 81.9 | 27.7 | 1 | 2 | | 2 | 3 | 9 | 9 | 3 | 1 | 1 | 3.7 |
| 22.5 22.5 | 30.07 | 763.8 | 77.5 | 25.3 | 2 | | | | | 1 | 12 | 16 | | | 3.9 |
| 22.5 27.5 | 30.09 | 764.3 | 78.2 | 25.7 | | | | | 2 | 4 | 16 | 9 | | | 3.9 |
| 22.5 32.5 | 30.09 | 764.3 | 79.2 | 26.2 | | | | 4 | | 7 | 13 | 5 | 2 | | 3.3 |
| 22.5 37.5 | 30.09 | 764.3 | 79.8 | 26.6 | | | 1 | 2 | 4 | 4 | 14 | 3 | 3 | | 3.6 |
| 22.5 42.5 | 30.07 | 763.8 | 79.3 | 26.3 | | 1 | 1 | 2 | 6 | 5 | 13 | 1 | 2 | | 3.9 |
| 22.5 47.5 | 30.05 | 763.3 | 79.6 | 26.4 | | 1 | 1 | 3 | 6 | 7 | 13 | | | | 4.4 |
| 22.5 52.5 | 30.04 | 763.0 | 80.2 | 26.8 | | 1 | 1 | 3 | 7 | 7 | 12 | | | | 4.1 |
| 22.5 57.5 | 30.01 | 762.2 | 80.5 | 26.9 | 1 | | | 1 | 4 | 6 | 14 | 1 | 2 | 2 | 4.2 |
| 22.5 62.5 | 29.97 | 761.2 | 80.3 | 26.8 | | | 1 | 1 | 4 | 8 | 11 | 3 | 3 | | 3.9 |
| 22.5 67.5 | 29.95 | 760.7 | 80.2 | 26.8 | 1 | | 1 | 1 | 3 | 6 | 14 | 5 | | | 3.8 |
| 22.5 72.5 | 29.95 | 760.7 | 80.3 | 26.8 | 3 | | | 1 | 1 | 8 | 10 | 8 | | | 4.1 |
| 27.5 22.5 | 30.13 | 765.3 | 74.8 | 23.8 | 2 | | | | | 2 | 11 | 16 | | | 3.9 |
| 27.5 27.5 | 30.15 | 765.8 | 75.8 | 24.3 | | | | | | 9 | 12 | 10 | | | 4.0 |
| 27.5 32.5 | 30.15 | 765.8 | 76.7 | 24.6 | | | 1 | | 3 | 6 | 16 | 4 | 1 | | 3.8 |
| 27.5 37.5 | 30.14 | 765.5 | 77.0 | 25.0 | | | | 2 | 2 | 10 | 12 | 2 | 2 | 1 | 3.7 |
| 27.5 42.5 | 30.12 | 765.0 | 76.8 | 24.9 | 1 | 1 | | | 4 | 9 | 7 | 2 | 6 | 1 | 3.6 |
| 27.5 47.5 | 30.08 | 764.0 | 77.1 | 25.1 | | 1 | 1 | | 6 | 9 | 9 | 4 | 1 | | 3.9 |
| 27.5 52.5 | 30.07 | 763.8 | 77.3 | 25.2 | | 1 | 1 | 5 | 3 | 9 | 8 | 2 | 1 | 1 | 4.0 |
| 27.5 57.5 | 30.03 | 762.7 | 77.4 | 25.2 | 1 | | 2 | 5 | 1 | 7 | 12 | 2 | | 1 | 4.8 |
| 27.5 62.5 | 30.01 | 762.2 | 77.5 | 25.3 | 3 | | 2 | 3 | 2 | 6 | 12 | 3 | | | 4.8 |
| 27.5 67.5 | 30.01 | 762.2 | 77.8 | 25.4 | 5 | 1 | | | 1 | 6 | 9 | 8 | 1 | | 4.6 |
| 27.5 72.5 | 30.02 | 762.5 | 77.5 | 25.3 | 2 | 1 | | | | 7 | 9 | 11 | 1 | | 4.5 |
| 27.5 77.5 | 30.02 | 762.5 | 70.3 | 24.0 | | 2 | 2 | | | | 16 | 11 | | | 4.0 |
| 32.5 12.5 | 30.08 | 764.0 | 71.4 | 21.9 | 4 | | | | | 1 | 10 | 15 | | 1 | 3.5 |
| 32.5 17.5 | 30.12 | 765.0 | 71.2 | 21.8 | 8 | | | | | 2 | 1 | 18 | 2 | | 2.8 |
| 32.5 22.5 | 30.19 | 766.8 | 72.2 | 22.3 | 5 | | | | | 1 | 12 | 11 | 2 | | 4.1 |
| 32.5 27.5 | 30.21 | 767.3 | 73.5 | 23.1 | 3 | 1 | | | 1 | 8 | 12 | 5 | 1 | | 3.8 |
| 32.5 32.5 | 30.22 | 767.6 | 74.2 | 23.4 | 2 | | | | 4 | 8 | 11 | 6 | | | 4.0 |
| 32.5 37.5 | 30.20 | 767.1 | 74.0 | 23.3 | 2 | | | 1 | 9 | 9 | 6 | 3 | 1 | | 4.0 |
| 32.5 42.5 | 30.16 | 766.1 | 73.5 | 23.1 | 4 | | 1 | 3 | 7 | 7 | 4 | 2 | 2 | 1 | 4.2 |
| 32.5 47.5 | 30.13 | 765.3 | 73.3 | 22.9 | 1 | | 1 | 9 | 4 | 7 | 2 | 5 | | 2 | 4.3 |
| 32.5 52.5 | 30.09 | 764.3 | 73.5 | 23.1 | | 2 | | 7 | 8 | 5 | 3 | 6 | | | 4.8 |
| 32.5 57.5 | 30.05 | 763.3 | 73.4 | 23.0 | 2 | 2 | 4 | 2 | 4 | 3 | 9 | 2 | 2 | 1 | 4.4 |
| 32.5 62.5 | 30.04 | 763.0 | 73.4 | 23.0 | 4 | 3 | 2 | | 3 | 3 | 12 | 3 | 1 | | 4.2 |
| 32.5 67.5 | 30.08 | 764.0 | 73.4 | 23.0 | 5 | 2 | 2 | 1 | 1 | 7 | 6 | 7 | | | 4.6 |
| 32.5 72.5 | 30.11 | 764.8 | 72.6 | 22.6 | 3 | 4 | 1 | | 1 | 3 | 9 | 9 | | 1 | 4.6 |
| 32.5 77.5 | 30.14 | 765.5 | 66.9 | 19.4 | 5 | 1 | 2 | | | 3 | 6 | 12 | 2 | | 3.5 |
| 37.5 12.5 | 30.14 | 765.5 | 67.1 | 19.5 | 2 | 3 | | | 2 | 1 | 7 | 16 | | | 3.9 |
| 37.5 17.5 | 30.19 | 766.8 | 67.8 | 19.9 | 4 | 2 | | 1 | | 1 | 6 | 17 | | | 4.0 |
| 37.5 22.5 | 30.25 | 768.3 | 69.1 | 20.6 | 4 | 3 | 1 | | 1 | 5 | 8 | 9 | | | 3.7 |
| 37.5 27.5 | 30.27 | 768.8 | 70.3 | 21.3 | 4 | | 1 | | 6 | 7 | 5 | 4 | 4 | | 3.2 |
| 37.5 32.5 | 30.24 | 768.1 | 70.3 | 21.3 | | 4 | | 7 | 10 | 2 | 6 | 2 | | | 3.9 |
| 37.5 37.5 | 30.20 | 767.1 | 69.7 | 20.9 | 3 | 2 | 5 | 5 | 11 | 2 | 2 | | | 1 | 3.8 |
| 37.5 42.5 | 30.15 | 765.8 | 68.8 | 20.4 | 5 | 2 | 6 | 8 | 5 | 4 | | 1 | | | 4.6 |
| 37.5 47.5 | 30.11 | 764.8 | 67.9 | 19.9 | 4 | 5 | 2 | 9 | 6 | 3 | 2 | | | | 4.6 |
| 37.5 52.5 | 30.08 | 764.0 | 68.1 | 20.1 | 2 | 3 | 7 | 7 | 6 | 1 | 2 | 3 | | | 4.9 |
| 37.5 57.5 | 30.06 | 763.5 | 67.1 | 19.5 | 2 | 5 | 6 | 4 | 2 | 4 | 2 | 6 | | | 4.6 |
| 37.5 62.5 | 30.07 | 763.8 | 67.1 | 19.5 | 8 | 1 | 6 | 1 | 5 | 3 | 1 | 6 | | | 5.2 |
| 37.5 67.5 | 30.11 | 764.8 | 65.9 | 18.8 | 9 | 4 | 2 | 1 | 4 | 1 | 1 | 8 | | 1 | 4.4 |
| 37.5 72.5 | 30.17 | 766.3 | 64.0 | 17.8 | 7 | 4 | 3 | 4 | 2 | 2 | 4 | 5 | | | 4.5 |
| 42.5 12.5 | 30.17 | 766.3 | 63.6 | 17.6 | 6 | 1 | 2 | 1 | | | 6 | 14 | 1 | | 3.8 |
| 42.5 17.5 | 30.24 | 768.1 | 64.0 | 17.8 | 7 | 1 | 3 | 2 | 4 | 1 | 8 | 5 | | | 4.8 |
| 42.5 22.5 | 30.25 | 768.3 | 68.6 | 20.3 | 4 | 4 | 4 | 4 | 7 | 1 | 4 | 3 | | | 4.4 |
| 42.5 27.5 | 30.22 | 767.0 | 66.0 | 18.9 | 2 | 5 | 4 | 8 | 7 | 3 | 2 | | | | 4.6 |
| 42.5 32.5 | 30.16 | 766.1 | 65.4 | 18.6 | | 4 | 3 | 11 | 6 | 6 | 1 | | | | 4.8 |
| 42.5 37.5 | 30.11 | 764.8 | 63.1 | 17.3 | 1 | 4 | 7 | 10 | 5 | 3 | | 1 | | | 5.4 |
| 42.5 42.5 | 30.06 | 763.5 | 62.9 | 17.2 | 2 | 6 | 6 | 10 | 6 | 1 | | | | | 5.4 |
| 42.5 47.5 | 30.02 | 762.5 | 58.3 | 14.6 | 4 | 6 | 5 | 9 | 4 | | 3 | | | | 5.1 |
| 42.5 52.5 | 29.99 | 761.7 | 57.3 | 14.1 | 6 | 10 | 2 | 6 | 2 | 3 | 1 | 1 | | | 5.3 |
| 42.5 57.5 | 30.00 | 762.0 | 56.3 | 13.5 | 9 | 8 | 4 | 5 | 3 | 1 | | | | 1 | 5.2 |
| 42.5 62.5 | 30.05 | 763.3 | 54.4 | 12.4 | 8 | 7 | 1 | 7 | 2 | 3 | 1 | 2 | | | 4.5 |
| 42.5 67.5 | 30.06 | 763.5 | 51.0 | 10.6 | 8 | 8 | 2 | 6 | 2 | | 3 | 2 | | | 4.2 |
| 47.5 12.5 | 30.20 | 767.1 | 59.7 | 15.4 | 5 | 6 | 3 | 8 | 2 | 3 | 2 | 2 | | | 4.6 |
| 47.5 17.5 | 30.20 | 767.1 | 59.7 | 15.4 | 2 | 5 | 4 | 7 | 7 | 1 | 3 | 2 | | | 4.6 |
| 47.5 22.5 | 30.16 | 766.1 | 60.3 | 15.7 | 1 | 8 | 1 | 9 | 8 | 1 | 1 | 2 | | | 5.1 |
| 47.5 27.5 | 30.11 | 764.8 | 59.6 | 15.4 | 1 | 4 | 5 | 11 | 5 | 5 | | | | | 5.0 |
| 47.5 32.5 | 30.04 | 763.0 | 58.6 | 14.8 | 1 | 4 | 5 | 11 | 6 | 2 | 1 | 1 | | | 5.4 |
| 47.5 37.5 | 29.98 | 761.5 | 56.9 | 13.8 | 2 | 6 | 2 | 12 | 4 | 3 | 1 | | | 1 | 5.7 |
| 47.5 42.5 | 29.93 | 760.2 | 52.3 | 11.3 | 3 | 6 | 4 | 9 | 6 | 2 | | | | 1 | 5.5 |
| 47.5 47.5 | 29.91 | 759.7 | 46.2 | 7.9 | 4 | 6 | 8 | 4 | 7 | 1 | | | 1 | | 5.4 |
| 52.5 12.5 | 30.11 | 764.8 | 54.2 | 12.3 | 4 | 6 | 9 | 9 | 2 | | 1 | | | | 4.8 |
| 52.5 17.5 | 30.08 | 764.0 | 54.0 | 12.2 | 4 | 4 | 8 | 13 | 2 | | | | | | 5.2 |
| 52.5 22.5 | 30.03 | 762.7 | 53.3 | 11.8 | 2 | 4 | 9 | 13 | 3 | | | | | | 5.6 |
| 52.5 27.5 | 29.96 | 761.0 | 52.6 | 11.4 | | 2 | 7 | 14 | 5 | 1 | 1 | | 1 | | 5.8 |
| 52.5 32.5 | 29.89 | 759.2 | 51.6 | 10.9 | | 6 | 7 | 11 | 6 | | 1 | | | | 5.5 |
| 52.5 37.5 | 29.84 | 757.9 | 49.3 | 9.6 | 1 | 7 | 4 | 11 | 3 | 4 | 1 | | | | 5.8 |
| 52.5 42.5 | 29.84 | 757.9 | 45.2 | 7.3 | 4 | 5 | 4 | 7 | 5 | 3 | | | | 3 | 5.9 |
| 52.5 47.5 | 29.82 | 757.4 | 40.9 | 4.9 | 2 | 8 | 5 | 5 | 3 | 3 | 3 | | | 2 | 5.8 |
| 57.5 12.5 | 29.87 | 758.7 | 48.4 | 9.1 | 2 | 5 | 11 | 11 | 1 | | | 1 | | | 5.8 |
| 57.5 17.5 | 29.80 | 758.4 | 48.3 | 9.1 | 3 | 3 | 12 | 11 | 1 | | | 1 | | | 5.2 |
| 57.5 22.5 | 29.82 | 757.4 | 47.5 | 8.6 | 2 | 3 | 8 | 14 | 2 | | 1 | | 1 | | 5.4 |
| 57.5 27.5 | 29.76 | 755.9 | 45.7 | 7.6 | | 4 | 5 | 15 | 3 | 1 | 1 | 1 | | | 5.4 |
| 57.5 32.5 | 29.73 | 755.1 | 44.1 | 6.7 | 1 | 4 | 6 | 11 | 6 | 2 | | | | 1 | 5.7 |
| 57.5 37.5 | 29.73 | 755.1 | 41.9 | 5.5 | 1 | 6 | 3 | 6 | 3 | 4 | 1 | 1 | | 6 | 5.8 |
| 57.5 42.5 | 29.73 | 755.1 | 39.0 | 3.9 | 2 | 3 | 3 | 5 | 3 | 3 | 1 | 1 | | 10 | 5.9 |
| 57.5 47.5 | | | | | | | | | | | | | | | |

## REVIEW.

### INTERNATIONAL METEOROLOGY FOR OCTOBER, 1884.

[*Pressure expressed in inches and millimetres; temperature in degrees, Fahrenheit and Centigrade; wind-force by scale of* 0–10.]

The following refers to chart ii for the month of October, 1884. This chart continues the series of international charts begun in January, 1877, and exhibits the mean pressure, mean temperature, and the prevailing wind-directions over the northern hemisphere, as determined from one simultaneous observation taken each day at 7 a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time.

The region of least mean pressure for October, 1884, is shown over the Arctic Ocean to the north of Scandinavia, the isobar for 29.5 (749.3) covering the extreme northern part of Norway. To the eastward, southward, and south-southwestward of the region of barometric minima the gradient increases somewhat rapidly, but this increase is much less rapid in a southwesterly direction from Norway to Newfoundland, the isobar for 30.0 (762.0) extending from the Gulf of Saint Lawrence southeastward to about N. 42°, W. 50°, where it trends northeastward, crossing the fiftieth parallel in about W. 30° and continuing thence east-northeastward over the British Isles. The lowest mean pressure reported was 29.46 (748.), at Gjæsvær, Norway. The next area of low mean pressure apparently occupies the Aleutian Archipelago and the Alaskan coast where it ranges from 29.68 (753.9) to 29.7 (754.4), and, so far as the observations at hand indicate, it does not exceed 29.9 (759.4) in any part of British North America, except in Manitoba. In the United States the mean pressures exceed 30.0 (762.0), except in the extreme southwestern part and on the south Pacific coast; in Lower California and over the Gulf of California it is less than 29.9 (759.4). In Europe the mean pressure is less than 30.0 (762.0) over the region north of 42° N., and exceeds that amount over the districts south of the parallel mentioned. In British India it ranges from 29.82 (757.4) to 29.9 (759.4).

Five distinct areas of barometric maxima are shown on the chart; the first of these is indicated by the isobar for 30.3 (769.6) and occupies southern Siberia, the highest mean being 30.31 (769.9), at Nertschinsk. The second area, 30.2 (767.1), covers the Caspian and Aral Seas and Toorkistan, the highest mean in these regions being 30.24 (768.1), at Petro-Alexandrovsk. The third area is that of the north Atlantic Ocean; it is indicated by the isobar for 30.2 (767.1), and extends from the Bay of Biscay southwestward over the Azores to about N. 31°, W. 38°; the highest mean pressure reported within this area is 30.28 (869.1), at Ponta Delgada, Azores. The fourth area of high pressure is shown in the United States, and stretches from the Atlantic States, south 40° N., westward to the Mississippi River, while the isobar for 30.1 (764.5) encloses that part of the United States south of 45° N., from New England westward to the Rocky Mountains, and southward to the Gulf of Mexico. The highest mean reported in the United States is 30.22 (767.6). The fifth and last area is enclosed by the isobar for 30.1 (764.5), and is shown over the Territories of Idaho and western Montana, the highest mean being 30.11 (764.8), at Lewiston, Idaho.

Compared with the chart for the preceding month (September, 1884), there has been a general increase of pressure over the United States and Canada, except in Nova Scotia and the Gulf of Saint Lawrence, where there is a very slight decrease. Over the Atlantic Ocean north of 40° N. and west of 30° W. the pressure has decreased slightly; it has also decreased over the region between N. 25° and 40° and W. 50° and 65°, but elsewhere there has been an increase of pressure, the increase being most marked over the Bay of Biscay and between N. 40° and 50° and east of 30° W. In the British Isles, France, and the Iberian Peninsula the pressure exceeds that of the preceding month, but in other parts of Europe there has been a decrease. Throughout Asia there has been an increase of pressure.

Compared with the corresponding month of previous years, the mean atmospheric pressure for October, 1884, over the United States was above the normal, except along the northern boundaries of the country; in Canada it was also above the normal, except in Nova Scotia. In Europe the mean pressure was below the normal in the northern peninsulas; elsewhere it was above the normal, the changes being greatest in the British Isles and western Europe. In British India it was .05 above the seven years' mean.

The following table shows the mean pressure and mean temperature for October, 1884, in the several countries of the eastern hemisphere, and the departures as compared with the means determined from observations taken during the last seven years:

| Countries. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Oct. mean of 7 (1877-'83) years. | Oct., 1884. | Departure. | Oct. mean of 7 (1877-'83) years. | Oct., 1884. | Departure. |
| | | | | ° | ° | ° |
| Algeria | 30.07 | | | 72.2 | | |
| Austro-Hungary | 30.00 | 30.02 | + 0.02 | 56.6 | 53.7 | − 2.9 |
| British Isles | 29.91 | 30.06 | + 0.15 | 52.7 | 52.8 | + 0.1 |
| Denmark | 29.89 | 29.82 | − 0.07 | 49.3 | 51.6 | + 2.3 |
| France | 29.99 | 30 13 | + 0.14 | 61.1 | 57.0 | − 4.1 |
| Germany | 29.98 | 30.00 | + 0.02 | 51.3 | 51.1 | − 0.2 |
| India | 29.83 | 29.88 | + 0.05 | 81.2 | 80.4 | − 0.8 |
| Italy | 29.99 | 30.02 | + 0.03 | 64.9 | 62.5 | − 2.4 |
| Norway | 29.80 | 29.65 | − 0.15 | 45.5 | 48.4 | + 2.9 |
| Portugal | 30.06 | | | 66.6 | | |
| Russia | 30.01 | 30.02 | + 0.01 | 48.8 | 50.8 | + 2.0 |
| Spain* | 30.01 | 30.13 | + 0.12 | 65.5 | 62.8 | − 2.7 |
| Sweden | 29.85 | 29.70 | − 0.15 | 42.7 | 46.1 | + 3.4 |

* Means for six years only.

The accompanying table shows the deviations in pressure and temperature at isolated stations during the month of October, 1884, as compared with the means for seven years:

| Stations. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Oct. mean of 7 (1877-'83) years. | Oct., 1884. | Departure. | Oct. mean of 7 (1877-'83) years. | Oct., 1884. | Departure. |
| | | | | ° | ° | ° |
| Astrakhan, Russia | 30.16 | 30.24 | + 0.08 | 56.6 | 57.6 | + 1.0 |
| Archangel, Russia* | 29.84 | 29.70 | − 0.14 | 38.0 | 42.3 | + 4.3 |
| Angra, Azores | | | | | | |
| Athens, Greece | 30.02 | 30.03 | + 0.01 | 72.3 | 71.8 | − 0.5 |
| Beirut, Turkey in Asia | 29.95 | 29.98 | + 0.03 | 79.2 | 77.9 | − 1.3 |
| Barnaul, Siberia, Asia | 30.16 | 30.24 | + 0.08 | 37.9 | 40.5 | + 2.6 |
| Bridgetown, Barbadoes * | 29.94 | 29.99 | + 0.05 | 82.4 | 82.2 | − 0.2 |
| Cape Town, Cape of Good Hope | | | | 70.7 | 64.9 | − 5.8 |
| Cagliari, Sardinia, Italy | 29.96 | 30.02 | + 0.06 | 70.5 | 67.1 | − 3.4 |
| Ekaterinburg, Russia | 30.01 | 30.08 | + 0.07 | 36.9 | 41.4 | + 4.5 |
| Fort Napier, Natal, South Africa | 29.87 | 29.93 | + 0.06 | 73.7 | 73.8 | + 0.1 |
| Freetown, Sierra Leone | 29.91 | 29.86 | − 0.05 | 83.9 | 85.5 | + 1.6 |
| Funchal, Madeira Islands | 30.12 | 30.10 | − 0.02 | 72.7 | 71.1 | − 1.6 |
| Gibraltar | 30.05 | 30.06 | + 0.01 | 68.3 | 67.4 | − 1.4 |
| Godthaab, Greenland | 29.69 | | | 29.7 | | |
| Havana, Cuba, W. I | 29.97 | 29.98 | + 0.01 | 75.1 | 75.7 | + 0.6 |
| Malta, Mediterranean Sea | 29.99 | 29.97 | − 0.02 | 73.7 | 72.5 | − 1.2 |
| Mauritius, Indian Ocean | 30.11 | 30.05 | − 0.06 | 75.0 | 75.4 | + 0.4 |
| Melbourne, New South Wales | 29.98 | 29.97 | − 0.01 | 54.5 | 52.5 | − 2.0 |
| Mexico, Mexico* | 30.21 | 30.11 | − 0.10 | 53.5 | 51.1 | − 2.4 |
| Nassau, Bahamas, W. I | 30.00 | 29.98 | − 0.02 | 79.9 | 78.4 | − 1.5 |
| Nikolaevsk on the Amoor, Asia | | 29.99 | | | 31.6 | |
| Paramaribo, D. Guiana, S. A | 29.99 | 30.02 | + 0.03 | 80.6 | 81.1 | + 0.5 |
| Pekin, China | 30.16 | | | 54.0 | | |
| Ponta Delgada, Azores | 30.11 | 30.28 | + 0.17 | 69.6 | 69.8 | + 0.2 |
| Sandwick Manse, Orkney Islands | 29.84 | 29.81 | − 0.03 | 48.4 | 48.9 | + 0.5 |
| San Juan de Puerto Rico, W. I | 29.96 | 29.95 | − 0.01 | 80.6 | 78.4 | − 2.2 |
| Stykkisholm, Iceland | 29.69 | 29.57 | − 0.12 | 39.8 | 37.2 | − 2.6 |
| Tashkend, Toorkistan, Asia | 30.20 | 30.20 | 0.00 | 55.9 | 62.2 | + 6.3 |
| Thorshavn, Faröe Islands | 29.74 | 29.68 | − 0.06 | 46.0 | 45.3 | − 0.7 |
| Tiflis, Russia | 30.10 | 30.12 | + 0.02 | 65.7 | 67.1 | + 1.4 |
| Tokei, Japan | 30.07 | 30.08 | + 0.01 | 58.3 | 58.3 | 0.0 |
| Yeniseisk, Siberia, Asia | 30.11 | 30.28 | + 0.17 | 29.5 | 34.9 | + 5.4 |
| York Factory, B. A | 29.99 | | | 24.2 | | |
| Zi-Ka-Wei, China | 30.15 | 30.17 | + 0.02 | 61.0 | 61.2 | + 0.2 |

* Means for six years only.

In the United States the mean temperature of the air was below the normal on the Pacific coast and in the Rio Grande Valley; in all other parts of the country it was normal or above. In Canada it was above the normal, except in the Maritime Provinces. In Europe the mean temperature was about normal in the British Isles; above the normal in Denmark, Scandinavia, and Russia, and below the normal in all other parts of the continent. In British India it was 0.8 below the seven years' mean; the highest mean temperature there

reported was 86°.7 Fahr. (30°.4 Cent.), at Deesa, and the lowest was 73°.7 Fahr. (23°.2 Cent.), at Hazaribagh.

The following are some of the extremes reported at isolated stations:

| Highest. | Fahr. | Cent. | Lowest. | Fahr. | Cent. |
|---|---|---|---|---|---|
| | ° | ° | | ° | ° |
| Freetown, Sierra Leone | 85.5 | 29.7 | Fort Saint Michael's, Alaska | 22.2 | —5.4 |
| Bridgetown, Barbadoes | 82.2 | 27.9 | Nertschinsk, Siberia | 25.3 | —3.7 |
| Cairo, Egypt | 81.1 | 27.3 | Nikolaievsk on the Amoor, Asia. | 31.6 | —0.2 |
| Paramaribo, Dutch Guiana | 81.1 | 27.3 | Yeniseisk, Siberia | 34.9 | 1.6 |
| Manila, Philippine Islands | 79.5 | 26.4 | Stykkisholm, Iceland | 37.2 | 2.9 |

NOTE.—Report from York Factory, B. A., not yet received.

In the United States the prevailing winds were as follows: along the Atlantic coast and in the middle and south Atlantic states and Florida they were northerly and northeasterly; in the northern part of the country they were mostly westerly and northwesterly; in the southwestern districts they were variable. Over the Atlantic Ocean from the coast of the United States eastward to about W. 60° the winds were north and northeast; from 60° W. eastward to the European coasts and north of the thirty-fifth parallel they were mostly southwesterly; south of 35° N. they were easterly. In Europe the winds were from sw. to w. and nw. in the western districts, and from sw. to s. and se. in the eastern and northern districts.

In the United States the precipitation during October, 1884, was less than the average in the states east of the Mississippi River, and in the north and south Pacific coast districts; elsewhere it exceeded the average. In Canada it was less than the average; in Europe the rainfall was greater than the average, except in France, where there was a deficiency.

## STORM-TRACKS FOR OCTOBER, 1884.

Chart iii exhibits paths of the principal depressions which appeared in the northern hemisphere during October, 1884. This chart continues the series of international charts begun in November, 1877, and in its preparation the following data have been used, viz: Chart i, for each day of the month, containing the data of one simultaneous observation taken at 7 a. m., Washington, or 0 h. 8 m. p. m., Greenwich, mean time, as heretofore published in the DAILY INTERNATIONAL BULLETIN; abstracts of ships' logs; special reports; and other miscellaneous data on file at this office.

The chart for October, 1884, shows the paths of fifty-eight depressions, the greater part of which number are traced over the North American continent, the Atlantic Ocean, and the continent of Europe. A very unusual feature is the absence of typhoons in the China Sea during October, 1884; referring to this subject, the Rev. Marc Dechevrens, in the "Bulletin Mensuel," of the Zi-Ka-Wei Meteorological Observatory, for October, 1884, says: "The month of October has always been marked by numerous typhoons, either in the China Sea, the Philippines, or in Japan; it is therefore a remarkable fact that during October, 1884, we have nothing to report under this heading. The ordinary atmospheric depressions were few in number and of slight importance."

Sixteen depressions, numbers i to xvi, inclusive, are traced over the United States and Canada; these disturbances, for the most part, advanced from the British Northwest Territories in an east-southeasterly direction towards the Lake region, and thence northeastward down the Valley of the Saint Lawrence to the Gulf and the Atlantic; no storm-centre appeared in that part of the United States lying south of the fortieth parallel. Of the above depressions, those charted as numbers iii, iv, xi, and xii, developed considerable storm-energy during their passage, causing strong gales and stormy weather over the Lakes, while number viii was also attended by moderate to strong gales during its passage over the Maritime Provinces; with these exceptions, the depressions charted in October, 1884, were of moderate or slight intensity. Detailed descriptions of these depressions will be found under "Areas of low barometer" in MONTHLY WEATHER REVIEW for October, 1884.

The numerous depressions (sixteen, numbers xvii to xxxiii, inclusive) which traversed the Atlantic Ocean appear to have pursued a north-northeasterly course, their paths being farther to the northward and westward than usual; this direction of movement was probably due to the presence of large anti-cyclonic areas which occupied western Europe, and frequently the British Isles and Scandinavia, during the first and second decades of the month, and which extended over the ocean westward to the fortieth meridian; during the last decade an area of high barometer appears to have travelled eastward over the Atlantic from the coasts of the United States towards the Azores. Many of the depressions which crossed the Atlantic were of considerable depth, the barometer ranging from 29.0 (736.6) to 29.6 (751.8); so that relatively steep gradients were generally found over the ocean, and consequently the weather during October, 1884, was squally and unsettled, with frequent heavy gales. Numbers xxi and xxii show the tracks of two hurricanes which occurred in the West Indies during the first half of the month, the latter being quite severe over the eastern Bahamas. Descriptions of these, together with the other depressions which occupied the ocean, will be found under "North Atlantic storms during October, 1884," in the MONTHLY WEATHER REVIEW for October, 1884.

Fifteen depressions, not including number xxvii, which passed over northern Scandinavia from the Atlantic on the 19th and 20th, are traced over the continent of Europe; the tracks of these depressions lie mostly in Scandinavia, northern Russia, and the Baltic regions. The depressions shown over the southern districts were of slight intensity and merit no particular mention, but those of the north were generally severe and of considerable extent; the more important of the latter were numbers xxxviii, xlii, and xlviii. The first appeared over the northern part of the British Isles on the 8th; it moved southward with decreasing pressure and increasing energy and reached the southern part of England on the 9th; it then passed eastward and northeastward over the North Sea during the 10th and 11th, and into southern Sweden on the 12th. The winds were moderate to strong during the 8th and 9th, but after that day they increased to the force of a strong gale, accompanied by rain and hail; over the British Isles they were northerly and northwesterly, and were from west to southwest and south at the continental stations. During the passage of the disturbance the barometer ranged from 29.15 (740.4) to 29.55 (750.6), the minima occurring on the 11th when the storm-centre was off the Danish coast, and again on the 13th, over the Gulf of Bothnia. The second disturbance above referred to (xlii) appeared in southern Sweden on the 17th, with pressure at the centre about 29.10 (739.1); as it moved southward and eastward the barometric gradient over the Baltic and central Europe became somewhat steep, and strong gales from w. and nw. occurred over the districts in the western semicircle of the depression. On the 18th the storm-centre was in southwestern Russia, the barometer having fallen to 28.93 (734.8), at Lgov, on that date; by the 19th the depression had disappeared. The third disturbance (xlviii) was a deep depression which passed over northern Scotland during the night of the 27–28th, on the following morning it was central in southern Scandinavia, the isobar for 28.8 (731.5) enclosing the storm-centre and including within its limits nearly the whole of the Scandinavian Peninsula. On this date strong gales from w. and nw., with rainy weather, occurred over the British Isles, and equally strong gales from w. and sw. were reported over the North Sea, the Baltic, and at land stations in northern and central Europe; on the 29th the centre of disturbance was near the Gulf of Bothnia, with the pressure still less than 28.9 (734.0), and no material abatement in the force of the wind over the districts to the south of the centre; on the 30th the depression disappeared in the White Sea region. In addition to the three important disturbances just referred to there was another exceedingly deep depression which materially affected the weather conditions in northern Europe; this was number xxx, which had moved

north-northeastward from Newfoundland to Iceland during the period from the 21st to 25th. On the last-mentioned date the centre was in the vicinity of Iceland, where the barometer read 29.02 (737.1); by the 26th the disturbance had advanced to the Norwegian coast, the barometer near the storm-centre falling to the unusually low reading of 28.29 (718.6), while moderate to strong gales from s. to w. and nw. prevailed over northern Europe. The depression passed northeastward along the Norwegian coast, the pressure remaining below 28.4 (721.3) during that day; on the 29th the storm-centre was in the extreme northern part of Scandinavia, where the pressure did not exceed 29.0 (736.6) until the 30th.

The depressions which passed over Japan were unimportant and exhibited no noteworthy features; in numbers xlix and lvii the minima were 29.53 (750.0) on the 2d, and 29.56 (750.8) on the 24th, respectively. In the disturbances shown over the Aleutian Archipelago and Alaska, the barometer ranged from 29.0 (736.6) to 29. 6 (751.8).

### STORM-TRACKS FOR DECEMBER, 1882.

There are shown on the chart for December, 1882, the probable paths of forty-nine barometric depressions which appeared over the northern hemisphere during that month, together with the track of a typhoon which passed over the Philippine Islands during the 30th and 31st; the data referring to the last were furnished by the Rev. F. Faura, S. J., director of the Observatory at Manila.

The above depressions are distributed, geographically, as follows: eleven, numbers i to xi, inclusive, are traced in the North American continent; fourteen, xii to xxv, are shown over the Atlantic Ocean and southern Greenland; fourteen (xxvi to xxxix) are traced over the British Isles and the European continent; two, numbers xl and xli, appeared in western Asia, and the remainder, numbers xlii to xlix, are traced in eastern Asia and the Pacific Ocean.

Of the depressions traced in the North American continent, one, number i, passed from the lower lake region southeastward to the New Jersey coast and thence northeastward over the ocean and along the coast of Nova Scotia; three depressions moved from the Pacific coast eastward over the northern part of the United States; one developed in the Missouri Valley and moved eastward over the Lakes to the Atlantic, and the remaining depressions passed from Texas and the Gulf of Mexico northeastward over the eastern part of the United States. Several of these depressions displayed considerable storm-energy, especially in the Lake regions and on approaching the Atlantic coast, being attended by strong winds to heavy gales, with pressure ranging from 29.4 (746.7) to 29.7 (754.4). They are described under "Areas of low barometer" in the MONTHLY WEATHER REVIEW for December, 1882.

Of the fourteen depressions traced over the Atlantic Ocean and southern Greenland, six, numbers xiii, xv, xvi, xviii, xix, and xxii, were continuations of storms which reached the Atlantic from the shores of the American continent; three (xii, xiv, and xxv) appeared north of the sixtieth parallel; three (xx, xxi, and xxiv) appeared over the region west of the fortieth meridian, and two (xvii and xxii) to the eastward of that meridian. The general direction of movement of the above depressions was northeasterly; the more important were the following: Number xii, which moved eastward from southern Greenland over Iceland to northern Scotland and thence southeastward over the North Sea; on the 3d the barometer near the storm-centre fell to 28.7 (729.0), and from that date until the disappearance of the depression it ranged from 28.9 (734.0) to 29.4 (746.7). This disturbance, in conjunction with that charted as number xxviii, remained over the North Sea until the 10th, causing during this period strong gales, with rain or snow and generally unsettled weather, over the British Isles and western Europe. Number xvii, which manifested considerable energy on the 11th and 12th, when the storm-centre was to the eastward of W. 20°; on those dates the barometer fell to 29.1 (739.1), and strong gales prevailed over the ocean east of the thirtieth meridian. Number xviii was probably the most severe storm of the month; on the 12th the atmospheric pressure over the Banks of Newfoundland was about 29.0 (736.6), and furious gales prevailed over the ocean as far south as the thirty-fifth parallel; on the 13th the pressure at the storm-centre, near N. 51°, W. 45°, was 28.4 (721.3), and gales of hurricane force from sw., w., and nw. occurred between 40° and 50° N. and eastward to the thirtieth meridian; on the succeeding dates, and throughout the course of this depression, the pressure did not exceed 29.15 (749.4). Number xix caused strong gales during its passage eastward, the barometer falling to 29.04 (737.6) on the 17th, nor did it rise above 29.35 (745.5) until the disturbance had passed into Europe.

The last decade of December, 1882, was marked by the passage of several rather deep depressions, which followed each other in rapid succession and extended southward over the ocean to the thirtieth parallel. During the period mentioned the atmospheric pressure ranged from 28.8 (731.5) to 29.4 (746.7), and generally unsettled weather prevailed over the Atlantic. Detailed descriptions of the more important of the Atlantic storms will be found under "North Atlantic storms" in the MONTHLY WEATER REVIEW for December, 1882.

Respecting the storms traced in Europe, these prevailed mostly in the southern, western, and extreme northern districts, the eastern and central parts of the continent being comparatively free from heavy storms. Several of the above depressions, however, were of considerable extent and were attended by subsidiary disturbances, and these caused unsettled weather, with rain or snow, in all districts except the extreme eastern part of the continent, where an area of high barometer prevailed during the first and second decades of the month.

In northern and western Siberia the barometer remained high during the greater part of the month, reaching the unusually high value of 31.0 (787.4) on several days, and the maximum, 31.24 (793.5), at Yeniseisk, Siberia, on the 17th. In the depressions which passed over Japan the barometer ranged from 29.4 (746.7) to 29.8 (756.9); the most important being that charted as number xlix, which appeared in northern Japan on the 27th, with pressure about 29.35 (745.5); by the 29th, when the depression reached Behring Sea, the pressure had decreased to 28.8 (731.5). The depressions over the Pacific Ocean and in the neighborhood of the Aleutian Archipelago were generally deep and well-defined; the pressure seldom exceeded 29.6 (751.8), while for several days it ranged from 28.6 (726.4) to 29.0 (736.6).

Referring to the Manila typhoon of December 30th and 31st, the Rev. F. Faura, S. J., director of the Meteorological Observatory at Manila, furnishes the following: "The storm appears to have formed to the se. of the Island of Dinagat, between lat. 9° and 10° N., and long. 126° and 127° E. of Greenwich; the vortex passing over that island, according to the report of the missionary, between 9 and 10 p. m. of the 30th; the wind shifted from n. to s. by the west, and blew with great force, accompanied by rain."

CATVALONGAN (lat. 11° 46′ N., long. 124° 55′ E. of Greenwich).

| Date. | Hour. | Barometer. | | Wind. | |
|---|---|---|---|---|---|
| | | Inches. | Millimetres. | Direction. | Force and remarks. |
| 1882. Dec. 31 | 7 a. m | 29.41 | 747 | nw. | Frequent squalls of rain. |
| | 8 a. m | 29.23 | 742.5 | nne. | Wind increasing. |
| | 8.40 a. m | 29.12 | 739.7 | nne. | Hurricane. |
| | 9 a. m | 29.06 | 738 | nne. | Strong squalls at intervals. |
| | 9.28 a. m | 29.04 | 737.5 | ne. | Fresh; lightning. |
| | 9.35 a. m | 29.02 | 737 | ene. | Fresh and cool; rain ceased. |
| | 9.47 a. m | 29.00 | 736.6 | calm | Zenith clear. |
| | 10 a. m | 29.06 | 738 | s. | Light variable winds, suddenly shifting to ssw. |
| | 10.10 a. m | 29.09 | 738.8 | ssw. | Freshening, and increasing to hurricane force; impossible to continue observations; building threatened with destruction; wind more violent after passage of storm-centre. |

CALBAYOG (lat. 12° 8′ N., long. 124° 37′ E. of Greenwich).

| Date. | Hour. | Barometer. Inches. | Barometer. Millimetres. | Wind. | Remarks. |
|---|---|---|---|---|---|
| 1882. Dec. 31 | 6 a. m | 29.63 | 752.5 | n. | Squally; rain. |
| | 7.45 a. m | 29.49 | 749.0 | nnw. | Strong squalls. |
| | 9.20 a. m | 29.17 | 741.0 | n. | Hurricane. |
| | 11 a. m | 29.00 | 736.5 | | Commencement of central calm at 11.15; at 11.40 light sc. wind, increasing to ssc. hurricane at midday. |
| | 1.15 p. m | 29.37 | 746 | ssw.; s. | Hurricane. |
| | 2 p. m | 29.45 | 748 | ssw. | Moderating slightly. |
| | 5 p. m | 29.72 | 755 | ssw. | Moderate; barometer stationary at 758.5 (29.86) throughout the night. |

S. S. "CASTELLANO" (lat. 12° 30′ N., long. 123° 47′ E. of Greenwich).

| Date. | Hour. | Barometer. Inches. | Barometer. Millimetres. | Wind. | Force, 0–12. | Remarks. |
|---|---|---|---|---|---|---|
| 1882. Dec. 31 | 8 a. m | 29.72 | 755 | nnw. | 6 | Squally. |
| | 10 a. m | 29.49 | 749 | n. | 8 | Sky totally covered. |
| | 11 a. m | 29.41 | 747 | n. | 10 | Do. |
| | Noon | 29.37 | 746 | n. | 11 | Do. |
| | 1 p. m | 29.25 | 743 | n. | 11 | Lightning. |
| | 2 p. m | 29.29 | 744 | nnw. | 11 | |
| | 3 p. m | 29.33 | 745 | nw. | 11 | |
| | 4 p. m | 29.33 | 745 | wnw. | 11 | |
| | 5 p. m | 29.41 | 747 | w. | 12 | |
| | 6 p. m | 29.49 | 749 | wsw. | 12 | |
| | 8 p. m | 29.69 | 754 | sw. | 10 | Light thunder in the 4th quadrant. |

TOWN OF CASIGURAN (lat. 12° 53′ N., long. 123° 59′ E. of Greenwich).

| Date. | Hour. | Barometer. Inches. | Barometer. Millimetres. | Wind. | Remarks. |
|---|---|---|---|---|---|
| 1882. Dec. 31 | 8 a. m | 29.72 | 755 | nne. | Fresh breeze. |
| | 10 a. m | 29.41 | 747 | ne. | Strong gusts. |
| | 12 m | 29.21 | 742 | ne. | Do. |
| | 1 p. m | 29.17 | 741 | ne. | Do. |
| | 2 p. m | 29.13 | 740 | ne. | Do. |
| | 2.30 p. m | 29.13 | 740 | calm | Storm-vortex. |
| | 3.30 p. m | 29.17 | 741 | s. | Fresh gusts. |
| | 4 p. m | 29.33 | 745 | s. | Do. |
| | 5 p. m | 29.41 | 747 | s. | Do. |
| | 6 p. m | 29.49 | 749 | s. | Do. |

**At this place the winds following the passage of the centre were less violent than those which preceded it.**

BRIG "MATILDE" (lat. 13° 31′ N., long. 123° 33′ E. of Greenwich).

| Date. | Hour. | Barometer. Inches. | Barometer. Millimetres. | Wind. | Force, 0–12. |
|---|---|---|---|---|---|
| 1882. Dec. 31 | 1 a. m | 29.88 | 758.9 | nne. | 7 |
| | 4 a. m | 29.80 | 757.0 | nne. | 7 |
| | 6 a. m | 29.61 | 752.0 | nne. | 7 |
| | 10 a. m | 29.49 | 749.0 | nne. | 8 |
| | 12 m | 29.47 | 748.5 | nne. | 9 |
| | 1 p. m | 29.41 | 747.0 | nne. | 8 |
| | 4 p. m | 29.36 | 745.7 | nne. | 8 |
| | 5 p. m | 29.32 | 744.7 | ne. | 10 |
| | 6 p. m | 29.28 | 743.7 | ne. | 10 |
| | 8 p. m | 29.28 | 743.7 | ne. | 11 |
| | 10 p. m | 29.28 | 743.7 | ene. | 11 |
| | 12 n | 29.30 | 744.2 | e. | 8 |
| 1883. Jan. 1 | 1 a. m | 29.37 | 745.9 | se. | 8 |
| | 2 a. m | 29.42 | 747.2 | s. | 8 |
| | 5 a. m | 29.52 | 749.8 | ssw. | 7 |

## SPECIAL NOTES.

### DAILY BULLETIN.

On and after July 1, 1884, the DAILY BULLETIN OF SIMULTANEOUS METEOROLOGICAL OBSERVATIONS will be discontinued. The daily chart accompanying this bulletin, or international chart No. i, will continue to be issued as heretofore, but on an enlarged scale, and will contain data referring to pressure (at sea-level), temperature, wind-direction, and state of weather for each day at all reporting stations in the northern hemisphere, and over the northern portions of the Atlantic and Pacific Oceans, as heretofore published in the DAILY BULLETIN.

The observations are taken at 7 h. 0 m., a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time, except at the following stations, viz.: Arlon, Belgium, at 1 p. m., local time, or 28 minutes late; Upernavik, Greenland, at 8 a. m., local time, or 24 minutes early; Ivigtut, Greenland, at 8 a. m., or 56 minutes early; Brono, Norway, at 2 p. m., or 68 minutes late.

All data referring to force, velocity, or pressure (in pounds per square foot) of the wind, are reduced to the scale of 0-10, and the approximate value is indicated by the number of feathers on the arrow (see below). The state of the weather is indicated by the following symbols:

○ clear; ◒ fair; ● cloudy; ● precipitation (rain, snow, hail, sleet).

### INTERNATIONAL CHARTS.

International chart i shows the atmospheric pressure at sea-level in English inches, the isobars being drawn for every two-tenths of an inch; temperature (by figures only) in degrees Fahrenheit.

Arrows show direction of, and fly with, the wind; force is shown as follows:

| Symbols. | Force. | Velocity. Miles per hour. | Velocity. Metres per second. |
|---|---|---|---|
| ○ | 0 | 0 | 0 |
| → | 1, 2 | 0 to 9 | 0 to 4 |
| → | 3, 4 | 9.1 to 22.5 | 4.1 to 10.1 |
| → | 5, 6 | 22.6 to 40.5 | 10.1 to 18.1 |
| → | 7, 8 | 40.6 to 67.5 | 18.1 to 30.2 |
| → | 9, 10 | 67.6 up. | 30.2 and over. |

International chart ii (monthly mean chart) shows the mean pressure at sea-level in English inches; the mean temperature in degrees, Fahrenheit; the mean force and prevailing direction of the wind, as determined from observations taken at 7 a. m., Washington mean time.

International chart iii shows the tracks of centres of low barometer. The Arabic numerals show the location of the centres of low barometer at 7 a. m., Washington mean time of that date.

In the above charts, broken lines indicate that the lines so drawn are doubtful.

### MONTHLY SUMMARY OF INTERNATIONAL SIMULTANEOUS METEOROLOGICAL OBSERVATIONS.

The positions of stations (latitude and longitude) are obtained from Keith Johnson's "Index Geographicus," except where more exact information is furnished. The elevations of stations are obtained either from the annual, semi-annual, and monthly publications of the various meteorological bureaus here represented, or from the original forms upon which are entered the daily observations. In the United States series the elevations are computed from the latest surveys, and are carefully revised each month, in order to note any change in the elevation of the barometer-cistern at any station. It is believed for the most part that, throughout the European and other series, the elevations as given represent the height of the barometer-cistern above sea-level; at least this should be the case. The local time, where omitted or not given correctly in the original, is carefully computed at this office. A letter placed opposite the name of a station or some portion of the data credited thereto, indicates that a certain number of observations are missing, corresponding to the relative position in the English alphabet of the letter so used.

At Hobart Town, Tasmania, the observations are taken at 9 p. m. instead of at 9.57 p. m.

At Astrakhan, Ashurada, and Baku the barometer-cisterns are below sea-level.

On and after July 1, 1884, all stations in the United States series will be grouped by states and territories under each district, in the following order:

NEW ENGLAND: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

MIDDLE ATLANTIC STATES: New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia.

SOUTH ATLANTIC STATES: North Carolina, South Carolina, Georgia, Florida.

EASTERN GULF STATES: Georgia, Florida, Alabama, Mississippi, Louisiana.

WESTERN GULF STATES: Louisiana, Arkansas, Indian Territory, Texas.

RIO GRANDE VALLEY: Texas.

OHIO VALLEY AND TENNESSEE: Tennessee, Kentucky, Illinois, Indiana, Ohio, West Virginia, Pennsylvania.

LOWER LAKES: New York, Pennsylvania, Ohio, Michigan.

UPPER LAKES: Michigan, Indiana, Illinois, Wisconsin, Minnesota.

UPPER MISSISSIPPI VALLEY: Minnesota, Wisconsin, Iowa, Illinois, Missouri.

MISSOURI VALLEY: Missouri, Kansas, Nebraska, Iowa, Dakota.

EXTREME NORTHWEST: Minnesota, Dakota.

NORTHERN SLOPE: Montana, Dakota, Wyoming, Nebraska.

MIDDLE SLOPE: Nebraska, Colorado, Kansas, Indian Territory, Texas, New Mexico.

SOUTHERN SLOPE: Indian Territory, Texas, New Mexico.

SOUTHERN PLATEAU: New Mexico, Arizona, California, Nevada.

MIDDLE PLATEAU: California, Nevada, Utah, Colorado, Wyoming.

NORTHERN PLATEAU: Wyoming, Montana, Idaho, Oregon, Washington.

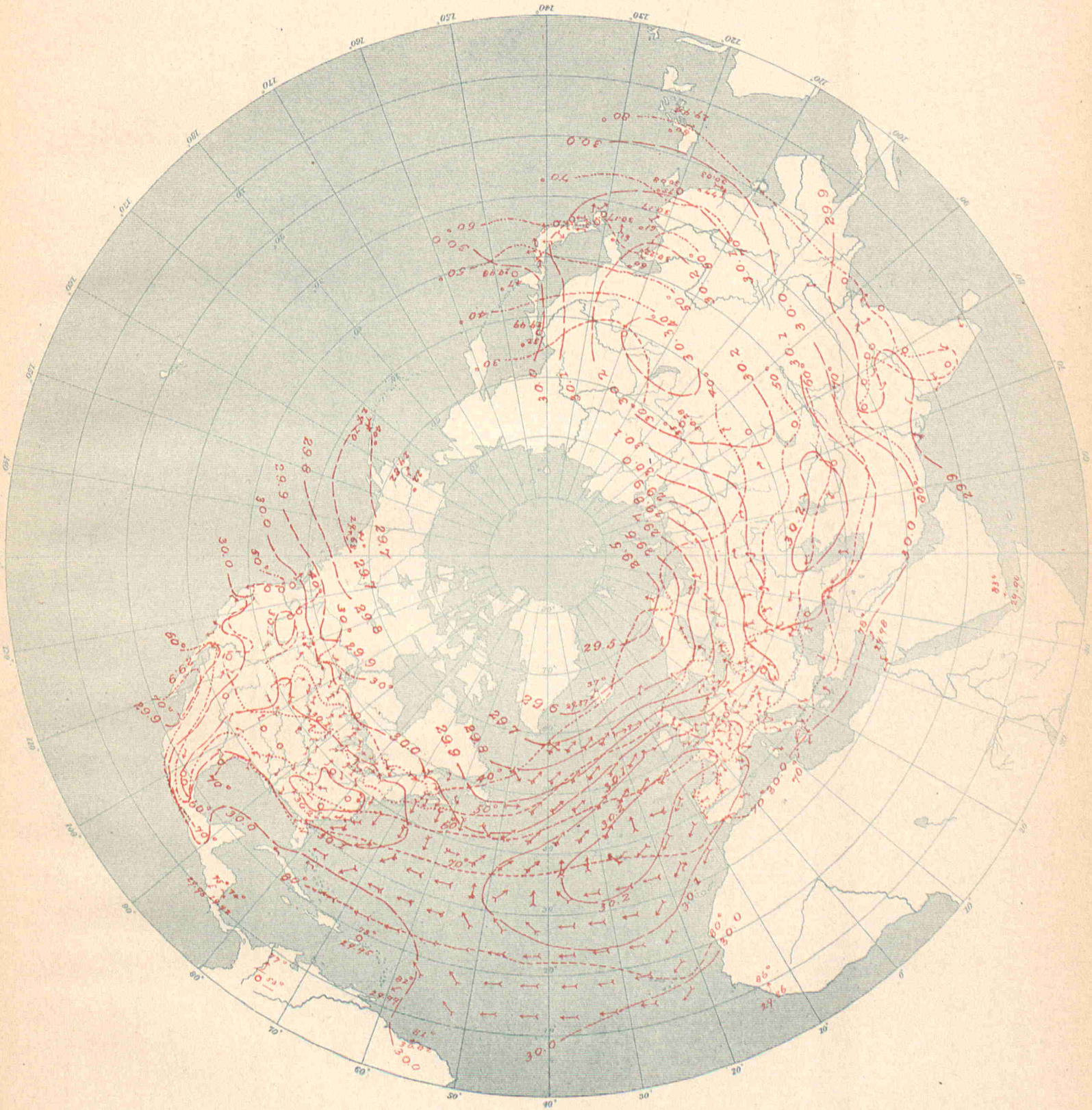
NORTH PACIFIC COAST: Washington, Oregon.
MIDDLE PACIFIC COAST: California.
SOUTH PACIFIC COAST: California.

OCEAN SQUARES.—The table of ocean square data shows (1) the location of the centres of squares whose sides extend 5° each in latitude and longitude, (2) the monthly mean pressure and temperature of the air, and the mean force and total frequency of the wind at 7 a. m., Washington time, computed for the centre of each square from daily readings as obtained by interpolation between the isobars and isotherms of the daily international simultaneous weather maps.

PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

W. B. HAZEN,
*Brig. & Bvt. Maj. Gen'l,*
*Chief Signal Officer, U. S. A.*

# International Chart II. October, 1884. Isobars, Isotherms, and Winds.

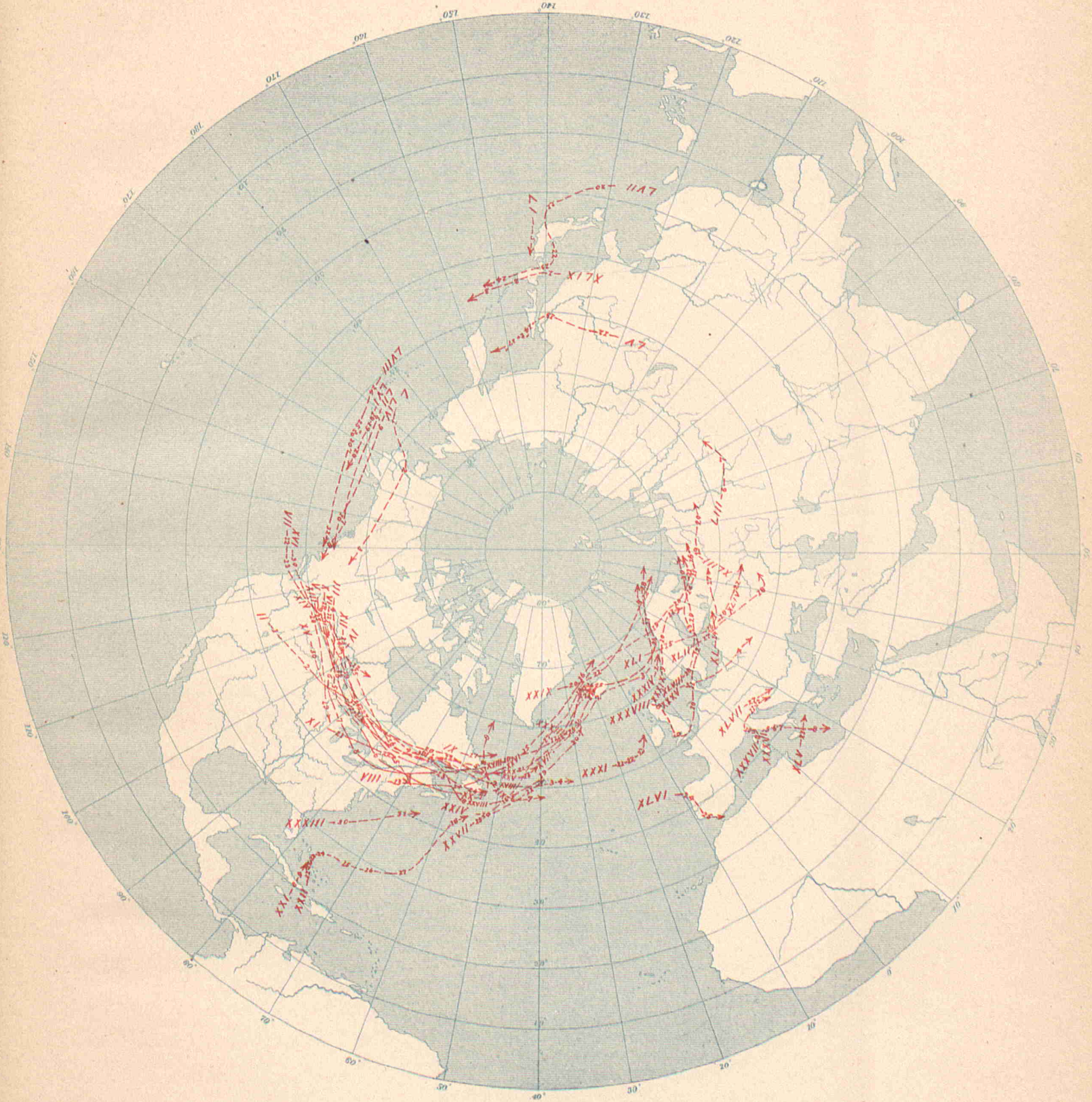


UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B.Hazen. Chief Signal Officer.

Signal Office 14th.

# International Chart III. October, 1884. Storm-Tracks.

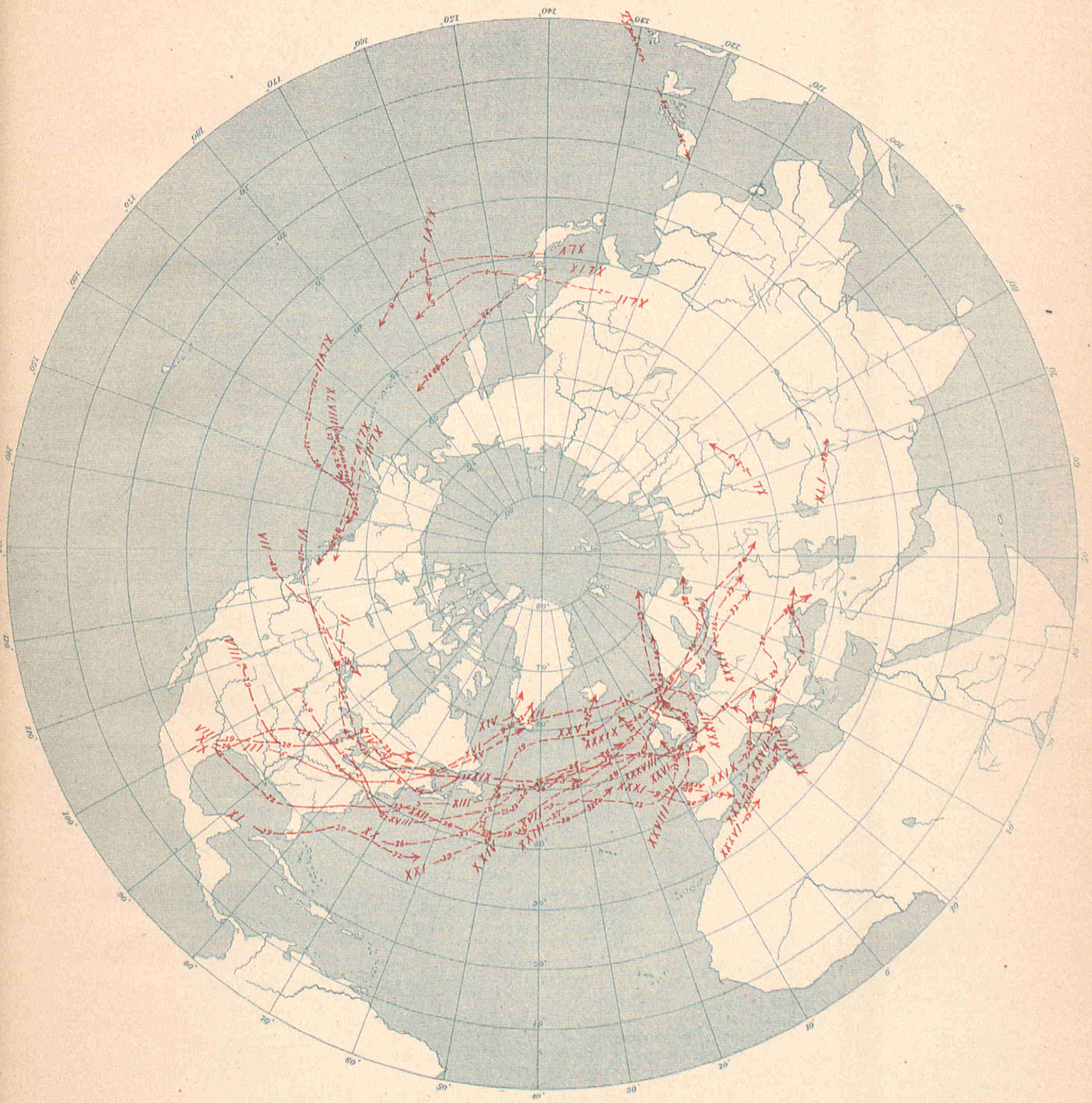


UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B. Hazen, Chief Signal Officer.

Signal Office Lith.

# International Chart III. December, 1882. Storm-Tracks.



UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B.Hazen, Chief Signal Officer.

Signal Office 14th.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY OF THE UNITED STATES.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS

## FOR THE MONTH OF NOVEMBER, 1884.

*PRINTED FOR EXCHANGE WITH CO-OPERATING OBSERVERS.*

WASHINGTON, D. C.
DECEMBER, 1885.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## NOVEMBER, 1884.

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for November, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| AUSTRALIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adelaide | S. 34 57 | E. 138 35 | 9.22 p.m. | 140 | 42 | 29.90 | 759 4 | 30.06 | 763.5 | 62.3 | 16.8 | 53.0 | ..... | ..... | ..... | 3 | 10 | 10 | 5 | 1 | 1 | 8089 | 13018 | 4 | 0.37 | 9.4 |
| Hobart Town.a | S. 42 53 | E. 147 26 | 9.57 p.m. | 190 | 58 | 29.72 | 754.9 | 29.91 | 759.7 | 52.2 | 11.2 | 83.0 | 4 | 2 | 2 | 5 | 6 | 3 | 1 | 6 | ..... | ..... | ..... | 6 | 1.09 | 27.7 |
| Melbourne | S. 37 50 | E. 144 58 | 9.47 p.m. | 91 | 28 | 29.93 | 760.2 | 30.02 | 762.5 | 57.2 | 14.0 | 74.0 | 1 | ... | 3 | 5 | 6 | 10 | 3 | 2 | ..... | ..... | ..... | 6 | 3.10 | 78.7 |
| AUSTRIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agram | N. 45 48 | E. 15 53 | 1.12 p.m. | 536 | 163 | 29.58 | 751.3 | 30.19 | 766.8 | 41.0 | 5.0 | 57.6 | 2 | 2 | 2 | 8 | 1 | 4 | 3 | 8 | ..... | ..... | ..... | 6 | 1.19 | 30.2 |
| Cracow | N. 50 04 | E. 20 00 | 1.28 p.m. | 722 | 220 | 29.34 | 745.2 | 30.14 | 765 5 | 36.0 | 2.2 | 85.9 | 2 | 5 | 6 | 9 | 2 | 1 | 3 | 2 | ..... | ..... | ..... | 8 | 1.37 | 34.8 |
| Eperies | N. 48 58 | E. 21 15 | 1.33 p.m. | 820 | 250 | 29.22 | 742.3 | 30.13 | 765.4 | 33.3 | 0.7 | 83.0 | 4 | ..... | ..... | ..... | 2 | ..... | ..... | 24 | ..... | ..... | ..... | 8 | 0.91 | 23.1 |
| Gratz | N. 47 04 | E. 15 28 | 1.10 p.m. | 1171 | 357 | 28.89 | 733.7 | 30.18 | 766.6 | 40.1 | 4.5 | 72.3 | 1 | 5 | 3 | 6 | 9 | 2 | ..... | 1 | 3 | ..... | ..... | 6 | 0.13 | 3.2 |
| Hermannstadt | N. 45 47 | E. 24 13 | 1.45 p.m. | 1352 | 412 | 28.66 | 728.0 | 30.15 | 765.7 | 34.7 | 1.5 | 83.0 | 1 | 4 | 7 | 1 | 6 | 9 | 2 | ..... | ..... | ..... | ..... | 8 | 0.83 | 21.1 |
| Kremsmunster | N. 48 03 | E. 14 08 | 1.04 p.m. | 1260 | 384 | 28.79 | 731.2 | 30.19 | 766.7 | 36.7 | 2.6 | 86.7 | 1 | 2 | 7 | 1 | ..... | ..... | 7 | 2 | 10 | ..... | ..... | 8 | 1.67 | 42.4 |
| Lemberg | N. 49 50 | E. 24 00 | 1.44 p.m. | 978 | 298 | 29.08 | 738.6 | 30.11 | 764.8 | 35.2 | 1.8 | 78.4 | 4 | 4 | 8 | 6 | 2 | 2 | ..... | 4 | ..... | ..... | ..... | 8 | 3.32 | 84.3 |
| Pola | N. 44 52 | E. 13 51 | 1.04 p.m. | 105 | 32 | 30.02 | 762.5 | 30.13 | 765.3 | 50.2 | 10.1 | 65.2 | ..... | 4 | 6 | 1 | 1 | 1 | 6 | 9 | 2 | ..... | ..... | 4 | 1.94 | 49.2 |
| Szathmar | N. 47 46 | E. 22 53 | 1.39 p.m. | 430 | 131 | 29.63 | 752.7 | 30.13 | 765.3 | 36.3 | 2.4 | 80.0 | 0 | ..... | 5 | 2 | 11 | 3 | 1 | 2 | ..... | ..... | ..... | 7 | 2.08 | 52.9 |
| Szegedin.c | N. 46 15 | E. 20 10 | 1.29 p.m. | 256 | 78 | 29.82 | 757.5 | 30.12 | 765.0 | 36.5 | 2.5 | 84.4 | 2 | 1 | 5 | ... | 7 | ..... | ..... | 2 | 10 | ..... | ..... | 7 | 1.05 | 26.6 |
| Trieste | N. 45 39 | E. 13 46 | 1.04 p.m. | 85 | 26 | 30.06 | 763.6 | 30.16 | 766.1 | 49.3 | 9.6 | 52.5 | ..... | 3 | 5 | 3 | ..... | 4 | 4 | 9 | 2 | ..... | ..... | 3 | 0.99 | 25.2 |
| Vienna | N. 48 12 | E. 16 22 | 1.14 p.m. | 663 | 202 | 29.45 | 747.9 | 30.19 | 766.7 | 37.6 | 3.1 | 77.6 | 2 | 7 | 7 | ..... | ..... | 8 | 2 | 2 | 2 | ..... | ..... | 7 | 0.93 | 23.7 |
| BELGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arlon | N. 49 40 | E. 5 48 | 0.32 p.m. | ? | ? | ..... | ..... | ..... | ..... | 38.3 | 3.5 | d89.2 | 2 | 1 | 2 | 5 | 7 | 1 | 5 | 7 | .... | ..... | ..... | 6 | 0.81 | 20.5 |
| Brussels | N. 50 51 | E. 4 22 | 0.26 p.m. | 187 | 57 | 29.95 | 760 8 | 30.16 | 766.0 | 43.5 | 6.4 | 78.7 | 1 | 1 | 2 | 12 | 5 | ..... | 6 | 3 | ..... | ..... | ..... | 5 | 0.87 | 22.1 |
| Furnes | N. 51 04 | E. 2 40 | 0.19 p.m. | 20 | 6 | 30.12 | 765.0 | 30.14 | 765.6 | 46.0 | 7.8 | 82.7 | 2 | ..... | 6 | 2 | 9 | ... | 2 | 9 | ..... | ..... | ..... | 6 | 2.07 | 52.5 |
| Maseyck | N. 51 06 | E. 5 48 | 0.32 p.m. | 115 | 35 | 30.03 | 762.8 | 30.16 | 766.1 | 45.4 | 7.4 | d75.8 | 2 | 1 | 9 | 6 | ..... | ..... | 10 | 2 | ..... | ..... | ..... | 6 | 0.86 | 21.8 |
| BRITISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aberdeen | N. 57 10 | W. 2 06 | 0.00 m. | 89 | 27 | 29.95 | 760.7 | 30.05 | 763.3 | 42.6 | 5.9 | 75.8 | 1 | 5 | 12 | 3 | 6 | 3 | ..... | ..... | ..... | ..... | ..... | 6 | 3.43 | 87.1 |
| Bidston | N. 53 24 | W. 3 04 | 11.56 a.m. | 197 | 60 | ..... | ..... | 30.13 | 765.3 | 45.4 | 7.4 | 76.0 | 5 | 3 | 5 | 5 | 1 | 8 | 2 | 1 | ..... | ..... | ..... | 6 | ..... | ..... |
| Bolton | N. 53 35 | W. 2 28 | 11.58 a.m. | 500 | 152 | 29.57 | 751.1 | 30.11 | 764.8 | 43.4 | 6.3 | 82.3 | 5 | 6 | 1 | 5 | 3 | 7 | 1 | 2 | ..... | ..... | ..... | 7 | ..... | ..... |
| Bradford | N. 53 48 | W. 1 47 | 0.01 p.m. | 366 | 111 | 29.71 | 754.6 | 30.10 | 764.5 | 45.0 | 7.2 | 76.0 | 0 | 6 | 2 | 5 | 5 | 5 | ..... | 1 | ..... | ..... | ..... | 8 | 1.07 | 27.2 |
| Bridgetown | N. 13 04 | W. 59 37 | 8.10 a.m. | 28 | 9 | 29.91 | 759.7 | 29.94 | 760.5 | 81.2 | 27.3 | 82.6 | ..... | ..... | ..... | ..... | ..... | 1 | 9 | 20 | ..... | ..... | ..... | 6 | ..... | ..... |
| Cardington | N. 52 08 | W. 0 27 | 0.06 p.m. | 109 | 33 | 30.04 | 763.0 | 30.16 | 766.1 | 43.0 | 6.1 | 84.6 | 7 | 5 | 2 | 5 | 4 | 3 | 4 | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Chatham | N. 51 25 | E. 0 33 | 0.10 p.m. | 160 | 49 | 29.98 | 761.5 | 30.15 | 765.8 | 45.6 | 7.6 | 79.8 | 5 | ..... | 1 | 5 | 1 | 1 | 4 | 2 | 11 | ..... | ..... | 7 | ..... | ..... |
| Falmouth | N. 50 09 | W. 5 04 | 11.48 a.m. | 211 | 64 | 29.95 | 760.7 | 30.19 | 766.8 | 49.3 | 9.6 | 76.8 | 0 | 7 | 2 | 3 | 5 | 4 | 2 | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Fort Napier | S. 30 | E. 31 | 2.12 p.m. | 2294 | 699 | 27.55 | 699 8 | 29.86 | 758.4 | 74.8 | 23.8 | 60.3 | ..... | ..... | 5 | ..... | ..... | 3 | 7 | 8 | 7 | ..... | ..... | 6 | ..... | ..... |
| Freetown | N. 8 30 | W. 13 14 | 11.15 a.m. | 224 | 68 | 29.65 | 753.1 | 29.88 | 758.9 | 85.1 | 29.5 | 87.8 | 3 | ..... | 6 | 1 | 14 | 1 | 5 | ..... | ..... | ..... | ..... | 3 | ..... | ..... |
| Galway | N. 53 15 | W. 9 03 | 11.32 a.m. | 32 | 10 | 30.04 | 763.0 | 30.08 | 764.0 | 45.7 | 7.6 | 81.9 | 3 | 9 | 3 | 8 | 1 | 3 | 1 | 2 | ..... | ..... | ..... | 6 | 4.63 | 117.6 |
| Gibraltar | N. 36 09 | W. 5 21 | 11.47 a.m. | 50 | 15 | 29 93 | 760.2 | 30.05 | 763 3 | 61.4 | 16.3 | 86.5 | ..... | 4 | ..... | ..... | ..... | ..... | 8 | 17 | 1 | ..... | ..... | 7 | ..... | ..... |
| Greenwich | N. 51 29 | 0 00 | 0.08 p.m. | 159 | 48 | 29.98 | 761.5 | 30.16 | 766.1 | 45.5 | 7.5 | 80.5 | 8 | 2 | 2 | 4 | 5 | 3 | 3 | 3 | ..... | ..... | ..... | 7 | ..... | ..... |
| Guernsey | N. 49 27 | W. 2 41 | 11.58 a.m. | 275 | 84 | 29.88 | 758.9 | 30.18 | 766.6 | 48.8 | 9.3 | 75.9 | 4 | 10 | 1 | 1 | 5 | 1 | 5 | 3 | ..... | 6309 | 10153 | 6 | 2.03 | 51.6 |
| Kew | N. 51 28 | W. 0 19 | 0.07 p.m. | 34 | 10 | 30.13 | 765 3 | 30.16 | 766 1 | 45.6 | 7.6 | 73.2 | 6 | 6 | 2 | 5 | 5 | 1 | 4 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Leicester | N. 52 39 | W. 1 08 | 0.04 p.m. | 245 | 75 | 29.87 | 758.7 | 30.13 | 765.3 | 45.7 | 7.6 | 77.0 | 3 | 5 | ..... | 13 | ..... | 4 | 1 | 4 | ..... | ..... | ..... | 7 | ..... | ..... |
| Malta | N. 36 00 | E. 14 30 | 1.06 p.m. | 70 | 21 | 29.98 | 761.5 | 30.06 | 763.5 | 63.9 | 17.7 | 77.5 | 1 | 8 | ..... | ..... | ..... | 5 | 3 | 13 | ..... | ..... | ..... | 6 | 4.71 | 119.6 |
| Nassau | N. 25 04 | W. 77 22 | 6.58 a.m. | 44 | 13 | 30.01 | 762.2 | 30.06 | 763.5 | 76.6 | 24.8 | 83.6 | ..... | ..... | ..... | 3 | ..... | 6 | 11 | 10 | ..... | ..... | ..... | 5 | ..... | ..... |
| Oxford | N. 51 46 | W. 1 17 | 0.03 p.m. | 210 | 64 | 29.93 | 760 2 | 30.16 | 766.1 | 45.1 | 7.3 | 78.4 | 4 | 5 | 1 | 4 | 8 | 3 | 1 | 3 | 1 | ..... | ..... | 8 | ..... | ..... |
| Plymouth.a | N. 50 22 | W. 4 10 | 11.51 a.m. | 69 | 21 | 30.09 | 764 3 | 30.16 | 766.1 | 47.2 | 8.4 | 85.7 | 4 | 5 | 3 | 5 | 3 | 2 | 4 | 3 | ..... | ..... | ..... | 7 | ..... | ..... |
| Sandwick Manse | N. 59 05 | W. 3 20 | 11.54 a.m. | 94 | 29 | 29.88 | 758.9 | 29.98 | 761.5 | 43.3 | 6.3 | 85.6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Scutari Cemet'y | N. 41 00 | E. 29 03 | 2.04 p.m. | 60 | 18 | 29.99 | 761.7 | 30.06 | 763.5 | 51.0 | 10.6 | 74.8 | 0 | ..... | 1 | 5 | 1 | 2 | 2 | 13 | ..... | ..... | ..... | 8 | ..... | ..... |
| Silloth Rectory | N. 54 52 | W. 3 22 | 11.54 a.m. | 28 | 9 | 30.06 | 763.5 | 30.09 | 764.3 | 44.5 | 6.9 | 80.4 | 5 | 1 | 7 | 0 | 3 | 1 | 0 | 1 | ..... | ..... | ..... | 5 | 1.72 | 43 7 |
| Stonyhurst.a | N. 53 51 | W. 2 28 | 11.58 a.m. | 361 | 110 | ..... | ..... | 30.15 | 765.8 | 43.9 | 6.6 | 77.4 | 6 | 4 | 2 | 4 | 4 | 3 | 1 | 5 | ..... | ..... | ..... | 8 | 1.49 | 37.8 |
| Valencia | N. 51 55 | W. 10 18 | 11.27 a.m. | 23 | 7 | 30.16 | 766.1 | 30.18 | 766.6 | 48.0 | 8.9 | 81.5 | 7 | 3 | 7 | ... | 4 | 2 | 2 | 5 | ..... | ..... | ..... | 7 | ..... | ..... |
| *Sub-series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gozo | N. 36 01 | E. 14 16 | 1.05 p.m. | 364 | 111 | 29.70 | 754.4 | 30.09 | 764.3 | 63.0 | 17.2 | 64.7 | 5 | 6 | 1 | 2 | 3 | 3 | 10 | ..... | ..... | 4230 | 6807 | 7 | 5.53 | 140.5 |
| CANADIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bathurst.e | N. 47 39 | W. 65 43 | 7.45 a m. | 35 | 11 | 29.86 | 758.4 | 29.90 | 759.4 | 26.7 | —2.9 | ..... | ..... | ..... | 2 | 3 | 7 | 3 | ..... | 1 | 9 | ..... | ..... | 8 | 2.42 | 61.5 |
| Charlottetown | N. 46 14 | W. 63 10 | 7.55 a.m. | 38 | 12 | 29.88 | 758.9 | 29.92 | 760.0 | 33.2 | 0.7 | 82.3 | 1 | 7 | 10 | 3 | 4 | 3 | ..... | 1 | 1 | 6941 | 11170 | 7 | 5.59 | 142.0 |
| Chatham | N. 47 03 | W. 65 29 | 7.45 a.m. | 56 | 17 | 29.87 | 758 7 | 29.93 | 760 2 | 26.2 | —3.2 | 90.4 | 3 | 5 | 9 | 7 | 2 | 1 | ..... | 3 | ..... | 3958 | 6370 | 7 | 3.78 | 96.0 |
| Cornwall | N. 45 01 | W. 74 43 | 7.09 a.m. | 175 | 53 | 29.76 | 755.9 | 29.96 | 761.0 | 29.1 | —1.6 | 89.1 | 2 | 7 | 11 | 2 | ..... | ..... | 5 | 2 | 1 | ..... | ..... | 7 | 2.49 | 63.2 |
| Dalhousie | N. 48 04 | W. 66 22 | 7.32 a m. | 45 | 14 | 29.88 | 758 9 | 29.93 | 760.2 | 24.5 | —4.2 | ..... | ..... | ..... | ..... | 14 | ..... | ..... | 4 | ... | 12 | ..... | ..... | 9 | 2.77 | 70.4 |
| Father Point | N. 48 31 | W. 68 28 | 7.34 a.m. | 20 | 6 | 29.89 | 759.2 | 29.91 | 759.7 | 24.2 | —4.3 | 84.4 | 3 | 5 | 4 | 9 | 2 | .... | 2 | 2 | 3 | 13125 | 21122 | 9 | 3.33 | 84.6 |
| Fort Garry | N. 49 51 | W. 97 07 | 5.39 a.m. | 754 | 230 | 29.23 | 742.4 | 30.13 | 765.3 | 14.2 | —9.9 | 87.0 | 9 | 6 | 2 | 3 | 5 | 2 | 1 | ..... | 2 | 7532 | 12121 | 8 | 0.83 | 21.1 |
| Fredericton | N. 45 57 | W. 66 38 | 7.41 a.m. | 59 | 18 | 29.91 | 759.7 | 29.98 | 761.5 | 28.2 | —2.1 | 82.4 | 1 | 12 | 6 | 2 | 1 | 1 | 1 | 5 | 1 | ..... | ..... | 6 | 4.28 | 108.7 |
| Grand Manan | N. 44 46 | W. 66 45 | 7.41 a.m. | 49 | 15 | 29.92 | 760.0 | 29.97 | 761.2 | 35.3 | 1.8 | 80.2 | 3 | 10 | 5 | 2 | 3 | 1 | 1 | 2 | 3 | 8894 | 14313 | 6 | 5.31 | 134.9 |
| Granton | N. 43 12 | W. 81 21 | 6.43 a.m. | 1015 | 309 | 28 91 | 734 3 | 30.06 | 763 5 | 31.0 | —0.6 | ..... | ..... | 5 | 6 | 4 | 1 | 2 | ..... | 2 | 10 | ..... | ..... | 7 | 2.53 | 64.3 |
| Halifax | N. 44 39 | W. 63 36 | 7.53 a.m. | 122 | 37 | 29.86 | 758.4 | 29.99 | 761.7 | 35.7 | 2.1 | 84.7 | 4 | 1 | 17 | 3 | 3 | 1 | 1 | ..... | ..... | ..... | ..... | 6 | 6.83 | 173.5 |
| Hamilton | N. 43 16 | W. 79 53 | 6.49 a.m. | 350 | 107 | 29.58 | 751.3 | 30.00 | 762 0 | 34.3 | 1.3 | 90.2 | ..... | 5 | 1 | 20 | ..... | ..... | ..... | 4 | ... | ..... | ..... | 7 | 2.93 | 74.2 |
| Kingston | N. 44 14 | W. 76 30 | 7.02 a.m. | 307 | 94 | 29.07 | 753 0 | 30.02 | 762.5 | 33.1 | 0.6 | 83.4 | 4 | 5 | 10 | 4 | 2 | ..... | ..... | 5 | ..... | 6127 | 9860 | 8 | 3.49 | 88.6 |
| LittleGlace Bay | N. 46 12 | W. 59 58 | 8.08 a.m. | 34 | 10 | 29.84 | 757 9 | 29.88 | 758 9 | 30.3 | 2.4 | 82.9 | 1 | 0 | 7 | 6 | 5 | 2 | ..... | 3 | ..... | ..... | ..... | 8 | ..... | ..... |
| London | N. 43 00 | W. 81 15 | 6.43 a.m. | 816 | 248 | 29.12 | 739 6 | 30.07 | 763.8 | 31.2 | —0.4 | 89.7 | 1 | 2 | 4 | 3 | 1 | 1 | 3 | ..... | 15 | ..... | ..... | 7 | 5.25 | 133.3 |
| Medicine Hat.b | N. 50 01 | W. 110 37 | 4.46 a.m. | 2130 | 651 | 27.67 | 702.8 | 30.05 | 763.3 | 26.1 | —3.3 | 77.9 | 1 | 1 | 3 | 5 | ..... | ..... | ..... | 2 | 16 | 4495 | 7234 | 3 | 0.96 | 24.4 |
| Minnedosa | N. 50 13 | W. 99 48 | 5.29 a.m. | 1796 | 545 | 28.05 | 712.5 | 30.12 | 765.0 | 13.8 | —10.1 | 92.5 | 1 | 21 | 2 | 1 | ..... | 1 | 1 | 3 | ..... | ..... | ..... | 4 | 0.79 | 20.1 |
| Montreal | N. 45 31 | W. 73 33 | 7.13 a.m. | 187 | 57 | 29.78 | 756.4 | 30.00 | 762.0 | 28.8 | —1.8 | 81.2 | 1 | 2 | 12 | 6 | 5 | 1 | 1 | 1 | ..... | ..... | ..... | 7 | 2.60 | 66.0 |
| Ottawa | N. 45 26 | W. 75 41 | 7.05 a.m. | 224 | 68 | 29.73 | 755.1 | 29.99 | 761.7 | 28.0 | —2.2 | 90.4 | 4 | 2 | 8 | 5 | 4 | ..... | 3 | 3 | 1 | ..... | ..... | 7 | 2.11 | 53.6 |
| Parry Sound | N. 45 19 | W. 80 01 | 6.48 a.m. | 635 | 194 | 29.27 | 743.4 | 29.59 | 761.7 | 28.5 | —1 9 | 86.8 | 5 | 1 | 6 | 2 | 2 | 1 | 7 | 3 | 3 | 8251 | 13278 | 7 | 3.19 | 81.0 |
| Peterboro. a | N. 44 17 | W. 78 18 | 6.54 a.m. | 688 | 210 | 29.26 | 743.2 | 30.01 | 762.2 | 29.6 | —1.3 | 91.0 | ..... | 4 | : | 5 | 1 | 1 | 2 | 4 | 11 | ..... | ..... | 5 | 2.06 | 52.3 |
| Port Arthur | N. 48 27 | W. 89 12 | 6.11 a.m. | 642 | 196 | 29.28 | 743.7 | 30.03 | 762.7 | 19.1 | —7.2 | 85.8 | 4 | 5 | 5 | ..... | ..... | ..... | ..... | 1 | 14 | 3533 | 5686 | 0 | 0 72 | 18.3 |
| Port Dover | N. 42 47 | W. 80 13 | 6.47 a.m. | 635 | 194 | 29.33 | 745.0 | 30.05 | 763.3 | 33.8 | 1.0 | 99.2 | 3 | 4 | 9 | 5 | 1 | ..... | ..... | 2 | 6 | 5600 | 9012 | 7 | 1.94 | 49.3 |
| Port Stanley | N. 42 40 | W. 81 13 | 6.43 a.m. | 592 | 180 | 29.38 | 746.2 | 30.05 | 763.3 | 32.8 | 0.4 | 87.1 | 1 | 1 | 16 | 2 | 2 | ..... | 4 | 1 | 3 | ..... | ..... | 6 | 2.66 | 67.6 |
| Qu' Appelle.a | N. 50 44 | W.103 42 | 5.13 a.m. | 2115 | 646 | 27.72 | 704.1 | 30.13 | 765 3 | 17.2 | —8.2 | 86.6 | 1 | 5 | 2 | 4 | 6 | ..... | ..... | ..... | 11 | 6663 | 10723 | 5 | 0.43 | 10.9 |
| Quebec | N. 46 48 | W. 71 12 | 7.23 a.m. | 293 | 89 | 29.58 | 751.3 | 29.96 | 761.0 | 25.0 | —3.9 | 94.4 | ..... | ..... | 7 | 7 | 1 | ..... | 2 | 4 | 9 | ..... | ..... | 8 | 4.41 | 112.0 |
| Rockliffe | N. 46 10 | W. 77 48 | 6.57 a.m. | 418 | 127 | 29.49 | 749.0 | 29.97 | 761.2 | 25.3 | —3.7 | 83.2 | ..... | 9 | 5 | ..... | ..... | 8 | 1 | 1 | 6 | ..... | ..... | 7 | 2.27 | 57.7 |
| Saint Andrews | N. 45 04 | W. 81 06 | 6.34 a.m. | 47 | 14 | 29.89 | 759.2 | 29.94 | 760 5 | 33.2 | 0.7 | 84.8 | 2 | 12 | 6 | 1 | 1 | 2 | 2 | ..... | 4 | ..... | ..... | 4 | 2.43 | 61.7 |
| Saint John, N.B | N. 45 17 | W. 66 03 | 7.44 a.m. | 116 | 35 | 29.81 | 757.2 | 29.96 | 761 0 | 35.5 | 1.9 | 86.6 | 2 | 5 | 13 | ..... | 3 | 1 | 1 | 2 | 3 | ..... | ..... | 6 | 4.81 | 122.2 |
| Saint Pierre | N. 46 47 | W. 56 08 | 8.24 a.m. | ? | ? | ..... | ..... | 29.87 | 758.7 | 37.0 | 2.8 | ..... | 2 | 6 | 4 | 9 | 2 | 2 | 2 | 3 | ..... | ..... | ..... | ..... | 5.06 | 128.5 |
| Saugeen | N. 44 30 | W. 81 21 | 6.42 a.m. | 636 | 200 | 29.26 | 743.2 | 30.00 | 762.0 | 33.3 | 0.7 | 88.0 | 2 | 4 | 6 | 4 | 6 | 2 | 2 | 3 | 1 | 10805 | 17389 | 8 | 3.14 | 79.8 |
| Stratford | N. 43 23 | W. 81 00 | 6.44 a.m. | 1186 | 361 | 28.73 | 729.7 | 30.06 | 763.5 | 30.1 | —1 1 | 88.5 | 2 | 2 | 3 | 0 | 2 | 1 | 1 | 3 | 10 | ..... | ..... | 8 | 6.68 | 169.7 |
| Sydney | N. 46 08 | W. 60 10 | 8.07 a.m. | 37 | 11 | 29.86 | 758.4 | 29.93 | 760.2 | 35.7 | 2.1 | 82.6 | 1 | 5 | 8 | 6 | 6 | 1 | ..... | 2 | 1 | 9212 | 14825 | 8 | 9.38 | 238.2 |
| Toronto | N. 43 39 | W. 79 23 | 6.50 a.m. | 350 | 107 | 29.64 | 752.8 | 30.04 | 763 0 | 31.9 | —0.1 | 84.6 | 5 | 2 | 7 | 8 | ..... | 1 | 2 | 5 | ..... | 7808 | 12566 | 8 | 2.35 | 59.7 |
| Woodstock | N. 43 08 | W. 80 47 | 6.48 a.m. | 980 | 299 | 28.95 | 735.3 | 30.06 | 763 5 | 31.3 | —0.4 | 89.9 | 2 | 2 | 5 | 10 | 6 | 1 | 2 | 2 | ..... | ..... | ..... | 7 | 2.72 | 69.1 |
| Yarmouth | N. 43 50 | W. 66 02 | 7.44 a.m. | 61 | 19 | 29.90 | 759.4 | 30.00 | 762.0 | 38.5 | 3.6 | 84.8 | 1 | 10 | 3 | 3 | 3 | 3 | 6 | ..... | 1 | ..... | ..... | 7 | 3.61 | 91.7 |
| CAPE COLONY | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape St. Francis | S. 34 10 | E. 24 50 | 1.47 p.m. | 25 | 8 | 30.01 | 762.2 | 30.04 | 763.0 | 66.3 | 19.1 | 83.5 | ..... | ..... | ..... | 20 | 1 | 6 | ..... | 3 | ..... | ..... | ..... | 4 | 2.54 | 64.5 |
| Cape Town.a | S. 34 02 | E. 18 29 | 1.22 p.m. | ? | ? | 29.94 | 760.5 | ..... | ..... | 66.7 | 19.3 | 50.8 | 1 | 11 | 1 | 1 | ..... | 9 | ..... | 6 | ..... | ..... | ..... | 4 | 2.24 | 56.9 |
| Springbok.c | S. 29 45 | E. 17 43 | 1.19 p.m. | ? | ? | 27.89 | 708.4 | ..... | ..... | 73.8 | 23.2 | 31.8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0.08 | 2.0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for November, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| CHILIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coquimbo | S. 29 56 | W. 71 21 | 7.22 a.m. | 72 | 22 | 29.92 | 759.9 | 30.00 | 761.9 | 59.4 | 15.2 | 89.0 | 11 | ..... | 5 | 6 | ..... | 7 | ..... | 1 | ..... | ..... | ..... | 7 | 0.05 | 1.3 |
| Iquique | S. 20 12 | W. 70 11 | 7.27 a m | 26 | 8 | 29.95 | 760 8 | 29.98 | 761.5 | 65.8 | 18.8 | 68.0 | ..... | 1 | 1 | 24 | ..... | 2 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... |
| Niebla | S 39 53 | W. 73 25 | 7.14 a.m. | 98 | 30 | 29.59 | 751.5 | 29.69 | 754.2 | 54.9 | 12.7 | 76.0 | ..... | 6 | 3 | 1 | ..... | ..... | 20 | ..... | ..... | ..... | ..... | 4 | 2.95 | 75.0 |
| Punta Caldera | S 27 03 | W. 70 53 | 7.25 a.m. | 82 | 25 | 29.95 | 760.6 | 30.03 | 762.8 | 61.3 | 16.3 | 78.0 | 2 | 16 | ..... | 5 | ..... | 2 | ..... | 5 | ... | ..... | ..... | 7 | ..... | ..... |
| Punta Corona | S. 41 47 | W. 73 53 | 7.12 a.m. | 174 | 53 | 29.94 | 760.5 | 30.13 | 765.3 | ..... | ..... | ..... | 3 | 7 | 14 | 4 | ..... | 1 | 1 | ..... | ..... | ..... | ..... | 5 | 3.76 | 95.4 |
| Quiriquina | S. 36 37 | W. 73 03 | 7.25 a.m. | 187 | 57 | 29.82 | 757.4 | 30.02 | 762.5 | 59.4 | 15.2 | 67.0 | 1 | 1 | 3 | 7 | 13 | 5 | ..... | ..... | ..... | ..... | ..... | 5 | 0.73 | 18.6 |
| Valparaiso | S. 33 02 | W. 71 39 | 7.22 a.m. | 131 | 40 | 29.87 | 758.8 | 30.02 | 762.4 | 59.5 | 15.3 | 83.0 | 10 | 1 | ..... | 7 | 7 | 1 | 4 | ..... | ..... | ..... | ..... | 4 | 0.24 | 6.0 |
| CHINESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hong Kong | N. 22 18 | E.114 04 | 7.45 p.m. | 110 | 33 | 30.00 | 762.0 | 30.12 | 765.0 | 67.5 | 19.7 | 68.0 | 11 | ..... | 1 | ..... | ..... | 1 | 15 | 2 | ..... | ..... | ..... | 5 | 1.50 | 38.1 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zi-Ka-Wei | N. 31 12 | E.121 26 | 8.14 p.m. | 23 | 7 | 30.28 | 769.1 | 30.30 | 769 7 | 45.5 | 7.5 | 80.6 | 8 | 9 | 4 | ..... | 1 | 1 | 3 | 4 | ..... | ..... | ..... | 5 | 5.79 | 147.0 |
| DANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copenhagen | N. 55 41 | E. 12 36 | 0.58 p.m. | 43 | 13 | 30.04 | 763.0 | 30.09 | 764.2 | 37.9 | 3.3 | 84.0 | 2 | 6 | 4 | 3 | 4 | 4 | 6 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Fanöe | N. 55 27 | E. 8 24 | 0.42 p.m. | 20 | 6 | 30.06 | 763.6 | 30.08 | 764.1 | 38.7 | 3.7 | 88 | 4 | 4 | 2 | 6 | 3 | 6 | ..... | 3 | 2 | ..... | ..... | 6 | ..... | ..... |
| Stykkisholm | N. 65 05 | W. 22 46 | 10.37 a.m. | 36 | 11 | 29.69 | 754.2 | 29.74 | 755.3 | 34.0 | 1.1 | 86 | ..... | ..... | 5 | 5 | 1 | 7 | 2 | 7 | 3 | ..... | ..... | 8 | ..... | ..... |
| Thorshavn | N. 62 02 | W. 6 44 | 11.41 a.m. | 29 | 9 | 29.88 | 759.0 | 29.91 | 759.6 | 40.8 | 4.9 | 81 | 9 | 4 | 1 | 8 | 3 | 2 | 1 | ..... | 2 | ..... | ..... | 7 | ..... | ..... |
| Vestervig | N. 56 47 | E. 8 20 | 0.41 p.m. | 82 | 25 | 29.98 | 761.4 | 30.07 | 763.7 | 39.2 | 4.0 | 87 | ..... | 2 | 3 | 2 | 4 | 8 | 2 | 4 | 5 | ..... | ..... | 5 | ..... | ..... |
| Egyptian. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cairo | N. 30 03 | E. 31 21 | 2.14 p.m. | ? | ? | 29.94 | 760.5 | ..... | ..... | 72.7 | 22.6 | ..... | 9 | 3 | 4 | 2 | 4 | ..... | 2 | 6 | ..... | ..... | ..... | 3 | Inap. | Inap. |
| FRENCH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agen | N. 44 12 | E. 0 38 | 0.11 p.m. | 604 | 184 | 29.59 | 751.6 | 30.27 | 768 8 | 49.1 | 9.5 | 83.0 | 1 | 5 | 5 | 1 | 2 | 13 | 1 | 2 | ..... | ..... | ..... | 6 | 0.04 | 1.1 |
| Alençon | N. 48 26 | E. 0 05 | 0.09 p.m. | 476 | 145 | 29.69 | 754.0 | 30.24 | 768.0 | 45.1 | 7.3 | 80.4 | 5 | 1 | 1 | 2 | 7 | ..... | ..... | 14 | ..... | ..... | ..... | 5 | 0.74 | 18.9 |
| Arras | N. 50 18 | E. 2 46 | 0.19 p.m. | 223 | 68 | 29.93 | 760.2 | 30.17 | 766 4 | 44.4 | 6.9 | 75.3 | 5 | 2 | 5 | 3 | ..... | 7 | 2 | 6 | ..... | ..... | ..... | 5 | 0.62 | 15.8 |
| Avignon | N. 43 57 | E. 4 48 | 0.27 p.m | 65 | 20 | 30.17 | 766.2 | 30.24 | 768.2 | 51.8 | 11.0 | 58.6 | 29 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 2 | 0.80 | 20.2 |
| Bar-sur-Seine | N. 48 07 | E. 4 22 | 0.25 p.m. | 518 | 158 | 29.62 | 752.4 | 30.20 | 767.0 | 43.2 | 6.2 | 81.9 | ..... | ..... | ..... | 6 | 6 | 10 | 6 | 2 | ..... | ..... | ..... | 7 | 1.54 | 39.0 |
| Beauvais | N. 49 26 | E. 2 05 | 0.16 p.m. | 246 | 75 | 29.93 | 760 2 | 30.21 | 767.2 | 44.2 | 6.8 | 73.0 | 3 | 3 | 3 | 3 | 2 | 3 | 8 | 5 | ..... | ..... | ..... | 5 | 0.86 | 21.8 |
| Besançon | N. 47 14 | E. 6 02 | 0.32 p.m. | 846 | 258 | 29.22 | 742.2 | 30.14 | 765.5 | 45.1 | 7.3 | 84.6 | 5 | ..... | 1 | 8 | 2 | ..... | 3 | 11 | ..... | ..... | ..... | ..... | 1.76 | 44.6 |
| Bordeaux | N. 44 50 | E. 0 32 | 0.06 p.m. | 243 | 74 | 29.92 | 760.0 | 30.19 | 766.8 | 50.4 | 10.2 | 74.6 | 8 | 4 | 1 | 2 | 1 | 10 | 3 | 1 | ..... | ..... | ..... | 5 | 0.58 | 14.6 |
| Bourges | N. 47 10 | E. 2 26 | 0.17 p.m. | 510 | 156 | 29.62 | 752.4 | 30.19 | 766.8 | 46.6 | 8.1 | 80.9 | 6 | ..... | 2 | 4 | 1 | 1 | 6 | 10 | ..... | ..... | ..... | 6 | 1.00 | 25.4 |
| Brest | N. 48 24 | W. 4 30 | 11.50 a.m. | 210 | 64 | 29.97 | 761.3 | 30.22 | 767.5 | 51.1 | 10.6 | 77.6 | 3 | 3 | 3 | 1 | 6 | 2 | 4 | 7 | 1 | ..... | ..... | 6 | 0.78 | 19.8 |
| Caen | N. 49 11 | W. 0 21 | 0.07 p.m. | 69 | 21 | 30.14 | 765.6 | 30.21 | 767.4 | 46.8 | 8.2 | 82.4 | 9 | 4 | ..... | 2 | 2 | 5 | 3 | 5 | ..... | ..... | ..... | ..... | 1.77 | 45.0 |
| Châlons sur Marne | N. 48 57 | E. 4 21 | 0.25 p.m. | 292 | 89 | 29.89 | 759.3 | 30.21 | 767.4 | 43.9 | 6.6 | 89.0 | 4 | 5 | ..... | 3 | 9 | 6 | ..... | 2 | 1 | ..... | ..... | 4 | 0.90 | 22.9 |
| Charleville | N. 49 46 | E. 4 49 | 0.27 p.m. | 476 | 145 | 29.63 | 752.6 | 30.15 | 765.8 | 43.5 | 6.4 | 74.3 | 2 | 4 | 1 | 4 | 8 | 6 | 3 | 2 | ..... | ..... | ..... | 6 | 0.52 | 13.2 |
| Clermont-Fer'and | N. 45 46 | E. 3 05 | 0.20 p.m. | 1273 | 388 | 28.80 | 731.4 | 30.18 | 766.6 | 46.9 | 8.3 | 65.7 | 9 | 7 | 6 | ..... | 4 | 2 | 1 | 1 | ..... | ..... | ..... | 6 | 0.98 | 24.8 |
| Cluny | N. 46 26 | E. 4 39 | 0.27 p.m. | 787 | 240 | 29.37 | 745.9 | 30.22 | 767 7 | 44.2 | 6.8 | 79.9 | 5 | 1 | 1 | 1 | 11 | 3 | 1 | 5 | 2 | ..... | ..... | 6 | 1.16 | 29.6 |
| Commercy | N. 48 46 | E. 5 35 | 0.30 p.m. | 797 | 243 | 29.31 | 744.4 | 30.17 | 766.4 | 41.0 | 5.0 | 87.8 | 3 | 5 | 6 | 2 | 1 | 2 | 11 | ..... | ..... | ..... | ..... | 6 | 2.26 | 57.3 |
| Gap | N. 44 33 | E. 6 05 | 0.32 p.m. | 2424 | 739 | 27.56 | 700.1 | 30.14 | 765.6 | 47.5 | 8.6 | 55.4 | ..... | 1 | 1 | 2 | 2 | 1 | 2 | 2 | 19 | ..... | ..... | ..... | 0.37 | 9.5 |
| Gréasque | N. 43 25 | E. 5 37 | 0.31 p.m. | 1056 | 322 | 28.98 | 736.2 | 30.12 | 765.1 | 53.1 | 11.7 | 40.5 | 8 | 13 | ..... | ..... | 1 | 4 | 1 | 3 | ..... | ..... | ..... | 2 | 0.06 | 1.5 |
| Grenoble | N. 45 12 | E. 5 43 | 0.31 p.m. | 715 | 218 | 29.41 | 747.0 | 30.20 | 767.1 | 45.0 | 7.2 | 76.8 | 3 | 3 | 1 | 2 | 2 | 6 | 10 | 3 | ..... | ..... | ..... | 4 | 0.48 | 12.2 |
| Guéret | N. 46 10 | E. 1 52 | 0.16 p.m. | 1486 | 453 | 28.55 | 725.1 | 30.17 | 766.3 | 44.4 | 6.9 | 85.0 | 2 | 4 | 2 | 4 | 5 | 4 | 4 | 4 | 1 | ..... | ..... | 5 | 0.54 | 13.8 |
| Lambre lle | N. 48 28 | W. 2 31 | 11.58 a.m. | 252 | 77 | 29.93 | 760.1 | 30.22 | 767.6 | 47.7 | 8.7 | 85.1 | 7 | 1 | 3 | 3 | 5 | 5 | 5 | 1 | ..... | ..... | ..... | 5 | 2.52 | 64.0 |
| Lescar | N. 43 20 | W. 0 26 | 0.06 p.m. | 525 | 160 | 29.62 | 752.4 | 30.20 | 767 0 | 54.9 | 12.7 | 62.6 | 3 | 2 | 8 | 2 | 1 | 5 | 5 | 4 | ..... | ..... | ..... | 4 | 0.71 | 18.0 |
| Lorient | N. 47 45 | W. 3 21 | 11.55 a.m. | 86 | 26 | 30.12 | 765 0 | 30.22 | 767.6 | 51.3 | 10.7 | 67.0 | 5 | 3 | 4 | ..... | 2 | 4 | 3 | 7 | 2 | ..... | ..... | 6 | 1.33 | 33.8 |
| Lyon | N. 45 41 | E. 2 30 | 0.25 p.m. | 981 | 299 | 29.12 | 739.6 | 30.21 | 767 2 | 43.9 | 6.6 | 73.8 | 5 | 6 | ..... | 1 | 3 | 6 | 6 | 3 | ..... | ..... | ..... | 4 | 0.39 | 10.0 |
| Mans | N. 48 01 | E. 0 12 | 0.09 p.m. | 285 | 87 | 29.92 | 759.9 | 30.24 | 768.0 | 45.7 | 7.6 | 80.0 | 4 | 1 | 3 | 4 | 4 | 2 | 8 | 4 | ..... | ..... | ..... | 5 | 1.28 | 32.5 |
| Marseille | N. 43 18 | E. 5 23 | 0.29 p.m. | 246 | 75 | 29.85 | 758.2 | 30.13 | 765.2 | 55.8 | 13.2 | 52.4 | 1 | 10 | 8 | 1 | 2 | 2 | 6 | ..... | ..... | ..... | ..... | ..... | 0.09 | 2.4 |
| Montlouis | N. 42 30 | E. 2 07 | 0.16 p.m. | 5203 | 1586 | 24.88 | 632.0 | 29.72 | 755.0 | 41.0 | 5.0 | 69.0 | 5 | 5 | 3 | 3 | ..... | 5 | 8 | 1 | ..... | ..... | ..... | 3 | 2.51 | 63.7 |
| Montpellier | N. 43 37 | E. 3 53 | 0.24 p.m. | 118 | 36 | 29.99 | 761.8 | 30.10 | 764.6 | 53.4 | 11.9 | 77.0 | 10 | 5 | 1 | ..... | 1 | 1 | ..... | 12 | ..... | ..... | ..... | 2 | 1.27 | 32.2 |
| Nancy | N. 48 42 | E. 6 11 | 0.33 p.m. | 725 | 221 | 29.40 | 746.7 | 30.19 | 766.8 | 41.4 | 5.2 | 78.1 | 4 | 7 | 2 | 4 | 4 | 4 | ..... | 5 | ..... | ..... | ..... | ..... | 0.40 | 10.1 |
| Nantes | N. 47 13 | W. 1 33 | 0.02 p.m. | 134 | 41 | 30.07 | 763.7 | 30.23 | 767.8 | 48.6 | 9.2 | 75.6 | 6 | 3 | 3 | 1 | 5 | 2 | 6 | 4 | ..... | ..... | ..... | 7 | 0.71 | 18.0 |
| Perpignan | N. 42 42 | E. 2 53 | 0.19 p.m. | 105 | 32 | 30.05 | 763 3 | 30.17 | 766.2 | 54.1 | 12.3 | 63.0 | 2 | 8 | 1 | ..... | 1 | 5 | 6 | 5 | 2 | ..... | ..... | 6 | 5.12 | 130.1 |
| Pic du Midi (Sum- | N. 42 56 | W. 0 08 | 0.08 p.m. | 9380 | 2859 | 21.19 | 538.2 | ..... | ..... | 24.4 | -4.2 | ..... | ..... | 5 | 3 | 6 | 2 | 1 | 3 | 4 | 6 | ..... | ..... | ..... | 3.09 | 78.5 |
| Privas | N. 44 45 | E. 4 36 | 0.26 p.m. | 997 | 304 | 29.10 | 739.1 | 30.19 | 766.9 | 47.8 | 8.8 | 74.1 | 16 | ..... | ..... | ..... | 13 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 0.52 | 13.3 |
| Puy de Dôme | N. 45 46 | E. 2 58 | 0.20 p.m. | 4813 | 1467 | 25.19 | 639.9 | ..... | ..... | 34.0 | 1.1 | 83.1 | 4 | 5 | 5 | 4 | 4 | 4 | 2 | 2 | ..... | ..... | ..... | 6 | 3.37 | 85.6 |
| Rochefort | N. 45 56 | W. 0 58 | 0.04 p.m. | 29 | 9 | 30.19 | 766.9 | 30.22 | 767.7 | 50.9 | 10.5 | 76.2 | 3 | 2 | 2 | 1 | 5 | 3 | 4 | 10 | ..... | ..... | ..... | 5 | 0.63 | 16.0 |
| Roche-sur-Yon | N. 46 40 | W. 1 26 | 0.02 p.m. | 259 | 79 | 29.93 | 760 2 | 30.21 | 767 2 | 48.2 | 9.0 | 79.7 | 3 | 6 | 4 | 5 | 9 | 1 | 1 | 1 | ..... | ..... | ..... | ..... | 0.06 | 1.6 |
| Rodez | N. 44 21 | E. 2 34 | 0.18 p.m. | 2050 | 625 | 27.93 | 710.6 | 30.17 | 766.2 | 45.7 | 7.6 | 75.7 | 5 | 4 | ..... | ..... | 2 | 8 | 8 | 2 | 1 | ..... | ..... | ..... | 0.39 | 9.9 |
| Rouen | N. 49 26 | E. 1 05 | 0.12 p.m. | 39 | 12 | 30.17 | 766 3 | 30.22 | 767.5 | 45.9 | 7.7 | 74.6 | 1 | ..... | ..... | ..... | 2 | 3 | 4 | 2 | 18 | ..... | ..... | 5 | 5.72 | 145.2 |
| Saint Maur | N. 48 48 | E. 2 21 | 0.17 p.m. | 162 | 49 | 30.02 | 762.6 | 30.19 | 766.8 | 44.1 | 6.7 | 79.0 | 7 | 3 | 1 | 6 | 5 | 3 | 1 | 4 | ..... | ..... | ..... | 7 | 0.69 | 17.5 |
| Toulouse | N. 43 37 | E. 1 27 | 0.14 p.m. | 636 | 194 | 29.48 | 748.8 | 30.23 | 767.8 | 51.4 | 10.8 | 72.9 | 3 | 8 | 1 | 2 | 1 | 13 | ..... | 2 | ..... | ..... | ..... | 5 | 0.25 | 6.3 |
| Tours | N. 47 24 | E. 0 41 | 0.11 p.m. | 167 | 51 | 30.02 | 762.4 | 30.21 | 767 3 | 46.9 | 8.3 | 77.0 | 6 | 5 | 3 | 1 | 2 | 3 | ..... | 10 | ..... | ..... | ..... | 5 | 0.92 | 23.4 |
| Versailles | N. 48 48 | E. 2 07 | 0.16 p.m. | 400 | 122 | 29.73 | 755 2 | 30.18 | 766.5 | 43.5 | 6.4 | 74.1 | 3 | 6 | 5 | 4 | ..... | 2 | 7 | 3 | ..... | ..... | ..... | 4 | 0.91 | 23.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| St. Martin du Hinx | N. 43 35 | W. 1 16 | 0.03 p.m. | 131 | 40 | 30.04 | 763.0 | 30.19 | 766.8 | 53.6 | 12.0 | 72 | 8 | 2 | 1 | 2 | 1 | 1 | 11 | 4 | ..... | ..... | ..... | 6 | 1.63 | 41.4 |
| GERMAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ansbach | N. 49 18 | E. 10 36 | 0.50 p.m. | 1358 | 414 | 28.71 | 729.1 | 30.22 | 767.6 | 38.1 | 3.4 | 73.9 | ..... | ..... | 7 | 6 | 2 | 2 | 2 | 6 | 5 | ..... | ..... | 7 | 1.17 | 29.8 |
| Bamberg | N. 49 54 | E. 10 54 | 0.51 p.m. | 787 | 240 | 29.26 | 743.2 | 30.11 | 764.7 | 38.3 | 3.5 | 71.3 | ..... | 5 | 6 | 3 | 2 | 2 | ..... | 2 | 10 | ..... | ..... | 7 | 0.65 | 16.6 |
| Berlin | N. 52 30 | E. 13 19 | 1.02 p.m. | 131 | 40 | 29.95 | 760 7 | 30.10 | 764.6 | 38.8 | 3.8 | 79.7 | 2 | 9 | 3 | 3 | 4 | 2 | 2 | 5 | ..... | ..... | ..... | 7 | 1.28 | 32.4 |
| Breslau | N. 51 07 | E. 17 02 | 1.17 p.m. | 482 | 147 | 29.61 | 752.2 | 30.15 | 765 8 | 37.4 | 3.0 | 79.9 | 4 | 4 | 9 | 5 | 1 | 6 | ..... | 1 | ..... | ..... | ..... | 8 | 2.29 | 58.2 |
| Carlsruhe | N. 49 01 | E. 8 25 | 0.42 p.m. | 413 | 126 | 29.68 | 753 9 | 30.15 | 765 9 | 41.4 | 5.2 | 78.3 | 1 | ..... | ..... | ..... | 13 | 1 | 2 | 4 | 6 | 3 | ..... | 8 | 2.12 | 53.9 |
| Cassel | N. 51 19 | E. 9 28 | 0.46 p.m. | 669 | 204 | 29.41 | 747.0 | 30.14 | 765 5 | 39.2 | 4.0 | 79.2 | 7 | 3 | 2 | 4 | 9 | 1 | 2 | 2 | ..... | ..... | ..... | 6 | 1.79 | 45.4 |
| Frankfort on M | N. 50 08 | E. 8 41 | 0.43 p.m. | 338 | 103 | 29.80 | 757 0 | 30.24 | 768.0 | 40.8 | 4.9 | 77.4 | 6 | 2 | ..... | 5 | 9 | 2 | 5 | ..... | 1 | ..... | ..... | 7 | 0.72 | 18.3 |
| Friedrichshafen | N. 47 39 | E. 9 29 | 0.46 p.m. | 1339 | 408 | 28.74 | 730.1 | 30.21 | 767.4 | 39.7 | 4.3 | 79.6 | 1 | 1 | 7 | 12 | 1 | ..... | ..... | 8 | ..... | ..... | ..... | 8 | 1.56 | 39.7 |
| Hamburg | N. 53 33 | E. 9 58 | 0.48 p.m. | 85 | 26 | 30.05 | 763.2 | 30.19 | 766.8 | 38.5 | 3.8 | 85.6 | 4 | 6 | 1 | 10 | ..... | 6 | 1 | 2 | ..... | ..... | ..... | 7 | 2.69 | 68.3 |
| Kiel | N. 54 19 | E. 10 04 | 0.48 p.m. | 13 | 4 | 30.10 | 764 4 | 30.11 | 764.8 | 39.9 | 4.4 | 83.9 | 2 | 6 | 4 | 5 | 2 | 2 | 2 | 4 | 3 | ..... | ..... | 7 | 2.72 | 69.0 |
| Leipsic | N. 51 20 | E. 12 24 | 0.58 p.m. | 390 | 119 | 29.73 | 755.1 | 30.16 | 766.0 | 38.7 | 3.7 | 84.7 | 2 | 2 | 5 | 6 | 6 | 3 | 1 | 5 | ..... | ..... | ..... | 7 | 1.57 | 39.9 |
| Magdeburg | N. 52 09 | E. 11 37 | 0.54 p.m. | 177 | 54 | 29.94 | 760.5 | 30.14 | 765.5 | 39.7 | 4.3 | 81.8 | 3 | 6 | 7 | 3 | 2 | 5 | 3 | 1 | ..... | ..... | ..... | 6 | 2.28 | 57.8 |
| Memel | N. 55 43 | E. 21 07 | 1.32 p.m. | 39 | 12 | 30.08 | 763.9 | 30.12 | 765.1 | 32.4 | 0.2 | 89.6 | ..... | 3 | 1 | 3 | 2 | 7 | 4 | 10 | ..... | ..... | ..... | 7 | ..... | ..... |
| Munich | N. 48 09 | E. 11 34 | 0.54 p.m. | 1732 | 528 | 28.31 | 719.0 | 30.18 | 766.5 | 37.9 | 3.3 | 74.0 | 4 | 9 | 1 | 1 | ..... | 1 | 8 | 2 | 4 | ..... | ..... | 6 | 0.83 | 21.0 |
| Neufahrwasser | N. 54 24 | E. 18 40 | 1.25 p.m. | 36 | 11 | 30.07 | 763.8 | 30.11 | 764.8 | 36.7 | 2.6 | 81.0 | 2 | 3 | 7 | 4 | 2 | 8 | 1 | 3 | ..... | ..... | ..... | 8 | 1.02 | 25.9 |
| Neustadt | N. 49 21 | E. 8 08 | 0.41 p.m. | 479 | 146 | 29.65 | 753.2 | 30.19 | 766.7 | 41.5 | 5.3 | 80.0 | 4 | 8 | 9 | 3 | 1 | ..... | ..... | ..... | 5 | ..... | ..... | 7 | 0.55 | 13.9 |
| Stuttgart | N. 48 47 | E. 9 11 | 0.45 p.m. | 833 | 254 | 29.27 | 743.5 | 30.19 | 766.9 | 41.5 | 5.3 | 75.8 | 8 | 2 | 3 | 4 | 1 | 3 | 1 | 8 | ..... | ..... | ..... | 7 | 0.57 | 14.5 |
| Wustrow | N. 54 21 | E. 12 24 | 0.58 p.m. | 23 | 7 | 30.10 | 764 4 | 30.12 | 765.0 | 39.7 | 4.3 | 85.2 | 6 | 2 | 4 | 2 | 2 | 7 | 4 | 3 | ..... | ..... | ..... | 7 | 1.90 | 48.3 |
| GREEK. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Athens | N. 37 58 | E. 23 44 | 1.43 p.m. | 361 | 110 | 29.68 | 753.8 | 30.07 | 763 7 | 57.0 | 13.9 | 71.9 | 18 | 2 | ..... | 1 | 2 | 2 | 1 | 4 | ..... | ..... | ..... | 7 | 3.79 | 96.3 |
| INDIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kurrachee | N. 24 47 | E. 67 04 | 4.36 p.m. | 49 | 15 | 29.92 | 760.0 | 29.98 | 761.5 | 80.2 | 26.8 | 54 | ..... | 1 | 9 | 15 | 1 | ..... | 2 | 2 | ..... | ..... | ..... | 0 | 0 | 0 |
| Deesa | N. 24 16 | E. 72 14 | 4.57 p.m. | 466 | 142 | 29.49 | 749.0 | 29.97 | 761.2 | 81.9 | 27.7 | 28 | 3 | 6 | 3 | 1 | 2 | 3 | 1 | 11 | ..... | ..... | ..... | 2 | 0 | 0 |
| Bombay | N. 18 54 | E. 72 49 | 5.00 p.m. | 37 | 11 | 29.87 | 758.7 | 29.91 | 759.7 | 80.8 | 27.1 | 70 | 10 | 19 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 0 | 0 |
| Poona | N. 18 28 | E. 74 10 | 5.05 p.m. | 1849 | 564 | 28.06 | 712.7 | 29.91 | 759.7 | 81.3 | 27.4 | 32 | 1 | ..... | ..... | ..... | 1 | 5 | 6 | 17 | ..... | ..... | ..... | 2 | 0.04 | 1.0 |
| Belgaum | N. 15 52 | E. 74 42 | 5.07 p.m. | 2550 | 777 | 27.36 | 694.9 | 29.89 | 759 2 | 77.9 | 25.5 | 42 | 3 | 2 | ..... | ..... | ..... | ..... | 8 | 11 | 6 | ..... | ..... | 3 | 0.27 | 6.9 |
| Lahore | N. 31 34 | E. 74 20 | 5.05 p.m. | 732 | 223 | 29.24 | 742.7 | 30.00 | 762.0 | 67.9 | 19.9 | 54 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 29 | ..... | ..... | 1 | 0.08 | 2.0 |
| Roorkee | N. 29 52 | E. 77 56 | 5.20 p.m. | 887 | 270 | 29.06 | 738.1 | 29.98 | 761.5 | 67.5 | 19.7 | 53 | ..... | ..... | 10 | ..... | ... | ..... | ..... | 20 | ..... | ..... | ..... | 0 | 0.02 | 0.5 |
| Agra | N. 27 10 | E. 78 05 | 5.20 p.m. | 555 | 169 | 29.43 | 747.5 | 30.03 | 762.0 | 73.0 | 22.8 | 43 | 2 | 21 | 6 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0 | 0 | 0 |
| Nagpur | N. 21 09 | E. 79 11 | 5.24 p.m. | 1025 | 312 | 28.91 | 734.3 | 29.96 | 761.0 | 76.9 | 24.9 | 33 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 8 | 19 | ..... | ..... | 1 | 0 | 0 |
| Jubbulpore | N. 23 09 | E. 79 59 | 5.28 p.m. | 1341 | 409 | 28.61 | 726.7 | 29.99 | 761.7 | 72.3 | 22.4 | 42 | 1 | 1 | ..... | ..... | ..... | ..... | 1 | 10 | 17 | ..... | ..... | 0 | 0 | 0 |
| Lucknow | N. 26 50 | E. 81 00 | 5.32 p.m. | 369 | 113 | 29.60 | 751.8 | 29.99 | 761.7 | 71.3 | 21.8 | 45 | 12 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 14 | ..... | ..... | 0 | 0 | 0 |
| Allahabad | N. 25 26 | E. 81 52 | 5.35 p.m. | 307 | 94 | 29.67 | 753.6 | 29.99 | 761.7 | 64.9 | 18.3 | 77 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 29 | ..... | ..... | 0 | 0 | 0 |
| Patna | N. 25 37 | E. 85 08 | 5.49 p.m. | 183 | 56 | 29.79 | 756 7 | 29.98 | 761.5 | 70.9 | 21.6 | 60 | 3 | 11 | 6 | ..... | ..... | ..... | ..... | ..... | 10 | ..... | ..... | 1 | 0 | 0 |
| Hazaribagh | N. 24 00 | E. 85 24 | 5.50 p.m. | 2007 | 612 | 27.93 | 709.4 | 29.99 | 761.7 | 66.6 | 19.2 | 46 | 11 | 17 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 0 | 0 |
| Cuttack | N. 20 29 | E. 85 54 | 5.52 p.m. | 80 | 24 | 29.88 | 758.9 | 29.96 | 761.0 | 75.4 | 24.1 | 69 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 29 | ..... | ..... | 3 | 0 | 0 |
| Calcutta | N. 22 33 | E. 88 21 | 6.01 p.m. | 21 | 6 | 29.93 | 760.2 | 29.95 | 760.7 | 70.8 | 21.6 | 72 | 10 | 14 | ..... | ..... | ..... | ..... | ..... | 2 | 4 | ..... | ..... | 2 | 0.01 | 0.3 |
| Dhubri *b* | N. 26 07 | E. 89 50 | 6.08 p.m. | 115 | 35 | 29.84 | 757.9 | 29.96 | 761.0 | 71.2 | 21.8 | 74 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 26 | ..... | ..... | 0 | 0 | 0 |
| Chittagong | N. 22 21 | E. 91 50 | 6.15 p.m. | 87 | 26 | 29.84 | 757.9 | 29.94 | 760.5 | 73.0 | 22.8 | 79 | ..... | 10 | 4 | ..... | 2 | ..... | ..... | ..... | 14 | ..... | ..... | 2 | 2.27 | 57.7 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for November, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metrs | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | O | Miles | Kil. | | Inch. | Mill. |
| INDIAN—Cont'd. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sibsagar | N. 26 59 | E. 94 40 | 6.27 p.m. | 333 | 102 | 29.64 | 752.8 | 29.98 | 761.5 | 67.1 | 19.5 | 85 | ..... | ..... | ..... | 2 | ..... | 2 | .... | 25 | 1 | ..... | ..... | 2 | 1.71 | 43.4 |
| Jeypore | N. 26 55 | E. 75 50 | 5.05 p.m. | 1431 | 436 | 28.54 | 724.9 | 30.02 | 762.5 | 72.0 | 22.2 | 39 | 5 | 15 | 3 | 2 | ..... | 1 | 2 | 2 | ..... | ..... | ..... | 1 | 0.13 | 3.3 |
| Bellary | N. 15 09 | E. 76 57 | 5.16 p.m. | 1455 | 444 | 28.40 | 721.3 | ..... | ..... | 81.3 | 27.4 | 41 | 6 | ..... | ..... | ..... | ... | 2 | 14 | 8 | ..... | ..... | ..... | 5 | 0.05 | 1.3 |
| Trichinopoly | N. 10 50 | E. 78 44 | 5.23 p.m. | 275 | 84 | 29.62 | 752.3 | 29.91 | 759.7 | 78.3 | 25.7 | 75 | 1 | 3 | 4 | ..... | ... | ..... | 12 | 10 | ..... | ..... | ..... | 9 | 6.69 | 169.9 |
| ITALIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Udine | N. 46 04 | E. 13 13 | 1.01 p.m. | 381 | 116 | 29.67 | 753.5 | 30.08 | 764.1 | 48.2 | 9.0 | 50 | 1 | 3 | 3 | 2 | 1 | ..... | 10 | 2 | 8 | ..... | ..... | 2 | 0.08 | 1.9 |
| Milan | N. 45 28 | E. 9 11 | 0.45 p.m. | 482 | 147 | 29.64 | 752.9 | 30.18 | 766.5 | 45.1 | 7.3 | 63 | 1 | 3 | 4 | 10 | ..... | 7 | 3 | 2 | ..... | ..... | ..... | 3 | 0.41 | 10.5 |
| Padua | N. 45 24 | E. 11 53 | 0.56 p.m. | 102 | 31 | 30.04 | 763.0 | 30.15 | 765.9 | 46.2 | 7.9 | 59 | 5 | 4 | 1 | 5 | 2 | 1 | 9 | 2 | ..... | ..... | ..... | 3 | 0.39 | 9.9 |
| Moncalieri | N. 45 00 | E. 7 41 | 0.39 p.m. | 846 | 258 | 29.22 | 742.3 | 30.16 | 766.1 | 45.3 | 7.4 | 64 | 5 | 9 | 1 | ..... | 2 | 3 | 5 | 5 | ..... | ..... | ..... | 3 | 0.13 | 3.2 |
| Genoa | N. 44 24 | E. 8 55 | 0.44 p.m. | 157? | 48? | 29.91 | 759.7 | 30.11 | 764.7 | 53.4 | 11.9 | 52 | 12 | 1 | ..... | 3 | 1 | 2 | 1 | 8 | 2 | ..... | ..... | 3 | 0.58 | 14.8 |
| Pesaro | N. 43 55 | E. 12 53 | 1.00 p.m. | 46 | 14 | 30.09 | 764.3 | 30.14 | 765 6 | 48.0 | 8.9 | 69 | 5 | 16 | 2 | ..... | ..... | 2 | 1 | 4 | ..... | ..... | ..... | 3 | 2.32 | 58.9 |
| Florence | N. 43 46 | E. 11 15 | 0.53 p.m. | 240 | 73 | 29.85 | 758.1 | 30.11 | 764.7 | 50.4 | 10.2 | 45 | 7 | 4 | 1 | 1 | 1 | 2 | 3 | 17 | ..... | ..... | ..... | 3 | 1.04 | 26.5 |
| Leghorn | N. 43 33 | E. 10 18 | 0.49 p.m. | 79 | 24 | 30.03 | 762.8 | 30.12 | 765.0 | 53.6 | 12.0 | 48 | 3 | ..... | 2 | 1 | 1 | ..... | 8 | 15 | ..... | ..... | ..... | 3 | 1.06 | 27.0 |
| Rome | N. 41 54 | E. 12 29 | 0.58 p.m. | 164 | 50 | 29.90 | 759 4 | 30.08 | 763 9 | 54.9 | 12.7 | 53 | 11 | 4 | 2 | 1 | 2 | 1 | ..... | 2 | 7 | ..... | ..... | 3 | 2.29 | 58.2 |
| Lecce | N. 40 22 | E. 18 12 | 1.21 p.m. | 236 | 72 | 29.81 | 757.1 | 30.07 | 763.7 | 55.6 | 13.1 | 58 | 6 | 5 | 1 | 3 | 4 | 2 | ..... | 9 | ..... | ..... | ..... | 4 | 1.94 | 49.3 |
| Cosenza | N. 39 19 | E. 16 17 | 1.13 p.m. | 840 | 256 | 29.19 | 741.5 | 30.10 | 764.6 | 50.5 | 10.3 | 70 | 3 | 13 | 8 | ..... | 1 | 4 | 1 | ..... | ... | ..... | ..... | 5 | 5.68 | 144.3 |
| Cagliari | N. 39 30 | E. 9 00 | 0.45 p.m. | 180 | 55 | 29.85 | 758 3 | 30.05 | 763 2 | 60.1 | 15.6 | 63 | ..... | 10 | ..... | ..... | ..... | 1 | 12 | 1 | 6 | ..... | ..... | 4 | 0.98 | 25.0 |
| Palermo | N. 38 07 | E. 13 21 | 1.02 p.m. | 236 | 72 | 29.81 | 757.2 | 30.06 | 763.6 | 61.0 | 16.1 | 61 | 2 | 4 | 4 | 2 | ..... | 1 | 2 | 14 | ..... | ..... | ..... | 6 | 4.63 | 117.7 |
| Syracuse | N. 37 03 | E. 15 15 | 1.09 p.m. | 72 | 22 | 29.98 | 761.5 | 30.02 | 762.6 | 62.2 | 16.8 | 66 | 4 | 1 | 4 | 2 | 2 | 1 | 2 | 14 | ..... | ..... | ..... | 6 | 5.21 | 132.4 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Naples.d | N. 40 52 | E. 14 15 | 1.05 p.m. | 489 | 149 | 29.55 | 750.5 | ..... | ..... | 56.1 | 13.4 | 52.7 | 5 | 4 | 3 | 1 | ..... | 2 | 3 | 8 | ..... | ..... | ..... | 3 | 1.73 | 43.9 |
| Stelvio | N. 46 32 | E. 10 25 | 0.50 p.m. | 8343 | 2543 | 22.12 | 561.8 | ..... | ..... | 21.7 | -5.7 | 60 | 1 | 1 | 2 | 5 | 1 | 3 | 10 | 7 | ..... | ..... | ..... | 4 | 0.15 | 3.9 |
| Valdobbia | N. 45 47 | E. 7 51 | 0.40 p.m. | 8360 | 2548 | 22.19 | 563.5 | ..... | ..... | 26.8 | —2.9 | 56 | ..... | 4 | 14 | 9 | ..... | 2 | 1 | ... | ... | ..... | ..... | 2 | 0.06 | 1.5 |
| JAPANESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akita | N. 39 42 | E.140 07 | 9.28 p.m. | 32 | 10 | 29.97 | 761.2 | 30.00 | 762.0 | 38.7 | 3.7 | 84 | 5 | 10 | 2 | ..... | ..... | 1 | 6 | ..... | 6 | ..... | ..... | 9 | 4.92 | 125.1 |
| Hokodate | N. 41 47 | E.140 44 | 9.31 p.m. | 10 | 3 | 29.91 | 759.7 | 29.92 | 760.0 | 35.6 | 2.0 | 77.5 | 4 | 8 | 13 | ..... | 1 | ..... | ..... | ..... | 4 | 6794 | 14152 | 6 | 3.21 | 81.5 |
| Hamamatsu | N. 34 43 | E.137 43 | 9.19 p.m. | 92 | 28 | 29.94 | 760.4 | 30.04 | 762 9 | 46.6 | 8.1 | 76 | .... | 4 | 16 | ..... | ..... | ..... | ..... | 2 | 8 | ..... | ..... | 4 | 4.81 | 122.2 |
| Hiroshima | N. 34 23 | E.132 27 | 8.58 p.m. | 16 | 5 | 30.12 | 765.1 | 30.14 | 765.5 | 46.6 | 8.1 | 82 | 19 | 3 | 5 | ..... | ..... | ..... | 1 | 2 | ..... | 3527 | 5675 | 6 | 2.05 | 52.1 |
| Kanazawa | N. 36 33 | E.136 40 | 9.14 p.m. | 95 | 29 | 29.99 | 761.8 | 30.10 | 764.5 | 43.2 | 6.2 | 83.9 | ..... | 2 | 4 | 1 | 4 | 9 | 6 | 4 | ..... | 5784 | 9306 | 8 | 14.84 | 376.6 |
| Kagoshima | N. 31 35 | E.130 33 | 8.50 p.m. | 14 | 4 | 30.15 | 765.9 | 30.16 | 766.2 | 49.9 | 9.9 | 84.4 | 13 | 10 | ..... | 1 | 1 | ..... | 2 | 3 | ..... | ..... | ..... | 4 | 4.24 | 107.5 |
| Kioto | N. 35 01 | E.135 46 | 9.11 p.m. | 162 | 49 | 29.93 | 760.3 | 30.11 | 764.7 | 43.0 | 6.1 | 85.7 | 9 | 11 | 1 | ..... | ..... | ..... | 1 | 3 | 5 | 13300 | 21400 | 6 | 2.48 | 62.8 |
| Kochi | N. 33 33 | E.133 34 | 9.02 p.m. | 20 | 6 | 30.10 | 764.5 | 30.12 | 765 0 | 48.6 | 9.2 | 83.3 | 2 | 13 | 8 | 1 | ..... | ..... | 4 | 2 | ..... | 2953 | 4753 | 4 | 3.94 | 100.0 |
| Misaka | N. 31 56 | E.131 26 | 8.54 p.m. | 26 | 8 | 30.13 | 765.2 | 30.15 | 765 9 | 49.5 | 9.7 | 81.5 | 3 | 3 | 23 | ..... | ..... | ..... | 1 | ... | ..... | ..... | ..... | 3 | 4.89 | 124.3 |
| Miyako | N. 39 38 | E.141 59 | 9.36 p.m. | 98 | 30 | 29.85 | 758.2 | 29.96 | 761.0 | 38.6 | 3.7 | 79 | ..... | ..... | 21 | 5 | 2 | ..... | ..... | 1 | 1 | 3380 | 5441 | 3 | 0.93 | 23.6 |
| Nagasaki | N. 32 44 | E.129 52 | 8.47 p.m. | 189 | 58 | 29.97 | 761.2 | 30.18 | 766 5 | 48.1 | 8.9 | 79.2 | 10 | 2 | 1 | ..... | 1 | 1 | 1 | 7 | 7 | 3101 | 4991 | 5 | 3.54 | 89.7 |
| Nemuro | N. 43 20 | E.145 35 | 9.50 p.m. | 43 | 13 | 29.78 | 756.4 | 29.83 | 757.7 | 34.5 | 1.4 | 80 | 2 | 4 | 3 | 2 | 3 | 2 | ..... | 1 | 13 | 6749 | 10861 | 5 | 3.44 | 87.4 |
| Niigata | N. 37 55 | E.139 03 | 9.24 p.m. | 32 | 10 | 30.00 | 762.0 | 30.04 | 762.9 | 44.5 | 6.0 | 78.9 | 3 | 6 | 6 | 5 | 4 | 2 | 3 | 1 | ..... | 6050 | 9799 | 7 | 9.80 | 248.9 |
| Nobiru | N. 38 23 | E.141 11 | 9 32 p.m. | 15 | 5 | 29.97 | 761.1 | 29.98 | 761.5 | 38.5 | 3.6 | 83.0 | 5 | 25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8557 | 13771 | 5 | 0.60 | 15.1 |
| Numadzu | N. 35 06 | E.138 51 | 9.23 p.m. | 32 | 10 | 29.97 | 761.2 | 30.02 | 762.1 | 45.9 | 7.7 | 81.1 | 2 | ..... | 3 | 2 | ..... | 1 | 22 | ..... | ..... | ..... | ..... | 5 | 5.02 | 127.6 |
| Osaka | N. 34 42 | E.135 30 | 9.10 p.m. | 13 | 4 | 30.10 | 764.5 | 30.11 | 764.9 | 44.8 | 7.1 | 82.6 | 5 | 6 | 5 | 1 | ..... | 3 | 9 | 1 | ..... | 4791 | 7711 | 5 | 2.52 | 63.8 |
| Saga | N. 33 12 | E.130 18 | 8.49 p.m. | 23 | 7 | 30.15 | 765.7 | 30.17 | 766.3 | 46.4 | 8.0 | 86.1 | 1 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 27 | ..... | ..... | 5 | 1.95 | 49.5 |
| Sakai | N. 35 33 | E.133 14 | 9.01 p.m. | 10 | 3 | 30.11 | 764.8 | 30.12 | 765.0 | 46.6 | 8.1 | 79 | 2 | 3 | 14 | 1 | 3 | 1 | 2 | 2 | 2 | ..... | ..... | 7 | 7.82 | 198.8 |
| Shimonoseki | N. 33 58 | E.130 56 | 8.52 p.m. | 134 | 41 | 30.01 | 762.2 | 30.15 | 765 9 | 50.2 | 10.1 | 73 2 | 1 | 3 | 7 | 4 | 1 | 1 | 2 | 10 | ..... | ..... | ..... | 6 | 2.29 | 58.2 |
| Sapporo | N. 43 04 | E.141 23 | 9.33 p.m. | 60 | 18 | 29.81 | 757.2 | 29.88 | 759 0 | 30 7 | —0.8 | 83.2 | .. | 6 | 7 | 1 | 10 | 3 | 1 | 1 | 1 | 5124 | 8249 | 7 | 3.26 | 82.9 |
| Tokei | N. 35 41 | E.139 46 | 9.27 p.m. | 69 | 21 | 29.94 | 760 4 | 30.02 | 762 4 | 43.4 | 6.3 | 79.4 | 16a | 3 | 5 | ..... | 2 | 2 | 1 | ..... | ..... | 5037b | 8105b | 4 | 3.33 | 84.5 |
| Wakayama | N. 34 14 | E.135 09 | 9.09 p.m. | 48 | 15 | 30.06 | 763.4 | 30.11 | 764.8 | 47.6 | 8.6 | 74.5 | 5 | 5 | ..... | ..... | ..... | ..... | 4 | 7 | 9 | 2536 | 4081 | 6 | 3.45 | 87.5 |
| MAURITIUS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mauritius | S. 20 06 | E. 57 33 | 3.58 p.m. | 181 | 55 | 29.83 | 757 7 | 30.02 | 762.5 | 77.1 | 25.1 | 65.4 | ..... | 1 | 3 | ..... | 2 | 4 | 18 | 2 | ... | ..... | ..... | 5 | 2.21 | 56.1 |
| MEXICAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Guanajuato | N. 21 01 | W.101 10 | 5.23 a.m. | 6762 | 2061 | 23.72 | 602.5 | 29.94 | 760.5 | 50.7 | 10.4 | 81 | 1 | 1 | ..... | 3 | ..... | 7 | 4 | 8 | 6 | ..... | ..... | 3 | 0.23 | 5.8 |
| Leon.a | N. 21 07 | W.101 36 | 5.22 a.m. | 5902 | 1799 | 24.36 | 618.7 | 30.16 | 766.1 | 50.1 | 10.1 | 82 | 5 | 12 | ..... | 5 | ..... | ..... | ..... | 7 | ..... | ..... | ..... | 4 | 0.21 | 5.3 |
| Muzatlan | N. 23 11 | W.106 17 | 5.03 a.m. | 249 | 76 | 29 70 | 754.4 | 29.96 | 761 0 | 72.0 | 22.2 | 83 | 1 | ..... | ..... | ..... | ..... | ..... | 15 | 14 | ..... | ..... | ..... | 3 | 0.39 | 9.9 |
| Mexico | N. 19 26 | W. 99 00 | 5.32 a.m. | 7490 | 2283 | 23.10 | 586.7 | 30.23 | 767.8 | 46.6 | 8.1 | 84 | 1 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | 22 | ..... | ..... | 5 | 0.58 | 14.7 |
| Puebla | N. 19 03 | W. 98 05 | 5.36 a.m. | 7113 | 2168 | 23.44 | 595.4 | 30.29 | 769.4 | 48.5 | 9.2 | 65 | ..... | 14 | ..... | ..... | ..... | ..... | ..... | 3 | 13 | ..... | ..... | 2 | 2.88 | 73.2 |
| NETHERLANDS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flushing | N. 51 24 | E. 3 35 | 0.22 p.m. | 0 | 0 | 30.18 | 766.5 | 30.18 | 766.5 | 45.9 | 7.7 | ..... | 4 | ..... | 6 | 6 | 5 | 2 | 3 | 4 | ..... | ..... | ..... | ..... | 1.50 | 38.2 |
| Groningen | N. 53 12 | E. 6 34 | 0.34 p.m. | ? | ? | 30.06 | 763.6 | 30.12 | 765.0 | 40.6 | 4.8 | ..... | ... | 1 | 7 | 8 | 4 | 1 | 5 | 3 | 1 | ..... | ..... | ..... | 1.83 | 46.4 |
| Helder | N. 52 58 | E. 4 45 | 0.27 p.m. | 0 | 0 | 30.12 | 765.0 | 30.12 | 765.0 | 43.3 | 6.3 | ..... | 1 | 1 | 6 | 4 | 6 | 2 | 4 | 6 | ... | ..... | ..... | ..... | 2.10 | 53.3 |
| Hellevoetsluis | N. 51 49 | E. 4 08 | 0.25 p.m. | 0 | 0 | 30.15 | 765.8 | 30.15 | 765 8 | 46.8 | 8.2 | 80.1 | 2 | 1 | 6 | 4 | 2 | 2 | 5 | 4 | 4 | ..... | ..... | ..... | 2.83 | 71.8 |
| Utrecht | N. 52 05 | E. 5 07 | 0.29 p.m. | 43 | 13 | 30.11 | 764.7 | 30.15 | 765.9 | 43.9 | 6.6 | 80.1 | 1 | 1 | 2 | 10 | 6 | 1 | 5 | 4 | ..... | ..... | ..... | 5 | 1.85 | 46.9 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Batavia | S. 6 11 | E.106 48 | 7.15 p.m. | 26 | 8 | ..... | ..... | 29.89 | 759.1 | 78.4 | 25.8 | 84.4 | 6 | 6 | 7 | 4 | 2 | ..... | ..... | 5 | ..... | ..... | ..... | 8 | 3.02 | 76.8 |
| NORWEGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bergen | N. 60 24 | E. 5 20 | 0.29 p.m. | 56 | 17 | 29.92 | 759.9 | 29.98 | 761.5 | 38.7 | 3.7 | 79.0 | 6 | 2 | 1 | 6 | 9 | 3 | ..... | 1 | 2 | ..... | ..... | 4 | 7.44 | 189.1 |
| Brono | N. 65 28 | E. 12 14 | 0.57 p.m. | 34 | 10 | 29.79 | 756.7 | 29.83 | 757.7 | 36.7 | 2.6 | 76.4 | 2 | ..... | 3 | 6 | 7 | 2 | 5 | 1 | 4 | ..... | ..... | 8 | 5.77 | 146.5 |
| Christiania | N. 59 55 | E. 10 45 | 0.51 p.m. | 134 | 41 | 29.87 | 758.6 | 30.02 | 762.5 | 34.2 | 1.2 | 78.1 | 2 | 2 | 1 | 3 | 3 | 2 | 9 | 4 | 4 | ..... | ..... | 6 | 0.66 | 16.8 |
| Gjærvær | N. 71 07 | E. 25 22 | 1.49 p.m. | 23 | 7 | 29.55 | 750.6 | 29.58 | 751.2 | 31.6 | —0.2 | ..... | 2 | 2 | 7 | 8 | 4 | 1 | 1 | 4 | ..... | ..... | ..... | 9 | 3.40 | 86.4 |
| PORTUGUESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Funchal | N. 32 38 | W. 16 55 | 11.00 a.m. | 82 | 25 | 29.92 | 759.9 | 30.00 | 762.1 | 66.6 | 19.2 | 69.3 | 2 | 3 | 2 | 11 | 2 | 1 | 4 | 1 | 4 | ..... | ..... | 6 | 12.67 | 321.9 |
| Lisbon | N. 38 42 | W. 9 08 | 11.31 a.m. | 312 | 95 | 29.75 | 755.7 | 30.09 | 764 3 | 56.7 | 13.7 | 65.9 | 7 | 2 | ..... | ..... | ..... | 1 | 1 | 19 | ..... | ..... | ..... | 2 | 0.34 | 8.5 |
| Ponta Delgada | N. 37 45 | W. 25 41 | 10.25 a.m. | 66 | 20 | 30.06 | 763.4 | 30.13 | 765.2 | 63.3 | 17.4 | 71.5 | 5 | ..... | 3 | 4 | 3 | 3 | 2 | 7 | 3 | ..... | ..... | 5 | 4.41 | 112.0 |
| Saint Paul de Loando | S. 8 49 | E. 13 07 | 1.00 p.m. | 193 | 59 | 29.73 | 755.2 | 29.93 | 760.2 | 79.2 | 26.2 | 80.9 | 1 | 2 | 21 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 | 0.03 | 0.7 |
| Sau Salvador | S. 6 17 | E. 14 53 | 1.07 p.m. | 1834 | 559 | 28.08 | 713.2 | 29.91 | 759.7 | 78.4 | 25.8 | 68.4 | ..... | 3 | 12 | 6 | 6 | 2 | 1 | ..... | ..... | ..... | ..... | 8 | 8.36 | 212.4 |
| Serra da Estrella | N. 40 25 | W. 7 35 | 11.37 a.m. | 4728 | 1441 | 25.33 | 643.3 | 30.15 | 765.7 | 40.8 | 4.9 | 82.2 | ..... | ..... | ..... | 1 | 1 | 8 | 17 | 2 | 1 | ..... | ..... | 5 | 3.22 | 81.7 |
| RUSSIAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akmolinski | N. 51 12 | E. 71 23 | 4.54 p.m. | 843? | 306? | 29.13 | 739.9 | 30.29 | 769.4 | 20.1 | —6.6 | 85.1 | 3 | 3 | 5 | 5 | 1 | 7 | 1 | 4 | 1 | ..... | ..... | 7 | 0.09 | 2.4 |
| Archangel | N. 64 33 | E. 40 32 | 2.50 p.m. | 16 | 5 | 29.93 | 760.1 | 29.94 | 760.6 | 25.0 | —3.9 | 86.8 | ..... | 1 | 2 | 10 | 10 | 2 | 4 | 1 | ..... | ..... | ..... | 9 | 0.06 | 1.5 |
| Astrakhan | N. 46 21 | E. 48 02 | 3.20 p.m. | 68 | 21 | 30.37 | 771.4 | 30.29 | 769.4 | 40.3 | 4.6 | 73.4 | 1 | 3 | 2 | ..... | 1 | 7 | 12 | 3 | 1 | ..... | ..... | 8 | 0.17 | 4.3 |
| Baku | N. 40 21 | E. 49 51 | 3.28 p.m. | 39 | 12 | 30.26 | 768.5 | 30.21 | 767 3 | 54.0 | 12.2 | 77.4 | 8 | 1 | ..... | ..... | 4 | 4 | 2 | 2 | 2 | 7 | ..... | 6 | 1.28 | 32.6 |
| Barnaul | N. 53 20 | E. 83 47 | 5.43 p.m. | 459? | 140? | 29.86 | 758.3 | 30.40 | 772.1 | 14.7 | —9.6 | 78.5 | ..... | ..... | 1 | ..... | 12 | ..... | 1 | ..... | 2 | 14 | ..... | 5 | 0.48 | 12.2 |
| Bielosersk | N. 60 02 | E. 37 47 | 2.39 p.m. | 430? | 131? | 29.62 | 752.3 | 30.12 | 764.9 | 24.6 | —4.1 | 89.3 | 1 | 4 | 3 | 8 | 6 | 3 | 1 | 2 | 2 | ..... | ..... | 8 | 0.78 | 19.9 |
| Dorpat | N. 58 23 | E. 26 43 | 1.55 p.m. | 223 | 68 | 29.86 | 758.3 | 30.11 | 764 8 | 29.7 | —1.3 | 86.9 | 1 | 2 | 5 | 3 | 7 | 3 | 3 | 1 | 5 | ..... | ..... | 7 | 0.60 | 15.2 |
| Ekaterinburg | N. 56 49 | E. 60 38 | 4.10 p.m. | 894? | 272? | 29.22 | 742.1 | 30.24 | 768.2 | 22.3 | —5.4 | 86.2 | 2 | 1 | 13 | 6 | 2 | 4 | ..... | 1 | 1 | ..... | ..... | 9 | 0.50 | 12.6 |
| Elisatwetgrad | N. 48 31 | E. 32 17 | 2.17 p.m. | 417? | 127? | 29.70 | 754.4 | 30.17 | 766 3 | 36.3 | 2.4 | 79.6 | 3 | ..... | 2 | 3 | 5 | 7 | 3 | 7 | ..... | ..... | ..... | 9 | 1.75 | 44.5 |
| Kasalinsk | N. 45 46 | E. 62 07 | 4.16 p.m. | 147 | 45 | 30.09 | 764.3 | 30.27 | 768.8 | 35.1 | 1.7 | 67.5 | 8 | 3 | 3 | 1 | ..... | 4 | 6 | 4 | 1 | ..... | ..... | 5 | ..... | ..... |
| Kasan | N. 55 47 | E. 49 08 | 3.24 p.m. | 249 | 76 | 29.97 | 761.2 | 30.25 | 768.4 | 27.9 | —2.3 | 86.5 | 1 | 4 | 5 | 8 | 7 | 3 | 1 | ..... | 1 | ..... | ..... | 10 | 0.57 | 14.4 |
| Kem | N. 64 57 | E. 34 39 | 2.26 p.m. | 43 | 13 | 29.88 | 759 0 | 29.93 | 760.3 | 25.2 | —3.8 | 86.0 | ..... | 3 | 13 | 6 | 2 | ..... | ..... | 1 | 5 | ..... | ..... | 6 | 0.30 | 7.5 |
| Kertch | N. 45 21 | E. 36 29 | 2.34 p.m. | 18? | 6? | 30.10 | 764 4 | 30.12 | 765 0 | 47.5 | 8.6 | 82.3 | 3 | 1 | 1 | ..... | 4 | 1 | 7 | 4 | 9 | ..... | ..... | 7 | 2.24 | 56.8 |
| Kieff | N. 50 27 | E. 30 30 | 2.10 p.m. | 600 | 183 | 29.45 | 748.1 | 30.12 | 765.1 | 32.4 | 0.2 | 85.9 | 3 | 4 | 3 | 4 | 2 | 6 | 5 | 3 | ..... | ..... | ..... | 8 | 3.25 | 82.5 |
| Koslov | N. 52 53 | E. 40 31 | 2.50 p.m. | 466? | 142? | 29.67 | 753.5 | 30.20 | 767 0 | 30.2 | —1.0 | 93.1 | 1 | 2 | 4 | 8 | 5 | 3 | 3 | 2 | 2 | ..... | ..... | 8 | 1.63 | 41.3 |
| Lgov | N. 51 41 | E. 35 17 | 2.29 p.m. | 535? | 163? | 29.63 | 752.5 | 30.24 | 768 1 | 31.5 | —0 3 | 82.0 | 1 | 2 | 3 | 5 | 3 | 3 | 3 | 1 | 3 | ..... | ..... | 8 | 0.82 | 20.8 |
| Libau | N. 56 31 | E. 21 01 | 1.32 p.m. | 20 | 6 | 30.06 | 763.5 | 30.08 | 764.1 | 34.2 | 1.2 | 82.5 | ..... | 1 | 3 | 3 | 3 | 8 | 6 | 5 | 1 | ..... | ..... | 7 | 2.04 | 51.9 |
| Lugan | N. 48 35 | E. 39 20 | 2.45 p.m. | 188? | 57? | 30.00 | 761.9 | 30.21 | 767 3 | 37.6 | 3.1 | 72.6 | 1 | 2 | 2 | 4 | 3 | 3 | 11 | 4 | ..... | ..... | ..... | 8 | 1.26 | 32.0 |
| Moscow | N. 55 46 | E. 37 40 | 2.39 p.m. | 448 | 136 | 29.66 | 753 3 | 30.16 | 766.1 | 29.7 | —1.3 | 80.5 | 3 | 5 | 3 | 8 | 2 | 1 | 2 | 3 | 3 | ..... | ..... | 7 | 0.75 | 19.1 |
| Nertchinsk | N. 51 19 | E.119 37 | 8.07 p.m. | ? | ? | 27.87 | 707.9 | 30.39 | 771.9 | 5.9 | —14.5 | 67.6 | 3 | 4 | 1 | ..... | ..... | 1 | 1 | 2 | 18 | ..... | ..... | 3 | 0.06 | 1.5 |
| Nikolaiev | N. 46 58 | E. 31 58 | 2.16 p.m. | 62 | 19 | 30.06 | 763.5 | 30.13 | 765 3 | 40.5 | 4.7 | 81.1 | 1 | 3 | 3 | 2 | 3 | 4 | 5 | 4 | 5 | ..... | ..... | 7 | 1.45 | 36.9 |
| Nikolaievsk | N. 53 08 | E.140 45 | 9.31 p.m. | 59 | 18 | 29.75 | 755.6 | 29.84 | 757.8 | 10.6 | —11.9 | 79.5 | ..... | ..... | ..... | 19 | ..... | ..... | ..... | 1 | 7 | ..... | ..... | 5 | ..... | ..... |
| Petro-Alexandrovsk | N. 41 28 | E. 61 05 | 4.12 p.m. | 328 | 100 | 29.95 | 760.7 | 30.32 | 770.0 | 44.8 | 7.1 | 44.3 | 3 | ..... | ..... | 3 | 1 | ..... | 1 | 3 | 13 | 6 | ..... | 4 | ..... | ..... |
| Petroznvodsk | N. 61 47 | E. 34 23 | 2.26 p.m. | 180? | 55? | 29.82 | 757.5 | 30.03 | 762.7 | 28.4 | —2.0 | 81.3 | 3 | 3 | 9 | 9 | 3 | ..... | ..... | 2 | 1 | ..... | ..... | 8 | 1.06 | 26.8 |
| Pinsk | N. 52 07 | E. 26 06 | 1.52 p.m. | 459? | 140? | 29.62 | 752.3 | 30.13 | 765 4 | 34.2 | 1.2 | 82.0 | 1 | 6 | 4 | 3 | 3 | 7 | 3 | 3 | ..... | ..... | ..... | 8 | 1.16 | 29.5 |
| Poti | N. 42 09 | E. 41 37 | 2.54 p.m. | 466? | 142? | 30.06 | 763.5 | 30.09 | 764.3 | 60.8 | 16.0 | 82.6 | ..... | 2 | 1 | 3 | 1 | ..... | 14 | ..... | 9 | ..... | ..... | 8 | 3.81 | 96.7 |
| St. Petersburg | N. 59 56 | E. 30 16 | 2.09 p.m. | 20 | 6 | 30.06 | 763.4 | 30.08 | 764.0 | 29.1 | —1.6 | 83.7 | 3 | 3 | 4 | 4 | 8 | 6 | 2 | ..... | ..... | ..... | ..... | 8 | 0.82 | 20.7 |
| Samarkand | N. 39 39 | E. 66 57 | 4.36 p.m. | 2379? | 725? | 27.76 | 705.2 | 30.29 | 769.3 | 46.9 | 8.3 | 57.3 | ..... | 1 | 1 | ..... | ..... | ..... | 3 | ..... | 25 | ..... | ..... | 3 | ..... | ..... |
| Semipalatinsk | N. 50 24 | E. 80 13 | 5.29 p.m. | 607? | 185? | 29.72 | 754 9 | 30.44 | 773.3 | 14.0 | —10.0 | 83.1 | ..... | ..... | 2 | 2 | 3 | 2 | 4 | 1 | 16 | ..... | ..... | 4 | 0.34 | 8.5 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for November, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metrs | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0-10 | Inch. | Mill. |
| RUSSIAN—Con. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Sevastopol | N. 44 37 | E. 33 31 | 2.22 p.m. | 138? | 42? | 29.86 | 758.3 | 30.07 | 763.8 | 49.5 | 9.7 | 70.9 | 2 | 3 | 2 | 6 | 3 | 1 | 1 | 10 | 2 | ..... | ..... | 7 | 2.33 | 59.1 |
| Staroi Bykhov | N. 53 31 | E. 30 16 | 2.09 p.m. | 512 | 156 | 29.56 | 750.8 | 30.14 | 765.6 | 32.4 | 0.2 | 79.9 | ..... | 3 | 1 | 2 | 5 | 10 | 6 | 3 | ..... | ..... | ..... | 9 | 1.15 | 29.3 |
| Tashkend | N. 41 20 | E. 69 18 | 4.45 p.m. | 1607? | 490? | 28.62 | 727.0 | 30.34 | 770.7 | 45.3 | 7.4 | 47.0 | 1 | 1 | ..... | 2 | ..... | ..... | ..... | 1 | 25 | ..... | ..... | 4 | ..... | ..... |
| Tiflis | N. 41 43 | E. 44 47 | 3.07 p.m. | 1343 | 409 | 28.78 | 730 9 | 30.21 | 767.4 | 51.8 | 11.0 | 64.5 | 5 | 3 | ..... | ..... | 5 | 11 | 3 | ..... | 3 | ..... | ..... | 7 | 1.20 | 30.6 |
| Vernoe | N. 43 16 | E. 76 53 | 5.16 p.m. | 2401? | 732? | 27.62 | 701.5 | 30.26 | 768.6 | 28.4 | —2.0 | 75.1 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 29 | ..... | ..... | 2 | ..... | ..... |
| Viatka.b | N. 58 36 | E. 49 41 | 3.27 p.m. | 581? | 177? | 29.49 | 749 1 | 30.16 | 766 0 | 25.0 | —3.9 | 90.7 | d2 | 3 | 5 | 3 | 8 | 1 | 1 | ..... | 3 | ..... | ..... | 10 | 0.97 | 24.6 |
| Warsaw | N. 52 13 | E. 21 02 | 1.32 p.m. | 392 | 119 | 29.67 | 753.5 | 30.11 | 764.7 | 34.2 | 1.2 | 86.4 | 4 | 3 | 3 | 2 | 1 | 4 | 1 | 3 | 9 | ..... | ..... | 8 | 0.94 | 24.0 |
| Yeniseisk | N. 58 27 | E. 92 06 | 6.16 p.m. | 262? | 80? | 30.11 | 764.7 | 30.42 | 772.7 | 11.8 | -11.2 | 83.8 | ..... | 3 | 4 | 6 | 3 | 1 | 1 | ..... | 12 | ..... | ..... | 7 | 0.63 | 15.9 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Petrowsky Ac'y | N. 55 50 | E. 37 38 | 2.39 p.m. | 508 | 155 | 29.52 | 749.8 | 30.06 | 763.5 | 28.8 | —1.8 | 82.6 | ..... | 1 | 5 | 6 | 10 | 4 | 2 | 2 | ..... | ..... | ..... | 9 | 0.25 | 6.3 |
| SPANISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barcelona | N. 41 23 | E. 2 15 | 0.16 p.m. | 138 | 42 | 30.01 | 762.2 | 30.18 | 766.5 | 55.2 | 12.9 | 74 | 10 | 3 | 5 | 2 | ..... | ..... | 4 | 5 | 1 | ..... | ..... | 5 | 1.71 | 43.5 |
| Bilbao | N. 43 15 | W. 2 59 | 11.56 a.m. | 52 | 16 | 30.12 | 765.1 | 30.18 | 766.6 | 58.1 | 14.5 | 74 | ..... | 4 | ..... | ..... | 7 | 6 | 1 | ..... | 12 | 1069 | 1720 | 5 | 3.68 | 93.6 |
| Burgos | N. 42 20 | W. 3 46 | 11.53 a.m. | 2821 | 860 | 27.19 | 690.6 | 30.21 | 767 4 | 48.2 | 9.0 | 73 | 4 | 1 | 2 | 1 | 2 | 2 | 2 | 16 | ..... | 3246 | 5224 | 5 | 0.22 | 5.5 |
| Madrid | N. 40 25 | W. 3 42 | 11.53 a.m. | 2152 | 656 | 27.90 | 708 6 | 30.15 | 765.9 | 53.2 | 11.8 | 65.5 | 1 | ... | ..... | 1 | 1 | 4 | 10 | 13 | ..... | 5219 | 8399 | 4 | 0.54 | 13.6 |
| Santiago | N. 42 53 | W. 8 28 | 11.34 a.m. | 863 | 263 | 29.20 | 741.6 | 30.10 | 764.4 | 57.4 | 14.1 | 66 | 3 | ..... | ..... | 1 | ... | 3 | 1 | 13 | 9 | 5537 | 8911 | 3 | 0.31 | 8.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Havana | N. 23 08 | W. 82 28 | 7.39 a.m. | 62 | 19 | 29.67 | 761.1 | 30.03 | 762 8 | 72.7 | 22.6 | 89.6 | 4 | ..... | ..... | ..... | ..... | 10 | 12 | 4 | ..... | ..... | ..... | 5 | 10.32 | 262.1 |
| Manilla | N. 14 35 | E. 120 56 | 8.12 p.m. | 54 | 16 | 29.88 | 759.0 | 29.94 | 760.5 | 77.7 | 25.4 | 80.4 | 3 | 1 | ..... | ..... | 1 | 7 | 6 | 11 | 1 | 5049 | 8126 | 5 | 5.90 | 149.9 |
| San Fernando | N. 36 28 | W. 6 13 | 11.43 a.m. | 95 | 29 | 29.96 | 761.0 | 30.06 | 763.6 | 63.3 | 17.4 | 74.1 | 3 | ..... | 3 | 1 | 2 | 5 | 12 | 2 | 2 | ..... | ..... | 5 | 3.11 | 79.0 |
| San Juan de Porto Rico | N. 18 30 | W. 66 10 | 7.44 a.m. | 82 | 25 | 29.93 | 760.2 | 30.02 | 762.5 | 77.2 | 25.1 | 86 | 1 | ..... | 1 | 5 | 5 | 11 | 5 | 2 | ..... | ..... | ..... | 7 | 3.01 | 76.5 |
| SWEDISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Haparanda | N. 65 47 | E. 24 03 | 1.44 p.m. | 29 | 9 | 29.83 | 757.6 | 29.87 | 758.6 | 26.6 | —3.0 | 93 | 5 | 2 | 3 | 6 | 2 | 1 | 4 | 2 | 5 | ..... | ..... | 6 | 1.37 | 34.8 |
| Umea | N. 63 50 | E. 20 17 | 1.29 p.m. | 39 | 12 | 29.87 | 758.6 | 29.92 | 759.9 | 28.0 | —2.2 | 88 | 5 | 4 | 4 | 8 | 1 | 1 | 1 | ..... | 6 | ..... | ..... | 5 | 0.61 | 15.6 |
| Hernosand | N. 62 32 | E. 17 57 | 1.20 p.m. | 46 | 14 | 29.90 | 759.4 | 29.95 | 760.7 | 27.5 | —2.5 | 82 | 2 | 1 | ..... | 2 | 7 | ..... | ..... | ..... | 18 | ..... | ..... | 5 | 0.58 | 14.7 |
| Stockholm | N. 59 20 | E. 18 04 | 1.20 p.m. | 144 | 44 | 29.85 | 758 2 | 30.03 | 762.7 | 32.9 | 0.6 | 81 | 4 | 2 | 8 | 5 | 5 | 2 | ... ... | 1 | 3 | ..... | ..... | 4 | 0.58 | 14.7 |
| Wisby | N. 57 39 | E. 18 19 | 1.21 p.m. | 52 | 16 | 29.57 | 761.3 | 30.03 | 762.8 | 37.8 | 3.2 | 85 | 3 | 3 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | ..... | ..... | 6 | 0.47 | 12.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | 6 | 1.32 | 33.6 |
| Upsala | N 59 51 | E. 17 37 | 1.19 p.m. | 79 | 24 | 29.92 | 759 9 | 30.00 | 762.1 | 31.1 | —0.5 | 88.6 | 1 | 10 | 1 | 7 | 8 | 2 | 1 | ..... | ..... | ..... | ..... | 5 | 0.56 | 14.3 |
| SWISS. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Geneva | N. 46 12 | E. 6 08 | 0.33 p m. | 1338 | 408 | 28.74 | 730.1 | 30.22 | 767.5 | 40.8 | 4.9 | 80.2 | 7 | 2 | 2 | 4 | 7 | 3 | 3 | 2 | ..... | ..... | ..... | 7 | 0.71 | 18.0 |
| TURKISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Constantinople | N 41 00 | E. 28 59 | 2.04 p.m. | 230 | 70 | ..... | ..... | 30.11 | 764.7 | 49.6 | 9.8 | 76.0 | 22 | ..... | ..... | 7 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 8 | 5.22 | 132.6 |
| Valona | N. 40 27 | E. 19 27 | 1.26 p.m. | 105 | 32 | ..... | ..... | 30.11 | 764.9 | 57.9 | 14.4 | ..... | ..... | 14 | 4 | 2 | 2 | ..... | 1 | 7 | ..... | ..... | ..... | 4 | 3.66 | 93.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beirut | N. 33 54 | E. 35 28 | 2.30 p.m. | 111 | 34 | ..... | ..... | 30.04 | 763.0 | 69.4 | 20.8 | 64.9 | ..... | 1 | ..... | 19 | 1 | ..... | ..... | 9 | ..... | ..... | ..... | 7 | 4.35 | 110.5 |
| Samakov | N. 42 12 | E. 23 42 | 1.43 p.m. | ? | ? | 26.75 | 679.4 | ..... | ..... | 35.2 | 1.8 | 85.9 | ..... | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 24 | ..... | ..... | 8 | ..... | ..... |
| UNITED STATES. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *New Eng'd states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastport | N. 44 54 | W. 66 59 | 7.40 a.m. | 61 | 18 | 29.89 | 759.2 | 29.96 | 761.0 | 34.6 | 1.4 | 78.5 | 4 | 7 | 5 | 4 | 4 | ..... | 1 | 1 | 4 | 7282 | 11719 | 6 | 5.95 | 151.1 |
| Portland | N. 43 39 | W. 70 15 | 7.27 a.m. | 45 | 14 | 29.96 | 761.0 | 30.01 | 762.2 | 35.5 | 1.9 | 77.8 | 4 | 6 | 8 | 8 | ..... | ..... | 1 | 1 | 2 | 6238 | 10039 | 5 | 2.25 | 57.1 |
| Mt. Washington | N. 44 16 | W. 71 18 | 7.23 a.m. | 6279 | 1914 | 23.51 | 597.1 | 30.07 | 763.8 | 15.8 | —9.0 | 96.8 | ..... | 17 | 8 | 3 | 1 | 1 | ..... | ..... | ..... | 23690 | 38125 | 3 | 7.99 | 202.9 |
| Boston | N. 42 21 | W. 71 04 | 7.24 a.m. | 125 | 38 | 29.90 | 759.4 | 30.04 | 763.0 | 37.2 | 2.9 | 78.9 | 4 | 7 | 10 | 7 | 2 | ..... | ..... | ... | ..... | 8732 | 14052 | 6 | 3.03 | 77.0 |
| Block Id | N. 41 10 | W. 71 36 | 7.22 a.m. | 27 | 8 | 30.03 | 762 7 | 30.06 | 763 5 | 43.3 | 6.3 | 81.6 | 5 | 10 | 6 | 1 | 1 | 3 | ..... | 3 | 1 | 10450 | 16817 | 6 | 5.93 | 150.6 |
| New London | N. 41 21 | W. 72 05 | 7.20 a.m. | 47 | 14 | 30.04 | 763.0 | 30.09 | 764.3 | 39.4 | 4.1 | 80.8 | 0 | 7 | 10 | 3 | 2 | ..... | ..... | 2 | 1 | 5439 | 8752 | 5 | 2.78 | 70.6 |
| New Haven | N. 41 18 | W. 72 56 | 7.16 a.m. | 107 | 32 | 29.96 | 761.0 | 30.08 | 764.0 | 36.7 | 2.6 | 71.9 | 9 | 8 | 5 | 5 | ..... | 1 | ..... | 1 | 1 | 5607 | 9120 | 4 | 2.24 | 56.9 |
| *Mid. Atlan. states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Albany | N. 42 39 | W. 73 45 | 7.13 a.m. | 83 | 25 | 29.99 | 761.7 | 30.08 | 764.0 | 34.5 | 1.4 | 69.6 | 5 | 8 | ..... | 14 | 1 | ..... | 1 | 1 | ..... | 5097 | 8203 | 6 | 3.44 | 87.4 |
| New York City | N. 40 43 | W. 74 00 | 7.12 a.m. | 164 | 50 | 29.91 | 759.7 | 30.09 | 764 3 | 39.6 | 4.2 | 76.9 | 4 | 5 | 10 | 5 | 1 | ..... | 1 | 3 | 1 | 8231 | 13240 | 5 | 3.44 | 87.4 |
| Philadelphia | N. 39 57 | W. 75 09 | 7.07 a.m. | 117 | 36 | 29.99 | 761.7 | 30.12 | 765.0 | 39.6 | 4.2 | 73.5 | 8 | 4 | 6 | 1 | 5 | 1 | ..... | 2 | 3 | 7048 | 11342 | 5 | 2.31 | 58.7 |
| Sandy Hook | N. 40 28 | W. 74 00 | 7.12 a.m. | 28 | 8 | 30.08 | 764.0 | 30.11 | 764.8 | 41.4 | 5.2 | 70.0 | 4 | 6 | 9 | 5 | 1 | 1 | ..... | 4 | ..... | 12783 | 20572 | 5 | 3.57 | 90.7 |
| Atlantic City | N. 39 22 | W. 74 25 | 7.10 a.m. | 13 | 4 | 30.09 | 764 3 | 30.10 | 764.5 | 41.0 | 5.0 | 84.9 | 2 | 9 | 3 | 7 | 2 | ..... | 2 | 3 | 2 | 5558 | 8945 | 4 | 4.03 | 102.4 |
| Barnegat City | N. 39 46 | W. 74 06 | 7.12 a.m. | 22 | 7 | 30.08 | 764.0 | 30.10 | 764.5 | 43.2 | 6.2 | 85.4 | 4 | 9 | 6 | 3 | 2 | 1 | 1 | 3 | 1 | 9970 | 16045 | 3 | 2.68 | 68.1 |
| Cape May | N. 38 56 | W. 74 58 | 7.08 a.m. | 27 | 8 | 30.08 | 764.0 | 30.11 | 764.8 | 45.5 | 7.5 | 79.0 | 4 | 5 | 8 | 5 | 2 | ..... | 1 | 4 | 1 | 11818 | 19019 | 4 | 2.30 | 58.4 |
| Del. Breakwater | N. 38 48 | W. 75 10 | 7.07 a.m. | 20 | 6 | 30.10 | 764.5 | 30.12 | 765 0 | 44.4 | 6.9 | 82.3 | 3 | 7 | 5 | 8 | 1 | 1 | ..... | 5 | ..... | 11763 | 18930 | 4 | 2.42 | 61.5 |
| Baltimore | N. 39 18 | W. 76 37 | 7.02 a.m. | 45 | 14 | 30.10 | 764.5 | 30.15 | 765 8 | 41.5 | 5.3 | 67.6 | 7 | 7 | 6 | 4 | ..... | 2 | 2 | 1 | 1 | 3934 | 6331 | 4 | 3.09 | 78.5 |
| Washington City | N. 38 54 | W. 77 02 | 7.00 a.m. | 106 | 32 | 30.04 | 763.0 | 30.16 | 766.1 | 38.6 | 3.7 | 70.1 | 3 | 5 | 4 | 3 | 6 | 1 | ..... | 1 | 7 | 3674 | 6234 | 4 | 3.42 | 86.9 |
| Chincoteague | N. 37 55 | W. 75 23 | 7.06 a.m. | 8 | 2 | 30.11 | 764.8 | 30.12 | 765.0 | 45.1 | 7.3 | 84.7 | 8 | 7 | ..... | 2 | 3 | 3 | ..... | 7 | ..... | 7350 | 11828 | 3 | 2.12 | 53.8 |
| Cape Henry | N. 36 56 | W. 76 00 | 7.04 a.m. | 16 | 5 | 30.11 | 764.8 | 30.13 | 765.3 | 49.7 | 9.8 | 79.8 | 6 | 5 | 1 | 6 | 5 | 1 | 1 | 5 | ..... | 8874 | 14281 | 4 | 0.58 | 14.7 |
| Lynchburg | N. 37 25 | W. 79 09 | 6.52 a.m. | 652 | 199 | 29.44 | 747 8 | 30.16 | 766.1 | 39.0 | 3.9 | 74.6 | 1 | 5 | 4 | 5 | 3 | ..... | 2 | 3 | 7 | 2356 | 3792 | 4 | 3.63 | 92.2 |
| Norfolk | N. 36 51 | W. 76 17 | 7.03 a.m. | 30 | 9 | 30.10 | 764.5 | 30.13 | 765.3 | 47.5 | 8.6 | 81.7 | 8 | 5 | 3 | 3 | 1 | 2 | 1 | 5 | 2 | 4574 | 7361 | 4 | 0.74 | 18.8 |
| *S Atlantic states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kittyhawk | N. 36 00 | W. 75 42 | 7.05 a.m. | 9 | 3 | 30.12 | 765.0 | 30.13 | 765.3 | 52.2 | 11.2 | 84.7 | 2 | 7 | 7 | 2 | 1 | 1 | 1 | 9 | ..... | 10171 | 16368 | 5 | 7.14 | 181.4 |
| Hatteras | N. 35 15 | W. 75 40 | 7.05 a.m. | 12 | 4 | 30.10 | 764.5 | 30.11 | 764.8 | 54.2 | 12.3 | 82.9 | 9 | 8 | 2 | ..... | ..... | 1 | 1 | 7 | 2 | 6633 | 10671 | 6 | 13.02 | 330.7 |
| Fort Macon | N. 34 42 | W. 76 40 | 7.01 a.m. | 11 | 3 | 30.12 | 765.0 | 30.13 | 765.3 | 52.3 | 11.3 | 84.0 | 9 | 6 | 3 | 1 | ..... | 2 | 1 | 6 | 2 | 8375 | 13478 | 5 | 3.06 | 77.7 |
| Smithville | N. 33 55 | W. 78 01 | 6.56 a.m. | 34 | 10 | 30.10 | 764.5 | 30.14 | 765.5 | 50.1 | 10.1 | 80.2 | 16 | 4 | 2 | 3 | 1 | ..... | ..... | 4 | ..... | 5518 | 8880 | 4 | 1.81 | 46.0 |
| Wilmington | N. 34 14 | W. 77 57 | 6.56 a.m. | 52 | 16 | 30.08 | 764.0 | 30.14 | 765.5 | 50.7 | 10.4 | 75.4 | 5 | 5 | 1 | ..... | 1 | ..... | 1 | 12 | 5 | 3390 | 5456 | 5 | 1.96 | 49.8 |
| Charlotte | N. 35 13 | W. 80 51 | 6.44 a.m | 808 | 246 | 29.30 | 744.2 | 30.18 | 766.6 | 43.2 | 6.2 | 80.4 | 10 | 4 | 3 | 2 | 1 | 2 | ..... | 7 | 1 | 2985 | 4804 | 3 | 4.73 | 120.1 |
| Charleston | N. 32 47 | W. 79 56 | 6.48 a.m. | 52 | 16 | 30.06 | 763.5 | 30.12 | 765.0 | 53.8 | 12.1 | 79.2 | 7 | 8 | 3 | 3 | 1 | ..... | ..... | 6 | ..... | 4568 | 7351 | 3 | 1.49 | 37.8 |
| Augusta.c | N. 33 28 | W. 81 54 | 6.40 a.m. | 183 | 56 | 30.00 | 762.0 | 30.20 | 767.1 | 45.8 | 7.7 | 78.6 | 3 | 10 | 5 | 2 | 1 | 1 | 1 | 3 | ..... | 2090 | 3364 | 4 | 1.71 | 43.4 |
| Savannah | N. 32 05 | W. 81 05 | 6.44 a.m. | 87 | 26 | 30.06 | 763.5 | 30.15 | 765.8 | 52.3 | 11.3 | 78.4 | 12 | 6 | 5 | 3 | 3 | ..... | ..... | 1 | ..... | 4326 | 6962 | 4 | 1.72 | 43.7 |
| Jacksonville | N. 30 20 | W. 81 39 | 6.42 a.m. | 43 | 13 | 30.08 | 764.0 | 30.13 | 765 3 | 56.0 | 13.3 | 89.8 | 5 | 7 | 2 | 1 | ..... | 2 | ..... | 9 | 4 | 3941 | 6342 | 5 | 5.43 | 137.9 |
| *Florida penin'la.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cedar Keys | N. 29 08 | W. 83 02 | 6.36 a.m. | 22 | 7 | 30.09 | 764.3 | 30.11 | 764.8 | 59.2 | 15.1 | 80.9 | 9 | 3 | 1 | 1 | 1 | 1 | 5 | 9 | ..... | 6002 | 9658 | 3 | 3.06 | 77.7 |
| Key West | N. 24 34 | W. 81 49 | 6.41 a.m. | 20 | 6 | 30.03 | 762.7 | 30.05 | 763.3 | 73.4 | 23.0 | 89.3 | 5 | ..... | ..... | ..... | 2 | 2 | 4 | 17 | ..... | 7720 | 12424 | 7 | 6.03 | 153.2 |
| Sanford | N. 28 48 | W. 81 23 | 6.42 a.m. | 35 | 11 | 30.05 | 763.3 | 30.09 | 764 3 | 63.0 | 17.2 | 86.4 | 12 | 3 | 1 | 2 | 3 | 2 | 1 | 6 | ..... | 4584 | 7377 | 5 | 1.45 | 36.8 |
| *East Gulf states.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atlanta | N. 33 45 | W. 84 23 | 6.31 a.m. | 1129 | 344 | 28.97 | 735.8 | 30.19 | 766.8 | 44.5 | 6.9 | 71.1 | 3 | 7 | 6 | 1 | 2 | 2 | 8 | 1 | ..... | 6289 | 10121 | 4 | 2.84 | 72.1 |
| Pensacola | N. 30 25 | W. 87 13 | 6.19 a.m. | 30 | 9 | 30.12 | 765.0 | 30.15 | 765.8 | 50.9 | 10.5 | 75.7 | 16 | 2 | ..... | ..... | 1 | ..... | ..... | 8 | 3 | 4597 | 7398 | 4 | 5.16 | 131.1 |
| Mobile | N. 30 41 | W. 88 02 | 6.16 a.m. | 35 | 11 | 30.13 | 765.3 | 30.17 | 766.3 | 47.6 | 8.7 | 93.5 | 11 | 11 | ..... | ..... | 1 | ..... | ..... | 2 | 4 | 4289 | 6902 | 2 | 4.12 | 104.6 |
| Montgomery | N. 32 23 | W. 86 18 | 6.23 a.m. | 219 | 66 | 29.93 | 760.2 | 30.17 | 766.3 | 45.9 | 7.7 | 85.4 | 4 | 5 | 4 | 1 | ..... | ..... | 4 | 6 | 6 | 3016 | 4854 | 5 | 2.67 | 67.8 |
| Vicksburg | N. 32 22 | W. 90 53 | 6.04 a.m. | 244 | 74 | 29.94 | 760.5 | 30.21 | 767.3 | 47.4 | 8.6 | 76.7 | 4 | 5 | 1 | 1 | 1 | 9 | 4 | 4 | 1 | 3511 | 5650 | 4 | 2.48 | 63.0 |
| New Orleans | N. 29 58 | W. 90 04 | 6.08 a.m. | 52 | 16 | 30.08 | 764.0 | 30.14 | 765.5 | 55.2 | 12.9 | 77.6 | 8 | 2 | 2 | ..... | 1 | 2 | 4 | 11 | ..... | 4709 | 7578 | 4 | 3.13 | 79.5 |
| *West Gulf states* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shreveport | N. 32 30 | W. 93 40 | 5.53 a.m. | 227 | 69 | 29.95 | 760.7 | 30.20 | 767.1 | 44.6 | 7.0 | 91.1 | 5 | 4 | ..... | 2 | ..... | 2 | ..... | ..... | 17 | 2320 | 3734 | 4 | 5.73 | 145.5 |
| Fort Smith.b | N. 35 22 | W. 94 24 | 5.50 a.m. | 451 | 137 | 29.70 | 754.4 | 30.20 | 767.1 | 42.3 | 5.7 | 85.1 | 3 | 2 | ..... | 1 | ..... | ..... | 9 | 2 | 11 | 2607 | 4196 | 4 | 5.19 | 131.8 |
| Little Rock | N. 34 45 | W. 92 06 | 6.00 a.m. | 298 | 91 | 29.85 | 758.2 | 30.18 | 766.6 | 44.9 | 7.2 | 89.0 | 2 | 10 | 1 | 1 | 1 | ..... | 2 | ..... | 13 | 2477 | 3986 | 4 | 2.83 | 71.9 |
| Galveston | N. 29 18 | W. 94 47 | 5.49 a.m. | 40 | 12 | 30.12 | 765.0 | 30.16 | 766.1 | 59.2 | 15.1 | 80.6 | 4 | 4 | ..... | ..... | 1 | 4 | 8 | 9 | ... .. | 7327 | 11792 | 4 | 4.25 | 107.9 |
| Indianola | N. 28 32 | W. 96 31 | 5.42 a.m. | 26 | 8 | 30.13 | 765.3 | 30.16 | 766.1 | 59.5 | 15.3 | 87.6 | 6 | 3 | ..... | ..... | 3 | 2 | 8 | 7 | 1 | 8988 | 14464 | 3 | 2.85 | 72.4 |
| Palestine | N. 31 45 | W. 95 40 | 5.45 a.m. | 533 | 162 | 29.63 | 752.6 | 30.20 | 767.1 | 47.4 | 8.6 | 80.5 | 4 | 4 | ..... | ..... | 9 | 3 | 2 | 8 | ..... | 5934 | 9550 | 4 | 2.93 | 74.4 |
| *Rio Grande valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brownsville | N. 25 53 | W. 97 26 | 5.38 a.m. | 57 | 17 | 30.06 | 763.5 | 30.12 | 765.0 | 60.3 | 15 7 | 90.5 | 14 | 3 | ..... | ..... | 4 | 1 | 2 | 1 | 5 | 4532 | 7293 | 5 | 3.46 | 87.9 |
| Rio Grande City | N. 26 22 | W. 98 45 | 5.33 a.m. | 230 | 70 | 29.95 | 760.7 | 30.20 | 767.1 | 58.1 | 14.5 | 80.4 | 6 | 6 | 1 | ..... | ..... | 4 | 4 | 3 | 6 | 3033 | 4881 | 4 | 0.03 | 0.8 |
| *Ohio val. & Tenn.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chattanooga | N. 35 04 | W. 85 15 | 6.27 a.m. | 783 | 239 | 29.34 | 745.2 | 30.19 | 766 8 | 40.9 | 4.9 | 85.3 | 5 | 4 | 7 | 6 | 1 | 1 | 1 | ..... | 5 | 2927 | 4710 | 3 | 1.75 | 44.4 |
| Knoxville | N. 35 56 | W. 83 58 | 6.32 a.m | 980 | 299 | 29.13 | 739 9 | 30.20 | 767.1 | 38.2 | 3.4 | 88.3 | 4 | 2 | 2 | 1 | 1 | ..... | 2 | 10 | 8 | 2711 | 4363 | 3 | 1.31 | 33.3 |
| Memphis | N. 35 09 | W. 90 03 | 6.08 a.m. | 321 | 98 | 29.83 | 757.7 | 30.18 | 766.4 | 44.5 | 6.9 | 85.1 | 1 | 7 | 3 | 2 | 4 | 6 | ..... | 1 | 6 | 3315 | 5335 | 4 | 2.08 | 52.8 |
| Nashville | N. 36 10 | W. 86 47 | 6.21 a.m. | 549 | 167 | 29.56 | 750 8 | 30.16 | 766.1 | 41.0 | 5.0 | 87.9 | 1 | 3 | 9 | 2 | 3 | 2 | 8 | 2 | ..... | 3547 | 5708 | 3 | 1.57 | 39.9 |
| Louisville | N. 38 15 | W 85 45 | 6.25 a.m. | 530 | 162 | 29.56 | 750.8 | 30.17 | 766.3 | 43.1 | 6.2 | 79.4 | 1 | 6 | 3 | 5 | 6 | 3 | ..... | 2 | 4 | 5031 | 8096 | 3 | 1.86 | 47.2 |
| Greencastle | N. 39 39 | W. 86 51 | 6.21 a.m. | 867 | 273 | 29.15 | 740.4 | ..... | ..... | 36.1 | 2.3 | 84.7 | 3 | 4 | 1 | 7 | 4 | 3 | 3 | 5 | ..... | 5465 | 8795 | 5 | 1.73 | 43.9 |
| Indianapolis | N. 39 46 | W. 86 10 | 6.23 a.m. | 753 | 229 | 29.29 | 744.0 | 30.14 | 765.5 | 36.2 | 2.3 | 87.6 | 3 | 4 | 6 | 5 | 6 | 2 | 1 | 1 | 2 | 4065 | 6542 | 4 | 1.46 | 37.1 |
| Cincinnati | N. 39 06 | W. 84 30 | 6.30 a.m. | 620 | 189 | 29.47 | 748.5 | 30.15 | 765.8 | 39.8 | 4.3 | 86.1 | 4 | 1 | 5 | 5 | 9 | 2 | 3 | 1 | ..... | 3951 | 6358 | 5 | 1.23 | 31.2 |
| Columbus | N. 39 58 | W. 83 00 | 6.36 a.m. | 805 | 245 | 29.24 | 742.7 | 30.13 | 765.3 | 35.6 | 2.0 | 88.4 | 3 | 4 | 5 | 3 | 8 | 1 | 1 | 2 | 3 | 5277 | 8492 | 5 | 0.99 | 25.1 |
| Pittsburg | N. 40 32 | W. 80 02 | 6.48 a.m. | 766 | 233 | 29.27 | 743.4 | 30.12 | 765.0 | 38.6 | 3.7 | 81.1 | 3 | 4 | 5 | 2 | 7 | 1 | ..... | 7 | 1 | 4862 | 7824 | 7 | 1.18 | 30.0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea | | Result of Simultaneous Observations for November, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| U. S.—Continued. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Lower lake region.* | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Rochester | N. 43 08 | W. 77 42 | 6.57 a.m. | 621 | 189 | 29.36 | 745.7 | 30.06 | 763.5 | 34.0 | 1.1 | 80.1 | ..... | 2 | 8 | 14 | 2 | 2 | 1 | 1 | ..... | 8935 | 14379 | 7 | 1.32 | 33.5 |
| Buffalo | N. 42 53 | W. 78 53 | 6.52 a.m | 690 | 210 | 29.29 | 744 0 | 30.06 | 763.5 | 36.0 | 2.2 | 86.3 | 1 | 2 | 11 | 5 | 6 | 1 | 2 | 2 | ..... | 9979 | 16059 | 8 | 2.51 | 63.8 |
| Oswego | N. 43 29 | W. 76 35 | 7.02 a m. | 334 | 102 | 29.66 | 753.4 | 30.03 | 762.7 | 34.5 | 1.4 | 76.6 | 1 | 4 | 4 | 4 | 7 | 7 | 1 | 2 | ..... | 9720 | 15642 | 8 | 2.09 | 53.1 |
| Erie | N. 42 07 | W. 80 05 | 6.48 a.m. | 681 | 208 | 29.31 | 744.5 | 30.07 | 763.8 | 38.5 | 3.6 | 81.4 | ..... | 6 | 3 | 7 | 10 | 1 | 1 | 2 | ..... | 8569 | 13790 | 7 | 4.91 | 124.7 |
| Sandusky | N 41 25 | W. 82 40 | 6.37 a.m. | 639 | 195 | 29.38 | 746.2 | 30.10 | 764.5 | 37.1 | 2.8 | 75.3 | 2 | 8 | 3 | 10 | 4 | 1 | ..... | 2 | ..... | 10093 | 16243 | 6 | 1.01 | 25.7 |
| Cleveland | N. 41 30 | W. 81 42 | 6.41 a.m. | 690 | 210 | 29.32 | 744.7 | 30.09 | 764.3 | 35.9 | 2.2 | 83.5 | 2 | 5 | 3 | 2 | 10 | 7 | 1 | ..... | ..... | 7794 | 12543 | 6 | 1.59 | 40.4 |
| Toledo | N. 41 40 | W. 83 34 | 6.34 a.m. | 651 | 198 | 29.37 | 746.0 | 30.10 | 764.5 | 35.9 | 2.2 | 81.6 | 3 | 3 | 2 | 15 | 4 | 1 | ..... | 2 | ..... | 6165 | 9921 | 7 | 1.39 | 35.3 |
| Detroit | N. 42 20 | W. 83 03 | 6.36 a.m. | 661 | 201 | 29.33 | 745 0 | 30.07 | 763.8 | 36.6 | 2.6 | 70.9 | 1 | 9 | 3 | 7 | 6 | 2 | 1 | 1 | ..... | 7492 | 12057 | 6 | 1.74 | 44.2 |
| *Upper lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alpena | N. 45 05 | W. 83 30 | 6.34 a.m. | 609 | 185 | 29.31 | 744.5 | 30.01 | 762.2 | 29.3 | —1.5 | 87.2 | ..... | 4 | 15 | 5 | 3 | ..... | 3 | ..... | ..... | 6931 | 11154 | 7 | 2.15 | 54.6 |
| Escanaba | N. 45 48 | W. 87 05 | 6.20 a.m. | 613 | 187 | 29.33 | 745.0 | 30.03 | 762.7 | 25.5 | —3.6 | 80.5 | 2 | 10 | 11 | 2 | 4 | ..... | ..... | 1 | ..... | 6790 | 10927 | 6 | 2.14 | 54.4 |
| Grand Haven.a | N. 43 05 | W. 86 18 | 6.23 a.m. | 620 | 189 | 29.36 | 745.7 | 30.06 | 763.5 | 35.4 | 1.9 | 80.0 | 6 | 3 | 8 | 4 | 1 | 1 | 2 | 2 | 2 | 7732 | 12443 | 7 | 2.61 | 66.3 |
| Mackinaw City | N. 45 47 | W. 84 39 | 6.30 a.m. | 605 | 184 | 29.33 | 745.0 | 30.02 | 762 5 | 32.4 | 0.2 | 83.4 | 6 | 7 | 2 | 6 | 3 | 3 | 2 | 1 | ..... | 8720 | 14033 | 8 | 2.89 | 73 4 |
| Marquette | N. 46 34 | W. 87 24 | 6.18 a.m. | 673 | 205 | 29.28 | 743.7 | 30.04 | 763.0 | 28.6 | —1.9 | 75.8 | 1 | 8 | 12 | 7 | ..... | ..... | 2 | ..... | ..... | 8390 | 13502 | 7 | 2.77 | 70.4 |
| Port Huron | N. 43 00 | W. 82 26 | 6.38 a.m | 633 | 193 | 29.35 | 745.5 | 30.07 | 763.8 | 32.0 | 0.0 | 87.8 | ..... | 5 | 6 | 7 | 7 | ..... | 1 | 2 | 2 | 6681 | 10752 | 6 | 2.34 | 59.4 |
| Chicago | N. 41 52 | W. 87 38 | 6.18 a.m. | 661 | 201 | 29.36 | 745.7 | 30.10 | 764.5 | 35.5 | 1.9 | 81.6 | 4 | 6 | 4 | 7 | 5 | 1 | 1 | 1 | 1 | 5441 | 8756 | 6 | 1.80 | 45.7 |
| Milwaukee | N. 43 02 | W. 87 54 | 6.16 a.m. | 697 | 212 | 29.30 | 744.2 | 30.09 | 764.3 | 31.3 | —0.4 | 81.2 | 5 | 8 | 7 | 5 | 1 | 1 | 2 | 1 | ..... | 7910 | 12730 | 5 | 1.45 | 36.8 |
| Duluth | N. 46 48 | W. 92 06 | 6.00 a.m. | 687 | 209 | 29.30 | 744 2 | 30.10 | 764.5 | 24.2 | —4.3 | 84.0 | 3 | 5 | 6 | 11 | 1 | ..... | 1 | 1 | 2 | 6152 | 9900 | 4 | 0.95 | 24.1 |
| *Upper Miss. val.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saint Paul | N. 44 58 | W. 93 03 | 5.56 a.m. | 801 | 244 | 29.21 | 741.9 | 30.12 | 765 0 | 26.4 | —3.1 | 75.3 | 2 | 4 | 3 | 5 | 1 | 4 | ..... | ..... | 11 | 2976 | 4789 | 4 | 0.65 | 16.5 |
| La Crosse | N. 43 49 | W. 91 15 | 6.03 a.m. | 725 | 221 | 29.30 | 744.2 | 30.12 | 765.0 | 28.9 | —1.7 | 75.5 | 7 | 6 | 2 | 3 | 9 | 2 | 1 | ..... | ..... | 5074 | 8166 | 5 | 1.45 | 36.8 |
| Davenport | N. 41 30 | W. 90 38 | 6.06 a.m. | 615 | 187 | 29.42 | 747 3 | 30.11 | 764.8 | 35.7 | 2.1 | 76.6 | 3 | 5 | 6 | 3 | 2 | 2 | 5 | 4 | ..... | 5205 | 8473 | 4 | 1.49 | 37.8 |
| Des Moines | N. 41 35 | W. 93 37 | 5.54 a.m. | 849 | 259 | 29.19 | 741.4 | 30.14 | 765.5 | 32.2 | 0.1 | 79.5 | 12 | 2 | 2 | ..... | 3 | 1 | 2 | 2 | 6 | 3458 | 5565 | 3 | 1.26 | 32.0 |
| Dubuque | N. 42 30 | W. 90 44 | 6.05 a.m. | 665 | 203 | 29.38 | 746.2 | 30.13 | 765.3 | 31.0 | —0.6 | 77.0 | 2 | 6 | 3 | 2 | 4 | 1 | 1 | 2 | 9 | 2339 | 3764 | 4 | 1.43 | 36.3 |
| Keokuk | N. 40 22 | W. 91 26 | 6.02 a.m. | 618 | 188 | 29.44 | 747.8 | 30.13 | 765.3 | 35.4 | 1.9 | 84.3 | 3 | 9 | ..... | 9 | 2 | 1 | 2 | 3 | 1 | 5151 | 8129 | 4 | 1.73 | 43.9 |
| Cairo | N. 37 00 | W. 89 10 | 6.11 a.m. | 377 | 115 | 29.77 | 756.1 | 30.17 | 769.3 | 42.5 | 5.8 | 83.7 | 9 | 5 | 1 | 2 | 7 | 3 | ..... | 3 | ..... | 5433 | 8743 | 4 | 2.41 | 61.2 |
| Springfield | N. 39 48 | W. 89 39 | 6.10 a.m. | 644 | 196 | 29.44 | 747.8 | 30.16 | 766.1 | 39.9 | 4.4 | 74.2 | 3 | 8 | 2 | 8 | 4 | 1 | ..... | 3 | 1 | 5374 | 8648 | 4 | 1.30 | 33.0 |
| Saint Louis | N. 38 38 | W. 90 12 | 6.07 a.m. | 583 | 178 | 29.53 | 750.0 | 30.17 | 766.3 | 41.9 | 5.5 | 80.9 | 6 | 5 | 5 | 5 | 7 | 1 | ..... | 1 | ..... | 8316 | 13383 | 4 | 2.30 | 58.4 |
| *Missouri valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leavenworth | N. 39 19 | W. 94 57 | 5.48 a.m. | 842 | 256 | 29.19 | 741.4 | 30.13 | 765.3 | 36.7 | 2.6 | 83.2 | 5 | 5 | ..... | 1 | 7 | ..... | 1 | 1 | 10 | 3943 | 6346 | 3 | 1.42 | 36.1 |
| Omaha | N. 41 16 | W. 95 56 | 5.44 a.m. | 1113 | 339 | 28.94 | 735.1 | 30.18 | 766.6 | 33.5 | 0.8 | 82.2 | 11 | 5 | 1 | 2 | 8 | ..... | 1 | ..... | 2 | 5372 | 8645 | 4 | 0.32 | 8.1 |
| Fort Bennett | N. 44 43 | W. 100 39 | 5.26 a.m. | 1510 | 457 | 28.53 | 724.6 | 30.22 | 767.6 | 20.8 | —6.2 | 87.7 | 1 | 11 | ..... | 1 | 1 | 1 | ..... | 3 | 12 | 3819 | 6146 | 4 | 0.17 | 4.3 |
| Huron | N. 44 21 | W. 98 09 | 5.35 a.m. | 1305 | 398 | 28.71 | 729 2 | 30.19 | 766.8 | 23.2 | —4.9 | 80.9 | 8 | 7 | 1 | ..... | 10 | 1 | ..... | 1 | 2 | 5407 | 8702 | 3 | 0.17 | 4.3 |
| Yankton | N. 42 54 | W. 97 28 | 5.38 a.m. | 1228 | 374 | 28.80 | 731.5 | 30.18 | 766.6 | 27.2 | —2.7 | 82.9 | 6 | 9 | 2 | 2 | 2 | 2 | ..... | 5 | 2 | 4643 | 7472 | 4 | 0.02 | 0.5 |
| *Extreme N'thwest.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moorhead | N. 46 52 | W. 96 44 | 5.41 a.m. | 923 | 281 | 29.09 | 738.9 | 30.15 | 765.8 | 20.3 | —6.5 | 85.6 | 7 | 6 | 1 | 3 | 10 | ..... | 1 | 1 | 1 | 7150 | 11507 | 5 | 0.34 | 8.6 |
| Saint Vincent | N. 48 56 | W. 97 14 | 5.39 a.m. | 804 | 245 | 29.21 | 741.9 | 30.14 | 765.5 | 17.0 | —8.3 | 86.6 | 4 | 11 | 1 | 3 | 7 | 2 | 2 | ..... | ..... | 6313 | 10160 | 4 | 0.42 | 10.7 |
| Bismarck | N. 46 47 | W. 100 38 | 5.26 a.m. | 1694 | 516 | 28.26 | 717 8 | 30.18 | 766.6 | 22.6 | —5.2 | 87.7 | 5 | 7 | 1 | 1 | 2 | 2 | 2 | 8 | 3827 | 6159 | 3 | 0.73 | 18.5 |
| Fort Buford | N. 48 00 | W. 103 56 | 5.12 a.m. | 1930 | 588 | 28.03 | 711.9 | 30.19 | 766.8 | 23.4 | —4.8 | 85.4 | 2 | 5 | 7 | ..... | 3 | 2 | 2 | 2 | 2 | 4977 | 8010 | 0 | 0.31 | 7.9 |
| Fort Totten | N. 47 57 | W. 98 57 | 5.32 a.m. | 1500 | 457 | 28.44 | 722.4 | ..... | ..... | 20.0 | —6.7 | 87.8 | 3 | 7 | 2 | 5 | 3 | 3 | 3 | 1 | 3 | 7670 | 12343 | 4 | 0.25 | 6.3 |
| *Northern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Assinaboine | N. 48 32 | W. 109 42 | 4.49 a.m. | 2720 | 829 | 27.23 | 691.6 | 30.22 | 767.6 | 31.1 | —0.5 | 69.9 | ..... | 3 | 5 | 14 | ..... | 1 | 3 | 3 | 1 | 9357 | 15058 | 3 | 0.42 | 10.7 |
| Fort Benton | N. 47 50 | W. 110 40 | 4.45 a.m. | 2681 | 817 | 27.32 | 693.9 | 30.27 | 768.8 | 26.2 | —3.2 | 68.7 | ..... | ..... | 3 | 13 | 3 | 2 | ..... | 4 | 5 | 5006 | 8056 | 4 | 0.29 | 7.4 |
| Fort Custer | N. 45 42 | W. 107 34 | 4.58 a.m. | 3040 | 926 | 26.94 | 684.3 | 30.26 | 768.6 | 27.3 | —2.6 | 78.8 | 1 | 3 | 4 | 2 | 1 | 13 | 2 | 4 | ..... | 3863 | 6217 | 4 | 0.37 | 9.4 |
| Fort Maginnis | N. 47 12 | W. 109 10 | 4.51 a.m. | 4340 | 1324 | 25.62 | 650.7 | 30.22 | 767.6 | 30.1 | —1.1 | 57.2 | 2 | 7 | 13 | 3 | ..... | 1 | 1 | 3 | ..... | 9730 | 15659 | 3 | 0.31 | 7.9 |
| Fort Shaw | N. 47 31 | W. 111 48 | 4.41 a.m. | 3550 | 1082 | 26.45 | 671.8 | 30.27 | 768.8 | 32.3 | 0.2 | 63.1 | 1 | 1 | 11 | 12 | 1 | ..... | 2 | 2 | ..... | 7685 | 12368 | 3 | 0.84 | 21.3 |
| Helena | N. 46 34 | W. 112 04 | 4.40 a.m. | 4044 | 1231 | 25.91 | 658.1 | 30.24 | 768.1 | 32.8 | 0.4 | 66.5 | 5 | 3 | 14 | 7 | ..... | ..... | ..... | ..... | 1 | 3664 | 5896 | 4 | 0.46 | 11.7 |
| Poplar River | N. 48 08 | W 105 10 | 5.07 a.m. | 2030 | 619 | 27.93 | 709.4 | 30.22 | 767 6 | 16.2 | —8.8 | 93.6 | 4 | 1 | 15 | ..... | 1 | ..... | 5 | ..... | 4 | 3328 | 5356 | 5 | 0.43 | 10.9 |
| Deadwood | N. 44 23 | W. 103 43 | 5.13 a.m. | 4600 | 1402 | 25.43 | 645.9 | 30 27 | 768.8 | 31.3 | —0.4 | 66.0 | ..... | 1 | 1 | 9 | 4 | 2 | 3 | 8 | 2 | 2079 | 3346 | 2 | 1.46 | 37.1 |
| Cheyenne | N. 41 08 | W. 104 48 | 5.09 a.m. | 6105 | 1861 | 24.06 | 611.1 | 30.29 | 769.4 | 29.5 | —1.4 | 66.9 | 4 | 20 | 4 | 1 | ..... | ..... | ..... | ..... | ..... | 8476 | 13641 | 1 | 0.18 | 4.6 |
| North Platte.a | N. 41 08 | W. 100 45 | 5.25 a.m. | 2841 | 866 | 27.17 | 690.1 | 30.25 | 768.3 | 27.1 | —2.7 | 75.4 | 2 | 7 | 8 | 3 | ..... | ..... | 2 | ..... | 7 | 4458 | 7174 | 3 | 0.04 | 1.0 |
| *Middle slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pike's Peak | N. 38 50 | W. 105 02 | 5.08 a.m. | 14134 | 4308 | 17.79 | 451.9 | 30.45 | 773.4 | 10.9 | —11.7 | 72.0 | 5 | 5 | 8 | 2 | 1 | 1 | 1 | 7 | ..... | 10182 | 16386 | 2 | 0.12 | 3.0 |
| Denver | N. 39 45 | W. 105 00 | 5.08 a.m. | 5294 | 1614 | 24.83 | 630.7 | 30.33 | 770.4 | 32.6 | 0.3 | 60.1 | 4 | 2 | 2 | ..... | 21 | 1 | ..... | ..... | ..... | 4820 | 7757 | 1 | 0.19 | 4.8 |
| W. Las Animas | N. 38 04 | W. 103 07 | 5.16 a.m. | 3905 | 1190 | 26.13 | 663.7 | 30.24 | 768.1 | 26.5 | —3.1 | 82.6 | 3 | 7 | 14 | ..... | 1 | 1 | ..... | 3 | 1 | 3847 | 6191 | 3 | 0.32 | 8.1 |
| Dodge City | N. 37 45 | W. 100 00 | 5.28 a.m. | 2517 | 767 | 27.50 | 698.5 | 30.24 | 768.1 | 33.1 | 0.6 | 85.7 | 4 | 9 | 5 | 5 | 1 | 2 | 1 | 1 | 2 | 5358 | 10232 | 3 | 0.83 | 21.1 |
| Fort Elliott | N. 35 30 | W. 100 21 | 5.27 a.m. | 2650 | 808 | 27.34 | 694.4 | 30.27 | 768.6 | 37.2 | 2.9 | 86.2 | 2 | 17 | ..... | 1 | 4 | 2 | ..... | ..... | 4 | 6170 | 9930 | 4 | 2.14 | 54.4 |
| *Southern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Sill | N. 34 40 | W. 98 23 | 5.34 a.m. | 1200 | 366 | 28.91 | 734 3 | 30.22 | 767 6 | 40.1 | 4.5 | 94.6 | 8 | 2 | ..... | 2 | 6 | ..... | 1 | ..... | 11 | 5419 | 8721 | 5 | 2.61 | 66.3 |
| Fort Concho | N. 31 25 | W. 100 24 | 5.26 a.m. | 1900 | 579 | 28.25 | 717.5 | 30.26 | 768.6 | 44.0 | 6.7 | 92.0 | 1 | 5 | 4 | 5 | 3 | ..... | 2 | 3 | 7 | 5229 | 8415 | 4 | 1.95 | 49.5 |
| Fort Stockton | N. 30 53 | W. 102 53 | 5.16 a.m. | 3010 | 917 | 27.09 | 688 1 | 30.21 | 767.3 | 44.6 | 7.0 | 88.1 | ..... | 2 | 1 | 6 | 6 | 5 | ..... | ..... | 10 | 4524 | 7280 | 3 | 0.82 | 20.8 |
| Fort Davis | N. 30 38 | W. 103 56 | 5.12 a.m. | 4928 | 1502 | 25 30 | 642.6 | 30.19 | 766.8 | 38.6 | 3.7 | 89.8 | 7 | ..... | ..... | 9 | 3 | ..... | ..... | 1 | 10 | 5231 | 8418 | 3 | 0.69 | 17.5 |
| *Southern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Thomas | N. 33 04 | W. 110 02 | 4.48 a.m. | 2710 | 826 | 27.37 | 695.2 | 30.21 | 767.3 | 38.4 | 3.6 | 66.7 | ..... | ..... | 5 | 5 | 6 | 10 | 1 | 1 | 2 | ..... | ..... | 2 | 0.56 | 14.2 |
| Fort Apache | N. 33 48 | W. 109 57 | 4.48 a.m. | 5050 | 1539 | 25 11 | 637.8 | 30.21 | 767.3 | 31.2 | —0.4 | 86.4 | 2 | 1 | 1 | ..... | 1 | 1 | 11 | 10 | 3 | 3295 | 5303 | 1 | 0.82 | 20.8 |
| Fort Grant | N. 32 39 | W. 109 57 | 4.48 a.m. | 4856 | 1480 | 25.28 | 642.1 | 30.12 | 765.0 | 46.6 | 8.1 | 55.3 | 4 | 3 | ..... | 1 | 4 | 3 | 3 | 6 | 6 | 5554 | 8938 | 2 | 0.53 | 13.5 |
| Prescott | N. 34 33 | W. 112 28 | 4.38 a.m. | 5389 | 1642 | 24.79 | 629.7 | 30.18 | 766.6 | 31.1 | —0.5 | 76.7 | 1 | 1 | 5 | 4 | 3 | 2 | 1 | ..... | 13 | 2137 | 3439 | 1 | 0.16 | 4.1 |
| Yuma | N. 32 45 | W. 114 36 | 4.30 a.m. | 141 | 43 | 29.84 | 757.9 | 29.99 | 761.7 | 53.7 | 12.1 | 75.4 | ..... | 2 | ..... | 1 | ..... | ..... | ..... | 19 | 8 | 2757 | 4437 | 1 | inap. | inap. |
| El Paso | N. 31 47 | W. 106 30 | 5.02 a.m. | 3764 | 1147 | 26.35 | 669.3 | 30.20 | 767.1 | 42.1 | 5.6 | 79.5 | 1 | 3 | 4 | 1 | ..... | 1 | 3 | 6 | 11 | 1609 | 2589 | 2 | 0.22 | 5.6 |
| *Middle plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salt Lake City | N. 40 46 | W. 111 54 | 4.40 a.m. | 4348 | 1325 | 25.78 | 654.8 | 30.35 | 770.9 | 36.2 | 2.3 | 60.3 | ..... | ..... | 1 | 1 | 1 | 3 | 8 | 5 | 11 | 2422 | 3858 | 2 | 0.50 | 12.7 |
| *Northern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boisé City | N. 43 37 | W. 116 08 | 4.24 a.m. | 2750 | 838 | 27 36 | 694.9 | 30.30 | 769.6 | 33.6 | 0.9 | 88.0 | 3 | 2 | 5 | ..... | ..... | 5 | 2 | 5 | 8 | 1503 | 2419 | 3 | 0.12 | 3.0 |
| Lewiston | N. 46 28 | W. 117 05 | 4.20 a.m. | 780 | 238 | 29.41 | 747.0 | 30.28 | 769 1 | 35.3 | 1.8 | 85.5 | ..... | ..... | ..... | 1 | ..... | ..... | 3 | ..... | 1 | 25 | 321 | 517 | 4 | 0.36 | 9.1 |
| Spokane Falls.b | N. 47 40 | W. 117 25 | 4.18 a.m. | 1910? | 582? | 28.12 | 714.2 | 30.20 | 767.1 | 33.2 | 0.7 | 90.1 | 5 | 7 | 1 | ..... | ..... | 1 | 1 | 6 | 7 | 1304 | 2098 | 6 | 0.59 | 15.0 |
| Dayton | N. 46 19 | W. 117 56 | 4.16 a.m. | 1667 | 508 | 28 42 | 721.9 | 30.21 | 767.3 | 35.4 | 1.9 | 93.7 | 1 | ..... | 1 | 9 | 1 | 2 | 1 | 8 | 7 | 2213 | 3561 | 3 | 0.25 | 6.3 |
| *N. Pac. coast reg'n* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Canby | N. 46 16 | W. 124 04 | 3.52 a.m. | 179 | 54 | 29.85 | 758.2 | 30.05 | 763 3 | 49.2 | 9.6 | 89.0 | 1 | ..... | ..... | ..... | ..... | 5 | 5 | 17 | 2 | ..... | 8648 | 13917 | 4 | 4.05 | 102.9 |
| Olympia | N. 47 03 | W. 122 53 | 3.57 a.m. | 36 | 11 | 30.06 | 763 5 | 30.10 | 764.5 | 45.6 | 7.6 | 90.6 | 2 | ..... | ..... | ..... | ..... | 6 | ..... | 1 | 21 | 569 | 916 | 7 | 1.37 | 34.8 |
| Tatoosh Id. | N. 48 23 | W. 124 44 | 3.49 a.m. | 86 | 26 | 29.93 | 760.2 | 30.03 | 762.7 | 47.8 | 8.8 | 88.5 | ..... | ..... | ..... | 2 | ..... | 8 | 20 | ..... | ..... | 13478 | 21690 | 6 | 6.80 | 172.7 |
| Portland | N. 45 32 | W. 122 43 | 3.57 a.m | 67 | 20 | 30.02 | 762.5 | 30.09 | 764.3 | 43.8 | 6.6 | 90.8 | 2 | 2 | 5 | 2 | 4 | ..... | 3 | 1 | 11 | 2082 | 3351 | 6 | 3.24 | 82.3 |
| Roseburg | N. 43 13 | W. 123 20 | 3.55 a.m. | 523 | 159 | 29.54 | 750.3 | 30.12 | 765.0 | 43.3 | 6.3 | 94 8 | 1 | 2 | ..... | ..... | 1 | 1 | 2 | 2 | 21 | 665 | 1070 | 3 | 0.79 | 20.1 |
| *Mid Pac. coast reg* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape Mendocino | N. 40 26 | W. 124 24 | 3.50 a.m. | 637 | 194 | 29.37 | 746.0 | 30.07 | 763.8 | 50.5 | 10.3 | 84.5 | 11 | ..... | ..... | ..... | 3 | 11 | ..... | 3 | 2 | 12942 | 20828 | 5 | 0.40 | 10.2 |
| Red Bluff | N. 40 10 | W. 122 15 | 3.59 a.m. | 332 | 101 | 29.74 | 755.4 | 30.11 | 764.8 | 47.2 | 8.4 | 77.5 | 12 | 16 | ..... | ..... | 1 | ..... | ..... | 1 | ..... | 2993 | 4617 | 2 | 0.04 | 1.0 |
| Sacramento | N. 38 35 | W. 121 30 | 4.02 a.m. | 64 | 19 | 30.01 | 762.2 | 30.08 | 764.0 | 48.2 | 9.0 | 85.5 | 6 | 1 | 2 | 2 | 2 | 7 | 2 | 1 | 7 | 2317 | 3729 | 2 | 0 | 0 |
| San Francisco | N. 37 48 | W. 122 26 | 3.58 a.m. | 60 | 18 | 30.01 | 762 2 | 30.08 | 764.0 | 53.6 | 12.0 | 89.8 | 1 | 5 | 1 | 9 | 1 | 5 | ..... | 6 | 2 | 4091 | 6584 | 4 | 0.26 | 6.6 |
| *S. Pac. coast reg'n.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Los Angeles | N. 34 03 | W. 118 15 | 4.15 a.m. | 299 | 91 | 29.66 | 753.4 | 30.06 | 763.5 | 51.2 | 10.7 | 81.4 | 1 | ..... | ..... | 2 | ..... | ..... | ..... | 2 | 23 | 3284 | 5285 | 2 | 1.07 | 27.2 |
| San Diego | N. 32 43 | W. 117 10 | 4.19 a.m. | 67 | 20 | 29.94 | 760.5 | 30.01 | 762.2 | 53.3 | 11.8 | 83.1 | 8 | 2 | 1 | ..... | ..... | ..... | ..... | 7 | 11 | 3234 | 5204 | 4 | 0.11 | 2.8 |
| *Alaska stations.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ft. St. Michael's | N. 63 48 | W. 162 00 | 1.20 a.m. | 30 | 9 | 29.55 | 750.6 | 29.58 | 751.3 | 16.5 | —8.6 | 92.8 | 8 | 1 | 2 | ..... | 4 | 3 | 2 | 8 | 2 | 10466 | 16843 | 5 | 0.60 | 15.2 |
| Sitka | N. 57 03 | W. 135 19 | 3.07 a m. | 63 | 19 | 29.62 | 752.3 | 29.69 | 754.1 | 42.5 | 5.8 | 81.4 | 3 | ..... | ..... | 1 | ..... | 4 | 18 | ..... | 4 | 8589 | 13822 | 8 | 16.31 | 414.3 |
| Unalashka | N 53 53 | W. 166 32 | 1.02 a.m. | 13 | 4 | 29.27 | 743.4 | 29.29 | 744.0 | 36.5 | 2.5 | 81.5 | 6 | 3 | ..... | 5 | 8 | 4 | 4 | ..... | ..... | 8936 | 14361 | 7 | 19.89 | 505.2 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bluefields | N. 12 00 | W. 83 43 | 6.31 a.m. | 20 | 6 | 29.91 | 759.7 | 29.93 | 760.2 | 74.8 | 23.8 | 94.1 | 8 | 19 | 2 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 8 | 9.71 | 246.6 |
| Paramaribo | N. 5 50 | W. 55 13 | 8.27 a.m. | 6 | 2 | 30.05 | 763.3 | 30.05 | 763.3 | 80.4 | 26.9 | 77.0 | ..... | ..... | ..... | ..... | ..... | 7 | 22 | 1 | ..... | ..... | ..... | 8 | 1.27 | 32.3 |
| Puerto Berrio | N. 6 22 | W. 74 28 | 7.10 a.m. | 542 | 165 | ..... | ..... | ..... | ..... | 76.0 | 24.4 | 91.0 | 6 | ..... | ..... | 1 | 3 | ..... | ..... | ..... | 20 | ..... | ..... | 8 | 7.25 | 184.1 |
| Rivas | N. 11 26 | W. 85 47 | 6.25 a.m. | 150 | 46 | 29.84 | 757.9 | 30.00 | 762.0 | 75.8 | 24.3 | 86.3 | ..... | 3 | ..... | 1 | ..... | 4 | ..... | 22 | ..... | ..... | ..... | 5 | 7.43 | 188.7 |

RETARDED OBSERVATIONS.—GODTHAAB.

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May, 1884 | N. 64 11 | W. 51 46 | 8.41 a.m. | 36 | 11 | 29.95 | 760.8 | 30.00 | 761.9 | 32.5 | 0.3 | 81 | 4 | 2 | ..... | 4 | 5 | 1 | 2 | 10 | 3 | ..... | ..... | 7 | ..... | ..... |
| June, 1884 | | | | | | 29.52 | 749.8 | 29.56 | 750.9 | 37.9 | 3.3 | 83 | 3 | 2 | 1 | 4 | 7 | 1 | 1 | 10 | 1 | ..... | ..... | 8 | ..... | ..... |
| July, 1884 | | | | | | 29.91 | 759.8 | 29.96 | 760.9 | 43.0 | 6.1 | 82 | 4 | 1 | 1 | 10 | 4 | ..... | 1 | 10 | ..... | ..... | ..... | 7 | ..... | ..... |
| August, 1884 | | | | | | 29.66 | 753.3 | 29.70 | 754.4 | 39.9 | 4.4 | 85 | 4 | ..... | 2 | 4 | 12 | ..... | 2 | 6 | 1 | ..... | ..... | 7 | ..... | ..... |
| September, 1884.f | | | | | | 29.55 | 750.6 | 29.60 | 751.7 | 34.3 | 1.3 | 87 | 5 | 2 | 2 | 2 | 3 | ..... | 3 | 6 | 1 | ..... | ..... | 7 | ..... | ..... |

## OCEAN SQUARE DATA FOR NOVEMBER, 1884.

| Location of Centre of each Square. | Barometer. | | Temperature. | | Wind Frequency. | | | | | | | | | | Wind force 0–10. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch. | Mill. | Fah. | Cent. | N. | NW. | W. | SW. | S. | SE. | E. | NE. | Calm. | Blank. | |
| ° ° N. 12.5 W. 22.5 | 29.98 | 761.5 | 79.6 | 26.4 | 3 | | | | | | 11 | 14 | 2 | | 3.1 |
| 12.5 27.5 | 30.01 | 762.2 | 79.9 | 26.6 | | | | | 1 | | 10 | 5 | 4 | | 3.3 |
| 12.5 32.5 | 30.02 | 762.5 | 80.6 | 27.0 | 1 | | | | | 3 | 24 | 1 | 1 | | 3.8 |
| 12.5 37.5 | 30.01 | 762.2 | 83.7 | 28.7 | | | | | | 2 | 24 | 4 | | | 4.1 |
| 12.5 42.5 | 30.01 | 762.2 | 81.3 | 27.4 | | | | | | 1 | 19 | 10 | | | 4.4 |
| 12.5 47.5 | 30.04 | 763.0 | 81.1 | 27.3 | | | | | | | 23 | 7 | | | 4.1 |
| 12.5 52.5 | 30.04 | 763.0 | 80.7 | 27.1 | | | | | 1 | 6 | 23 | | | | 3.7 |
| 17.5 22.5 | 30.00 | 762.0 | 77.7 | 25.4 | 6 | 1 | | | | | 3 | 20 | | | 3.5 |
| 17.5 27.5 | 30.01 | 763.0 | 78.2 | 25.7 | 2 | 2 | 1 | | | | 11 | 14 | | | 3.7 |
| 17.5 32.5 | 30.06 | 763.5 | 78.8 | 26.0 | 4 | | | | | 1 | 19 | 6 | | | 4.4 |
| 17.5 37.5 | 30.06 | 763.5 | 79.2 | 26.2 | 1 | | | | | | 23 | 6 | | | 4.6 |
| 17.5 42.5 | 30.06 | 763.5 | 79.6 | 26.4 | | | | | | 1 | 19 | 10 | | | 4.6 |
| 17.5 47.5 | 30.08 | 764.0 | 79.4 | 26.3 | | | | | | 1 | 26 | 3 | | | 3.9 |
| 17.5 52.5 | 30.06 | 763.5 | 79.6 | 26.4 | | | | | | 9 | 21 | | | | 3.7 |
| 17.5 57.5 | 30.01 | 762.2 | 79.8 | 26.6 | | | | | | 13 | 16 | 1 | | | 3.2 |
| 22.5 22.5 | 30.03 | 762.7 | 74.7 | 23.7 | 7 | 5 | | | | | | 17 | 1 | | 3.7 |
| 22.5 27.5 | 30.08 | 764.0 | 75.4 | 24.1 | 5 | 4 | | | | | 5 | 10 | | | 4.0 |
| 22.5 32.5 | 30.11 | 764.8 | 76.0 | 24.4 | 9 | 1 | | | | | 13 | 7 | | | 4.1 |
| 22.5 37.5 | 30.13 | 765.3 | 76.6 | 24.8 | 1 | | 1 | | | 1 | 18 | 9 | | | 4.2 |
| 22.5 42.5 | 30.14 | 765.5 | 77.0 | 25.0 | 2 | | 1 | | | 3 | 17 | 7 | | | 3.8 |
| 22.5 47.5 | 30.14 | 765.5 | 77.3 | 25.2 | 2 | | | | | 3 | 19 | 6 | | | 4.0 |
| 22.5 52.5 | 30.12 | 765.0 | 77.6 | 25.3 | | | | | | 5 | 21 | 4 | | | 3.4 |
| 22.5 57.5 | 30.09 | 764.3 | 77.8 | 25.4 | 1 | | | | | 8 | 18 | 2 | 1 | | 3.3 |
| 22.5 62.5 | 30.07 | 763.8 | 77.2 | 25.1 | 1 | | | | 2 | 7 | 16 | 3 | 1 | | 3.4 |
| 22.5 67.5 | 30.04 | 763.0 | 77.6 | 25.3 | | | | | 3 | 8 | 16 | 3 | | | 3.0 |
| 22.5 72.5 | 30.02 | 762.5 | 78.0 | 25.6 | 2 | | | | 1 | 8 | 15 | 2 | | | 2.9 |
| 27.5 22.5 | 30.05 | 763.3 | 71.2 | 21.8 | 7 | 8 | 1 | | | | 2 | 12 | | | 3.9 |
| 27.5 27.5 | 30.11 | 764.8 | 72.1 | 22.3 | 9 | 1 | 1 | | | 1 | 3 | 14 | 1 | | 3.8 |
| 27.5 32.5 | 30.17 | 766.3 | 72.9 | 22.7 | 7 | 4 | 1 | | | 3 | 10 | 5 | | | 3.5 |
| 27.5 37.5 | 30.19 | 766.8 | 73.8 | 23.2 | 7 | | 1 | 1 | 1 | 4 | 12 | 4 | | | 4.0 |
| 27.5 42.5 | 30.21 | 767.3 | 74.3 | 23.5 | 4 | | 1 | 1 | 3 | 3 | 11 | 7 | | | 4.0 |
| 27.5 47.5 | 30.19 | 766.8 | 74.7 | 23.7 | 2 | 1 | | 2 | | 6 | 11 | 7 | | 1 | 4.0 |
| 27.5 52.5 | 30.17 | 766.3 | 75.1 | 23.9 | 4 | | | 1 | 2 | 6 | 12 | 3 | 1 | 1 | 3.7 |
| 27.5 57.5 | 30.15 | 765.8 | 75.0 | 23.9 | 3 | 1 | 1 | | 1 | 7 | 12 | 2 | 1 | | 3.6 |
| 27.5 62.5 | 30.14 | 765.5 | 74.5 | 23.6 | 6 | 1 | | 1 | 7 | 7 | 5 | 2 | 1 | | 3.5 |
| 27.5 67.5 | 30.09 | 764.3 | 74.3 | 23.5 | 3 | 1 | 2 | 1 | 5 | 5 | 7 | 6 | | | 3.6 |
| 27.5 72.5 | 30.08 | 764.0 | 73.4 | 23.0 | 3 | 2 | 1 | 3 | 3 | 4 | 6 | 7 | 1 | | 3.4 |
| 27.5 77.5 | 30.08 | 764.0 | 71.9 | 22.2 | 3 | 1 | | 2 | 2 | 2 | 12 | 6 | | | 3.0 |
| 32.5 12.5 | 30.02 | 762.5 | 67.3 | 19.6 | 9 | | 1 | 2 | 5 | 3 | 8 | 2 | | | 3.2 |
| 32.5 17.5 | 30.01 | 762.2 | 66.4 | 19.1 | 6 | 2 | 5 | 3 | | | 4 | 6 | 4 | | 2.1 |
| 32.5 22.5 | 30.07 | 763.8 | 67.3 | 19.6 | 8 | 2 | 4 | 2 | | | 2 | 12 | | | 3.8 |
| 32.5 27.5 | 30.13 | 765.3 | 68.1 | 20.1 | 9 | 2 | 3 | | 1 | 1 | 4 | 10 | | | 3.9 |
| 32.5 32.5 | 30.20 | 767.1 | 68.9 | 20.5 | 5 | 3 | 4 | | 4 | 2 | 4 | 8 | | | 4.0 |
| 32.5 37.5 | 30.21 | 767.3 | 70.0 | 21.1 | 6 | 1 | 4 | 2 | 3 | 2 | 5 | 6 | | 1 | 4.4 |
| 32.5 42.5 | 30.22 | 767.6 | 70.5 | 21.4 | 7 | 1 | 2 | 4 | 4 | 2 | 4 | 5 | | 1 | 3.9 |
| 32.5 47.5 | 30.20 | 767.1 | 71.2 | 21.8 | 3 | 3 | 2 | 3 | 4 | 6 | 2 | 7 | | | 4.2 |
| 32.5 52.5 | 30.19 | 766.8 | 71.2 | 21.8 | 4 | 2 | 2 | 5 | 7 | 3 | 4 | 2 | 1 | | 4.1 |
| 32.5 57.5 | 30.16 | 766.1 | 70.7 | 21.5 | 3 | 2 | 3 | 5 | 3 | 5 | 4 | 3 | 1 | 1 | 4.3 |
| 32.5 62.5 | 30.11 | 764.8 | 70.4 | 21.3 | 2 | 5 | 4 | 5 | 2 | 1 | 7 | 3 | 1 | | 4.0 |
| 32.5 67.5 | 30.09 | 764.3 | 69.5 | 20.8 | 8 | 4 | 1 | 5 | | 5 | 3 | 3 | 1 | | 4.1 |
| 32.5 72.5 | 30.09 | 764.3 | 66.8 | 19.3 | 5 | 3 | 3 | 3 | 2 | 3 | 4 | 5 | 2 | | 4.2 |
| 32.5 77.5 | 30.12 | 765.0 | 58.0 | 14.4 | 4 | 6 | 1 | 1 | 2 | 3 | 5 | 8 | | | 3.9 |
| 37.5 12.5 | 30.07 | 763.8 | 62.0 | 16.7 | 4 | 3 | 1 | | 6 | 4 | 5 | 7 | | | 4.3 |
| 37.5 17.5 | 30.06 | 763.5 | 63.1 | 17.3 | 3 | 3 | 2 | 1 | 4 | 3 | 8 | 5 | 1 | | 4.1 |
| 37.5 22.5 | 30.08 | 764.0 | 63.9 | 17.7 | 4 | 5 | 3 | 3 | 1 | 4 | 3 | 5 | 3 | | 4.1 |
| 37.5 27.5 | 30.13 | 765.3 | 63.7 | 17.6 | 5 | 4 | 6 | 2 | | 3 | 2 | 6 | 2 | | 4.9 |
| 37.5 32.5 | 30.17 | 766.3 | 64.1 | 17.8 | 4 | 5 | 5 | 3 | 3 | 2 | 3 | 5 | | | 4.6 |
| 37.5 37.5 | 30.19 | 766.8 | 64.3 | 17.9 | 4 | 5 | 6 | 3 | 1 | 3 | 4 | 4 | | | 4.4 |
| 37.5 42.5 | 30.19 | 766.8 | 64.2 | 17.9 | 6 | 6 | 6 | 5 | 3 | 1 | 1 | 2 | | | 4.5 |
| 37.5 47.5 | 30.16 | 766.1 | 64.1 | 17.8 | 6 | 4 | 7 | 6 | 2 | 2 | 2 | | 1 | | 4.9 |
| 37.5 52.5 | 30.12 | 765.0 | 64.1 | 17.8 | 3 | 4 | 7 | 7 | 6 | 2 | | 1 | | | 4.7 |
| 37.5 57.5 | 30.08 | 764.0 | 63.2 | 17.3 | 5 | 7 | 2 | 5 | 6 | 2 | 2 | 1 | | | 5.0 |
| 37.5 62.5 | 30.05 | 763.3 | 62.8 | 17.1 | 5 | 7 | 4 | 5 | 3 | 2 | 2 | 2 | | | 5.3 |
| 37.5 67.5 | 30.05 | 763.3 | 60.4 | 15.8 | 6 | 8 | 2 | 6 | | 4 | | 3 | 1 | | 5.0 |
| 37.5 72.5 | 30.09 | 764.3 | 53.9 | 12.2 | 9 | 9 | 3 | | 2 | 2 | 3 | 2 | | | 4.6 |
| 42.5 12.5 | 30.11 | 764.8 | 58.8 | 14.9 | 3 | 1 | 3 | 4 | 2 | 5 | 7 | 5 | | | 3.9 |
| 42.5 17.5 | 30.11 | 764.8 | 59.6 | 15.3 | 3 | 2 | 4 | 3 | 2 | 5 | 5 | 6 | | | 3.1 |
| 42.5 22.5 | 30.11 | 764.8 | 59.7 | 15.4 | 1 | 4 | 3 | 3 | 4 | 4 | 8 | 3 | | | 4.8 |
| 42.5 27.5 | 30.09 | 764.3 | 58.9 | 14.9 | 1 | 3 | 4 | 8 | 2 | 3 | 5 | 4 | | | 5.2 |
| 42.5 32.5 | 30.08 | 764.0 | 58.7 | 14.8 | 1 | 7 | 5 | 7 | 3 | 1 | 2 | 4 | | | 5.0 |
| 42.5 37.5 | 30.08 | 764.0 | 57.5 | 14.2 | 1 | 0 | 5 | 9 | 2 | 2 | 3 | | | | 5.6 |
| 42.5 42.5 | 30.04 | 763.0 | 55.2 | 12.9 | 1 | 7 | 9 | 8 | 2 | 2 | 1 | | | | 5.4 |
| 42.5 47.5 | 30.03 | 762.7 | 52.9 | 11.6 | | 9 | 8 | 7 | 3 | 1 | 2 | | | | 5.4 |
| 42.5 52.5 | 30.01 | 762.2 | 51.5 | 10.8 | 1 | 8 | 10 | 6 | 3 | 2 | | | | | 5.8 |
| 42.5 57.5 | 29.99 | 761.7 | 50.4 | 10.2 | 3 | 13 | 5 | 2 | 4 | 3 | | | | | 5.2 |
| 42.5 62.5 | 30.00 | 762.0 | 48.9 | 9.4 | 4 | 10 | 3 | 2 | 5 | 3 | 1 | 1 | | 1 | 4.8 |
| 42.5 67.5 | 30.00 | 762.0 | 43.5 | 6.4 | 3 | 9 | 5 | 3 | 5 | | 4 | | 1 | | 4.2 |
| 47.5 12.5 | 30.17 | 766.3 | 54.9 | 12.7 | 4 | 1 | 3 | 3 | 4 | 3 | 5 | 6 | | 1 | 4.6 |
| 47.5 17.5 | 30.16 | 766.1 | 55.6 | 13.1 | 3 | 3 | 5 | 3 | 4 | 6 | 3 | 3 | | | 5.0 |
| 47.5 22.5 | 30.12 | 765.0 | 54.9 | 12.7 | 2 | 4 | 3 | 6 | 3 | 7 | 4 | 1 | | | 5.5 |
| 47.5 27.5 | 30.04 | 763.0 | 54.0 | 12.2 | | 4 | 3 | 7 | 6 | 5 | 3 | 2 | | | 5.2 |
| 47.5 32.5 | 29.98 | 761.5 | 52.4 | 11.3 | | 7 | 5 | 7 | 6 | 3 | | 2 | | | 5.4 |
| 47.5 37.5 | 29.96 | 761.0 | 50.4 | 10.2 | | 9 | 6 | 8 | 4 | 2 | | 1 | | | 5.4 |
| 47.5 42.5 | 29.90 | 759.4 | 45.2 | 7.3 | 1 | 13 | 3 | 8 | 3 | 1 | | | | 1 | 5.7 |
| 47.5 47.5 | 29.88 | 758.9 | 40.5 | 4.7 | 1 | 12 | 7 | 2 | 5 | 2 | | 1 | | | 5.1 |
| 52.5 12.5 | 30.14 | 765.5 | 49.4 | 9.7 | 5 | 5 | 5 | 5 | 6 | | 4 | | | | 4.4 |
| 52.5 17.5 | 30.11 | 764.8 | 50.8 | 10.4 | 2 | 5 | 5 | 6 | 6 | 4 | 2 | | | | 5.0 |
| 52.5 22.5 | 30.04 | 763.0 | 49.6 | 9.8 | | 4 | 6 | 8 | 5 | 6 | 1 | | | | 5.7 |
| 52.5 27.5 | 29.94 | 760.5 | 47.7 | 8.7 | | 2 | 5 | 9 | 8 | 5 | 1 | | | | 5.7 |
| 52.5 32.5 | 29.87 | 758.7 | 45.6 | 7.6 | | 6 | 4 | 5 | 8 | 5 | | 2 | | | 5.6 |
| 52.5 37.5 | 29.82 | 757.4 | 43.3 | 6.3 | | 9 | 5 | 4 | 8 | 3 | 1 | | | | 6.1 |
| 52.5 42.5 | 29.78 | 756.4 | 40.4 | 4.7 | 3 | 5 | 5 | 6 | 4 | | 1 | | | 6 | 5.5 |
| 52.5 47.5 | 29.76 | 755.9 | | | 2 | 8 | 1 | 4 | 7 | 1 | | | | 7 | 5.8 |
| 57.5 12.5 | 30.00 | 762.0 | 44.5 | 6.9 | 4 | 4 | 9 | 6 | 3 | 1 | 1 | 2 | | | 4.8 |
| 57.5 17.5 | 29.97 | 761.2 | 43.9 | 6.6 | 2 | 4 | 5 | 10 | 6 | 2 | | 1 | | | 5.1 |
| 57.5 22.5 | 29.89 | 759.2 | 42.8 | 6.0 | 1 | 3 | 4 | 9 | 7 | 4 | | 1 | | 1 | 5.4 |
| 57.5 27.5 | 29.82 | 757.4 | 41.0 | 5.0 | 1 | 3 | 3 | 9 | 4 | 6 | 1 | | | 3 | 5.3 |
| 57.5 32.5 | 29.79 | 756.7 | 38.9 | 3.8 | 1 | 3 | 2 | 7 | 7 | 4 | | 1 | | 5 | 5.3 |
| 57.5 37.5 | | | | | 3 | 2 | 1 | 3 | 5 | 3 | | | | 13 | |
| 57.5 42.5 | | | | | | | | | | | | | | | |
| 57.5 47.5 | | | | | | | | | | | | | | | |

## REVIEW.

### INTERNATIONAL METEOROLOGY FOR NOVEMBER, 1884.

[*Pressure expressed in inches and millimetres; temperature in degrees, Fahrenheit and Centigrade; wind-force by scale of* 0–10.]

The following refers to chart ii for the month of November, 1884. This chart continues the series of international charts begun in January, 1877, and exhibits the mean pressure, mean temperature, and the prevailing wind-directions over the northern hemisphere, as determined from one simultaneous observation taken each day at 7 a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time.

Two areas of low mean pressure are shown on the chart for November, 1884; the first of these occupies that part of the north Pacific Ocean lying north of the fiftieth parallel, the mean pressure ranging from 29.29 (744.0), at Unalashka, Aleutian Islands, to 29.7 (754.4), at Sitka, Alaska. The second area of barometric minima is shown over the extreme northern part of Scandinavia, the mean pressure at Gjæsvær being 29.58 (751.3); to the southward and eastward of the last-mentioned area of low mean pressure the barometric gradients increase somewhat rapidly, but the increase is much less rapid in a southwesterly direction, and the area of low pressures apparently extends southwestward to the Gulf of Saint Lawrence. In the United States the mean atmospheric pressure exceeds 30.0 (762.0); in Canada it ranges from 29.9 (759.4) to 30.0 (762.0). In northwestern Europe it is less than 30.0 (762.0), but in all other parts of the continent it exceeds that amount. In British India it ranges from 29.9 (759.4) to 30.0 (762.0).

The areas of barometric maxima are four in number. The first occupies central Siberia and the northern part of central China, and is enclosed by the isobar for 30.4 (772.1); in all other parts of Asia north of 30° N., except northeastern Siberia, the mean pressure apparently exceeds 30.0 (762.0). The second area of high pressures is shown in the United States; it is indicated by the isobar for 30.3 (769.6), and covers southern Idaho, Wyoming, Utah, and Colorado, the highest mean being 30.35 (770.9), at Salt Lake City, Utah. A small area of high pressures, enclosed by the isobar for 30.2 (767.1), occupies Tennessee; and in all other parts of the United States, except the Lake region, New England, and the Pacific coast, the mean pressure exceeds 30.1 (764.5). The third area of barometric maxima is that of the Atlantic Ocean; this area is enclosed by the isobar for 30.2 (767.1), and covers that part of the ocean between N. 28° and 35° and W. 33° and 46°. Over that part of the Atlantic lying between the parallels of 10° and 40°, except near the west coast of northern Africa, the atmospheric pressure exceeds 30.0 (762.0). The fourth high area is also enclosed by the isobar for 30.2 (767.1), and occupies western France and the Bay of Biscay.

Compared with the chart for the preceding month (October, 1884), there has been an increase of pressure over that part of the United States lying west of the Mississippi River; in the lower lake region, New England, and along the Atlantic coast there has been a slight decrease; elsewhere there has been no material change. In Canada there has been a decrease of pressure. Over the Atlantic Ocean the changes are very slight and unimportant. Throughout the entire continent of Europe there has been an increase of pressure, the changes being greatest in the northern peninsulas, and least in Spain. In northern Japan and northeastern Siberia the pressure is less than that of the preceding month, but in other parts of Asia there has been a slight increase.

Compared with the corresponding month of previous years, the mean atmospheric pressure over the United States was normal, or above, over the country between W. 117° and 100°, and was below the normal on the Pacific coast and over the region east of the ninety-second meridian. In Canada it was also below the normal. In Europe the mean pressure for November, 1884, everywhere exceeded the normal. In British India it was .02 inch above the seven years' mean.

The following table shows the mean pressure and mean temperature for November, 1884, in the several countries of the eastern hemisphere, and the departures as compared with the means determined from observations taken during the last seven years:

| Countries. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Nov. mean of 7 (1877-'83) years. | Nov., 1884. | Departure. | Nov. mean of 7 (1877-'83) years. | Nov., 1884. | Departure. |
| | | | | ° | ° | ° |
| Algeria | 30.12 | | | 63.8 | | |
| Austro-Hungary | 30.03 | 30 16 | + 0.13 | 44.1 | 39.9 | — 5.2 |
| British Isles | 29.84 | 30.14 | + 0.30 | 46.1 | 45.5 | — 0.6 |
| Denmark | 29.76 | 30.08 | + 0.32 | 41.4 | 38.6 | — 2.8 |
| France | 30.01 | 30.19 | + 0.18 | 48.9 | 47.6 | — 1.3 |
| Germany | 29.92 | 30.15 | + 0.23 | 42.5 | 38.9 | — 3.6 |
| India | 29.94 | 29.96 | + 0.02 | 74.6 | 73.8 | — 0.8 |
| Italy | 30.02 | 30.11 | + 0.09 | 55.8 | 52.9 | — 2.9 |
| Norway | 29.69 | 29.94 | + 0.25 | 39.9 | 36.5 | — 3.4 |
| Portugal | 30.12 | | | 58.7 | | |
| Russia | 29.98 | 30.13 | + 0.15 | 37.7 | 33.2 | — 4.5 |
| Spain | 30.10 | 30.15 | + 0.05 | 58.0 | 55.9 | — 2.1 |
| Sweden | 29.73 | 29.97 | + 0.24 | 30.9 | 30.6 | — 0.3 |

The accompanying table shows the deviations in pressure and temperature at isolated stations during the month of November, 1884, as compared with the means for seven years:

| Stations. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Nov. mean of 7 (1877-'83) years. | Nov., 1884. | Departure. | Nov. mean of 7 (1877-'83) years. | Nov., 1884. | Departure. |
| | | | | ° | ° | ° |
| Astrakhan, Russia | 30.23 | 30.29 | + 0.06 | 42.7 | 40.3 | — 2.4 |
| Archangel, Russia | 29.75 | 29.94 | + 0.19 | 23.5 | 25.0 | + 1.5 |
| Angra, Azores | | | | | | |
| Athens, Greece | 30.07 | 30.07 | 0.00 | 63.3 | 57.0 | — 6.3 |
| Beirut, Turkey in Asia | 30.02 | 30.04 | + 0.02 | 72.0 | 69.4 | — 2.6 |
| Barnaul, Siberia, Asia | 30.32 | 30.40 | + 0.08 | 18.4 | 14.7 | — 3.7 |
| Bridgetown, Barbadoes | | 29.94 | | | 81.2 | |
| Cape Town, Cape of Good Hope † | 30.01 | | | 73.9 | 66.7 | — 7.2 |
| Cagliari, Sardinia, Italy | 30.01 | 30.05 | + 0.04 | 63.9 | 60.1 | — 3.8 |
| Ekaterinburg, Russia | 30.08 | 30.24 | + 0.16 | 23.6 | 22.3 | — 1.3 |
| Fort Napier, Natal, South Africa | 29.80 | 29.86 | + 0.06 | 75.7 | 74.8 | — 0.9 |
| Freetown, Sierra Leone | 29.90 | 29.88 | — 0.02 | 85.1 | 85.1 | 0.0 |
| Funchal, Madeira Islands | 30.13 | 30.00 | — 0.13 | 69.4 | 66.6 | — 2.8 |
| Gibraltar | 30.11 | 30.05 | — 0.06 | 64.9 | 61.4 | — 3.5 |
| Godthaab, Greenland | 29.61 | | | 24.9 | | |
| Havana, Cuba, W. I | 30.03 | 30.03 | 0.00 | 73.4 | 72.7 | — 0.7 |
| Malta, Mediterranean Sea | 30.03 | 30.06 | + 0.03 | 67.4 | 63.9 | — 3.5 |
| Mauritius, Indian Ocean | 30.02 | 30.02 | 0.00 | 77.6 | 77.1 | — 0.5 |
| Melbourne, New South Wales | 29.95 | 30.02 | + 0.07 | 57.1 | 57.2 | + 0.1 |
| Mexico, Mexico † | 30.31 | 30.23 | — 0.08 | 49.0 | 46.6 | — 2.4 |
| Nassau, Bahamas, W. I. | 30.06 | 30.06 | 0.00 | 76.0 | 76.6 | + 0.6 |
| Nikolaevsk on the Amoor, Asia † | | | | 12.7 | 10.6 | — 2.1 |
| Paramaribo, D. Guiana, S. A | 29.97 | 30.05 | + 0.08 | 81.2 | 80.4 | — 0.8 |
| Pekin, China | 30.31 | | | 36.9 | | |
| Ponta Delgada, Azores | 30.17 | 30.13 | — 0.04 | 65.0 | 63.3 | — 1.7 |
| Sandwick Manse, Orkney Islands | 29.63 | 29.98 | + 0.35 | 43.0 | 43.3 | + 0.3 |
| San Juan de Puerto Rico, W. I | 29.97 | 30.02 | + 0.05 | 78.5 | 77.2 | — 1.3 |
| Stykkisholm, Iceland | 29.55 | 29.74 | + 0.19 | 31.8 | 34.0 | + 2.2 |
| Tashkend, Toorkistan, Asia | 30.33 | 30.34 | + 0.01 | 44.5 | 45.3 | + 0.8 |
| Thorshavn, Færöe Islands | 29.56 | 29.91 | + 0.35 | 41.0 | 40.8 | — 0.2 |
| Tiflis, Russia | 30.23 | 30.21 | — 0.02 | 54.8 | 51.8 | — 3.0 |
| Tokei, Japan | 30.07 | 30.02 | — 0.05 | 47.7 | 43.4 | — 4.3 |
| Yeniseisk, Siberia, Asia | 30.31 | 30.42 | + 0.11 | 8.6 | 11.8 | + 3.2 |
| York Factory, B. A | 30.02 | | | 1.3 | | |
| Zi-Ka-Wei, China | 30.29 | 30.30 | + 0.01 | 52.2 | 45.5 | — 6.7 |

† Means of five years only.

In the United States the mean temperature of the air was above the normal, except in the Gulf States and in the Lake region, where it was slightly below the average; in Canada it was below the normal; in Manitoba and the Northwest it was above. In Europe it was below the normal, generally. In British India it was 0°.8 below the normal as determined from seven years' observations; the highest mean temperature there reported was 81°.9 Fahr. (27°.7 Cent.), at Deesa, and the lowest was 64°.9 Fahr. (18°.3 Cent.), at Allahabad.

The following are some of the extremes reported at isolated stations:

| Highest. | Fahr. | Cent. | Lowest. | Fahr. | Cent. |
|---|---|---|---|---|---|
| | ° | ° | | ° | ° |
| Freetown, Sierra Leone | 85.1 | 29.5 | Nerchinsk, Siberia | 5.9 | —14.5 |
| Bridgetown, Barbadoes | 81.2 | 27.3 | Nikolaevsk on the Amoor, Asia | 10.6 | —11.9 |
| Paramaribo, Dutch Guiana, S. A. | 80.4 | 26.9 | Yeniseisk, Siberia | 11.8 | —11.2 |
| Manila, Philippine Islands | 77.7 | 25.4 | Semipalatinsk, Siberia | 14.0 | —10.0 |
| San Juan de Puerto Rico, W. I. | 77.2 | 25.1 | Barnaul, Siberia | 14.7 | — 9.6 |

NOTE.—Report from York Factory, B. A., not received.

In the United States the prevailing winds were westerly and northerly; in Canada they were westerly and northwesterly. Over the Atlantic Ocean between N. 35° and 60° and from W. 70° eastward to W. 35° the winds were westerly and northwesterly; between the above-mentioned parallels and from W. 35° eastward to the European coasts the winds were northeasterly and southwesterly; south of 35° N. they were easterly and northeasterly. In Europe the winds were variable, being mostly from s. to n. by sw. and w.

The precipitation during November, 1884, was less than the average in the United States, except in Florida, in the south Atlantic coast district, and on the eastern slope of the Rocky Mountains, in which districts there was a slight excess; in Canada it was greater than the average, except in Ontario. In central Europe the rainfall was less than the average.

TRACKS OF AREAS OF LOW PRESSURE FOR NOVEMBER, 1884.

Chart iii exhibits the paths of the areas of low pressure that appeared in the northern hemisphere during November, 1884. This chart continues the series of international charts begun in November, 1877, and in its preparation the following data have been used, viz.: Chart i, for each day of the month, containing the data of one simultaneous observation taken at 7 a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time; abstracts of ships' logs; special reports; and other miscellaneous data on file at this office.

The chart for November, 1884, shows the paths of thirty-six areas of low pressure; of this number, ten (i to x, inclusive) are traced over the North American continent; eleven (xi to xxi, inclusive) are shown over the Atlantic Ocean; eight (xxii to xxix, inclusive) are traced in Europe; and the remainder (xxx to xxxvi, inclusive) appeared over Japan and the Pacific Ocean. In addition to the above is also shown the path of a typhoon which passed over the Philippine Islands and the China Sea during the period from November 17th to 21st; the track of the latter is copied from the "Bulletin Mensuel," edited by the Rev. Marc Dechevrens, director of the Zi-Ka-Wei Meteorological Observatory. This typhoon, advancing from the east, entered Luzon on the 18th; its passage over that island was attended by heavy rains, but in other respects it appears to have been less violent than former typhoons. On reaching the China Sea, however, it apparently developed great energy, several vessels that encountered it having sustained serious damage from its violence. When crossing Luzon the barometer at Manila read 29.72 (754.9) on the 18th, but no observations are at hand which indicate the pressure over the China Sea during the prevalence of the typhoon, which did not entirely disappear from that region until the 27th.

Of the depressions traced in the United States and Canada, four moved from the British Northwest Territories southeastward to the Lake region, the centres passing mostly north of the Lakes, and thence over Canada to the Gulf of Saint Lawrence; three appeared in eastern Canada, one being a continuation of a storm which appeared at the close of October; one appeared in Colorado and passed to the Lake region; one developed in Arkansas and moved to the Lake region, where it apparently divided, one part moving eastward to the Atlantic coast and the other northeastward down the Saint Lawrence Valley; on reaching the Gulf these storms again united. One area of low pressure appeared over the western part of the Gulf of Mexico; it moved northeastward over the Gulf States and passed off the Virginia coast; it continued its northeasterly movement, skirting the New England coast, and entered the Bay of Fundy on the 29th, after which it apparently filled in over the Gulf of Saint Lawrence. Descriptions of the storms which passed over the United States and Canada will be found in the MONTHLY WEATHER REVIEW for November, 1884, under "Areas of low pressure."

Of the eleven areas of low pressure traced over the Atlantic Ocean, three (numbers xiv, xv, and xvii) were continuations of storms which had previously moved over the American continent to the Gulf of Saint Lawrence, and thence out into the ocean. Three storms (xi, xviii, and xix) developed near the coast of the United States; one (xvi) to the northeast of Bermuda; two (xii and xxi) in the vicinity of Iceland; one (xiii) southwest of Ireland, and one (xx) in the neighborhood of the Azores. Only one area of low pressure, number xi, appears to have reached the European coast, and this passed eastward over the ocean when the pressure over the region north of the fiftieth parallel was comparatively low, namely, during the first decade of the month. With two exceptions, numbers xvii and xx, the direction of movement of the storm-centres traced over the Atlantic was north-northeasterly, the centres passing generally to the northward of Iceland, while, in some cases, the disturbances seem to have filled in before reaching the thirtieth meridian. This northerly movement of the low areas was due, probably, to the presence of large anti-cyclonic areas which occupied Europe and the eastern part of the Atlantic during the second and third decades of the month. In the exceptions above noted, the storm-centres passed to the southeastward; from the 17th until the close of the month the centre of the high area moved between Iceland and the Bay of Biscay, and the centres of the low areas were thus forced to the southeastward. Some of the depressions were of considerable depth, and were attended by heavy gales; detailed descriptions of the more important thereof will be found under "North Atlantic storms" in the MONTHLY WEATHER REVIEW for November, 1884.

The depressions traced in Europe pursued somewhat erratic courses. They originated, principally, in the northern districts, and moved southward or southeastward into Russia. The more important were numbers xiii, xxiv, and xxvii, in which the pressure ranged from 29.3 (744.2) to 29.6 (751.8).

The areas of low pressure traced in Japan were of moderate intensity, that traced as number xxxii being probably the most important; in this depression the barometer fell to 29.5 (749.3) at stations in western Niphon on the 9th, and to 28.8 (731.5) over the Sea of Okhotsk, where the low area remained for several days, causing unsettled weather over northern Japan. The depressions shown over the northeastern part of the Pacific Ocean were generally deep, especially was this the case with number xxxvi, in which the barometer, at Unalashka, remained below 28.8 (731.5) for ten days, falling to 28.38 (720.8) on the 28th.

TRACKS OF AREAS OF LOW PRESSURE FOR JANUARY, 1883.

The paths of forty-nine areas of low pressure which appeared in the northern hemisphere are shown on chart iii for January, 1883. These are distributed, geographically, as follows: fourteen (numbers i to xiv, inclusive) are traced over the North American continent; twenty-one (xv to xxxv, inclusive) are shown over the Atlantic Ocean and southern Greenland; eight (xxxvi to xliii, inclusive) moved over the continent of Europe; and six (numbers xliv to xlix, inclusive) are traced over Japan and the Pacific Ocean.

The areas of low pressure traced in North America appear, for the most part, to have developed in the British Northwest Territories, or near the North Pacific coast region, whence they moved in an east-southeasterly direction towards the Lake region, and thence eastward or northeastward over Canada to the Atlantic; two of them, however, continued their southeasterly movement until they reached the shores of the Gulf of Mexico, when the course changed to the northeast. One depression moved in a southeasterly direction near the coast of California, and one appeared over the Gulf of Mexico. These areas of low pressure were accompanied generally by rain or snow, and by strong winds to gales, but they did not exhibit features differing in any marked degree from the storms usually occurring during the month of January. Descriptions of the depressions of January, 1883, will be found under "Areas of low barometer" in the MONTHLY WEATHER REVIEW for that month.

The large number of areas of low pressure, twenty-one, traced over the Atlantic Ocean indicates the stormy character

of the month of January, 1883. Of these, nine (numbers xviii, xxiii, xxiv, xxv, xxviii, xxix, xxx, xxxi, and xxxv) were continuations of storms that had entered the ocean from the American continent; four (xix, xx, xxvi, and xxxiii) developed in Greenland, and the remainder appeared over the region east of the fortieth meridian. Most of the above were cyclones of great depth and extent, and were attended by heavy gales during their passage, so that the weather over the Atlantic Ocean was stormy and boisterous throughout the month of January, 1883. Their general direction of movement was northeasterly, but this seems to have been affected by the presence of areas of high pressures which constantly occupied either northern, western, or central Europe.

The following shows the cyclones in which the barometric readings were less than 29.0 (736.6), with the positions and dates of the lowest reported readings at 7 a. m., Washington, or 12 h. 8 m., p. m., Greenwich, mean time:

| Low area. | January. | Barometer. Inch. | Barometer. Mill. | Winds. Direction. | Winds. Force, 0-10 | Location. |
|---|---|---|---|---|---|---|
| XV | 2 | 28.91 | 734.3 | calm | ..... | Lodingen, Norway. |
| XVI | 3 | 28.85 | 732.8 | w. | 9 | Lat. 50° N., long. 24° W. |
| | 4 | 28.62 | 726.9 | w. | 10 | Lat. 49° 20′ N., long. 25° 22′ W. |
| XIX | 4 | 28.74 | 730.0 | e. | 2 | Godthaab, Greenland. |
| XX | 6 | 28.56 | 725.4 | calm | ..... | Ivigtut, Greenland. |
| XXII | 9 | 28.70 | 729.0 | ene. | 7 | Lat. 46° 01′ N., long. 15° 20′ W. |
| XXVI | 10 | 28.98 | 736.1 | calm | ..... | Ivigtut, Greenland. |
| XXV | 12 | 28.82 | 732.0 | nw. | 5 | Lat. 51° 24′ N., long. 26° 02′ W. |
| | 13 | 28.88 | 733.5 | nnw. | 9 | Lat. 45° 49′ N., long. 13° 10′ W. |
| XXVIII | 13 | 28.93 | 734.8 | se. | 7-8 | Lat. 49° 32′ N., long. 06° 07′ W. |
| | 14 | 28.03 | 711.9 | se. | 8 | Lat. 54° 23′ N., long. 20° 58′ W. |
| | 14 | 28.14 | 714.7 | sw. | 9 | Lat. 54° 32′ N., long. 17° 32′ W. |
| | 15 | 28.34 | 719.8 | sw. | 8 | Lat. 55° 33′ N., long. 12° 02′ W. |
| XXIX | 16 | 28.70 | 729.0 | ne. | 2 | Stykkisholm, Iceland. |
| | 17 | 28.52 | 724.4 | ne. | 8 | Do. |
| | 18 | 28.92 | 734.6 | ne | 7 | Do. |
| XXX | 19 | 28.93 | 734.8 | wnw. | 8-9 | Lat. 47° 35′ N., long. 35° 28′ W. |
| | 20 | 28.70 | 729.0 | wnw. | 4 | Lat. 51° 00′ N., long. 37° 00′ W. |
| | 22 | 28.81 | 731.8 | calm | ..... | Ivigtut, Greenland. |
| XXXI | 23 | 28.11 | 714.0 | ene. | 4 | Godthaab, Greenland. |
| | 24 | 28.31 | 719.1 | se. | 6 | Jacobshavn, Greenland. |
| | 25 | 28.38 | 720.8 | s. | 7 | Stykkisholm, Iceland. |
| | 26 | 28.47 | 733.1 | se. | 4 | Do. |
| | 27 | 28.87 | 733.3 | e. | 2 | Do. |
| | 28 | 28.95 | 735.3 | ne. | 4 | Do. |
| XXXIII | 29 | 28.56 | 725.4 | s. | 4 | Bergen, Norway. |
| | 30 | 28.67 | 728.2 | sse. | 2 | Lodingen, Norway. |
| | 31 | 28.86 | 733.0 | sw. | 6 | Gjesvær, Norway. |

During the passage of these cyclones, southwest to northwest gales of force 9-10 prevailed over the ocean as far south as the fortieth parallel, and over that part of the ocean between the Azores and W. 10° they frequently extended to the thirtieth parallel. Further data referring to the above will be found under "North Atlantic storms" in the MONTHLY WEATHER REVIEW for January, 1883.

The areas of low pressure traced in Europe were principally in the northwestern districts and in southeastern Russia, their tracks being somewhat irregular. They exhibited considerable storm-energy, causing unsettled weather, with rain or snow, and moderate to strong gales, over the districts through which they passed; the more important were the following: Number xxxvi, barometer 29.06 (738.1), at Viatka, Russia, on the 1st; number xxxvi, barometer 29.26 (743.2), at Ekaterinburg, Russia, on the 12th; number xl, barometer ranging from 29.35 (745.5) to 29.6 (751.8) during the 20th, 21st, and 22d as the low area moved from southern Scandinavia to the Black Sea region; number xlii, barometer falling to 28.6 (726.4) over the North Sea on the 26th, and causing strong sw. and w. gales over the British Isles and along the shores of the continent; number xliii, barometer falling below 29.0 (736.6) in northern Ireland on the 27th; this, like its predecessor, was attended by violent gales over the British Isles and the North Sea. In addition to the above, there were two severe storms which entered the continent from the Atlantic; the first of these was number xv, which crossed northern Scandinavia on the 2d and moved southeastward into Russia during the three succeeding days, with pressure ranging from 29.1 (739.1) to 29.6 (751.8); the second was number xxvii, which entered the southern part of the Iberian Peninsula on the 12th and passed northeastward towards the Gulf of Lyons on the 13th, where it was probably joined by number xxv, which on that date was central in the Bay of Biscay; during the 13th the barometer in southern France and northern Spain ranged from 28.96 (735.6) to 29.2 (741.7), and stormy weather prevailed in those countries and over the basin of the Mediterranean.

Respecting the areas of low pressure traced over Japan and the Pacific ocean, those occupying Behring Sea and the Aleutian Archipelago were generally of considerable depth and dimensions, the barometer ranging from 28.6 (726.4) to 29.4 (746.7), and rarely exceeding 29.6 (751.8). In those which passed over the islands of Japan the barometer ranged from 29.4 (746.7) to 29.6 (751.8); that traced as number xlix being particularly severe over the northern part of the islands.

### ERRATUM.

At Fort Napier, Natal, the altitude of barometer above sea-level, from January to October, 1884, inclusive, should read 2,294 feet, or 699 metres, instead of 2,205 feet, or 672 metres.

## SPECIAL NOTES.

### DAILY BULLETIN.

On and after July 1, 1884, the DAILY BULLETIN OF SIMULTANEOUS METEOROLOGICAL OBSERVATIONS will be discontinued. The daily chart accompanying this bulletin, or international chart No. i, will continue to be issued as heretofore, but on an enlarged scale, and will contain data referring to pressure (at sea-level), temperature, wind-direction, and state of weather for each day at all reporting stations in the northern hemisphere, and over the northern portions of the Atlantic and Pacific Oceans, as heretofore published in the DAILY BULLETIN.

The observations are taken at 7 h. 0 m., a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time, except at the following stations, viz.: Arlon, Belgium, at 1 p. m., local time, or 28 minutes late; Upernavik, Greenland, at 8 a. m., local time, or 24 minutes early; Ivigtut, Greenland, at 8 a. m., or 56 minutes early; Brono, Norway, at 2 p. m., or 68 minutes late.

All data referring to force, velocity, or pressure (in pounds per square foot) of the wind, are reduced to the scale of 0-10, and the approximate value is indicated by the number of feathers on the arrow (see below). The state of the weather is indicated by the following symbols:

○ clear; ◔ fair; ◕ cloudy; ● precipitation (rain, snow, hail, sleet).

### INTERNATIONAL CHARTS.

International chart i shows the atmospheric pressure at sea-level in English inches, the isobars being drawn for every two-tenths of an inch; temperature (by figures only) in degrees Fahrenheit.

Arrows show direction of, and fly with, the wind; force is shown as follows:

| Symbols. | Force. | Velocity. Miles per hour. | Velocity. Metres per second. |
|---|---|---|---|
| ○ | 0 | 0 | 0 |
| → | 1, 2 | 0 to 9 | 0 to 4 |
| → | 3, 4 | 9.1 to 22.5 | 4.1 to 10.1 |
| → | 5, 6 | 22.6 to 40.5 | 10.1 to 18.1 |
| → | 7, 8 | 40.6 to 67.5 | 18.1 to 30.2 |
| → | 9, 10 | 67.6 up. | 30.2 and over. |

International chart ii (monthly mean chart) shows the mean pressure at sea-level in English inches; the mean temperature in degrees, Fahrenheit; the mean force and prevailing direction of the wind, as determined from observations taken at 7 a. m., Washington mean time.

International chart iii shows the tracks of centres of low barometer. The Arabic numerals show the location of the centres of low barometer at 7 a. m., Washington mean time of that date.

In the above charts, broken lines indicate that the lines so drawn are doubtful.

### MONTHLY SUMMARY OF INTERNATIONAL SIMULTANEOUS METEOROLOGICAL OBSERVATIONS.

The positions of stations (latitude and longitude) are obtained from Keith Johnson's "Index Geographicus," except where more exact information is furnished. The elevations of stations are obtained either from the annual, semi-annual, and monthly publications of the various meteorological bureaus here represented, or from the original forms upon which are entered the daily observations. In the United States series the elevations are computed from the latest surveys, and are carefully revised each month, in order to note any change in the elevation of the barometer-cistern at any station. It is believed for the most part that, throughout the European and other series, the eleva-

tions as given represent the height of the barometer-cistern above sea-level; at least this should be the case. The local time, where omitted or not given correctly in the original, is carefully computed at this office. A letter placed opposite the name of a station, or some portion of the data credited thereto, indicates that a certain number of observations are missing, corresponding to the relative position in the English alphabet of the letter so used.

At Hobart Town, Tasmania, the observations are taken at 9 p. m. instead of at 9.57 p. m.

At Astrakhan, Ashurada, and Baku the barometer-cisterns are below sea-level.

On and after July 1, 1884, all stations in the United States series will be grouped by states and territories under each district, in the following order:

NEW ENGLAND: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

MIDDLE ATLANTIC STATES: New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia.

SOUTH ATLANTIC STATES: North Carolina, South Carolina, Georgia, Florida.

EASTERN GULF STATES: Georgia, Florida, Alabama, Mississippi, Louisiana.

WESTERN GULF STATES: Louisiana, Arkansas, Indian Territory, Texas.

RIO GRANDE VALLEY: Texas.

OHIO VALLEY AND TENNESSEE: Tennessee, Kentucky, Illinois, Indiana, Ohio, West Virginia, Pennsylvania.

LOWER LAKES: New York, Pennsylvania, Ohio, Michigan.

UPPER LAKES: Michigan, Indiana, Illinois, Wisconsin, Minnesota.

UPPER MISSISSIPPI VALLEY: Minnesota, Wisconsin, Iowa, Illinois, Missouri.

MISSOURI VALLEY: Missouri, Kansas, Nebraska, Iowa, Dakota.

EXTREME NORTHWEST: Minnesota, Dakota.

NORTHERN SLOPE: Montana, Dakota, Wyoming, Nebraska.

MIDDLE SLOPE: Nebraska, Colorado, Kansas, Indian Territory, Texas, New Mexico.

SOUTHERN SLOPE: Indian Territory, Texas, New Mexico.

SOUTHERN PLATEAU: New Mexico, Arizona, California, Nevada.

MIDDLE PLATEAU: California, Nevada, Utah, Colorado, Wyoming.

NORTHERN PLATEAU: Wyoming, Montana, Idaho, Oregon, Washington.

NORTH PACIFIC COAST: Washington, Oregon.

MIDDLE PACIFIC COAST: California.

SOUTH PACIFIC COAST: California.

OCEAN SQUARES.—The table of ocean square data shows (1) the location of the centres of squares whose sides extend 5° each in latitude and longitude, (2) the monthly mean pressure and temperature of the air, and the mean force and total frequency of the wind at 7 a. m., Washington time, computed for the centre of each square from daily readings as obtained by interpolation between the isobars and isotherms of the daily international simultaneous weather maps.

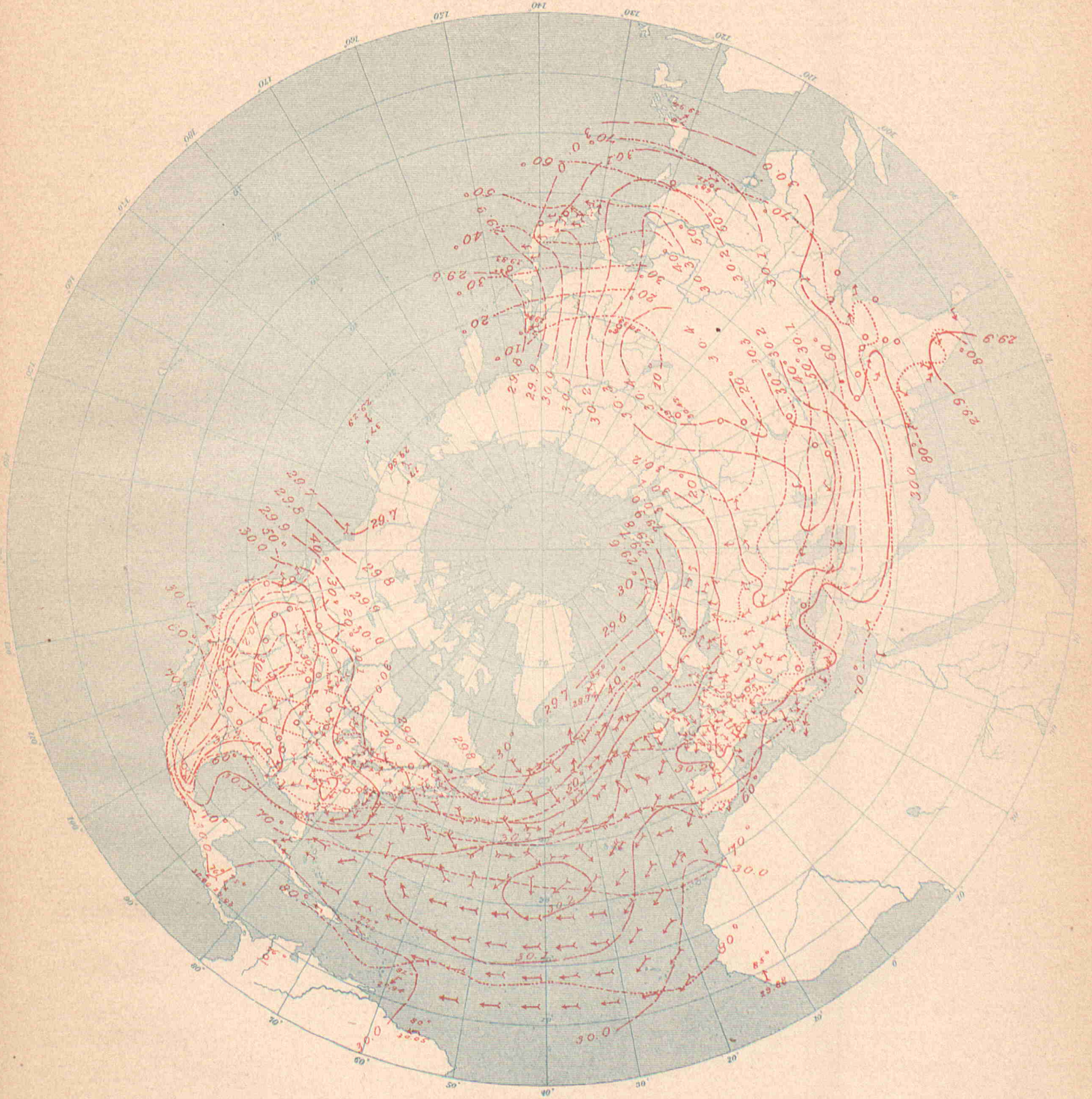
PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

W. B. HAZEN,

*Brig. & Bvt. Maj. Gen'l,*

*Chief Signal Officer, U. S. A.*

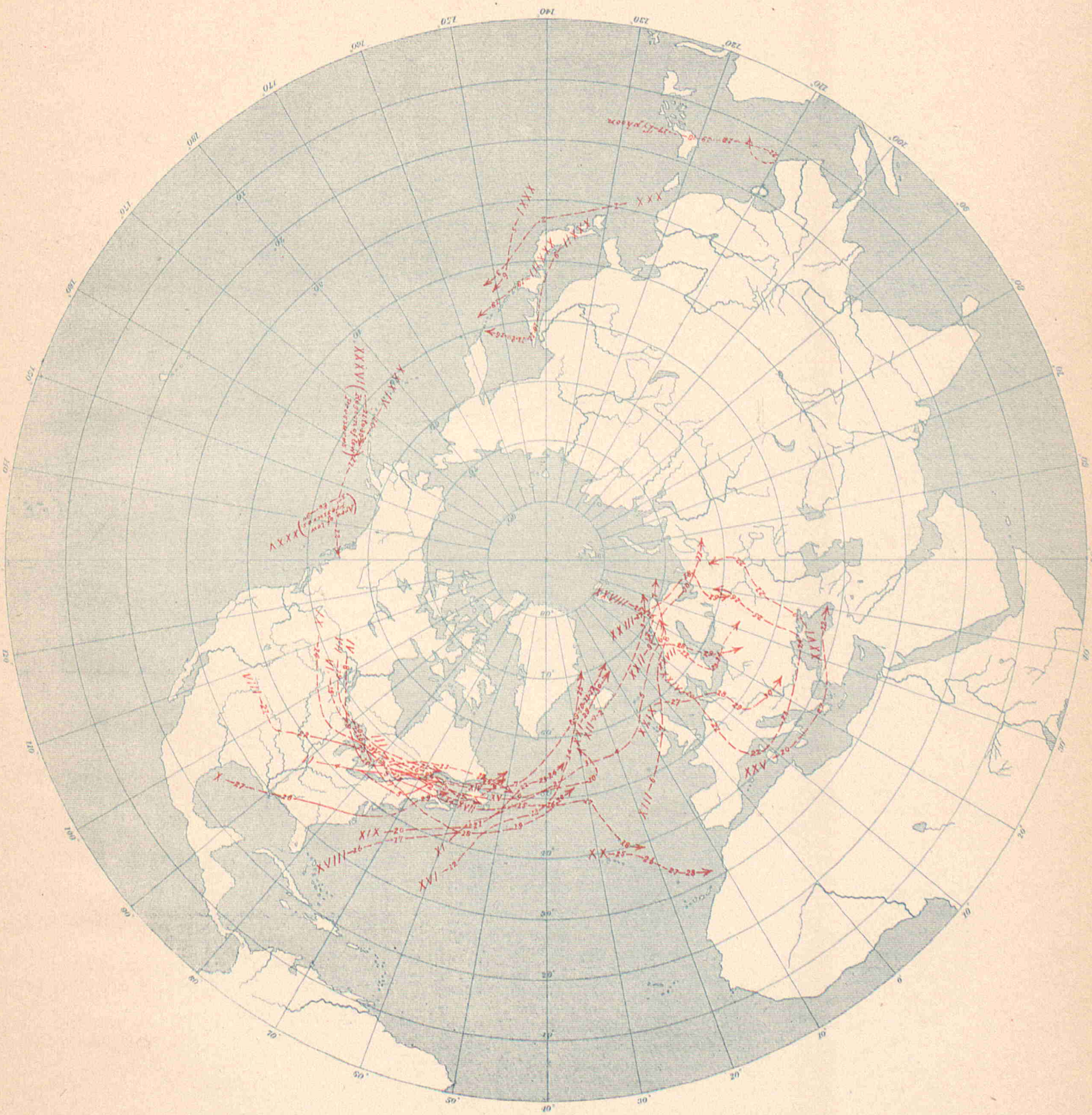
# International Chart II. November, 1884. Isobars, Isotherms, and Winds.



UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B.Hazen, Chief Signal Officer.
Signal Office Lith.

# International Chart III. November, 1884. Storm-Tracks.

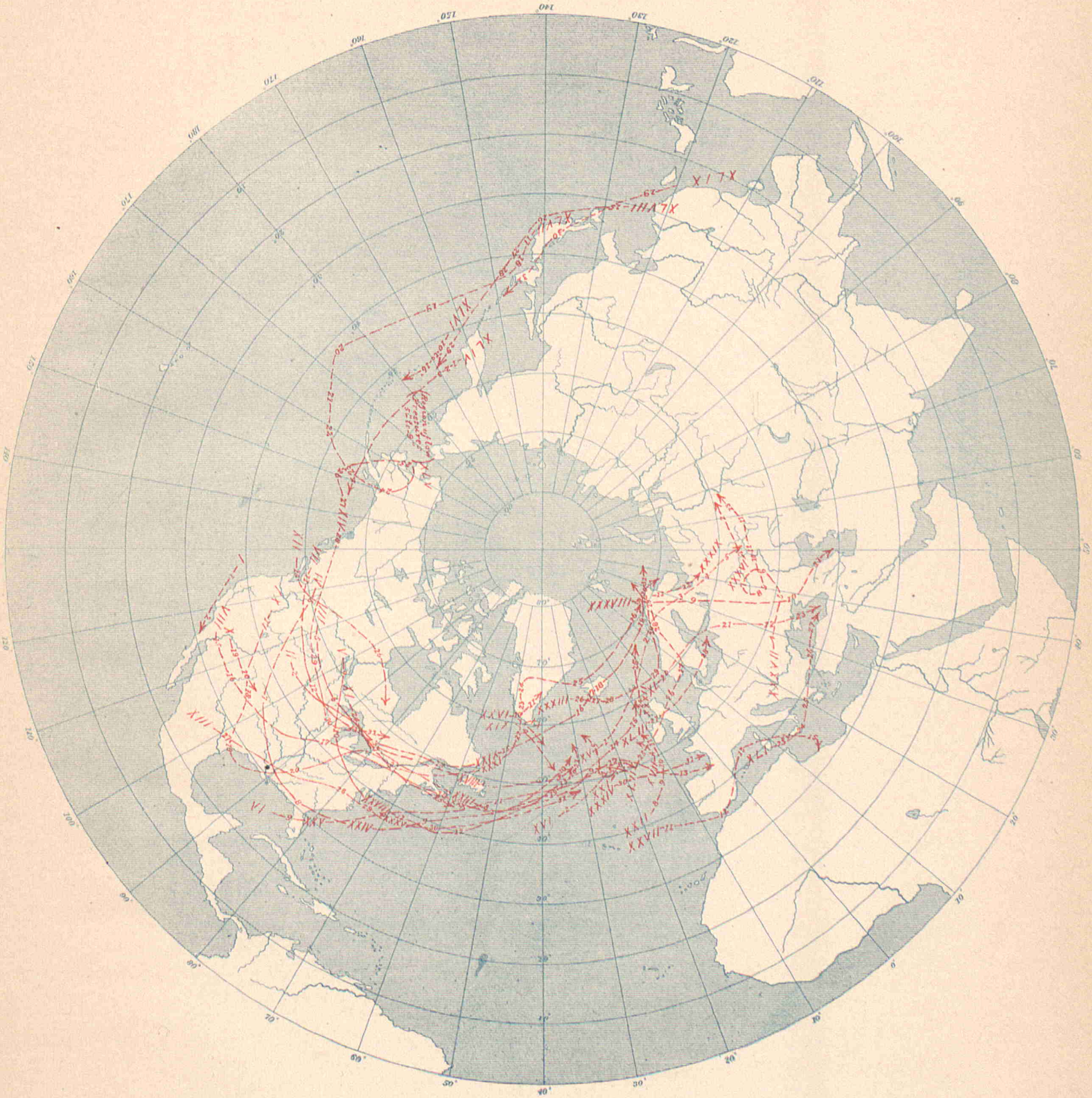


UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B.Hazen, Chief Signal Officer.

Signal Office Lith.

# International Chart III. January, 1883. Storm-Tracks.



UNITED STATES OF AMERICA.

By Order of the Secretary of War:
W.B.Hazen. Chief Signal Officer.

Signal Office Lith.

WAR DEPARTMENT.
OFFICE OF THE CHIEF SIGNAL OFFICER OF THE ARMY OF THE UNITED STATES.

# SUMMARY AND REVIEW

OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS

## FOR THE MONTH OF DECEMBER, 1884.

*PRINTED FOR EXCHANGE WITH CO-OPERATING OBSERVERS.*

WASHINGTON, D. C.
JANUARY, 1886.

# SUMMARY AND REVIEW

## OF

# INTERNATIONAL METEOROLOGICAL OBSERVATIONS,

## DECEMBER, 1884.

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for December, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| AUSTRALIAN. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Adelaide | S. 34 57 | E. 138 35 | 9.22 p.m. | 140 | 42 | 29.73 | 775.1 | 29.87 | 758.7 | 62.6 | 17.0 | 60.9 | ..... | ..... | 3 | 10 | 8 | 6 | 2 | 2 | ..... | ..... | ..... | 5 | 0.96 | 24.4 |
| Hobart Town | S. 42 53 | E. 147 20 | 9.57 p.m. | 190 | 58 | 29.44 | 747.8 | 29.63 | 752.6 | 54.6 | 12.6 | 86.0 | 5 | 3 | 2 | 2 | 9 | 4 | ..... | 1 | 5 | ..... | ..... | 8 | 3.93 | 99.8 |
| Melbourne | S. 37 50 | E. 144 58 | 9.47 p.m. | 91 | 28 | 29.68 | 753.9 | 29.77 | 756.1 | 60.0 | 15.6 | 71.0 | 2 | 3 | 5 | 4 | 9 | 3 | 4 | 1 | ..... | ..... | ..... | 6 | 3.05 | 77.5 |
| AUSTRIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agram | N. 45 48 | E. 15 53 | 1.12 p.m. | 536 | 163 | 29.45 | 748.1 | 30.02 | 762.6 | 39.2 | 4.0 | 62.3 | 3 | ..... | 3 | 11 | 2 | 2 | 1 | 9 | ..... | ..... | ..... | 6 | 5.00 | 126.9 |
| Cracow | N. 50 04 | E. 20 00 | 1.28 p.m. | 722 | 220 | 29.15 | 740.4 | 29.94 | 760.5 | 37.4 | 3.0 | 79.1 | ..... | ..... | 6 | 14 | 2 | ..... | 4 | 5 | ..... | ..... | ..... | 9 | 1.77 | 45 0 |
| Eperies | N. 48 58 | E. 21 15 | 1.33 p.m. | 820 | 250 | 29.08 | 738.7 | 30.00 | 762.1 | 30.6 | — 0 8 | 88.8 | 1 | ..... | ..... | ..... | 6 | ..... | ..... | ..... | 24 | ..... | ..... | 9 | 2.48 | 62.9 |
| Gratz | N. 47 04 | E. 15 28 | 1.10 p.m. | 1171 | 357 | 28.72 | 729.4 | 30.01 | 762.3 | 36.1 | 2.3 | 78.9 | 2 | 10 | 1 | 3 | 9 | 2 | 1 | 2 | ..... | ..... | ..... | 6 | 2.76 | 70.2 |
| Hermannstadt | N. 45 47 | E. 24 13 | 1.45 p.m. | 1352 | 412 | 28.56 | 725 3 | 30.02 | 762.6 | 37.0 | 2.8 | 91.0 | ..... | 4 | 4 | 2 | 7 | 13 | ..... | 1 | ..... | ..... | ..... | 5 | 1.05 | 26.7 |
| Kremsmunster | N. 48 03 | E. 14 08 | 1.04 p.m. | 1260 | 384 | 28.60 | 726.3 | 29.57 | 761.3 | 35.1 | 1.7 | 85.0 | 1 | 1 | 5 | 4 | ..... | 1 | 5 | 1 | 13 | ..... | ..... | 8 | 2.39 | 60.7 |
| Lemberg | N. 49 50 | E. 24 00 | 1.44 p.m. | 978 | 298 | 28.93 | 734.9 | 29.95 | 760.7 | 36.7 | 2.6 | 80.1 | ..... | 5 | 10 | 5 | 1 | 6 | 2 | 2 | ..... | ..... | ..... | 8 | 1.42 | 36.2 |
| Pola | N. 44 52 | E. 13 51 | 1.04 p.m. | 105 | 32 | 29.87 | 758 7 | 29 59 | 761.7 | 48.4 | 9.1 | 77.8 | 1 | 3 | 7 | ..... | 1 | 2 | 8 | 4 | 5 | ..... | ..... | 7 | 3.94 | 100.2 |
| Szathmar | N. 47 46 | E. 22 53 | 1.39 p.m. | 430 | 131 | 29.54 | 750.3 | 30.02 | 762.5 | 38.3 | 3.5 | 83.0 | 1 | 3 | 6 | 2 | 5 | 11 | 2 | 1 | ..... | ..... | ..... | 5 | 2.24 | 56.9 |
| Szegedin.*a* | N. 46 15 | E. 20 10 | 1.29 p.m. | 256 | 78 | 29.72 | 755.0 | 30.01 | 762.3 | 37.6 | 3.1 | 85.0 | ..... | 3 | 4 | ..... | 8 | 4 | 1 | 1 | 9 | ..... | ..... | 7 | 2.23 | 56.6 |
| Trieste | N. 45 39 | E. 13 46 | 1.04 p.m. | 85 | 26 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Vienna | N. 48 12 | E. 16 22 | 1.14 p.m. | 663 | 202 | 29.25 | 742.9 | 29.99 | 761.8 | 36.5 | 2.5 | 78.5 | 1 | 5 | 8 | 2 | 3 | 6 | 2 | ..... | 4 | ..... | ..... | 8 | 2.47 | 62.8 |
| BELGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arlon | N. 49 40 | E. 5 48 | 0.32 p.m. | ? | ? | ..... | ..... | ..... | ..... | 35.4 | 1.9 | 95.2 | ..... | ..... | 2 | 13 | 6 | 2 | 3 | 5 | ..... | ..... | ..... | 8 | 8.06 | 204.8 |
| Brussels | N. 50 51 | E. 4 22 | 0.26 p.m. | 187 | 57 | 29.67 | 753.7 | 29.89 | 759.1 | 40.6 | 4.8 | 85.7 | 3 | ..... | 2 | 14 | 1 | 2 | 2 | 6 | 1 | ..... | ..... | 8 | 5.67 | 144.0 |
| Furnes | N. 51 04 | E. 2 40 | 0.19 p.m. | 20 | 6 | 29.85 | 758.2 | 29.87 | 758.6 | 42.4 | 5.8 | 88.2 | 3 | ..... | 6 | 10 | 3 | ..... | 2 | 7 | ..... | ..... | ..... | 8 | 4.19 | 106.5 |
| Maeseyck | N. 51 06 | E. 5 48 | 0.32 p.m. | 115 | 35 | 29.75 | 755 6 | 29.87 | 758 7 | 40.8 | 4.9 | 83.7 | 1 | 2 | 4 | 2 | 10 | 1 | 5 | 6 | ..... | ..... | ..... | 9 | 5.16 | 131.0 |
| BRITISH. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aberdeen | N. 57 10 | W. 2 06 | 0.00 m. | 89 | 27 | 29.51 | 749.5 | 29.61 | 752.1 | 38.8 | 3.8 | 77.8 | ..... | 2 | 6 | 8 | 14 | 1 | ..... | ..... | ..... | ..... | ..... | 6 | 1.72 | 43.7 |
| Bidston | N. 53 24 | W. 3 04 | 11.56 a.m. | 197 | 60 | ..... | ..... | 29.78 | 756 4 | 41.8 | 5.4 | 74.0 | 3 | 3 | 5 | 11 | 1 | 4 | 4 | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Bolton | N. 53 35 | W. 2 28 | 11.58 a.m. | 500 | 152 | 29.24 | 742.7 | 29.78 | 756.4 | 39.3 | 4.1 | 83.8 | 3 | 2 | 2 | 10 | 6 | 2 | 5 | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| Bradford | N. 53 48 | W. 1 47 | 0.01 p.m. | 366 | 111 | 29.38 | 746.2 | 29.78 | 756.4 | 40.7 | 4.8 | 81.4 | 3 | 3 | 7 | 6 | 4 | 3 | 1 | 4 | ..... | ..... | ..... | 7 | 4.26 | 108.2 |
| Bridgetown | N. 13 04 | W. 59 37 | 8.10 a.m. | 28 | 9 | 30.02 | 762.5 | 30.05 | 763.3 | 81.4 | 27.4 | 73.7 | ..... | ..... | ..... | ..... | ..... | ..... | 14 | 17 | ..... | ..... | ..... | 4 | ..... | ..... |
| Cardington | N. 52 08 | W. 0 27 | 0.06 p.m. | 109 | 33 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Chatham | N. 51 25 | E. 0 33 | 0.10 p.m. | 160 | 49 | 29.72 | 754.9 | 29.90 | 759.4 | 42.7 | 5.9 | 81.4 | 3 | 2 | 13 | 2 | 1 | ..... | 5 | 2 | 3 | ..... | ..... | 8 | ..... | ..... |
| Falmouth | N. 50 09 | W. 5 04 | 11.48 a.m. | 211 | 64 | 29.70 | 754.4 | 29.94 | 760.5 | 46.2 | 7.9 | 80.5 | 5 | 3 | 10 | 5 | 4 | 1 | 2 | 1 | ..... | ..... | ..... | 8 | ..... | ..... |
| Fort Napier | S. 30 | E. 31 | 2.12 p.m. | 2294 | 699 | 27.59 | 700 8 | 29.91 | 759.7 | 78.7 | 25.9 | 53.7 | 5 | ..... | ..... | ..... | 6 | 4 | 6 | 10 | ..... | ..... | ..... | 5 | ..... | ..... |
| Freetown | N. 8 30 | W. 13 14 | 11.15 a.m. | 224 | 68 | 29.70 | 754.4 | 29.93 | 760.2 | 83.0 | 28.3 | 85.0 | 4 | ..... | 7 | 4 | 6 | 4 | 6 | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| Galway | N. 53 15 | W. 9 03 | 11.32 a.m. | 32 | 10 | 29.71 | 754.6 | 29.75 | 755 6 | 42.6 | 5.9 | 85.4 | ..... | 6 | 6 | 9 | 4 | 3 | 2 | 1 | ..... | ..... | ..... | 7 | 5.92 | 150.4 |
| Gibraltar | N. 36 09 | W. 5 21 | 11.47 a.m. | 50 | 15 | ..... | ..... | ..... | ..... | 58.1 | 14.5 | 89.2 | 3 | 13 | ..... | 2 | ..... | ..... | 2 | 10 | 1 | ..... | ..... | 4 | ..... | ..... |
| Greenwich | N. 51 29 | 0 00 | 0.08 p.m. | 159 | 48 | 29.69 | 754.1 | 29.86 | 758.4 | 42.7 | 5.9 | 80.6 | 6 | 1 | 2 | 13 | 3 | 2 | 2 | 2 | ..... | ..... | ..... | 8 | ..... | ..... |
| Guernsey | N. 49 27 | W. 2 41 | 11.58 a.m. | 275 | 84 | 29.64 | 752 8 | 29.94 | 760.5 | 46.0 | 7.8 | 82.3 | 2 | 2 | 8 | 6 | 4 | 1 | 4 | 4 | ..... | *b*10293 | *b*16565 | 9 | 7.37 | 187.2 |
| Kew | N. 51 28 | W. 0 19 | 0.07 p.m. | 34 | 10 | 29.84 | 757.9 | 29.88 | 758.9 | 43.1 | 6.2 | 76.6 | 3 | 1 | 4 | 12 | 2 | ... | 3 | 6 | ..... | ..... | ..... | 8 | ..... | ..... |
| Leicester | N. 52 39 | W. 1 08 | 0.04 p.m. | 245 | 75 | 29.56 | 750 8 | 29.82 | 757.4 | 41.6 | 5.3 | 79.6 | 3 | 1 | 2 | 15 | 2 | 1 | ..... | 7 | ..... | ..... | ..... | 8 | ..... | ..... |
| Malta | N. 36 00 | E. 14 30 | 1.06 p.m. | 70 | 21 | 29 92 | 760.0 | 30.00 | 762.0 | 59.8 | 15.4 | 81.0 | ..... | 8 | ..... | 6 | ..... | 6 | 1 | 10 | ..... | ..... | ..... | 6 | 3.30 | 83.8 |
| Nassau | N. 25 04 | W. 77 22 | 6.58 a.m. | 44 | 13 | 30.08 | 764.0 | 30.13 | 765.3 | 73.7 | 23.2 | 83.0 | ..... | 2 | ..... | ..... | ..... | 1 | 12 | 9 | 7 | ..... | ..... | 5 | ..... | ..... |
| Oxford | N. 51 46 | W. 1 17 | 0.03 p.m. | 210 | 64 | 29.63 | 752 6 | 29.86 | 758.4 | 42.3 | 5.7 | 82.2 | 3 | 3 | ..... | 11 | 6 | 2 | 2 | 3 | 1 | ..... | ..... | 8 | ..... | ..... |
| Plymouth | N. 50 22 | W. 4 10 | 11.51 a.m. | 69 | 21 | 29.84 | 757.9 | 29.91 | 759.7 | 45.2 | 7.3 | 86.1 | 3 | 5 | 3 | 11 | ..... | 1 | 1 | 5 | 2 | ..... | ..... | 9 | ..... | ..... |
| Sandwick Manse | N. 59 05 | W. 3 20 | 11.54 a.m. | 94 | 29 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Scutari Cemet'y | N. 41 00 | E. 29 03 | 2.04 p.m. | 60 | 18 | 29.99 | 761.7 | 30.06 | 763.5 | 52.8 | 11.6 | 73.6 | 2 | ..... | ..... | 7 | 5 | 5 | ..... | 8 | 4 | ..... | ..... | 6 | ..... | ..... |
| Silloth Rectory | N. 54 52 | W. 3 22 | 11.54 a.m. | 28 | 9 | 29.69 | 754.1 | 29.72 | 754 9 | 39.9 | 4.4 | 85.5 | 2 | 0 | 4 | 9 | ..... | 1 | 7 | 1 | 1 | ..... | ..... | 7 | 4.32 | 109.7 |
| Stonyhurst | N. 53 51 | W. 2 28 | 11.58 a.m. | 361 | 110 | ..... | ..... | 29.81 | 757.2 | 39.9 | 4.4 | 82.0 | 1 | 2 | 7 | 12 | 1 | ..... | 7 | 1 | ..... | ..... | ..... | 8 | 6.40 | 162.6 |
| Valencia | N. 51 55 | W. 10 18 | 11.27 a.m | 23 | 7 | 29.85 | 758.2 | 29.88 | 758.9 | 46.4 | 8.0 | 79.8 | 3 | 3 | 9 | 6 | 2 | 4 | 1 | 3 | ..... | ..... | ..... | 8 | ..... | ..... |
| *Sub-series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gozo | N. 36 01 | E. 14 16 | 1.05 p.m. | 364 | 111 | 29.63 | 752.6 | 30.02 | 762.5 | 58.0 | 14.4 | 71.7 | 3 | 5 | 6 | 4 | 1 | 2 | 8 | 1 | 1 | 5201 | 8370 | 7 | 4.86 | 123.4 |
| CANADIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bathurst.*d* | N. 47 39 | W. 65 43 | 7.45 a m. | 35 | 11 | 29.99 | 761 7 | 30.03 | 762.7 | 15.7 | — 9.1 | ..... | ..... | ..... | 1 | 6 | 4 | 2 | ..... | 1 | 13 | ..... | ..... | 8 | 4.16 | 105.7 |
| Charlottetown | N. 46 14 | W. 63 10 | 7.55 a.m. | 38 | 12 | 29.57 | 761 2 | 30.02 | 762 5 | 23.9 | — 4.5 | 88.1 | 2 | 5 | 13 | 1 | 2 | 2 | ..... | 4 | 2 | 6081 | 9786 | 8 | 5.18 | 131.6 |
| Chatham | N. 47 03 | W. 65 29 | 7.45 a.m. | 56 | 17 | 29.99 | 761.7 | 30.06 | 763.5 | 13.2 | —10.4 | 95.0 | 3 | 5 | 6 | 11 | 1 | ..... | 3 | 1 | 1 | 3057 | 4920 | 7 | 5.28 | 134.1 |
| Cornwall | N. 45 01 | W. 74 43 | 7.09 a.m. | 175 | 53 | 29.18 | 758 9 | 30.09 | 764.3 | 14.0 | —10.0 | 96.4 | 1 | 10 | 9 | ..... | ..... | ..... | 7 | 4 | ..... | ..... | ..... | 7 | 3.94 | 100.1 |
| Dalhousie.*c* | N. 48 04 | W. 66 22 | 7.43 a.m. | 45 | 14 | 30.00 | 762.0 | 30.05 | 763.3 | 8.3 | —13.2 | ..... | ..... | 1 | 20 | ..... | ..... | ..... | 2 | ..... | 5 | ..... | ..... | 6 | 2.50 | 63.5 |
| Father Point | N. 48 31 | W. 68 28 | 7.34 a.m. | 20 | 6 | 30.04 | 763.0 | 30.00 | 763.5 | 13.3 | —10.4 | 88.2 | 2 | 4 | 2 | 9 | 3 | 1 | ..... | 8 | 2 | 12045 | 19384 | 9 | 3.50 | 88.9 |
| Fort Garry | N. 49 51 | W. 97 07 | 5.39 a.m. | 754 | 230 | 29.27 | 743.4 | 30.22 | 767.6 | —5.8 | —21.0 | 95.9 | 9 | 10 | ..... | 6 | 4 | 1 | ..... | 1 | 1 | 7515 | 12094 | 7 | 1.11 | 28.2 |
| Fredericton | N. 45 57 | W. 66 38 | 7.41 a.m. | 59 | 18 | 30.04 | 763 0 | 30.11 | 764.8 | 15.2 | — 9.3 | 89.6 | ..... | 10 | 6 | ..... | ..... | 2 | 2 | 4 | 7 | ..... | ..... | 6 | 5.97 | 151.6 |
| Grand Manan | N. 44 40 | W. 66 45 | 7.41 a.m. | 49 | 15 | 30.02 | 762 5 | 30.08 | 764.0 | 26.6 | — 3.0 | 80.0 | 6 | 6 | 6 | 1 | 2 | 2 | 1 | 3 | 4 | ..... | ..... | 8 | 7 08 | 179.8 |
| Granton | N. 43 12 | W. 81 21 | 6.43 a.m. | 1015 | 309 | 28 94 | 735.1 | 30.12 | 765.0 | 22.0 | — 5.6 | ..... | 1 | 4 | 3 | 5 | 6 | 1 | 2 | 2 | 7 | ..... | ..... | 7 | 3.48 | 88.4 |
| Halifax | N. 44 39 | W. 63 36 | 7.53 a.m. | 122 | 37 | 29.93 | 760 2 | 30.06 | 763 5 | 27.6 | — 2.4 | 89.6 | 7 | 2 | 12 | 1 | 4 | ..... | 3 | 1 | 1 | ..... | ..... | 7 | 9.09 | 230.9 |
| Hamilton | N. 43 16 | W. 79 53 | 6.49 a.m. | 350 | 107 | 29.63 | 752.6 | 30.06 | 763.5 | 24.6 | — 4.1 | 89.0 | ..... | 3 | 2 | 16 | ..... | ..... | 2 | 4 | 4 | ..... | ..... | 7 | 2.62 | 66.5 |
| Kingston | N. 44 14 | W. 76 30 | 7.02 a.m. | 307 | 94 | 29.76 | 755.9 | 30.12 | 765.0 | 19.9 | — 0.7 | 87.0 | 3 | 3 | 3 | 7 | 5 | ..... | 1 | 9 | ..... | 6150 | 9897 | 7 | 4.63 | 117.6 |
| LittleGlaceBay.*a* | N. 46 12 | W. 59 58 | 8.08 a.m. | 34 | 10 | 29.93 | 760.2 | 29.97 | 761.2 | 29.3 | — 1.5 | 86.2 | 2 | 2 | 10 | 6 | 3 | 1 | ..... | 5 | 1 | ..... | ..... | 9 | ..... | ..... |
| London | N. 43 00 | W. 81 15 | 6.43 a.m. | 816 | 248 | 29.10 | 740.7 | 30.11 | 764.8 | 22.9 | — 5.1 | 82.5 | 1 | ..... | 5 | 4 | 5 | ..... | 2 | 1 | 13 | ..... | ..... | 7 | 5.01 | 127.3 |
| Medicine Hat.*a* | N. 50 01 | W. 110 37 | 4.46 a.m. | 2136 | 651 | 27.77 | 705.3 | 30.34 | 770 6 | —1.6 | —18.7 | ..... | 3 | 4 | 3 | 2 | 2 | ..... | ..... | ..... | 16 | c4431 | c7131 | 4 | 0.40 | 10.2 |
| Minnedosa | N. 50 13 | W. 99 48 | 5.29 a.m. | 1796 | 545 | 28.05 | 712.5 | 30.24 | 768.1 | —7.9 | —22.2 | 96.5 | 2 | 18 | 4 | ..... | ..... | 1 | 1 | 5 | ..... | ..... | ..... | 5 | 0.62 | 15.7 |
| Montreal | N. 45 31 | W. 73 33 | 7.13 a.m. | 187 | 57 | 29.90 | 759 4 | 30.13 | 765.3 | 15.4 | — 9.2 | 86.4 | 8 | 1 | 10 | 3 | 4 | 1 | 3 | 1 | ..... | ..... | ..... | 6 | 3.68 | 90.9 |
| Ottawa | N. 45 26 | W. 75 41 | 7.05 a.m. | 224 | 68 | 29.84 | 757.9 | 30.11 | 764.8 | 12.5 | —10.8 | 95.6 | 2 | 5 | 9 | 4 | 2 | 2 | 5 | 2 | ..... | ..... | ..... | 7 | 3.75 | 95.2 |
| Parry Sound | N. 45 19 | W. 80 01 | 6.48 a.m. | 625 | 191 | 29.32 | 744.7 | 30.07 | 763.8 | 18.1 | — 7.7 | 80.3 | 6 | ..... | 4 | 4 | 3 | 4 | 6 | 1 | 3 | 7439 | 11972 | 8 | 4.56 | 115.8 |
| Peterboro | N. 44 17 | W. 78 18 | 6.54 a.m. | 688 | 210 | 29.30 | 744.2 | 30.10 | 764.5 | 19.8 | — 6.8 | ..... | 1 | 2 | ..... | 3 | ..... | 2 | ..... | 1 | 22 | ..... | ..... | 7 | 3.87 | 98.3 |
| Port Arthur | N. 48 27 | W. 89 12 | 6.11 a.m. | 642 | 196 | 29.34 | 745.2 | 30.09 | 764 3 | 0.1 | —14.4 | 89.8 | 7 | 6 | 4 | 1 | 1 | ..... | 2 | ..... | 10 | 3413 | 5493 | 8 | 1.26 | 32.0 |
| Port Dover | N. 42 47 | W. 80 13 | 6.47 a.m. | 635 | 194 | 29.37 | 746 0 | 30.11 | 764.8 | 24.9 | — 3.9 | 97.9 | 2 | ..... | 4 | 11 | 2 | ..... | 1 | 6 | 5 | 6930 | 11153 | 8 | 3.37 | 85.6 |
| Port Stanley | N. 42 40 | W. 81 13 | 6.43 a.m. | 592 | 180 | 29.41 | 747.0 | 30.10 | 764.5 | 24.9 | — 3.9 | 86.0 | 2 | 1 | 9 | 6 | 1 | 3 | 6 | 3 | ..... | ..... | ..... | 7 | 2.62 | 66.5 |
| Qu' Appelle.*a* | N. 50 44 | W.103 42 | 5.13 a.m. | 2115 | 646 | 27.72 | 704.1 | 30.28 | 769.1 | —7.5 | —21.9 | ..... | ..... | 11 | 3 | ..... | 1 | 1 | 1 | 1 | 12 | 6487 | 10440 | 4 | 0.90 | 22.9 |
| Quebec | N. 46 48 | W. 71 12 | 7.23 a.m. | 293 | 89 | 29.70 | 754.4 | 30.09 | 764.3 | 12.8 | —10.7 | 83.4 | ..... | ..... | ..... | 14 | 1 | 1 | ..... | 7 | 2 | 6 | ..... | ..... | 8 | 5.04 | 128.0 |
| Rockliffe | N. 46 10 | W. 77 48 | 6.57 a.m. | 418 | 127 | 29.59 | 751.6 | 30.12 | 765.0 | 10.0 | —12.2 | 83.4 | ..... | ..... | ..... | 4 | : | ..... | ..... | 5 | 6 | ..... | 15 | ..... | 7 | 4.29 | 109.0 |
| Saint Andrews | N. 45 04 | W. 67 06 | 7.40 a.m. | 47 | 14 | 30.01 | 762.2 | 30.06 | 763.5 | 22.1 | — 5.5 | 90.1 | 7 | 9 | 4 | 1 | 1 | 3 | 1 | 1 | 4 | ..... | ..... | 5 | 5.24 | 133.1 |
| Saint John, N.B | N. 45 17 | W. 66 03 | 7.44 a.m. | 116 | 35 | 29.93 | 760.2 | 30.07 | 763.8 | 24.4 | — 4.2 | 87.6 | 7 | 10 | 6 | 1 | ..... | 2 | 1 | ..... | 4 | ..... | ..... | 7 | 6.87 | 174.5 |
| Saint Pierre.*g* | N. 46 47 | W. 56 08 | 8.24 a.m. | ? | ? | ..... | ..... | 29.88 | 759.0 | 32.5 | 0.3 | ..... | ..... | ..... | 8 | 4 | 7 | ..... | 1 | 2 | 2 | ..... | ..... | ..... | 4.38 | 111.2 |
| Saugeen | N. 44 30 | W. 81 21 | 6.42 a.m. | 656 | 200 | 29.29 | 744.0 | 30.04 | 763.0 | 24.1 | — 4.4 | 93.6 | 1 | ..... | ..... | 4 | 5 | 8 | 7 | 2 | 4 | ..... | 11173 | 17965 | 8 | 6.17 | 156.7 |
| Stratford | N. 43 23 | W. 81 00 | 6.44 a.m. | 1186 | 361 | 28.75 | 730.2 | 30.12 | 765 0 | 20.7 | — 6.3 | 85.1 | ..... | 1 | 6 | 10 | 3 | 1 | 1 | ..... | 9 | ..... | ..... | 8 | 8.62 | 218.9 |
| Sydney | N. 46 08 | W. 60 10 | 8.07 a.m. | 37 | 11 | 29.96 | 761.0 | 30.03 | 762 7 | 27.3 | — 2.6 | 88.4 | 1 | 4 | 7 | 10 | 3 | ..... | 3 | 2 | 1 | 8330 | 13406 | 8 | 6.98 | 177.3 |
| Toronto | N. 43 39 | W. 79 23 | 6.50 a.m. | 350 | 107 | 29.70 | 754.4 | 30.11 | 764.8 | 24.2 | — 4.3 | 87.2 | 7 | ..... | 4 | 8 | 3 | 3 | 2 | 4 | ..... | 8425 | 13558 | 7 | 3.24 | 82.3 |
| Woodstock | N. 43 08 | W. 80 47 | 6.48 a.m. | 980 | 299 | 28.98 | 736.1 | 30.11 | 764 8 | 22.9 | — 5.1 | 82.4 | 2 | 2 | 1 | 10 | 8 | 3 | 2 | 3 | ..... | ..... | ..... | 8 | 3.25 | 82.5 |
| Yarmouth | N. 43 50 | W. 66 02 | 7.44 a.m. | 61 | 19 | 29.99 | 761 7 | 30.09 | 764.3 | 26.7 | — 2.9 | 82.4 | 4 | 4 | 5 | 1 | ..... | 3 | 3 | 7 | 4 | ..... | ..... | 8 | 5.48 | 139.2 |
| CAPE COLONY | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape St. Francis | S. 34 10 | E. 24 50 | 1.47 p.m. | 25 | 8 | 30.00 | 762.0 | 30.03 | 762 7 | 71.0 | 21.7 | 84.5 | ..... | ..... | ..... | 16 | 1 | 7 | ..... | 7 | ..... | ..... | ..... | 4 | 0.89 | 22.6 |
| Cape Town | S. 34 02 | E. 18 29 | 1.22 p.m. | ? | ? | 29.91 | 759 7 | ..... | ..... | 75.5 | 24.2 | 47.4 | 1 | 8 | 1 | 1 | ..... | 11 | ..... | 6 | 3 | ..... | ..... | 2 | 0.16 | 4.1 |
| Springbok.*c* | S. 29 45 | E. 17 43 | 1.19 p.m. | ? | ? | 27.85 | 707.4 | ..... | ..... | 84.4 | 29.1 | 39.4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0 | 0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for December, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| Chilian. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | 0–10 | | |
| Coquimbo | S. 29 56 | W. 71 21 | 7.22 a.m | 72 | 22 | 29.89 | 759.1 | 29.97 | 761.1 | 63.5 | 17.5 | 90.0 | 17 | 1 | 2 | 3 | 1 | 3 | ..... | 4 | ..... | ..... | ..... | 9 | inap. | inap. |
| Iquique | S. 20 12 | W. 70 11 | 7.27 a.m | 26 | 8 | 29.92 | 759.9 | 29.95 | 760.6 | 69.4 | 20.8 | 72.5 | ..... | 5 | 1 | 15 | 9 | ..... | ..... | 1 | ..... | ..... | ..... | 5 | ..... | ..... |
| Niebla | S 39 53 | W. 73 25 | 7.14 a.m. | 98 | 30 | 29.53 | 750.0 | 29.63 | 752.7 | 57.6 | 14.2 | 82 | 2 | 8 | 5 | ..... | ..... | ..... | 16 | ..... | ..... | ..... | ..... | 5 | 6.28 | 159.6 |
| Punta Caldera | S 27 03 | W. 70 53 | 7.25 a.m. | 82 | 25 | 29.91 | 759.6 | 29.99 | 761.8 | 65.7 | 18.7 | 81 | 2 | 13 | ..... | 9 | ..... | 5 | ..... | 2 | ... | ..... | ..... | 7 | ..... | ..... |
| Punta Corona | S. 41 47 | W. 73 53 | 7.12 a.m. | 174 | 53 | 29.84 | 757.9 | 30.03 | 762.7 | ..... | ..... | ..... | 2 | 7 | 4 | 13 | 1 | 2 | 1 | 1 | ..... | ..... | ..... | 7 | 4.89 | 124.3 |
| Quiriquina | S. 36 37 | W. 73 03 | 7.25 a.m. | 187 | 57 | 29.77 | 756.1 | 29.97 | 761.2 | 63.0 | 17.2 | 69 | ..... | 5 | 1 | 5 | 15 | 4 | 1 | ..... | ..... | ..... | ..... | 4 | 2.03 | 51.6 |
| Valparaiso | S. 33 02 | W. 71 39 | 7.22 a.m. | 131 | 40 | 29.82 | 757 5 | 29.97 | 761.1 | 62.1 | 16.7 | 85 | 11 | ..... | 2 | 4 | 8 | 1 | 4 | 1 | ..... | ..... | ..... | 6 | ..... | ..... |
| Chinese. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hong Kong | N. 22 18 | E.114 10 | 7.45 p.m. | 110 | 33 | 30.12 | 765 0 | 30.24 | 768 1 | 59.2 | 15.1 | 64.5 | 7 | 2 | ..... | 1 | ..... | 2 | 15 | 4 | ..... | ..... | ..... | 2 | 0 | 0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Zi-Ka-Wei | N. 31 12 | E.121 26 | 8.14 p.m. | 23 | 7 | 30.40 | 772.2 | 30.43 | 772.8 | 35.8 | 2.1 | 70.4 | 7 | 9 | 5 | ..... | 4 | 1 | 4 | 1 | ..... | ..... | ..... | 3 | 0.18 | 4.5 |
| Danish. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copenhagen | N. 55 41 | E. 12 36 | 0.58 p.m. | 43 | 13 | 29.72 | 754 9 | 29.77 | 756.1 | 36.3 | 2.4 | 90 | 3 | 3 | 3 | 10 | 4 | 4 | 1 | 3 | ..... | ..... | ..... | 9 | ..... | ..... |
| Fanöe | N. 55 27 | E. 8 24 | 0.42 p.m. | 20 | 6 | 29.72 | 755 0 | 29.74 | 755.5 | 36.9 | 2.7 | 89 | ..... | 2 | 8 | 5 | 5 | 1 | 3 | 3 | 4 | ..... | ..... | 7 | ..... | ..... |
| Stykkisholm | N. 65 05 | W. 22 46 | 10.37 a.m. | 36 | 11 | 29.10 | 739 2 | 29.15 | 740.3 | 31.6 | — 0.2 | 86 | ..... | ..... | 3 | 4 | 1 | 7 | 8 | 7 | 1 | ..... | ..... | 8 | ..... | ..... |
| Thorshavn | N. 62 02 | W. 6 44 | 11.41 a.m. | 29 | 9 | 29.28 | 743.6 | 29.30 | 744.2 | 40.5 | 4.7 | 85 | 2 | 4 | 3 | 9 | 6 | 5 | 1 | ..... | 1 | ..... | ..... | 8 | ..... | ..... |
| Vestervig | N. 56 47 | E. 8 20 | 0.41 p.m. | 82 | 25 | 29.61 | 752.2 | 29.71 | 754.5 | 37.0 | 2.8 | 87 | ..... | 1 | 5 | 5 | 5 | 5 | 3 | 5 | 2 | ..... | ..... | 8 | ..... | ..... |
| Egyptian. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cairo | N. 30 03 | E. 31 21 | 2.14 p.m. | ? | ? | 29.94 | 760.4 | ..... | ..... | ..... | 67.6 | 19.8 | ..... | 10 | 2 | 3 | 7 | 1 | ..... | 1 | 7 | ..... | ..... | 5 | 0.16 | 4.2 |
| French. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agen. *b* | N. 44 12 | E. 0 38 | 0.11 p.m. | 604 | 184 | 29.47 | 748.6 | 30.14 | 765.6 | 42.4 | 5.8 | 92.0 | 2 | 8 | 2 | 4 | 3 | 8 | 1 | 1 | ..... | ..... | ..... | 6 | 1.87 | 47.5 |
| Alençon | N. 48 26 | E. 0 05 | 0.09 p.m. | 476 | 145 | 29.45 | 748.0 | 29.99 | 761.8 | 42.8 | 6.0 | 86.2 | 7 | 1 | 3 | 8 | 10 | ..... | 1 | 1 | ..... | ..... | ..... | ..... | 0.68 | 17.2 |
| Arras | N 50 18 | E. 2 46 | 0.19 p.m | 223 | 68 | 29.70 | 754.3 | 29.94 | 760.5 | 41.4 | 5.2 | 85.4 | 2 | 4 | 9 | 3 | 1 | 3 | 3 | 6 | ..... | ..... | ..... | 5 | 3.78 | 95.9 |
| Avignon | N. 43 57 | E. 4 49 | 0.27 p.m | 65 | 20 | 29.94 | 760.5 | 30.02 | 762.5 | 46.2 | 7.9 | 62.1 | 20 | 3 | 3 | ..... | ..... | 3 | 1 | 1 | ..... | ..... | ..... | 4 | 1.84 | 46.8 |
| Bar-sur-Seine | N. 48 07 | E. 4 22 | 0.25 p.m. | 518 | 158 | 29.42 | 747 3 | 30.00 | 761.9 | 40.3 | 4.6 | 84.7 | ..... | 1 | ..... | 8 | 8 | 10 | 1 | 3 | ..... | ..... | ..... | 9 | 4.46 | 113.3 |
| Beauvais | N. 49 26 | E. 2 05 | 0.16 p.m. | 246 | 75 | 29.69 | 754.0 | 29.96 | 760 9 | 42.8 | 6.0 | 82.3 | 4 | 4 | 4 | 5 | 8 | 2 | 4 | ..... | ..... | ..... | ..... | 8 | 3.26 | 82.8 |
| Besançon | N. 47 13 | E. 6 02 | 0.32 p.m. | 846 | 258 | 29.08 | 738.7 | 30.01 | 762.3 | 41.5 | 5.3 | 83.0 | 1 | ..... | ..... | 3 | 9 | 5 | 2 | 11 | ..... | ..... | ..... | 5 | 7.45 | 189.2 |
| Bordeaux | N. 44 50 | W. 0 32 | 0.06 p.m. | 243 | 74 | 29.81 | 757.2 | 30.08 | 764.0 | 44.8 | 7.1 | 84.9 | 1 | 7 | 3 | 5 | 2 | 9 | 3 | 1 | ..... | ..... | ..... | 7 | 2.51 | 63.8 |
| Bourges | N. 47 10 | E. 2 26 | 0.17 p.m. | 510 | 156 | 29.48 | 748 8 | 30.03 | 762.8 | 42.6 | 5.9 | 82.0 | 5 | 1 | 9 | 7 | 3 | 2 | ..... | 4 | ..... | ..... | ..... | 7 | 2.00 | 50.9 |
| Brest | N. 48 24 | W. 4 30 | 11.50 a.m. | 210 | 64 | 29.79 | 756.7 | 30.04 | 762 9 | 48.0 | 8.9 | 86.3 | 5 | 2 | 5 | 8 | 3 | ..... | 2 | 5 | 1 | ..... | ..... | 7 | 4.89 | 124.2 |
| Caen | N. 49 11 | W. 0 21 | 0.07 p.m. | 69 | 21 | 29.90 | 759.4 | 29.97 | 761.3 | 45.0 | 7.2 | 88.5 | 5 | ..... | 2 | 1 | 6 | 2 | 6 | 9 | ..... | ..... | ..... | ..... | 4.69 | 119.0 |
| Châlons sur Marne *b* | N. 48 57 | E. 4 21 | 0.25 p.m. | 292 | 89 | 29.60 | 751.9 | 29.92 | 760.0 | 41.2 | 5.1 | 87.0 | ..... | 1 | 1 | 12 | 9 | 5 | ..... | 1 | ..... | ..... | ..... | 6 | 2.76 | 70.0 |
| Charleville | N. 49 46 | E. 4 43 | 0.27 p.m. | 476 | 145 | 29.46 | 748.3 | 29.98 | 761.4 | 39.6 | 4.2 | 81.0 | 2 | ..... | 7 | 6 | 6 | 1 | ..... | 9 | ..... | ..... | ..... | 8 | 5.46 | 138.8 |
| Clermont-Fer'and | N. 45 46 | E. 3 05 | 0.20 p.m. | 1273 | 388 | 28.65 | 727.6 | 30.04 | 763.0 | 41.9 | 5.5 | 71.7 | 4 | 7 | 7 | 4 | 4 | 3 | ..... | 2 | ..... | ..... | ..... | 8 | 3.49 | 88.6 |
| Cluny | N. 46 26 | E. 4 39 | 0.27 p.m. | 787 | 240 | 29.18 | 741.2 | 30.04 | 762.9 | 40.1 | 4.5 | 68.6 | 3 | 1 | 1 | 9 | 7 | 2 | ..... | 8 | ..... | ..... | ..... | 8 | 2.81 | 71.4 |
| Commercy | N. 48 46 | E. 5 35 | 0.30 p.m. | 797 | 243 | 29.13 | 739 9 | 30.04 | 762.9 | 38.3 | 3.5 | 56.9 | 4 | 1 | 9 | 10 | 1 | 1 | 4 | 1 | ..... | ..... | ..... | 7 | 8.01 | 203.5 |
| Gap | N. 44 33 | E. 6 05 | 0.32 p.m. | 2424 | 739 | 27.44 | 696.9 | 30.04 | 763 0 | 39.0 | 3.9 | 72.0 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 6 | 22 | ..... | ..... | 4 | 4.26 | 108.2 |
| Gréasque | N. 43 25 | E. 5 37 | 0.31 p.m. | 1056 | 322 | 28.85 | 732 8 | 29.99 | 761.8 | 47.8 | 8.8 | 60.0 | 6 | 7 | 6 | 1 | 3 | 4 | 2 | 2 | ..... | ..... | ..... | 4 | 1.85 | 47.0 |
| Grenoble | N. 45 12 | E. 5 43 | 0.31 p.m. | 715 | 218 | 29.27 | 743.5 | 30.05 | 763.3 | 39.0 | 3.9 | 84.2 | 3 | 6 | 7 | ..... | 2 | 4 | 6 | 3 | ..... | ..... | ..... | ..... | 5.10 | 129.4 |
| Guéret | N. 46 10 | E. 1 52 | 0.16 p.m. | 1486 | 453 | 28.43 | 722 0 | 30.02 | 762.5 | 37.9 | 3.3 | 82.7 | 5 | 3 | 6 | 11 | 2 | 1 | 3 | ..... | ..... | ..... | ..... | 7 | 4.09 | 104.0 |
| Lambelle | N. 48 28 | W. 2 31 | 11.58 a.m. | 252 | 77 | 29.71 | 754 7 | 29.99 | 761.7 | 45.3 | 7.4 | 87.0 | 4 | 3 | 7 | 3 | 6 | 4 | 2 | 2 | ..... | ..... | ..... | 6 | 4.10 | 104.1 |
| Lescar | N. 43 20 | W. 0 26 | 0.06 p.m. | 525 | 160 | 29.52 | 749.7 | 30.08 | 764.1 | 49.8 | 9.9 | 64.5 | 3 | 6 | 8 | 6 | 2 | 1 | 4 | 1 | ..... | ..... | ..... | 5 | 3.07 | 77.9 |
| Lorient | N. 47 45 | W. 3 21 | 11.55 a.m. | 86 | 26 | 29.95 | 760.7 | 30.05 | 763.3 | 47.8 | 8.8 | 73.4 | 7 | 2 | 5 | 8 | 2 | 1 | 2 | 4 | ..... | ..... | ..... | ..... | 4.10 | 104.1 |
| Lyon | N. 45 41 | E. 4 47 | 0.25 p.m. | 981 | 299 | 28.97 | 735.9 | 30.06 | 763.6 | 39.2 | 4.0 | 78.9 | 7 | 7 | 3 | 1 | 6 | 2 | 3 | 2 | ..... | ..... | ..... | 6 | 1.20 | 30.5 |
| Mans | N. 48 00 | E. 0 12 | 0.09 p.m. | 285 | 87 | 29.69 | 754.1 | 29.99 | 761.8 | 41.4 | 5.2 | 84.9 | 3 | 5 | 3 | 6 | 3 | 3 | 3 | 5 | ..... | ..... | ..... | 7 | 3.21 | 81.5 |
| Marseille | N. 43 18 | E. 5 23 | 0.29 p.m. | 246 | 75 | 29.71 | 734.7 | 29.98 | 761.6 | 50.9 | 10.5 | 61.0 | ..... | 10 | 10 | ..... | 2 | 1 | 8 | ..... | ..... | ..... | ..... | ..... | 2.18 | 55.3 |
| Montlouis | N. 42 30 | E. 2 07 | 0.16 p.m. | 5203 | 1586 | 24.76 | 629.0 | 29.61? | 752.0? | 35.8 | 2.1 | 49.2 | 5 | 4 | 5 | 11 | 2 | 1 | 2 | 1 | ..... | ..... | ..... | 4 | 9.84 | 249.9 |
| Montpellier | N. 43 37 | E. 3 53 | 0.24 p.m. | 118 | 36 | 29.89 | 759.1 | 29.97 | 761.2 | 49.6 | 9.8 | 67.8 | 7 | 7 | 2 | 1 | ..... | ..... | ..... | 14 | ..... | ..... | ..... | ..... | 6.86 | 161.4 |
| Nancy | N. 48 42 | E. 6 11 | 0.33 p.m. | 725 | 221 | 29.18 | 741.1 | 30.04 | 763.0 | 37.9 | 3.3 | 85.7 | 3 | 6 | 2 | 4 | 11 | 4 | ..... | 1 | ..... | ..... | ..... | ..... | 4.12 | 104.6 |
| Nantes | N. 47 13 | W. 1 33 | 0.02 p.m. | 134 | 41 | 29.89 | 759.2 | 30.05 | 763 3 | 46.0 | 7.8 | 78.6 | 4 | ..... | 7 | 5 | 7 | 2 | 1 | 5 | ..... | ..... | ..... | 8 | ..... | ..... |
| Perpignan | N. 42 42 | E. 2 53 | 0.19 p.m. | 105 | 32 | 29.93 | 760.3 | 30.05 | 763.2 | 49.8 | 9.9 | 58.0 | 2 | 14 | 2 | ..... | 1 | 2 | 2 | 5 | 3 | ..... | ..... | 6 | 4.16 | 105.6 |
| Pic du Midi (Sum. | N. 42 56 | W. 0 08 | 0.08 p.m. | 9380 | 2859 | 21.08 | 535 5 | ..... | ..... | 22.3 | — 5.4 | ..... | 2 | 13 | 4 | 1 | 2 | 2 | ..... | 4 | 3 | ..... | ..... | ..... | 11.83 | 300.4 |
| Privas. [mit.] | N. 44 45 | E. 4 36 | 0.26 p.m. | 997 | 304 | 28.96 | 735.6 | 30.04 | 763.0 | 43.5 | 6.4 | 77.9 | 20 | ..... | 1 | ..... | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2.31 | 58.7 |
| Puy de Dôme | N. 45 46 | E. 2 58 | 0.20 p.m. | 4813 | 1467 | 25.02 | 635.4 | ..... | ..... | 28.9 | — 1.7 | 87.8 | 3 | 4 | 6 | 8 | 1 | 5 | 1 | 3 | ..... | ..... | ..... | 8 | 8.68 | 220.4 |
| Rochefort | N. 45 56 | W. 0 58 | 0.04 p.m. | 29 | 9 | 30.06 | 763 4 | 30.10 | 764 4 | 46.6 | 8.1 | 80.3 | 4 | 2 | 2 | 8 | 6 | 1 | 2 | 6 | ..... | ..... | ..... | 8 | 2.13 | 54.0 |
| Roche-sur-Yon | N. 46 40 | W. 1 26 | 0.02 p.m. | 259 | 79 | 29.80 | 757.0 | 30.07 | 763.8 | 45.1 | 7.3 | 84.0 | 4 | 7 | 11 | 6 | ..... | 2 | ..... | 1 | ..... | ..... | ..... | 5 | 3.07 | 78.0 |
| Rodez | N. 44 21 | E. 2 34 | 0.18 p.m. | 2050 | 625 | 27.85 | 707.4 | 30.05 | 763 2 | 40.3 | 4.6 | 75.5 | 8 | 16 | ..... | ..... | ..... | 4 | 2 | 1 | ..... | ..... | ..... | ..... | 3.27 | 83.0 |
| Rouen | N. 49 26 | E. 1 05 | 0.12 p.m. | 39 | 12 | 29.89 | 759.3 | 29.94 | 760 5 | 43.9 | 6.6 | 83.7 | 4 | 3 | 6 | 8 | ..... | 2 | 4 | 4 | ..... | ..... | ..... | 8 | 2.83 | 71.8 |
| Saint Maur | N. 48 48 | E. 2 21 | 0.17 p.m. | 162 | 49 | 29.80 | 756.9 | 29.97 | 761.1 | 44.6 | 7.0 | 83.7 | 6 | 1 | 4 | 7 | 8 | 3 | 1 | 1 | ..... | ..... | ..... | 9 | 1.46 | 37.0 |
| Toulouse | N. 43 37 | E. 1 27 | 0.14 p.m. | 636 | 194 | 29.37 | 746.1 | 30.10 | 764.6 | 45.0 | 7.2 | 79.6 | 2 | 8 | 6 | 1 | 4 | 6 | 2 | 2 | ..... | ..... | ..... | 7 | 1.82 | 46.3 |
| Tours | N. 47 24 | E. 0 41 | 0.11 p.m. | 167 | 51 | 29.84 | 757.8 | 30.02 | 762 6 | 44.4 | 6.9 | 83.5 | 5 | 3 | 5 | 6 | 6 | 2 | ..... | 4 | ..... | ..... | ..... | 7 | 2.50 | 63.5 |
| Versailles | N. 48 48 | E. 2 07 | 0.16 p.m. | 413 | 126 | 29.50 | 749.4 | 29.95 | 760.7 | 41.4 | 5.2 | 79.9 | 1 | 2 | 15 | 3 | ..... | 2 | 7 | 1 | ..... | ..... | ..... | 7 | 3.71 | 94.3 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| St. Martin du Hinx. | N. 43 35 | W. 1 16 | 0.03 p.m. | 131 | 40 | 29.96 | 761.0 | 30.11 | 764.8 | 48.6 | 9.2 | 74.0 | 3 | 4 | 2 | 10 | 1 | 4 | 5 | 2 | ..... | ..... | ..... | 6 | 3.11 | 79.0 |
| German. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ansbach | N. 49 18 | E. 10 36 | 0.50 p.m. | 1358 | 414 | 28.48 | 723.3 | 29.98 | 761 4 | 36.0 | 2.2 | 77.9 | 1 | ..... | 6 | 9 | 3 | 2 | 3 | 3 | 4 | ..... | ..... | 9 | 3.18 | 80.7 |
| Bamberg | N. 49 54 | E. 10 54 | 0.51 p.m. | 787 | 240 | 29.02 | 737.1 | 29.86 | 758.4 | 36.1 | 2.3 | 82.3 | 3 | 4 | 5 | 7 | 2 | 4 | 4 | 2 | ..... | ..... | ..... | 8 | 2.11 | 53.7 |
| Berlin | N. 52 30 | E. 13 19 | 1.02 p.m. | 131 | 40 | 29.68 | 753.9 | 29.83 | 757.6 | 37.8 | 3.2 | 85.1 | 1 | 2 | 13 | 4 | 2 | 3 | 2 | 4 | ..... | ..... | ..... | 9 | 2.66 | 67.5 |
| Breslau | N. 51 07 | E. 17 02 | 1.17 p.m. | 482 | 147 | 29.38 | 746.3 | 29.91 | 759.7 | 37.6 | 3.1 | 79.3 | 3 | 1 | 9 | 6 | 3 | 5 | 2 | 2 | ..... | ..... | ..... | 9 | 1.32 | 33.4 |
| Carlsruhe | N. 49 01 | E. 8 25 | 0.42 p.m. | 413 | 126 | 29.50 | 749.4 | 29.97 | 761.3 | 39.7 | 4.3 | 80.5 | 1 | ..... | ..... | 17 | 3 | 1 | 2 | 7 | ..... | ..... | ..... | 9 | 5.80 | 147.2 |
| Cassel | N. 51 19 | E 9 28 | 0.46 p.m. | 669 | 204 | 29.14 | 740 2 | 29.85 | 758.3 | 37.8 | 3.2 | 85.1 | 6 | ..... | 3 | 8 | 8 | 3 | 2 | 1 | ... | ..... | ..... | 8 | 2.90 | 73.6 |
| Frankfort on M | N. 50 08 | E. 8 41 | 0.43 p.m. | 338 | 103 | 29.56 | 750.7 | 29.98 | 761.6 | 38.8 | 3.8 | 81.8 | 5 | ..... | 2 | 10 | 5 | 3 | 2 | 4 | ..... | ..... | ..... | 9 | 3.98 | 101.0 |
| Friedrichshafen | N. 47 39 | E. 9 29 | 0.46 p.m. | 1339 | 408 | 28.55 | 725.1 | 30.01 | 762.3 | 37.0 | 2.8 | 81.2 | 2 | 3 | 4 | 11 | 1 | 1 | 1 | 8 | ... | ..... | ..... | 8 | 4.63 | 117.5 |
| Hamburg | N. 53 33 | E. 9 58 | 0.48 p.m. | 85 | 26 | 29.75 | 755.7 | 29.84 | 758.0 | 37.4 | 3.0 | 89.7 | 3 | 2 | 3 | 9 | 5 | 2 | 3 | 4 | ..... | ..... | ..... | 8 | 3.21 | 81.5 |
| Kiel | N. 54 19 | E. 10 04 | 0.48 p.m. | 13 | 4 | 29.78 | 756.3 | 29.79 | 756.7 | 38.1 | 3.4 | 82.5 | 2 | 1 | 6 | 12 | 1 | 1 | 2 | 5 | 1 | ..... | ..... | 8 | 3.97 | 100.8 |
| Leipsic | N. 51 20 | E. 12 24 | 0.58 p.m. | 390 | 119 | 29.47 | 748.4 | 29.90 | 759.4 | 37.6 | 3.1 | 83.6 | 4 | 1 | 5 | 10 | 3 | 3 | 1 | 4 | ..... | ..... | ..... | 8 | 2.39 | 60.6 |
| Magdeburg | N. 52 09 | E. 11 37 | 0.54 p.m. | 177 | 54 | 29.67 | 753 6 | 29.87 | 758 6 | 38.3 | 3.5 | 83.6 | 5 | 1 | 5 | 6 | 6 | 4 | 2 | 2 | ..... | ..... | ..... | 8 | 2.47 | 62.7 |
| Memel | N. 55 43 | E. 21 07 | 1.32 p.m. | 39 | 12 | 29.73 | 755.1 | 29.78 | 756 3 | 35.4 | 1.9 | 89.3 | 2 | 7 | 4 | 7 | 1 | 3 | 3 | 4 | ..... | ..... | ..... | 9 | ..... | ..... |
| Munich | N. 48 09 | E. 11 34 | 0.54 p.m. | 1732 | 528 | 28.09 | 713.6 | 29.95 | 760.8 | 36.3 | 2.4 | 72.7 | 3 | 9 | 2 | 2 | 3 | 1 | 5 | 1 | 5 | ..... | ..... | 8 | 2.04 | 51.7 |
| Neufahrwasser | N. 54 24 | E. 18 40 | 1.25 p.m. | 36 | 11 | 29.77 | 756.2 | 29.81 | 757 2 | 36.3 | 2.4 | 85.1 | 1 | 1 | 8 | 6 | 5 | 3 | 4 | 3 | ..... | ..... | ..... | 9 | 2.24 | 56.9 |
| Neustadt | N. 49 21 | E. 8 08 | 0.41 p.m. | 479 | 146 | 29.42 | 747.2 | 29.94 | 760 4 | 39.4 | 4.1 | 83.0 | 3 | 3 | 6 | 10 | 6 | ..... | ..... | ..... | 3 | ..... | ..... | 9 | 4.50 | 114.3 |
| Stuttgart | N. 48 47 | E. 9 11 | 0.45 p.m. | 833 | 254 | 29.05 | 737.9 | 29.97 | 761.1 | 39.2 | 4.0 | 78.0 | 3 | 3 | 6 | 13 | 1 | ..... | ..... | 4 | 1 | ..... | ..... | 8 | 2.78 | 70.7 |
| Wustrow | N. 54 21 | E. 12 24 | 0.58 p.m. | 23 | 7 | 29.78 | 750.5 | 29.81 | 757.1 | 36.9 | 2.7 | 88.2 | 3 | 1 | 1 | 12 | 3 | 5 | 1 | 5 | ..... | ..... | ..... | 9 | 1.74 | 44.3 |
| Greek. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Athens | N. 37 58 | E. 23 44 | 1.43 p.m. | 361 | 110 | 29.67 | 753.7 | 30.06 | 763.5 | 59.4 | 15.2 | 75.1 | 9 | 3 | 2 | 1 | 5 | 5 | 2 | 4 | ..... | ..... | ..... | 4 | 2.03 | 51.6 |
| Indian. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kurrachee | N. 24 47 | E. 67 04 | 4.36 p.m. | 49 | 15 | 30.00 | 762.0 | 30.05 | 763.3 | 76.3 | 24.6 | 43 | ..... | 1 | 5 | 11 | 1 | 5 | 7 | 1 | ..... | ..... | ..... | 2 | 0 | 0 |
| Deesa | N. 24 16 | E. 72 14 | 4.57 p.m. | 466 | 142 | 29.56 | 750 8 | 30.04 | 763.0 | 76.7 | 24.8 | 28 | 12 | 4 | ..... | 1 | 1 | ..... | 1 | 12 | ..... | ..... | ..... | 2 | 0 | 0 |
| Bombay | N. 18 54 | E. 72 49 | 5.00 p.m. | 37 | 11 | 29.92 | 760.0 | 29.96 | 761.0 | 78.2 | 25.7 | 72 | 10 | 18 | ..... | ..... | 1 | ..... | 1 | 1 | ..... | ..... | ..... | 3 | 1.14 | 29.0 |
| Poona | N. 18 28 | E. 74 10 | 5.05 p.m. | 1849 | 564 | 28.10 | 713.7 | 29.97 | 761.2 | 76.5 | 24.7 | 41 | ..... | 2 | 1 | 4 | ..... | 4 | 13 | 7 | ..... | ..... | ..... | 4 | 1.37 | 34.8 |
| Belgaum | N. 15 52 | E. 74 42 | 5.07 p.m. | 2550 | 777 | 27.40 | 695.9 | 29.95 | 760.7 | 75.7 | 24.3 | 48 | ..... | ..... | ..... | 2 | ..... | 2 | 12 | 10 | 5 | ..... | ..... | 3 | 0.84 | 21.3 |
| Lahore | N. 31 34 | E. 74 20 | 5.05 p.m. | 732 | 223 | 29.33 | 745.0 | 30.10 | 764.5 | 61.6 | 16.4 | 59 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 30 | ..... | ..... | ..... | 1 | 0 | 0 |
| Roorkee | N. 29 52 | E. 77 56 | 5.20 p.m. | 887 | 270 | 29.14 | 740.1 | 30.08 | 764.0 | 62.8 | 17.1 | 59 | ..... | ..... | 12 | ..... | ..... | ..... | ..... | 19 | ..... | ..... | ..... | 1 | 0.02 | 0.5 |
| Agra | N. 27 10 | E. 78 05 | 5.20 p.m. | 555 | 169 | 29.50 | 749.3 | 30.09 | 764 3 | 65.8 | 18.8 | 44 | 1 | 19 | 4 | 1 | ..... | 3 | 1 | 2 | ..... | ..... | ..... | 1 | 0.25 | 6.4 |
| Nagpur | N. 21 09 | E. 79 11 | 5.24 p.m. | 1025 | 312 | 28.97 | 735.8 | 30.03 | 762 7 | 72.7 | 22.6 | 45 | ..... | ..... | ..... | ..... | 1 | 1 | 1 | 28 | ..... | ..... | ..... | 4 | 2.68 | 68.1 |
| Jubbulpore | N. 23 09 | E. 79 59 | 5.28 p.m. | 1341 | 409 | 28 67 | 728.2 | 30.07 | 763 8 | 67.3 | 19.6 | 49 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 7 | 23 | ..... | ..... | 2 | 0.46 | 11.7 |
| Lucknow | N. 26 50 | E. 81 00 | 5.32 p.m. | 369 | 113 | 29.69 | 754 1 | 30.09 | 764.3 | 64.4 | 18.0 | 54 | 1 | 3 | 5 | 3 | ..... | ..... | ..... | 18 | ..... | ..... | ..... | 1 | 0.02 | 0.5 |
| Allahabad | N. 25 26 | E. 81 52 | 5.35 p.m. | 307 | 94 | 29.75 | 755.6 | 30.08 | 764.0 | 60.2 | 15.7 | 82 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 28 | ..... | ..... | ..... | 2 | 0 | 0 |
| Patna | N. 25 37 | E. 85 08 | 5.49 p.m. | 183 | 56 | 29.89 | 759.2 | 30.09 | 764.3 | 65.9 | 18.8 | 60 | 2 | 5 | 15 | ..... | 1 | ..... | 1 | 7 | ..... | ..... | ..... | 1 | 0 | 0 |
| Hazaribagh | N. 24 00 | E. 85 24 | 5.50 p.m. | 2007 | 612 | 27.99 | 710.9 | 30.07 | 763 8 | 63.2 | 17.3 | 52 | 11 | 10 | 1 | 1 | 2 | ..... | 1 | 3 | 2 | ..... | ..... | 3 | 0.05 | 1.3 |
| Cuttack | N. 20 29 | E. 85 54 | 5.52 p.m. | 80 | 24 | 29.97 | 761.2 | 30.05 | 763.3 | 71.0 | 21.7 | 66 | ..... | ..... | ..... | ..... | 4 | 3 | ..... | 24 | ..... | ..... | ..... | 2 | 0.44 | 11.2 |
| Calcutta | N. 22 33 | E. 88 21 | 6.01 p.m. | 21 | 6 | 30.02 | 762.5 | 30.04 | 763.0 | 66.5 | 19.2 | 72 | 18 | 10 | ..... | ..... | ..... | ..... | ..... | 2 | 1 | ..... | ..... | 1 | 0 | 0 |
| Dhubri | N. 26 07 | E. 89 50 | 6.08 p.m. | 115 | 35 | 29.93 | 760 2 | 30.05 | 763 3 | 66.4 | 19.1 | 67 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 30 | ..... | ..... | ..... | 1 | 0 | 0 |
| Chittagong | N. 22 21 | E. 91 50 | 6.15 p.m. | 87 | 26 | 29.95 | 760.7 | 30.04 | 763.0 | 68.7 | 20.4 | 74 | ..... | 8 | 8 | 1 | ..... | ..... | ..... | 14 | ..... | ..... | ..... | 1 | 0 | 0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for December, 1884. | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity | Wind. | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0-10 | Inch. | Mill. |
| INDIAN—Cont'd. | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sibsagar | N. 26 59 | E. 94 40 | 6.27 p.m. | 333 | 102 | 29.73 | 755.1 | 30.08 | 764.0 | 60.3 | 15.7 | 88 | ..... | ..... | ..... | 2 | ..... | 2 | 1 | 26 | ..... | ..... | ..... | 2 | 1.10 | 27.9 |
| Jeypore | N. 26 55 | E. 75 50 | 5.05 p.m. | 1431 | 436 | 28.61 | 726.7 | 30.10 | 764.5 | 66.8 | 19.3 | 44 | 3 | 7 | 1 | 1 | 2 | 2 | 6 | 7 | 2 | ..... | ..... | 3 | 0.01 | 0.3 |
| Bellary | N. 15 09 | E. 76 57 | 5.16 p.m. | 1455 | 444 | 28.46 | 722.9 | ..... | ..... | 79.7 | 26.5 | 44 | 1 | ..... | ..... | ..... | ..... | 5 | 24 | 1 | ..... | ..... | ..... | 5 | 0 | 0 |
| Trichinopoly | N. 10 50 | E. 78 44 | 5.23 p.m. | 275 | 84 | 29.69 | 754.1 | 29.98 | 761.5 | 77.3 | 25.2 | 74 | 4 | 1 | 1 | ..... | ..... | 6 | 19 | ..... | ..... | ..... | ..... | 7 | 9.72 | 246.9 |
| ITALIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Udine | N. 46 04 | E. 13 13 | 1.01 p.m. | 381 | 116 | 29.53 | 750.0 | 29.95 | 760.7 | 44.8 | 7.1 | 68 | 1 | 1 | ..... | ..... | ..... | 6 | 4 | 19 | ..... | ..... | ..... | 7 | 4.66 | 118.3 |
| Milan | N. 45 28 | E. 9 11 | 0.45 p.m. | 482 | 147 | 29.49 | 749.1 | 30.03 | 762.8 | 39.6 | 4.2 | 78 | 2 | 6 | 6 | 9 | 1 | 1 | 3 | 3 | ..... | ..... | ..... | 7 | 1.99 | 50.6 |
| Padua | N. 45 24 | E. 11 53 | 0.56 p.m. | 102 | 31 | 29.89 | 759.1 | 30.00 | 762.0 | 41.4 | 5.2 | 78 | 5 | 7 | ..... | 2 | 1 | ..... | 1 | 10 | 5 | ..... | ..... | 8 | 2.60 | 66.1 |
| Moncalieri | N. 45 00 | E. 7 41 | 0.39 p.m. | 846 | 258 | 29.08 | 738.5 | 30.02 | 762.4 | 39.2 | 4.0 | 76 | 2 | 12 | 1 | 1 | ..... | 1 | 7 | 7 | ..... | ..... | ..... | 6 | 2.23 | 56.6 |
| Genoa | N. 44 24 | E. 8 55 | 0.44 p.m. | 177 | 54 | 29.76 | 756.0 | 29.96 | 761.0 | 50.0 | 10.0 | 67 | 13 | ..... | ..... | 2 | 3 | 5 | 3 | 4 | 1 | ..... | ..... | 6 | 2.17 | 55.1 |
| Pesaro | N. 43 55 | E. 12 53 | 1.00 p.m. | 46 | 14 | 29.95 | 760.6 | 30.00 | 761 9 | 44.2 | 6.8 | 83 | 9 | 19 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 3.22 | 81.9 |
| Florence | N. 43 46 | E. 11 15 | 0.53 p.m. | 240 | 73 | 29.71 | 754.6 | 29.97 | 761.2 | 46.9 | 8.3 | 66 | 6 | 3 | 3 | 3 | 3 | 1 | 2 | 10 | ..... | ..... | ..... | 8 | 1.74 | 44.2 |
| Leghorn | N. 43 33 | E. 10 18 | 0.49 p.m. | 79 | 24 | 29.89 | 759.3 | 29.98 | 761.5 | 51.1 | 10.6 | 70 | 2 | ..... | 3 | 2 | 4 | ..... | 7 | 13 | ..... | ..... | ..... | 7 | 5.29 | 134.4 |
| Rome | N. 41 54 | E. 12 29 | 0.58 p.m. | 164 | 50 | 29.79 | 756 6 | 29.97 | 761.1 | 52.5 | 11.4 | 68 | 9 | 1 | ..... | 3 | 6 | 1 | 3 | 2 | 6 | ..... | ..... | 6 | 6.06 | 153.8 |
| Lecce | N. 40 22 | E. 18 12 | 1.21 p.m. | 236 | 72 | 29.75 | 755.6 | 30.01 | 762.2 | 55.4 | 13.0 | 68 | 2 | 10 | ..... | 1 | 4 | 10 | 2 | 2 | ..... | ..... | ..... | 5 | 5.02 | 127.4 |
| Cosenza | N. 39 19 | E. 16 17 | 1.13 p.m. | 840 | 256 | 29.11 | 739 3 | 30.03 | 762.7 | 50.2 | 10.1 | 77 | 2 | 2 | 7 | 3 | 5 | 9 | 3 | ..... | ..... | ..... | ..... | 6 | 4.44 | 112.8 |
| Cagliari | N. 39 30 | E. 9 00 | 0.45 p.m. | 180 | 55 | 29.75 | 755.6 | 29.95 | 760 6 | 55.0 | 12.8 | 67 | ..... | 16 | 3 | ..... | 2 | 4 | ..... | 6 | ..... | ..... | ..... | 5 | 1.56 | 39.5 |
| Palermo | N. 38 07 | E. 13 21 | 1.02 p.m. | 236 | 72 | 29.74 | 755.5 | 30.00 | 762.0 | 58.3 | 14.6 | 63 | ..... | 3 | 7 | 6 | ..... | 1 | 4 | 8 | 2 | ..... | ..... | 7 | 3.01 | 76.4 |
| Syracuse | N. 37 03 | E. 15 15 | 1.09 p.m. | 72 | 22 | 29.89 | 759.3 | 29.94 | 760.4 | 58.8 | 14.9 | 67 | 4 | 5 | 4 | 5 | 1 | 1 | 3 | 8 | ..... | ..... | ..... | 6 | 2.88 | 73.1 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Naples.g | N. 40 52 | E. 14 15 | 1.05 p.m. | 489 | 149 | 29.28 | 743.6 | ..... | ..... | 51.1 | 10.6 | 80.6 | ..... | 2 | ..... | 3 | ..... | 3 | 1 | 6 | ..... | ..... | ..... | 6 | 7.15 | 181.5 |
| Stelvio | N. 46 32 | E. 10 25 | 0.50 p.m. | 8343 | 2543 | 22.00 | 558.8 | ..... | ..... | 20.3 | — 6.5 | 77.5 | 1 | ..... | 5 | 9 | ..... | 7 | 2 | 7 | ..... | ..... | ..... | 4 | 2.09 | 53.0 |
| Valdobbia | N. 45 47 | E. 7 51 | 0.40 p.m. | 8360 | 2548 | 22.00 | 558.8 | ..... | ..... | 23.0 | — 5.0 | 71.2 | ..... | 9 | 7 | 2 | 1 | ..... | 4 | 8 | ..... | ..... | ..... | 7 | 0.39 | 10.0 |
| JAPANESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akita | N. 39 42 | E.140 07 | 9.28 p.m. | 32 | 10 | 29.99 | 761.7 | 30.02 | 762.6 | 30.0 | — 1.1 | 85 | 3 | 12 | 3 | 2 | 1 | ..... | 4 | 1 | 5 | ..... | ..... | 10 | 6.41 | 162.9 |
| Awomori | N. 40 51 | E.140 45 | 9.31 p.m. | 32 | 10 | 29.94 | 760.6 | 29.98 | 761.5 | 27.0 | — 2.8 | 77.4 | ..... | 1 | 12 | 11 | 4 | 1 | ..... | 2 | 7391 | 11892 | 8 | 6.82 | 173.3 |
| Hakodate | N 41 47 | E.140 44 | 9.31 p m. | 10 | 3 | 29.93 | 760.1 | 29.94 | 760.4 | 27.5 | — 2.5 | 82 | 7 | 5 | 16 | ..... | 1 | ..... | ..... | ..... | 2 | 8641 | 13906 | 7 | 2.09 | 53.1 |
| Hamamatsu | N. 34 43 | E.137 43 | 9.19 p.m. | 92 | 28 | 30.00 | 762.0 | 30.10 | 764.5 | 38.7 | 3.7 | 74 | ... | 4 | 23 | ..... | ..... | ..... | ..... | 2 | 2 | ..... | ..... | 2 | 1.08 | 27.5 |
| Hiroshima | N. 34 23 | E.132 27 | 8.58 p m. | 16 | 5 | 30.19 | 766.8 | 30.21 | 767 3 | 37.4 | 3.0 | 77.4 | 12 | 3 | 7 | ..... | ..... | ..... | ..... | 4 | 5 | 3347 | 5386 | 5 | 0.39 | 9.9 |
| Kanazawa | N. 36 33 | E.136 40 | 9.14 p.m. | 95 | 29 | 30.04 | 762.9 | 30.14 | 765.6 | 36.7 | 2.6 | 84.2 | ..... | 6 | 4 | 5 | 2 | 9 | 5 | ..... | ..... | 6171 | 9934 | 9 | 11.87 | 301.3 |
| Kioto | N. 35 01 | E.135 46 | 9.11 p.m. | 162 | 49 | 29.99 | 761.7 | 30.16 | 766.1 | 35.1 | 1.7 | 83.2 | 10 | 6 | 5 | 2 | 1 | 1 | 1 | 2 | 3 | 2097 | 3375 | 5 | 0.95 | 24.4 |
| Kochi | N. 33 33 | E.133 34 | 9.02 p.m. | 20 | 6 | 30.17 | 766 3 | 30.19 | 766.8 | 39.4 | 4.1 | 74.8 | 5 | 7 | 10 | 1 | ..... | ..... | 1 | 7 | ..... | 4688 | 7545 | 2 | 0.75 | 19.0 |
| Miasaka | N. 31 56 | E.131 26 | 8.54 p.m. | 26 | 8 | 30.22 | 767.5 | 30.24 | 768 2 | 39.9 | 4.4 | 79 | 2 | ..... | 28 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 1 | 0.44 | 11.1 |
| Miyako | N. 39 38 | E.141 59 | 9.36 p.m. | 98 | 30 | 29.86 | 758.4 | 29.97 | 761.2 | 29.7 | — 1.3 | 73 | ..... | 1 | 24 | 6 | ..... | ..... | ..... | ..... | ..... | 3135 | 5046 | 2 | 0.27 | 6.9 |
| Nagasaki | N. 32 44 | E.129 52 | 8.47 p.m. | 189 | 58 | 30.07 | 763.8 | 30.28 | 769.1 | 39.4 | 4.1 | 76.8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 | 1.98 | 50.4 |
| Nemuro | N. 43 20 | E.145 35 | 9.50 p.m. | 43 | 13 | 29.81 | 757.1 | 29.86 | 758 4 | 25.9 | — 3.4 | 68 | ..... | 13 | 1 | ..... | 3 | 1 | 1 | 3 | 9 | 5689 | 9155 | 5 | 0.23 | 5.8 |
| Niigata | N. 37 55 | E.139 03 | 9.24 p.m. | 32 | 10 | 30.03 | 762.8 | 30.07 | 763.8 | 36.5 | 2.5 | 77.8 | ..... | 8 | 11 | 5 | 2 | 4 | 1 | ..... | ..... | 6621 | 10655 | 8 | 6.15 | 156.2 |
| Nobiru | N. 38 23 | E.141 11 | 9 32 p.m. | 15 | 5 | 29.99 | 761.6 | 30.00 | 762.0 | 31.3 | — 0 4 | 78.5 | 13 | 16 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 9077 | 14608 | 4 | 0.34 | 8.0 |
| Numadzu | N. 35 06 | E.138 51 | 9.23 p.m. | 32 | 10 | 30.00 | 762.1 | 30.04 | 763.0 | 40.1 | 4.5 | 72.3 | 1 | ..... | 7 | 3 | ..... | ..... | 17 | 3 | ..... | ..... | ..... | 3 | 1.53 | 38.8 |
| Osaka | N. 34 42 | E.135 30 | 9.10 p.m. | 13 | 4 | 30.16 | 766.0 | 30.17 | 766.4 | 37.0 | 2.8 | 78.6 | 7 | 5 | 10 | ..... | 1 | 2 | 1 | 5 | ..... | 5858 | 9427 | 4 | 1.23 | 31.3 |
| Sakai | N. 35 33 | E.133 14 | 9.01 p.m. | 10 | 3 | 30.18 | 766.5 | 30.19 | 766.7 | 37.9 | 3.3 | 80 | ..... | 3 | 21 | 3 | ..... | ..... | ..... | 1 | 3 | ..... | ..... | 9 | 9.33 | 237.0 |
| Shimonoseki | N. 33 58 | E.130 56 | 8.52 p.m. | 134 | 41 | 30.10 | 764.5 | 30.24 | 768.2 | 40.8 | 4.9 | 68 | 3 | 6 | 7 | 4 | ..... | 1 | ..... | 1 | 9 | ..... | ..... | 7 | 1.97 | 50.1 |
| Sapporo | N. 43 04 | E.141 23 | 9.33 p.m. | 60 | 18 | 29.83 | 757.7 | 29.90 | 759.4 | 20 3 | — 6.5 | 80.6 | ..... | 2 | 8 | 6 | 7 | 4 | 1 | 2 | 1 | ..... | ..... | 6 | 3.00 | 76.2 |
| Tokei | N. 35 41 | E.139 46 | 9.27 p.m. | 69 | 21 | 29.97 | 761.2 | 30.05 | 763.3 | 36.7 | 2.6 | 71.0 | 5 | 12 | 5 | 1 | 3 | 2 | 1 | 2 | ..... | 4934 | 7940 | 3 | 0.99 | 25.2 |
| Wakayama | N. 34 14 | E.135 09 | 9.09 p.m. | 48 | 15 | 30.12 | 765 1 | 30.18 | 766.5 | 40.6 | 4.8 | 71 9 | 1 | 10 | 3 | ..... | ..... | ..... | 1 | 10 | 6 | 3556 | 5722 | 5 | 1.55 | 39.3 |
| MAURITIUS. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mauritius | S. 20 06 | E. 57 33 | 3.58 p.m. | 181 | 55 | 29.81 | 757 2 | 30.00 | 762.0 | 79.7 | 26.5 | 60.8 | 3 | ..... | ..... | 1 | ..... | ..... | 16 | 11 | ..... | ..... | ..... | 6 | 1.56 | 39.6 |
| MEXICAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leon | N. 21 07 | W.101 36 | 5.22 a.m. | 5902 | 1799 | 24.34 | 618.2 | 30.16 | 766.1 | 46.7 | 8.2 | 82 | 2 | 18 | 2 | 2 | ..... | ..... | 1 | ..... | 6 | ..... | ..... | 3 | 0.62 | 15.7 |
| Mazatlan | N. 23 11 | W.106 17 | 5.03 a.m. | 249 | 76 | 29 71 | 754.6 | 29.97 | 761.2 | 68.0 | 20.0 | 80 | 4 | 5 | ..... | 1 | ..... | 3 | 3 | 15 | ..... | ..... | ..... | 3 | 2.17 | 55.1 |
| Mexico | N. 19 26 | W. 99 00 | 5.32 a.m. | 7490 | 2283 | 23.07 | 586.0 | 30.22 | 767 6 | 45.0 | 7.2 | 80 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 30 | ..... | ..... | 4 | 0.31 | 7.9 |
| Puebla | N. 19 03 | W. 98 03 | 5.36 a.m. | 7113 | 2168 | 23.43 | 595.1 | 30.24 | 768.1 | 45.5 | 7.5 | 62 | 1 | 5 | ..... | ..... | ..... | ..... | ..... | 6 | 19 | ..... | ..... | 4 | 0.46 | 11.7 |
| NETHERLANDS. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flushing | N. 51 24 | E. 3 35 | 0.22 p.m. | 0 | 0 | 29.87 | 758.7 | 29.87 | 758.7 | 41.7 | 5.4 | ..... | 1 | 1 | 6 | 7 | 5 | 1 | 4 | 5 | 1 | ..... | ..... | ..... | 3.42 | 86.8 |
| Groningen | N. 53 12 | E. 6 34 | 0.34 p.m. | ? | ? | 29.78 | 756.3 | 29.83 | 757.7 | 38.1 | 3.4 | ..... | 1 | ..... | 7 | 7 | 4 | 1 | 4 | 5 | 2 | ..... | ..... | ..... | 2.50 | 63.6 |
| Helder | N. 52 58 | E. 4 45 | 0.27 p.m. | 0 | 0 | 29.81 | 757.2 | 29.81 | 757.2 | 40.1 | 4.5 | ..... | 1 | 2 | 3 | 10 | 3 | 2 | 2 | 8 | ..... | ..... | ..... | ..... | 3.25 | 82.5 |
| Hellevoetsluis | N. 51 49 | E. 4 08 | 0.25 p.m. | 0 | 0 | 29.85 | 758.3 | 29.85 | 758 3 | 46.2 | 7.9 | ..... | ..... | ..... | 5 | 13 | ..... | 2 | 2 | 7 | 2 | ..... | ..... | ..... | 3.42 | 86.8 |
| Utrecht | N. 52 05 | E. 5 07 | 0.29 p.m. | 43 | 13 | 29.81 | 757.2 | 29.86 | 758.4 | 40.6 | 4.8 | 87.3 | 1 | 1 | 2 | 13 | 4 | 1 | 3 | 6 | ..... | ..... | ..... | 7 | 3.82 | 97.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Batavia | S. 6 11 | E.106 48 | 7.15 p.m. | 26 | 8 | ..... | ..... | 29.88 | 759.0 | 77.9 | 25.5 | 85.3 | 5 | 13 | 7 | 3 | 1 | ..... | ..... | 2 | ..... | ..... | ..... | 9 | 6.94 | 176.4 |
| NORWEGIAN. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bergen | N. 60 24 | E. 5 20 | 0.29 p.m. | 56 | 17 | 29.50 | 749.3 | 29.56 | 750.9 | 36.9 | 2.7 | 82.8 | 1 | 1 | 2 | 6 | 15 | 5 | 1 | ..... | ..... | ..... | ..... | 6 | 6.55 | 166.4 |
| Brono | N. 65 28 | E. 12 14 | 0.57 p.m. | 34 | 10 | 29.52 | 749.9 | 29.56 | 750.9 | 31.1 | — 0.5 | 72.9 | 1 | ..... | ..... | 2 | 6 | 7 | 10 | 3 | 2 | ..... | ..... | 6 | 2.26 | 57.5 |
| Christiania | N. 59 55 | E. 10 45 | 0.51 p.m. | 134 | 41 | 29.52 | 749.8 | 29.67 | 753.7 | 25.5 | — 3.6 | 88.0 | 4 | 1 | 1 | ..... | ..... | 1 | 12 | 10 | 2 | ..... | ..... | 8 | 1.91 | 48.4 |
| Gjesvær | N. 71 07 | E. 25 22 | 1.49 p.m. | 23 | 7 | 29.54 | 750 2 | 29.56 | 750.8 | 24.4 | — 4.2 | ..... | ..... | 1 | 4 | 7 | 4 | 6 | ..... | 3 | 6 | ..... | ..... | 5 | 2.87 | 73.0 |
| PORTUGUESE. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lisbon | N. 38 42 | W. 9 08 | 11.31 a.m. | 312 | 95 | 29.87 | 758.6 | 30.21 | 767 3 | 52.3 | 11.3 | 72.7 | 12 | 4 | 4 | ..... | 1 | 1 | ..... | 8 | 1 | ..... | ..... | 5 | 1.70 | 43.1 |
| Ponta Delgada | N. 37 45 | W. 25 41 | 10.25 a.m. | 66 | 20 | 30.23 | 767.8 | 30.30 | 769.6 | 60.3 | 15.7 | 75.5 | 5 | 2 | 2 | 6 | 2 | 2 | 1 | 7 | 4 | ..... | ..... | 4 | 3.78 | 95.9 |
| Saint Paul de Loando | S. 8 49 | E. 13 07 | 1.00 p.m. | 193 | 59 | 29.71 | 754.5 | 29.91 | 759.6 | 80.2 | 26.8 | 82.4 | 1 | 9 | 17 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 0 | 0 |
| San Salvador | S. 6 17 | E. 14 53 | 1.07 p.m. | 1834 | 559 | 28.06 | 712.6 | 29.88 | 758.9 | 80.1 | 26.7 | 67.3 | 2 | 3 | 8 | 9 | 6 | 1 | ..... | 2 | ..... | ..... | ..... | 8 | 2.14 | 54.3 |
| Serra da Estrella | N. 40 25 | W. 7 35 | 11.37 a.m. | 4728 | 1441 | 25.32 | 643.2 | 30.17 | 766.2 | 38.7 | 3.7 | 81.3 | 2 | 5 | 14 | 3 | ..... | 2 | 1 | 1 | 3 | ..... | ..... | 5 | 9.70 | 246.3 |
| RUSSIAN | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akmolinski .a | N. 51 12 | E. 71 23 | 4.54 p.m. | 843? | 306? | 29.07 | 738.3 | 30.25 | 768.4 | 16.2 | — 8.8 | 85.8 | 2 | 2 | 5 | 12 | 2 | 4 | 2 | 1 | ..... | ..... | ..... | 7 | 0.30 | 7.7 |
| Archangel | N. 64 33 | E. 40 32 | 2.50 p.m. | 16 | 5 | 29.84 | 757.8 | 29.85 | 758.3 | 5.2 | —14.9 | 84.9 | 1 | 2 | ..... | 5 | 6 | 3 | 11 | 2 | 1 | ..... | ..... | 8 | 0.22 | 5.5 |
| Astrakhan | N.46 21 | E. 48 02 | 3.20 p.m. | 68 | 21 | 30.31 | 769.8 | 30.23 | 767.8 | 37.0 | 2.8 | 82.3 | 2 | 2 | 4 | 4 | 3 | 9 | 6 | 1 | ..... | ..... | ..... | 7 | 0.26 | 6.5 |
| Baku | N. 40 21 | E. 49 51 | 3.28 p.m. | 39 | 12 | 30.28 | 769.1 | 30.23 | 767 9 | 49.3 | 9.6 | 72.6 | 7 | 1 | ..... | 7 | 6 | 1 | ..... | 1 | 8 | ..... | ..... | 5 | 0.19 | 4.8 |
| Barnaul | N. 53 20 | E. 83 47 | 5.43 p.m. | 450? | 140? | 29.84 | 757.9 | 30.39 | 771.9 | 10.8 | —11.8 | 83.7 | ..... | 1 | ..... | 10 | 1 | ..... | ..... | 1 | 12 | ..... | ..... | 7 | 1.09 | 27.6 |
| Bielosersk | N. 60 02 | E. 37 47 | 2.39 p.m. | 430? | 131? | 29.37 | 746.1 | 29.88 | 758.9 | 15.4 | — 9.2 | 95.8 | 1 | 3 | 3 | 6 | 4 | 6 | 3 | 2 | 3 | ..... | ..... | 9 | 1.43 | 36.4 |
| Dorpat | N. 58 23 | E. 26 43 | 1.55 p.m. | 223 | 68 | 29.53 | 750.1 | 29.79 | 756 6 | 26.1 | — 3.3 | 96.6 | 2 | 1 | 2 | 5 | 4 | 5 | 8 | 3 | 1 | ..... | ..... | 10 | 2.92 | 74.3 |
| Ekaterinburg | N. 56 49 | E. 60 38 | 4.10 p.m. | 894? | 272? | 29.03 | 737.3 | 30.06 | 763 5 | 17.1 | — 8.3 | 89.0 | ..... | ..... | 7 | 9 | 7 | 5 | 1 | ..... | 2 | ..... | ..... | 9 | 0.75 | 19.1 |
| Elisawetgrad | N. 48 31 | E. 32 17 | 2.17 p.m. | 417? | 127? | 29.59 | 751 5 | 30.06 | 763 4 | 37.0 | 2.8 | 86.6 | 2 | 2 | 4 | 5 | 0 | 4 | 6 | ..... | 2 | ..... | ..... | 9 | 1.18 | 30.1 |
| Kasalinsk | N. 45 46 | E. 62 07 | 4.16 p.m. | 147 | 45 | 30.06 | 763.4 | 30.23 | 767.9 | 28.0 | — 2.2 | 82.9 | 4 | 4 | 1 | 2 | 6 | 2 | 6 | 3 | 3 | ..... | ..... | 7 | ..... | ..... |
| Kasan | N. 55 47 | E. 49 08 | 3.24 p.m. | 249 | 76 | 29.72 | 754.9 | 30.01 | 762 2 | 22.3 | — 5.4 | 93.4 | 1 | 2 | 2 | 5 | 11 | 4 | 1 | 2 | 3 | ..... | ..... | 9 | 0.77 | 19.6 |
| Kem | N. 64 57 | E. 34 39 | 2.26 p.m. | 43 | 13 | 29.79 | 756.7 | 29.84 | 758.0 | 11.8 | —11.2 | 91.0 | 1 | 4 | 7 | 4 | 3 | 1 | 3 | 1 | 7 | ..... | ..... | 8 | 0.34 | 8.5 |
| Kertch | N. 45 21 | E. 36 29 | 2.34 p.m. | 18? | 6? | 30.08 | 764.1 | 30.11 | 764.7 | 46.9 | 8.3 | 83.6 | 1 | 5 | 2 | 3 | 4 | 1 | 5 | 1 | 9 | ..... | ..... | 8 | 0.52 | 13.1 |
| Kieff | N. 50 27 | E. 30 30 | 2.10 p.m. | 600 | 183 | 29.29 | 744.0 | 29.95 | 760.7 | 35.1 | 1.7 | 86.9 | ..... | 5 | 0 | 6 | 4 | 5 | 3 | 2 | ..... | ..... | ..... | 9 | 1.97 | 50.0 |
| Koslov | N. 52 53 | E. 40 31 | 2.50 p.m. | 466? | 142? | 29.45 | 748.1 | 29.98 | 761.6 | 27.5 | — 2.5 | 96.9 | ..... | 3 | 4 | 10 | 2 | 4 | 3 | 1 | 3 | ..... | ..... | 10 | 2.18 | 55.3 |
| Lgov | N. 51 41 | E. 35 17 | 2.29 p m. | 535? | 163? | 29.42 | 747.3 | 30.04 | 762.9 | 31.8 | — 0.1 | 91.8 | ..... | 1 | 5 | 5 | 4 | 4 | 5 | 3 | 4 | ..... | ..... | 9 | 1.51 | 38.4 |
| Libau | N. 56 31 | E. 21 01 | 1.32 p.m. | 20 | 6 | 29.72 | 754.8 | 29.74 | 755.4 | 34.0 | 1.1 | 88.8 | 1 | 1 | 5 | 7 | 4 | 3 | 8 | 2 | ..... | ..... | ..... | 10 | 2.78 | 70.7 |
| Lugan | N. 48 35 | E. 39 20 | 2.45 p.m. | 188? | 57? | 29.89 | 759.1 | 30.10 | 764.4 | 36.1 | 2.3 | 83.7 | ..... | 2 | 6 | 7 | 3 | 3 | 8 | 1 | 1 | ..... | ..... | 9 | 1.56 | 39.7 |
| Moscow | N. 55 46 | E. 37 40 | 2.39 p.m. | 448 | 136 | 29.42 | 747 2 | 29.93 | 760.1 | 26.6 | — 3.0 | 85.8 | 1 | 3 | 4 | 11 | 7 | 3 | ..... | ..... | 2 | ..... | ..... | 8 | 1.32 | 33.6 |
| Nertchinsk | N. 51 19 | E.119 37 | 8.07 p.m. | ? | ? | 27.91 | 708.9 | 30.55 | 776.0 | -14.1 | —25.6 | 70.5 | ..... | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 28 | ..... | ..... | 2 | 0.09 | 2.3 |
| Nikolaiev | N. 46 58 | E. 31 58 | 2.16 p.m. | 62 | 19 | 29.99 | 761.7 | 30.06 | 763.5 | 40.1 | 4.5 | 89.2 | 2 | ..... | 4 | 7 | 5 | 1 | 3 | 1 | 8 | ..... | ..... | 7 | 1.41 | 35.8 |
| Nikolaievsk.a | N. 53 08 | E.140 45 | 9.31 p.m. | 59 | 18 | 29.84 | 757.9 | 29.93 | 760.1 | —2.4 | —19.1 | 77.6 | ..... | 4 | 14 | ..... | ..... | ..... | 2 | 2 | 8 | ..... | ..... | 4 | ..... | ..... |
| Petro-Alexandrovsk | N. 41 28 | E. 61 05 | 4.12 p.m. | 328 | 100 | 29.97 | 761.2 | 30.34 | 770.6 | 36.9 | 2.7 | 68.6 | 3 | 3 | 1 | ..... | 2 | 3 | 7 | 7 | ..... | ..... | ..... | 7 | ..... | ..... |
| Petrozavodsk | N. 61 47 | E. 34 23 | 2.26 p m. | 180? | 55? | 29.62 | 752.3 | 29.83 | 757.7 | 14.4 | — 9.8 | 87.2 | 4 | 9 | 1 | 5 | 1 | 4 | ..... | 5 | 2 | ..... | ..... | 8 | 2.40 | 60.9 |
| Pinsk | N. 52 07 | E. 26 06 | 1.52 p.m. | 459? | 140? | 29.41 | 747.0 | 29.93 | 760.1 | 33.1 | 0.6 | 87.3 | 1 | 4 | 5 | 7 | 6 | 3 | 3 | 2 | ..... | ..... | ..... | 9 | 1.80 | 45.8 |
| Poti | N. 42 09 | E. 41 37 | 2.54 p.m. | 466? | 142? | 30.13 | 765 4 | 30.17 | 766.2 | 56.8 | 13.8 | 78.9 | ..... | 2 | 1 | 1 | ..... | 1 | 20 | ..... | 6 | ..... | ..... | 2 | 2.85 | 72.3 |
| St. Petersburg | N. 59 56 | E. 30 16 | 2.09 p.m. | 20 | 6 | 29.79 | 756.6 | 29.81 | 757.2 | 20.5 | — 6.4 | 90.2 | 2 | 6 | 3 | 4 | 3 | 4 | 6 | 3 | ..... | ..... | ..... | 8 | 1.20 | 30.4 |
| Samarkand | N. 39.39 | E. 66 57 | 4.36 p.m. | 2379? | 725? | 27.76 | 705.1 | 30.31 | 769 8 | 42.6 | 5.9 | 74.9 | ..... | 1 | 1 | ..... | ..... | 4 | 1 | ..... | 21 | ..... | ..... | 5 | ..... | ..... |
| Semipalatinsk | N. 50 24 | E. 80 13 | 5.29 p.m. | 607? | 185? | 29.74 | 755.4 | 30.46 | 773.8 | 12.4 | —10.9 | 88.1 | 1 | ..... | ..... | 3 | 4 | 1 | 7 | ..... | 15 | ..... | ..... | 6 | 0.59 | 15.0 |
| Sevastopol | N. 44 37 | E. 33 31 | 2.22 p.m. | 138? | 42? | 29.85 | 758.2 | 30.06 | 763.6 | 50.2 | 10.1 | 69.9 | 3 | 5 | 2 | 5 | 5 | ..... | 1 | 2 | 8 | ..... | ..... | 6 | 0.98 | 24.9 |
| Starol Bykhov | N. 53 31 | E. 30 16 | 2.09 p.m. | 512 | 156 | 29.32 | 744.6 | 29.89 | 759.3 | 31.6 | — 0.2 | 89.6 | ..... | ..... | 3 | 4 | 0 | 10 | 4 | 1 | 3 | ..... | ..... | 10 | 2.58 | 65.4 |
| Tashkend .a | N. 41 20 | E. 69 18 | 4.45 p.m. | 1607? | 490? | 28.63 | 727.1 | 30.37 | 771.4 | 40.3 | 4.6 | 71.8 | 1 | 3 | 1 | ..... | ..... | ..... | ..... | ..... | 23 | ..... | ..... | 6 | ..... | ..... |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea. | | Result of Simultaneous Observations for December, 1884. | | | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | | Inch. | Mill. |
| | o / | o / | | | | | | | | | | | | | | | | | | | | | | | o-10 | | |
| Russian—Con. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tiflis | N. 41 43 | E. 44 47 | 3.07 p.m. | 1343 | 409 | 28.81 | 731 7 | 30.26 | 768.6 | 46.8 | 8.2 | 53.2 | 10 | 7 | 1 | ..... | 4 | 7 | 1 | ..... | 1 | ..... | ..... | 4 | 0.04 | 1.0 |
| Vernoe | N. 43 16 | E. 76 53 | 5.16 p.m. | 2401? | 732? | 27.63 | 701.7 | 30.29 | 769 3 | 24.8 | — 4.0 | 81.2 | ..... | ..... | ..... | ..... | ..... | ..... | ... | 31 | ..... | ..... | ..... | 3 | ..... | ..... |
| Vlatka. *a* | N. 58 36 | E. 49 41 | 3.27 p.m. | 581? | 177? | 29.27 | 743.4 | 29.94 | 760.5 | 17.2 | — 8.2 | 91.9 | 3 | 3 | 4 | 6 | 6 | 4 | 2 | ..... | 2 | ..... | ..... | 9 | 0.70 | 17.7 |
| Warsaw | N. 52 13 | E. 21 02 | 1.32 p.m. | 392 | 119 | 29.44 | 747.8 | 29.88 | 758.9 | 35.2 | 1.8 | 87.9 | 1 | 2 | 8 | 8 | 5 | 3 | 3 | 1 | ..... | ..... | ..... | 8 | 1.97 | 50.0 |
| Yeniseisk | N. 58 27 | E. 92 06 | 6.16 p.m. | 262? | 80? | 30.06 | 763.4 | 30.38 | 771.6 | 3.4 | —15.9 | 83.4 | 1 | 2 | 2 | 3 | 4 | 2 | 9 | ..... | 8 | ..... | ..... | 6 | 1.27 | 32.3 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Petrowsky Ac'y | N. 55 50 | E. 37 38 | 2.39 p.m. | 508 | 155 | 29.30 | 744.2 | 29.83 | 757.7 | 25.9 | — 3.4 | 84.6 | 1 | 1 | 6 | 6 | 6 | 3 | 2 | 1 | 5 | ..... | ..... | 8 | 0.19 | 4.8 |
| Spanish. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barcelona | N. 41 23 | E. 2 15 | 0.16 p.m. | 138 | 42 | 29.91 | 759.7 | 30.08 | 764.0 | 49.8 | 9.9 | 68 | 3 | 5 | 11 | 6 | 4 | ..... | ..... | 2 | ..... | ..... | ..... | 4 | 1.82 | 46.1 |
| Bilbao | N. 43 15 | W. 2 59 | 11.56 a.m. | 52 | 16 | 30.08 | 764.0 | 30.14 | 765.5 | 51.6 | 10.9 | 74 | 1 | 7 | 1 | ..... | 1 | 8 | 1 | ..... | 12 | 1392 | 2241 | 7 | 6.44 | 163.6 |
| Burgos | N. 42 20 | W. 3 46 | 11.53 a.m. | 2821 | 860 | 27.14 | 689.3 | 30.22 | 767.6 | 39.4 | 4.1 | 82 | 8 | 2 | 6 | 6 | 6 | ..... | . | 3 | ..... | 4339 | 6983 | 7 | 1.70 | 43.2 |
| Madrid | N. 40 25 | W. 3 42 | 11.53 a.m. | 2152 | 656 | 27.89 | 708 4 | 30.19 | 766 9 | 43.9 | 6.6 | 73.5 | 2 | ..... | 1 | 7 | 5 | 7 | 3 | 6 | ..... | 3347 | 5387 | 5 | 0.92 | 23.3 |
| Murcia | N. 37 59 | W. 1 10 | 0.03 p.m. | 141 | 43 | 29.97 | 761.1 | 30.11 | 764.9 | 49.5 | 9.7 | 70.0 | ..... | 6 | 5 | 18 | ... | ... | ..... | 2 | ..... | 1186 | 1904 | 4 | 0.72 | 18.2 |
| Santiago | N. 42 53 | W. 8 28 | 11.34 a.m. | 863 | 263 | 29.22 | 742.3 | 30.14 | 765.5 | 49.3 | 9.6 | 82.6 | 4 | 1 | 1 | 5 | 5 | 1 | ..... | 11 | 3 | 5954 | 9582 | 8 | 4.31 | 109.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Havana | N. 23 08 | W. 82 28 | 7.39 a.m. | 62 | 19 | 30.02 | 762.5 | 30.09 | 764 2 | 69.8 | 21.0 | 87.0 | 3 | ..... | ..... | ... | ..... | 12 | 16 | ..... | ..... | ..... | ..... | 3 | 0.83 | 21.0 |
| Manilla | N. 14 35 | E. 120 56 | 8.12 p.m. | 54 | 16 | 29.95 | 760.7 | 30.00 | 762.1 | 75.4 | 24.1 | 79.4 | 4 | ..... | 1 | 1 | ..... | 8 | 6 | 11 | ..... | 3943 | 6345 | 5 | 2.43 | 61.7 |
| San Fernando | N. 36 28 | W. 6 13 | 11.43 a.m. | 95 | 29 | 30.10 | 764.5 | 30.20 | 767.1 | 55.9 | 13.3 | 70.4 | 9 | 4 | 2 | 3 | 1 | ... ... | 5 | 1 | 6 | ..... | ..... | 5 | 2.13 | 28.8 |
| San Juan de Porto Rico | N. 18 30 | W. 66 10 | 7.44 a.m. | 82 | 25 | 29.97 | 761.2 | 30.06 | 763.5 | 74.5 | 23.6 | 86 | .... | 1 | ..... | 5 | 3 | 10 | 9 | 3 | ..... | ..... | ..... | 4 | 1.13 | 28.8 |
| Swedish. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Haparanda | N. 65 47 | E. 24 03 | 1.44 p.m. | 29 | 9 | 29.76 | 755.9 | 29.80 | 756.9 | 11.5 | —11.4 | 97 | 9 | ..... | 4 | 4 | 1 | ..... | 3 | 6 | 4 | ..... | ..... | 7 | 0.27 | 6.8 |
| Umea | N. 63 50 | E. 20 17 | 1.29 p.m. | 39 | 12 | 29.71 | 754.6 | 29.76 | 755.9 | 16.9 | — 8.4 | 95 | 2 | 5 | 3 | 3 | 2 | 4 | 2 | 6 | 4 | ..... | ..... | 8 | 1.34 | 34.1 |
| Hernosand | N. 62 32 | E. 17 57 | 1.20 p.m. | 46 | 14 | 29.68 | 753.8 | 29.73 | 755.1 | 20.8 | — 6.2 | 90 | 4 | ..... | ..... | 1 | 2 | 1 | 3 | 9 | 11 | ..... | ..... | 7 | 3.42 | 86.9 |
| Stockholm | N. 59 20 | E. 18 04 | 1.20 p.m. | 144 | 44 | 29.53 | 750.0 | 29.71 | 754.5 | 29.8 | — 1.2 | 90 | 2 | 5 | 3 | 2 | 1 | 3 | 3 | .... | 12 | ..... | ..... | 9 | 2.10 | 53.2 |
| Wisby | N. 57 39 | E. 18 19 | 1.21 p.m. | 52 | 16 | 29.63 | 752.6 | 29.69 | 754.1 | 34.7 | 1.5 | 89 | 2 | 4 | 6 | 2 | 5 | 4 | 7 | 1 | ..... | ..... | ..... | 9 | 2.61 | 66.3 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Upsala | N. 59 51 | E. 17 37 | 1.19 p.m. | 79 | 24 | 29.60 | 751 7 | 29.68 | 753 9 | 26.2 | — 3.2 | 97.0 | 2 | 6 | 5 | 3 | 5 | 2 | 7 | 1 | ..... | ..... | ..... | 8 | 1.93 | 49.0 |
| Swiss. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Geneva | N. 46 12 | E. 6 08 | 0.33 p m. | 1338 | 408 | 28.58 | 726.0 | 30.07 | 763.7 | 40.3 | 4.6 | 75.9 | 6 | 3 | 1 | 7 | 6 | 1 | 5 | 2 | ... | ..... | ..... | 6 | 2.33 | 59.2 |
| Turkish. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Constantinople | N. 41 00 | E. 28 59 | 2.04 p.m. | 230 | 70 | ..... | ..... | 30.10 | 764.5 | 51.3 | 10.7 | 74 | 8 | ..... | ... | 17 | ..... | ..... | ..... | 1 | 5 | ..... | ..... | 6 | 1.56 | 39.5 |
| Valona | N. 40 27 | E. 19 27 | 1.26 p.m. | 105 | 32 | ..... | ..... | 30.08 | 764.1 | 56.8 | 13.8 | ..... | ..... | 6 | 6 | 4 | ..... | 5 | 1 | 9 | ..... | ..... | ..... | 6 | 7.87 | 200.0 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Beirut | N. 33 54 | E. 35 28 | 2.30 p.m. | 111 | 34 | ..... | ..... | 30.06 | 763.4 | 65.7 | 18.7 | 65.1 | 7 | ..... | 3 | 11 | ..... | ..... | ..... | 10 | ..... | ..... | ..... | 5 | 0.24 | 6.1 |
| United States. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *New Engl'd states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastport | N. 44 54 | W. 66 59 | 7.40 a.m. | 61 | 18 | 30.00 | 762.0 | 30.07 | 763.8 | 24.2 | — 4.3 | 79.2 | 8 | 6 | 3 | 4 | 2 | 1 | 4 | ..... | 3 | 8219 | 13227 | 7 | 8.63 | 219.2 |
| Portland | N. 43 39 | W. 70 15 | 7.27 a.m. | 45 | 14 | 30.06 | 763 5 | 30.11 | 764.8 | 28.4 | — 2.0 | 78.1 | 9 | 6 | 7 | 7 | 1 | ..... | 1 | ..... | ..... | 6426 | 10342 | 6 | 6.42 | 163.1 |
| Mt. Washington | N. 44 16 | W. 71 18 | 7.23 a.m. | 6279 | 1914 | 23.51 | 597.1 | 30.14 | 765 5 | 10.2 | —12.1 | 93.1 | 2 | 18 | 8 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 4.70 | 119.4 |
| Boston | N. 42 21 | W. 71 04 | 7.24 a.m. | 125 | 38 | 30.00 | 762.0 | 30.14 | 765.5 | 29.8 | — 1.2 | 75.6 | 4 | 10 | 7 | 8 | 2 | ... | ..... | ..... | ..... | 8730 | 14049 | 6 | 4.46 | 113.3 |
| Block Id | N. 41 10 | W. 71 36 | 7.22 a.m. | 27 | 8 | 30.13 | 765.3 | 30.16 | 766.1 | 35.2 | 1.8 | 85.9 | 6 | 5 | 4 | 6 | 2 | ..... | ..... | 8 | ..... | 13603 | 21891 | 7 | 6.56 | 166.6 |
| New London | N. 41 21 | W. 72 05 | 7.20 a.m. | 47 | 14 | 30.14 | 765.5 | 30.19 | 766.8 | 31.7 | — 0.2 | 84.0 | 9 | 4 | 5 | 7 | 4 | ..... | ..... | 2 | ..... | 6124 | 9855 | 6 | 7.36 | 186.9 |
| New Haven | N. 41 18 | W. 72 56 | 7.16 a.m. | 107 | 32 | 30.06 | 763.5 | 30.18 | 766.6 | 27.9 | — 2.3 | 84.8 | 7 | 4 | 6 | 5 | ..... | ..... | 1 | 6 | 2 | 6701 | 10784 | 5 | 6.41 | 162.8 |
| *Mid. Atlan. states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Albany | N. 42 39 | W. 73 45 | 7.13 a.m. | 83 | 25 | 30.10 | 764.5 | 30.20 | 767.1 | 25.0 | — 3.9 | 76.1 | 6 | 7 | 1 | 6 | 4 | ..... | ..... | 6 | 1 | 4841 | 7791 | 6 | 3.20 | 81.3 |
| New York City | N. 40 43 | W. 74 00 | 7.12 a.m. | 164 | 50 | 30.01 | 762.2 | 30.20 | 767.1 | 31.7 | — 0.2 | 84.9 | 4 | 6 | 8 | 4 | ..... | 1 | 1 | 5 | 2 | 8419 | 13549 | 6 | 6.66 | 169.2 |
| Philadelphia | N. 39 57 | W. 75 09 | 7.07 a.m. | 117 | 36 | 30.08 | 764.0 | 30.21 | 767.3 | 31.2 | — 0.4 | 79.3 | 5 | 6 | 6 | 5 | 1 | ..... | ..... | 7 | 1 | 7593 | 12220 | 6 | 3.28 | 83.3 |
| Sandy Hook | N. 40 28 | W. 74 00 | 7.12 a.m. | 28 | 8 | 30.18 | 766.6 | 30.21 | 767.3 | 33.9 | 1.1 | 81.4 | 4 | 5 | 3 | 7 | ..... | 2 | 7 | 3 | ... .. | 13861 | 22307 | 6 | 5.64 | 143.3 |
| Atlantic City | N. 39 22 | W. 74 25 | 7.10 a.m. | 13 | 4 | 30.17 | 766.3 | 30.18 | 766.6 | 35.0 | 1.7 | 84.1 | 5 | 8 | 8 | 3 | 1 | ..... | 2 | 3 | 1 | 6977 | 11228 | 5 | 7.71 | 195.8 |
| Barnegat City | N. 39 46 | W. 74 06 | 7.12 a.m. | 22 | 7 | 30.16 | 766.1 | 30.18 | 766.6 | 35.9 | 2.2 | 85.5 | 7 | 6 | 5 | 6 | 1 | ..... | 3 | 2 | 1 | 12077 | 19424 | 6 | 7.09 | 180.1 |
| Cape May | N. 38 56 | W. 74 58 | 7.08 a.m. | 27 | 8 | 30.16 | 766.1 | 30.20 | 767.1 | 38.1 | 3.4 | 79.9 | 8 | 6 | 2 | 7 | 1 | 1 | 3 | 3 | ..... | 12567 | 20224 | 7 | 6.87 | 174.8 |
| Del. Breakwater | N. 38 48 | W. 75 10 | 7.07 a.m. | 20 | 6 | 30.18 | 766.6 | 30.20 | 767.1 | 37.5 | 3.1 | 86.4 | 5 | 7 | 1 | 10 | 2 | 2 | ..... | 4 | ..... | 13721 | 22081 | 6 | 3.22 | 81.8 |
| Baltimore | N. 39 18 | W. 76 37 | 7.02 a.m. | 45 | 14 | 30.18 | 766.6 | 30.22 | 767.6 | 33.8 | 1.0 | 68.9 | 11 | 7 | 4 | 2 | 1 | 1 | 4 | 1 | ..... | 3928 | 6321 | 6 | 3.91 | 99.3 |
| Washington City | N. 38 54 | W. 77 02 | 7.00 a.m. | 106 | 32 | 30.12 | 765.0 | 30.24 | 768.1 | 31.7 | — 0.2 | 87.9 | 6 | 8 | ..... | ..... | 8 | 3 | ..... | 2 | 4 | 4392 | 7068 | 6 | 4.70 | 119.4 |
| Chincoteague | N. 37 55 | W. 75 23 | 7.06 a.m. | 8 | 2 | 30.20 | 767.1 | 30.21 | 767.3 | 37.9 | 3.3 | 83.8 | 12 | 4 | 2 | 3 | 4 | 3 | ..... | 3 | ..... | 9182 | 14777 | 7 | 5.75 | 146.0 |
| Cape Henry | N. 36 56 | W. 76 00 | 7.04 a.m. | 16 | 5 | 30.19 | 766.8 | 30.21 | 767.3 | 41.9 | 5.5 | 80.5 | 11 | 3 | 1 | 3 | 4 | 3 | ..... | 3 | 3 | 11185 | 18000 | 6 | 3.49 | 88.6 |
| Lynchburg | N. 37 25 | W. 79 09 | 6.52 a.m. | 652 | 199 | 29.50 | 749.3 | 30.23 | 767.8 | 35.5 | 1.9 | 80.9 | ..... | 2 | 3 | 4 | 3 | ..... | 1 | 12 | 6 | 2728 | 4390 | 7 | 11.81 | 300.0 |
| Norfolk | N. 36 51 | W. 76 17 | 7.03 a.m. | 30 | 9 | 30.18 | 766.6 | 30.21 | 767 3 | 41.4 | 5.2 | 81.4 | 12 | 1 | 1 | 6 | 4 | ..... | 1 | 6 | ..... | 6308 | 10152 | 6 | 4.36 | 110.7 |
| *S Atlantic states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kittyhawk | N. 36 00 | W. 75 42 | 7.05 a.m. | 9 | 3 | 30.19 | 766.8 | 30.20 | 767.1 | 45.9 | 7.7 | 83.9 | 8 | 4 | 5 | 4 | ..... | 2 | 1 | 7 | ..... | 12772 | 20554 | 7 | 5.65 | 141.5 |
| Hatteras | N. 35 15 | W. 75 40 | 7.05 a.m. | 12 | 4 | 30.18 | 766.6 | 30.19 | 766.8 | 48.8 | 9.3 | 86.6 | 8 | 3 | 3 | 3 | 1 | 1 | ..... | 9 | 3 | 10336 | 16634 | 7 | 7.41 | 188.2 |
| Fort Macon | N. 34 42 | W. 76 40 | 7.01 a.m. | 11 | 3 | 30.20 | 767.1 | 30.21 | 767.3 | 45.6 | 7.6 | 82.4 | 12 | 4 | 3 | 5 | 1 | ..... | 2 | 4 | ..... | 11824 | 19028 | 7 | 5.40 | 137.2 |
| Smithville | N. 33 55 | W. 78 01 | 6.56 a.m. | 34 | 10 | 30.18 | 766 6 | 30.22 | 767.6 | 45.7 | 7.6 | 80.8 | 13 | 2 | 4 | 3 | 1 | ..... | 2 | 5 | 1 | 7216 | 11613 | 5 | 2.93 | 74.4 |
| Wilmington | N. 34 14 | W. 77 57 | 6.56 a.m. | 52 | 16 | 30.16 | 766.1 | 30.22 | 767.6 | 46.4 | 8.0 | 80.4 | 10 | 4 | 2 | 4 | 2 | 2 | 2 | 4 | 1 | 5359 | 8624 | 6 | 3.72 | 94.5 |
| Charlotte | N. 35 13 | W. 80 51 | 6.44 a.m | 808 | 246 | 29.34 | 745.2 | 30.23 | 767.8 | 39.1 | 3.9 | 80.5 | 2 | 2 | 1 | 3 | 2 | 3 | ..... | 14 | 4 | 3861 | 6214 | 5 | 5.72 | 145.3 |
| Charleston | N. 32 47 | W. 79 56 | 6.48 a.m. | 52 | 16 | 30.13 | 765.3 | 30.19 | 768 8 | 49.7 | 9.8 | 85.8 | 9 | 3 | 3 | 4 | 1 | ..... | ..... | 9 | 2 | 5112 | 8227 | 6 | 3.26 | 82.8 |
| Augusta | N. 33 28 | W. 81 54 | 6.40 a.m. | 183 | 56 | 30.05 | 763.3 | 30.25 | 768.3 | 44.6 | 7.0 | 82.4 | 2 | 1 | 2 | ..... | 1 | 1 | ..... | 7 | 17 | 2116 | 3405 | 7 | 4.19 | 106.4 |
| Savannah | N. 32 05 | W. 81 05 | 6.44 a.m. | 87 | 26 | 30.11 | 764.8 | 30.21 | 767.3 | 49.5 | 9.7 | 81.7 | 13 | 5 | 1 | 1 | 4 | ..... | 2 | 4 | 1 | 4521 | 7276 | 6 | 3.21 | 81.5 |
| Jacksonville | N. 30 20 | W. 81 39 | 6.42 a.m. | 43 | 13 | 30.14 | 765.5 | 30.18 | 766.6 | 53.6 | 12.0 | 92.8 | 6 | 6 | 2 | 3 | 4 | ..... | ..... | 6 | 4 | 4265 | 6864 | 6 | 4.04 | 102.6 |
| *Florida penin'la.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cedar Keys | N. 29 08 | W. 83 02 | 6.36 a.m. | 22 | 7 | 30.13 | 765.3 | 30.15 | 765 8 | 57.0 | 13.9 | 88.4 | 8 | 1 | 1 | ..... | 6 | 2 | 4 | 9 | ..... | 5774 | 9292 | 4 | 5.66 | 143.8 |
| Key West | N. 24 34 | W. 81 49 | 6.41 a.m. | 20 | 6 | 30.09 | 764.3 | 30.11 | 764.8 | 71.1 | 21.7 | 87.7 | 3 | ..... | ..... | 1 | 2 | 5 | 7 | 13 | ..... | 7238 | 11648 | 5 | 1.68 | 42.7 |
| Sanford | N. 28 48 | W. 81 23 | 6.42 a.m. | 35 | 11 | 30.11 | 764.8 | 30.15 | 765.8 | 62.2 | 16.8 | 84.9 | 8 | 8 | 1 | 4 | 3 | 1 | 2 | 4 | ..... | 3735 | 6011 | 6 | 2.51 | 63.8 |
| *East Gulf states.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atlanta | N. 33 45 | W. 84 23 | 6.31 a.m. | 1129 | 344 | 28.99 | 736.3 | 30.22 | 767.6 | 40.3 | 4.6 | 80.7 | ..... | 13 | 1 | 4 | ..... | 4 | 9 | ... | ..... | 8192 | 13184 | 5 | 6.69 | 154.7 |
| Pensacola | N. 30 25 | W. 87 13 | 6.19 a.m. | 30 | 9 | 30.11 | 764.8 | 30.14 | 765.5 | 52.2 | 11.2 | 86.1 | 10 | 2 | 1 | 1 | 1 | 1 | 8 | 6 | 1 | 6294 | 10129 | 6 | 5.60 | 142.2 |
| Mobile | N. 30 41 | W. 88 02 | 6.16 a.m. | 35 | 11 | 30.10 | 764.5 | 30.14 | 765.5 | 49.7 | 9.8 | 89.9 | 8 | 3 | ..... | 1 | 3 | 2 | 9 | 3 | 2 | 5236 | 8426 | 6 | 5.10 | 129.5 |
| Montgomery | N. 32 23 | W. 86 18 | 6.23 a.m. | 219 | 66 | 29.92 | 760.0 | 30.16 | 766.1 | 46.1 | 7.8 | 84.5 | 4 | 5 | 3 | ..... | 1 | 2 | 6 | 8 | 2 | 4636 | 7461 | 8 | 4.00 | 101.6 |
| Vicksburg | N. 32 22 | W. 90 53 | 6.04 a.m. | 244 | 74 | 29.86 | 758.4 | 30.13 | 765.3 | 46.5 | 8.1 | 80.3 | 4 | 1 | 1 | 4 | 1 | 8 | 5 | 5 | 2 | 5750 | 9254 | 7 | 13.52 | 343.4 |
| New Orleans | N. 29 58 | W. 90 04 | 6.08 a.m. | 52 | 16 | 30.02 | 762.5 | 30.08 | 764.0 | 55.5 | 13.1 | 83.3 | 6 | 1 | ..... | 4 | 2 | 5 | 7 | 4 | 2 | 7090 | 11410 | 6 | 8.01 | 203.5 |
| *West Gulf states* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shreveport | N. 32 30 | W. 93 40 | 5.53 a.m. | 227 | 69 | 29.84 | 757.9 | 30.09 | 764.3 | 42.1 | 5.6 | 85.6 | 4 | 5 | 1 | 1 | 4 | 3 | ..... | 6 | 7 | 3907 | 6288 | 7 | 15.55 | 395.0 |
| Fort Smith | N. 35 22 | W. 94 24 | 5.50 a.m. | 451 | 137 | 29.62 | 752.3 | 30.12 | 765.0 | 32.6 | 0.3 | 86.1 | 1 | 3 | 9 | 1 | ..... | 1 | 4 | 7 | 5 | 4464 | 7184 | 6 | 6.30 | 160.0 |
| Little Rock | N. 34 45 | W. 92 06 | 6.00 a.m. | 298 | 91 | 29.79 | 756.7 | 30.12 | 765.0 | 37.2 | 2.9 | 87.9 | 4 | 2 | 1 | 1 | ..... | 2 | 4 | 7 | 10 | 3600 | 5794 | 6 | 16.92 | 429 8 |
| Galveston | N. 29 18 | W. 94 47 | 5.49 a.m. | 40 | 12 | 30.01 | 762.2 | 30.05 | 763.3 | 55.7 | 13.2 | 86.6 | 6 | 2 | 4 | 1 | 7 | 2 | 3 | 5 | 1 | 9183 | 14778 | 6 | 9.44 | 239.8 |
| Indianola | N. 28 32 | W. 96 31 | 5.42 a.m. | 26 | 8 | 30.01 | 762.2 | 30.04 | 763.0 | 51.0 | 10.6 | 91.1 | 11 | 3 | 2 | 3 | 5 | ..... | 5 | 1 | 1 | 10921 | 17575 | 6 | 2.05 | 52.1 |
| Palestine | N. 31 45 | W. 95 40 | 5.45 a.m. | 533 | 162 | 29.52 | 749 8 | 30.10 | 764.5 | 40.0 | 4.4 | 81.5 | 2 | 5 | 1 | 3 | 2 | 3 | 1 | 14 | .... | 7296 | 11742 | 6 | 6.94 | 176.3 |
| *Rio Grande valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brownsville | N. 25 53 | W. 97 26 | 5.38 a.m. | 57 | 17 | 29.94 | 760.5 | 30.00 | 762.0 | 56.6 | 13.7 | 91.8 | 10 | 1 | ..... | 3 | 8 | 1 | 2 | 3 | 3 | 6661 | 9754 | 5 | 1.33 | 33.8 |
| Rio Grande City | N. 26 22 | W. 98 45 | 5.33 a.m. | 230 | 70 | 29.84 | 757.9 | 30.09 | 764.3 | 52.0 | 11.1 | 82.6 | 8 | 2 | 1 | ..... | ..... | 6 | 5 | 3 | 6 | 3765 | 6059 | 5 | 0.33 | 8.4 |
| *Ohio val. & Tenn.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chattanooga | N. 35 04 | W. 85 15 | 6.27 a.m. | 783 | 239 | 29.34 | 745.2 | 30.20 | 767.1 | 38.9 | 3.8 | 80.9 | 3 | 6 | 3 | 3 | 4 | 5 | 3 | 4 | ..... | 4664 | 7506 | 7 | 6.80 | 172.7 |
| Knoxville | N. 35 56 | W. 83 58 | 6.32 a.m | 980 | 299 | 29.13 | 739.9 | 30.21 | 767.3 | 34.8 | 1.6 | 86.6 | 7 | ..... | 3 | 2 | 2 | ..... | 3 | 10 | 4 | 4107 | 6610 | 7 | 6.11 | 155.2 |
| Memphis | N. 35 09 | W. 90 03 | 6.08 a.m. | 321 | 98 | 29.79 | 756.7 | 30.15 | 765.8 | 37.5 | 3.1 | 84.2 | 4 | 5 | 2 | 1 | ..... | 7 | 6 | 3 | 3 | 5459 | 8785 | 7 | 9.14 | 232.2 |
| Nashville | N. 36 10 | W. 86 47 | 6.21 a.m. | 549 | 167 | 29.56 | 750.8 | 30.17 | 766.3 | 36.9 | 2.7 | 84.7 | 2 | 2 | 8 | 2 | 1 | 7 | 6 | 3 | ..... | 5810 | 9350 | 8 | 3.78 | 96.0 |
| Louisville | N. 38 15 | W. 85 45 | 6.25 a.m. | 530 | 162 | 29.58 | 751.3 | 30.20 | 767.1 | 35.7 | 2.1 | 79.8 | 6 | 4 | 1 | 7 | ..... | 7 | 3 | 1 | 2 | 6111 | 9834 | 8 | 5.11 | 129.8 |
| Greencastle | N. 39 39 | W. 86 51 | 6.21 a.m. | 897 | 273 | 29.16 | 740.7 | 30.16 | 766.1 | 26.1 | — 3.3 | 86.1 | 2 | 3 | 5 | 2 | 7 | 7 | 1 | 4 | ..... | 6492 | 10448 | 9 | 6.74 | 171.2 |
| Indianapolis | N. 39 46 | W. 86 10 | 6.23 a.m. | 753 | 229 | 29.30 | 744.2 | 30.16 | 766.1 | 27.5 | — 2.5 | 89.8 | 3 | 6 | 3 | 4 | 2 | 9 | 1 | 3 | ..... | 4829 | 7771 | 8 | 6 05 | 153.7 |
| Cincinnati | N. 39 06 | W. 84 30 | 5.36 a.m. | 620 | 189 | 29.49 | 749 0 | 30.18 | 766.6 | 33.3 | 0.7 | 78.8 | 6 | 1 | 4 | 3 | 2 | 6 | 5 | 4 | ..... | 4615 | 7427 | 8 | 3.99 | 101.3 |
| Columbus | N. 39 58 | W. 83 00 | 6.36 a.m. | 805 | 245 | 29.26 | 743.2 | 30.17 | 766.3 | 29.3 | — 1.5 | 87.5 | 4 | 3 | 2 | 4 | 9 | 4 | 4 | 1 | ..... | 6282 | 10110 | 8 | 2.77 | 70.4 |
| Pittsburg | N. 40 32 | W. 80 02 | 6.48 a.m. | 766 | 233 | 29.30 | 744.2 | 30.16 | 766.1 | 31.4 | — 0.3 | 85.0 | 1 | 6 | 3 | 3 | 4 | 1 | 3 | 7 | 3 | 5018 | 8076 | 7 | 4.07 | 103.4 |
| *Lower lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rochester | N. 43 08 | W. 77 42 | 6.57 a.m. | 621 | 189 | 29.42 | 747.3 | 30.13 | 765.3 | 27.3 | — 2.6 | 82.5 | 2 | 1 | 4 | 10 | 7 | 4 | 1 | 1 | 1 | 5388*n* | 8671*n* | 9 | 2.62 | 66.5 |
| Buffalo | N. 42 53 | W. 78 53 | 6.52 a.m | 690 | 210 | 29.34 | 745.2 | 30.13 | 765.3 | 28.9 | — 1.7 | 87.4 | 1 | 1 | 5 | 6 | 6 | 4 | 5 | 3 | ..... | 10855 | 17169 | 9 | 3.07 | 78.0 |

| STATIONS. | Latitude. | Longitude. | Local Time. | Altitude of Barometer above sea | | Result of Simultaneous Observations for December, 1884. | | | | | | | | | | | | | | | | | | Average Cloudiness. | Total Precipitation. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mean Barometer. | | | | Mean Temperature. | | Mean Rel. Humidity. | Wind. | | | | | | | | | | | | | |
| | | | | | | Actual. | | Reduced. | | | | | Directions. | | | | | | | | | Total Movement. | | | | |
| | | | | Feet. | Metr's | Inch. | Mill. | Inch. | Mill. | Fah. | Cent. | | N | NW | W | SW | S | SE | E | NE | C | Miles | Kil. | 0–10 | Inch. | Mill. |
| U. S.—Continued. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Low'r lake reg.*—Con | ° ′ | ° ′ | | | | | | | | | | | | | | | | | | | | | | | | |
| Oswego | N. 43 29 | W. 76 35 | 7.02 a.m. | 334 | 102 | 29.74 | 755.4 | 30.12 | 765 0 | 25.8 | — 3.4 | 81.5 | 3 | 4 | 1 | 5 | 8 | 9 | ..... | 1 | ..... | 10638 | 17120 | 9 | 2.61 | 66.3 |
| Erie | N. 42 07 | W. 80 05 | 6.48 a.m. | 681 | 208 | 29.36 | 745.7 | 30.13 | 765.3 | 31.8 | — 0.1 | 78.6 | 2 | 3 | 2 | 7 | 12 | 3 | ..... | 2 | ..... | 10465 | 16841 | 8 | 3.84 | 97.5 |
| Sandusky | N 41 25 | W. 82 40 | 6.37 a.m. | 639 | 195 | 29.42 | 747 3 | 30.15 | 765.8 | 29.1 | — 1.6 | 76.4 | 1 | 2 | 6 | 11 | 4 | 6 | ..... | 1 | ..... | 10380 | 16705 | 7 | 2.44 | 62.0 |
| Cleveland | N. 41 30 | W. 81 42 | 6.41 a.m. | 690 | 210 | 29.36 | 745.7 | 30.15 | 765.8 | 27.9 | — 2.3 | 84.9 | 2 | 1 | 5 | 8 | 3 | 10 | 2 | ..... | ..... | 9598 | 15446 | 7 | 1.83 | 46.5 |
| Toledo | N. 41 40 | W. 83 34 | 6.34 a.m. | 651 | 198 | 29.40 | 746.7 | 30.14 | 765.5 | 27.6 | — 2.4 | 78.4 | ..... | 3 | 5 | 8 | 6 | 2 | 3 | 2 | 2 | 6480 | 10428 | 8 | 2.03 | 51.6 |
| Detroit | N. 42 20 | W. 83 03 | 6.36 a.m. | 661 | 201 | 29.36 | 745 7 | 30.12 | 765.0 | 27.7 | — 2.4 | 71.4 | 2 | 3 | 5 | 6 | 10 | 1 | 2 | 2 | ..... | 8601 | 13842 | 6 | 3.05 | 77.5 |
| *Upper lake region.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alpena | N. 45 05 | W. 83 30 | 6.34 a.m. | 609 | 185 | 29.32 | 744.7 | 30.03 | 762.7 | 22.0 | — 5.6 | 86.0 | 1 | 1 | 16 | 2 | 5 | 1 | 1 | 1 | 3 | 6102 | 9820 | 8 | 5.58 | 141.7 |
| Escanaba | N. 45 48 | W. 87 05 | 6.20 a.m. | 613 | 187 | 29.34 | 745.2 | 30.06 | 763 5 | 16.9 | — 8.4 | 77.1 | 7 | 7 | 6 | 3 | 4 | 1 | ..... | ..... | 3 | 6719 | 10813 | 7 | 4.34 | 110.2 |
| Grand Haven | N. 43 05 | W. 86 18 | 6.23 a.m. | 620 | 189 | 29.37 | 746.0 | 30.08 | 764 0 | 26.8 | — 2.9 | 81.4 | ..... | 5 | 5 | 2 | 6 | 2 | 8 | 2 | 1 | 9749 | 15689 | 9 | 6.80 | 172.7 |
| Mackinaw City | N. 45 47 | W. 84 39 | 6.30 a.m. | 605 | 184 | 29.33 | 745 0 | 30.03 | 762.7 | 24.5 | — 4.2 | 83.1 | 4 | 3 | 3 | 7 | 3 | 2 | 7 | 2 | ..... | 8041 | 12940 | 9 | 6.48 | 164 0 |
| Marquette | N. 46 34 | W. 87 24 | 6.18 a.m. | 673 | 205 | 29.29 | 744 0 | 30.07 | 763.8 | 19.1 | — 7.2 | 80.3 | 5 | 6 | 9 | 3 | 4 | ..... | 2 | 1 | 1 | 7521 | 12104 | 8 | 8.65 | 219.7 |
| Port Huron | N. 43 00 | W. 82 26 | 6.38 a.m | 633 | 193 | 29.38 | 746.2 | 30.10 | 764.5 | 23.0 | — 5.0 | 86.3 | ..... | 2 | 7 | 6 | 11 | ..... | 3 | 2 | ..... | 8176 | 13158 | 6 | 3.01 | 76.5 |
| Chicago | N. 41 52 | W. 87 38 | 6.18 a.m. | 661 | 201 | 29.37 | 746.0 | 30.13 | 765.3 | 25.4 | — 3.7 | 82.8 | ..... | 7 | 7 | 7 | 6 | 2 | 1 | 1 | ..... | 6574 | 10580 | 8 | 4.21 | 106.9 |
| Milwaukee | N. 43 02 | W. 87 54 | 6.16 a.m. | 697 | 212 | 29.30 | 744 2 | 30.11 | 764.8 | 20.2 | — 6.6 | 86.3 | 3 | 8 | 6 | 6 | 4 | 2 | 1 | 1 | ..... | 9338 | 15028 | 7 | 2.37 | 60.2 |
| Duluth | N. 46 48 | W. 92 06 | 6.00 a.m. | 672 | 205 | 29.36 | 745.7 | 30.16 | 766.1 | 7.4 | —13.7 | 79.9 | 2 | 7 | 5 | 11 | 4 | ..... | 1 | ..... | 1 | 5434 | 8745 | 7 | 1.22 | 31.0 |
| *Upper Miss. val.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saint Paul | N. 44 58 | W. 93 03 | 5.56 a.m. | 801 | 244 | 29.22 | 742 2 | 30.17 | 766.3 | 12.1 | —11.1 | 74.2 | 4 | 10 | 2 | 6 | 3 | 3 | ..... | ..... | 3 | 5522 | 8887 | 6 | 1.98 | 50.3 |
| La Crosse | N. 43 49 | W. 91 15 | 6.03 a.m. | 725 | 221 | 29.31 | 744 5 | 30.16 | 766.1 | 14.1 | — 9.9 | 77.0 | 9 | 10 | 2 | 1 | 6 | 3 | ..... | ..... | ..... | 5225 | 8409 | 7 | 2.25 | 57.1 |
| Davenport | N. 41 30 | W. 90 38 | 6.06 a.m. | 615 | 187 | 29.45 | 748.0 | 30.16 | 766 1 | 22.8 | — 5.1 | 79.3 | 4 | 8 | 5 | 5 | 2 | 1 | 1 | 5 | ..... | 6034 | 9711 | 7 | 3.68 | 93.5 |
| Des Moines | N. 41 35 | W. 93 37 | 5.54 a.m. | 849 | 259 | 23.22 | 742.2 | 30.20 | 767.1 | 15.8 | — 9.0 | 75.3 | 10 | 3 | 1 | 3 | 3 | 3 | ..... | 6 | 2 | 4241 | 6825 | 7 | 1.93 | 49.0 |
| Dubuque | N. 42 30 | W. 90 44 | 6.05 a.m. | 665 | 203 | 29.39 | 746.5 | 30.16 | 7 6.1 | 18.5 | — 7.5 | 75.3 | 5 | 8 | 5 | ..... | 3 | 3 | ..... | ..... | 7 | 3071 | 4942 | 7 | 4.08 | 103.6 |
| Keokuk | N. 40 22 | W. 91 26 | 6.02 a.m. | 618 | 188 | 29.46 | 748 3 | 30 17 | 766.3 | 20.2 | — 6.6 | 85.5 | 5 | 7 | 4 | 1 | ..... | 5 | 5 | ..... | 4 | 5215 | 8392 | 7 | 3.91 | 99.3 |
| Cairo | N. 37 00 | W. 89 10 | 6.11 a.m. | 377 | 115 | 29.77 | 756.1 | 30.17 | 766.3 | 33.4 | 0.8 | 82.8 | 6 | 5 | 2 | 2 | 4 | 6 | 3 | 3 | ..... | 7095 | 11418 | 7 | 8.99 | 228.3 |
| Springfield | N. 39 48 | W. 89 39 | 6.10 a.m. | 644 | 196 | 29.46 | 748.3 | 30.19 | 766.8 | 27.4 | — 2.6 | 77.5 | 4 | 6 | 3 | 2 | 7 | 2 | 1 | 4 | 2 | 7066 | 11372 | 7 | 5.19 | 131.8 |
| Saint Louis | N. 38 38 | W. 90 12 | 6.07 a.m. | 583 | 178 | 29.52 | 749 8 | 30.18 | 766.6 | 31.2 | — 0.4 | 76.4 | 2 | 7 | 4 | 1 | 3 | 11 | ..... | 3 | ..... | 9294 | 14957 | 8 | 6.18 | 157.0 |
| *Missouri valley.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leavenworth | N. 39 19 | W. 94 57 | 5.48 a.m. | 842 | 256 | 29.26 | 743 2 | 30.22 | 767.6 | 21.0 | — 6.1 | 89.8 | 10 | 8 | 1 | ..... | 3 | 4 | 1 | ..... | 4 | 4862 | 7824 | 7 | 1.48 | 37.6 |
| Omaha | N. 41 16 | W. 95 56 | 5.44 a.m. | 1113 | 339 | 28 96 | 735 6 | 30.25 | 768.3 | 14.5 | — 9.7 | 81.1 | 11 | 6 | 1 | 1 | 3 | 2 | ..... | 2 | 5 | 6662 | 10721 | 6 | 0.72 | 18.3 |
| Fort Bennett | N. 44 43 | W. 100 39 | 5.26 a.m. | 1510 | 457 | 28.53 | 724.6 | 30.29 | 769 4 | 4.9 | —15.1 | 88.5 | 2 | 11 | ..... | 2 | ..... | 5 | ..... | 3 | 6 | 5094 | 8198 | 5 | 0.46 | 11.7 |
| Huron | N. 44 21 | W. 98 09 | 5.35 a.m. | 1305 | 398 | 28.71 | 729 2 | 30.25 | 768 3 | 4.4 | —15.3 | 75.4 | 4 | 9 | 1 | 2 | 5 | 5 | ..... | 3 | 2 | 6671 | 10736 | 4 | 0.62 | 15.7 |
| Yankton | N. 42 54 | W. 97 28 | 5.38 a.m. | 1228 | 374 | 28.83 | 732 3 | 30.26 | 768.6 | 8.3 | —13.2 | 79.6 | 6 | 9 | 2 | ..... | 5 | 2 | ..... | 1 | 6 | 5574 | 8970 | 5 | 0.80 | 20.3 |
| *Extreme N'thwest.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moorhead | N. 46 52 | W. 96 44 | 5.41 a.m. | 923 | 281 | 29.10 | 739.1 | 30.21 | 767.3 | 3.7 | —15.7 | 85.0 | 8 | 2 | 5 | 3 | 9 | 1 | ..... | 1 | 2 | 8104 | 13042 | 6 | 0.76 | 19.3 |
| Saint Vincent | N. 48 56 | W. 97 14 | 5.39 a.m. | 804 | 245 | 29.24 | 742.7 | 30.23 | 767.8 | —2.4 | —19.1 | 92.5 | 1 | 13 | 4 | 4 | 6 | 1 | 1 | 1 | ..... | 6550 | 10541 | 4 | 0.85 | 21.6 |
| Bismarck | N. 46 47 | W. 100 38 | 5.26 a.m. | 1694 | 516 | 28.25 | 717.5 | 30.27 | 768.8 | 3.3 | —15.9 | 86.5 | 3 | 12 | 3 | 1 | 1 | 2 | ..... | 1 | 8 | 4047 | 6513 | 5 | 1.71 | 43.4 |
| Fort Buford | N. 48 00 | W. 103 56 | 5.12 a.m. | 1930 | 588 | 28.05 | 712.5 | 30.32 | 770.1 | —0.9 | —18.3 | 77.4 | 3 | 6 | 13 | 2 | ..... | 1 | 4 | 2 | ..... | 6062 | 9756 | 5 | 0.40 | 10.2 |
| Fort Totten | N. 47 57 | W. 98 57 | 5.32 a.m. | 1500 | 457 | 28.44 | 722.4 | 30.21 | 768 1 | —0.1 | —17 8 | 78.3 | 2 | 14 | 4 | 6 | 1 | 3 | 1 | ..... | ..... | 9157 | 14736 | 5 | 0.48 | 12.2 |
| *Northern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Assinaboine | N. 48 32 | W. 109 42 | 4.49 a.m. | 2720 | 829 | 27.23 | 691.6 | 30 27 | 768 8 | —0.1 | —17.8 | 63.7 | ..... | 4 | 3 | 17 | ..... | ..... | 4 | 1 | 2 | 8440 | 13583 | 4 | 0.72 | 18.3 |
| Fort Benton | N. 47 50 | W. 110 40 | 4.45 a.m. | 2681 | 817 | 27.30 | 693.4 | 30.29 | 769.4 | —4.8 | —20.4 | 80.6 | ..... | 1 | 1 | 11 | ..... | ..... | 3 | 5 | 10 | 4457 | 7173 | 5 | 1.01 | 25.7 |
| Fort Custer | N. 45 42 | W. 107 34 | 4.58 a.m. | 3040 | 926 | 26 89 | 683.0 | 30.29 | 769 4 | 1.8 | —16.6 | 83.8 | 9 | 4 | 3 | 1 | 3 | 5 | 3 | 3 | ..... | ..... | ..... | 6 | 0.27 | 6.9 |
| Fort Maginnis | N. 47 12 | W. 109 10 | 4.51 a.m. | 4340 | 1324 | 25.52 | 648.2 | 30.15 | 765.8 | 2.2 | —16.6 | 53.7 | ..... | 4 | 12 | 1 | ..... | 1 | 2 | 11 | ..... | 7230 | 11035 | 5 | 0.82 | 20.8 |
| Fort Shaw | N. 47 31 | W. 111 48 | 4.41 a.m. | 3550 | 1082 | 26.35 | 669.3 | 30.18 | 766.6 | —1.0 | —18.3 | 66.5 | 2 | 2 | 18 | 4 | 1 | ..... | 3 | 1 | ..... | 5457 | 8782 | 3 | 2.47 | 62.7 |
| Helena | N. 46 34 | W. 112 04 | 4.40 a.m. | 4044 | 1232 | 25.78 | 654.8 | 30.11 | 764.8 | 5.5 | —14.7 | 71.3 | 5 | 11 | 12 | 1 | ..... | ..... | ..... | 2 | ..... | 2096 | 4339 | 3 | 1.56 | 39.6 |
| Poplar River | N. 48 08 | W 105 10 | 5.07 a.m. | 2030 | 619 | 27.95 | 709 9 | 30.31 | 769.9 | —8.2 | —22.3 | 98.5 | 6 | 4 | 13 | ..... | ..... | ..... | 3 | 1 | 4 | 3866 | 6222 | 6 | 0.22 | 5.6 |
| Deadwood | N. 44 23 | W. 103 43 | 5.13 a.m. | 4600 | 1402 | 25 25 | 641.3 | 30.24 | 768.1 | 7.5 | —13.6 | 78.9 | ..... | ..... | 4 | 9 | 2 | 1 | 1 | 7 | 7 | 1495 | 2406 | 5 | 1.79 | 45.5 |
| Cheyenne | N. 41 08 | W. 104 48 | 5.09 a.m. | 6105 | 1861 | 23.81 | 604 8 | 30.11 | 764.8 | 16.2 | — 8.8 | 77.7 | 6 | 6 | 10 | 4 | 1 | 1 | 1 | 2 | ..... | 7533 | 12123 | 5 | 0.67 | 17.0 |
| North Platte | N. 41 08 | W. 100 45 | 5.25 a.m. | 2841 | 866 | 27.09 | 688.1 | 30.25 | 768.3 | 11.6 | —11.3 | 74.6 | 3 | 4 | 8 | ..... | 2 | 4 | 3 | ..... | 7 | 5095 | 9165 | 6 | 0.27 | 0.9 |
| *Middle slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pike's Peak | N. 38 50 | W. 105 02 | 5.08 a.m. | 14134 | 4308 | 17.48 | 444.0 | 30.14 | 765.5 | 3.6 | —15.8 | 89.0 | 2 | 5 | 15 | 5 | ..... | 1 | ..... | 2 | 1 | ..... | ..... | 5 | 1.50 | 38.1 |
| Denver | N. 39 45 | W. 105 00 | 5.08 a.m. | 5294 | 1614 | 24.60 | 624.8 | 30.12 | 765 0 | 19.9 | — 0.7 | 65.7 | 8 | 2 | 3 | 3 | 11 | 1 | 2 | ..... | ..... | 5089 | 8190 | 3 | 0.76 | 19.3 |
| W. Las Animas | N. 38 04 | W. 103 07 | 5.16 a.m. | 3905 | 1190 | 25.96 | 659.4 | 30.11 | 764.8 | 12.1 | —11.1 | 87.9 | 2 | ..... | 12 | ..... | 2 | 1 | 3 | 6 | 5 | 4557 | 7334 | 5 | 0.72 | 18.3 |
| Dodge City | N. 37 45 | W. 100 00 | 5.28 a.m. | 2517 | 767 | 27.41 | 696.2 | 30.21 | 767.3 | 15.4 | — 9.2 | 87.9 | 6 | 12 | 3 | ..... | 1 | 7 | 1 | ..... | 1 | 8882 | 14294 | 4 | 1.10 | 27.9 |
| Fort Elliott | N. 35 30 | W. 100 21 | 5.27 a.m. | 2650 | 808 | 27.22 | 691.4 | 30.18 | 766.6 | 21.9 | — 5.0 | 85.6 | 8 | 11 | 4 | ..... | 3 | 3 | ..... | ..... | 2 | 9453 | 15213 | 4 | 3.05 | 77.5 |
| *Southern slope.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Sill | N. 34 40 | W. 98 23 | 5.34 a.m. | 1200 | 366 | 28.84 | 732.5 | 30.17 | 766 3 | 25.9 | — 3.4 | 94.5 | 12 | 1 | 1 | 1 | 7 | ..... | 1 | 5 | 3 | 7608 | 12244 | 7 | 2.71 | 68.8 |
| Fort Concho | N. 31 25 | W. 100 24 | 5.26 a.m. | 1900 | 579 | 28.12 | 714.2 | 30.14 | 765 5 | 33.8 | 1.0 | 87.6 | 4 | 2 | 3 | 8 | 1 | 1 | 3 | 6 | 3 | 7183 | 11560 | 5 | 3.57 | 90.7 |
| Fort Stockton | N. 30 53 | W. 102 53 | 5.16 a.m. | 3010 | 917 | 26.97 | 685 0 | 30.11 | 764.8 | 38.1 | 3.4 | 79.6 | 2 | 4 | ..... | 11 | 1 | 1 | 1 | ..... | 11 | 4987 | 8026 | 5 | 1.27 | 32.3 |
| Fort Davis | N. 30 38 | W. 103 56 | 5.12 a.m. | 4928 | 1502 | 25.22 | 640.6 | 30.15 | 765.8 | 35.0 | 1.7 | 87.8 | 5 | ..... | 1 | 16 | 1 | 1 | ..... | ..... | 7 | 6085 | 9793 | 4 | 0.48 | 12.2 |
| *Southern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Santa Fé | N. 35 41 | W. 105 57 | 5.04 a.m. | 7026 | 2141 | 23 15 | 588.0 | 30.08 | 764.0 | 25.9 | — 3.4 | 74.0 | 3 | ..... | 3 | 4 | 5 | 2 | 3 | 11 | ..... | 4497 | 7237 | 5 | 1.77 | 45.0 |
| Fort Thomas | N. 33 04 | W. 110 02 | 4.48 a.m. | 2710 | 826 | 27.27 | 692 6 | 30.09 | 764.3 | 32.2 | 0.1 | 74 3 | ..... | 1 | 4 | 5 | 5 | 15 | 1 | ..... | ..... | ..... | ..... | 5 | 5.16 | 131.1 |
| Fort Apache | N. 33 48 | W. 109 57 | 4.48 a.m. | 5050 | 1539 | 24.99 | 634.7 | 30.07 | 763.8 | 25.0 | — 3.9 | 87.4 | 2 | ..... | ..... | 2 | 3 | 2 | 7 | 12 | 3 | 3684 | 5929 | 4 | 5.52 | 140.2 |
| Fort Grant | N. 32 39 | W. 109 57 | 4.48 a.m. | 4856 | 1480 | 25.17 | 639.3 | 30.05 | 763 3 | 36.8 | 2.7 | 66.8 | 7 | 2 | ..... | ..... | ..... | 8 | 1 | 13 | ..... | 4869 | 7830 | 5 | 5.93 | 150.6 |
| Prescott | N. 34 33 | W. 112 28 | 4.38 a.m. | 5389 | 1642 | 24.61 | 625.1 | 30.03 | 702.7 | 26.8 | — 2.9 | 81.6 | 3 | ..... | 1 | 11 | 4 | 2 | 1 | 3 | 6 | 4920 | 7918 | 4 | 5.58 | 141.7 |
| Yuma | N. 32 45 | W. 114 36 | 4.30 a.m. | 141 | 43 | 29.79 | 756.7 | 29.94 | 760.5 | 46.6 | 8.1 | 82.1 | 1 | 4 | ..... | ..... | 1 | 3 | 1 | 18 | 3 | 4014 | 6460 | 4 | 1.96 | 49.8 |
| El Paso | N. 31 47 | W. 106 30 | 5.02 a.m. | 3764 | 1147 | 24.22 | 666 0 | 30.08 | 764.0 | 39.2 | 4.0 | 66.2 | 1 | 9 | 11 | 1 | ..... | 1 | ..... | 6 | 2 | 3666 | 5900 | 4 | 2.07 | 52.6 |
| *Middle plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salt Lake City | N. 40 46 | W. 111 54 | 4.40 a.m. | 4348 | 1325 | 25.49 | 647.4 | 30.03 | 762.7 | 32.2 | 0.1 | 63.6 | 3 | 7 | ..... | 2 | 6 | 7 | 1 | 1 | 4 | 5410 | 8706 | 5 | 2.12 | 53.8 |
| Winnemucca | N. 40 58 | W. 117 43 | 4.17 a.m. | 4358 | 1328 | 25.51 | 647.9 | 30.08 | 764.0 | 26.9 | — 2.8 | 68.6 | 2 | 1 | ..... | 17 | ..... | ..... | 2 | 8 | 1 | 7737 | 12451 | 5 | 3.29 | 83.6 |
| *Northern plateau.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boisé City | N. 43 37 | W. 116 08 | 4.24 a.m. | 2750 | 838 | 27.11 | 688.6 | 30.09 | 764.3 | 23.6 | — 4.7 | 88.0 | ..... | 6 | 7 | ..... | 1 | 9 | 3 | 1 | 4 | 2529 | 4070 | 6 | 5.67 | 144.0 |
| Lewiston | N. 46 28 | W. 117 05 | 4.20 a.m. | 780 | 238 | 29.28 | 743.7 | 30.16 | 766.1 | 10.3 | — 8.7 | 79.6 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 29 | 339 | 546 | 6 | 2.79 | 70.9 |
| Spokane Falls | N. 47 40 | W. 117 25 | 4.18 a.m. | 1909 | 582 | 28.00 | 711.2 | 30.14 | 765.5 | 10.9 | —11.7 | 80.7 | 1 | 4 | 5 | 6 | 1 | 2 | 2 | 5 | 5 | 1874 | 3016 | 8 | 3.28 | 83.3 |
| Dayton | N. 46 19 | W. 117 56 | 4.16 a.m. | 1667 | 508 | 28.28 | 718 3 | 30.12 | 765.0 | 13.7 | —10.2 | 89.1 | 2 | ..... | 3 | 8 | 2 | 1 | ..... | 6 | 9 | 2385 | 3838 | 7 | 5.10 | 129.5 |
| *N. Pac. coast reg'n* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fort Canby | N. 46 16 | W. 124 04 | 3.52 a.m. | 179 | 54 | 29.72 | 754.9 | 29.92 | 760.0 | 34.7 | 1.5 | 87.9 | 8 | 3 | 5 | ..... | ..... | 2 | 8 | 5 | ..... | 10348 | 16653 | 6 | 5.91 | 150.1 |
| Olympia | N. 47 03 | W. 122 53 | 3.57 a.m. | 36 | 11 | 29.92 | 760.0 | 29.96 | 761.0 | 30.1 | 1.1 | 86.0 | 2 | ..... | 2 | 1 | 8 | ..... | ..... | 2 | 16 | 1870 | 3009 | 8 | 5.82 | 147.8 |
| Tatoosh Id. | N. 48 23 | W. 124 44 | 3.49 a.m. | 86 | 26 | 29.82 | 757.4 | 29.92 | 760.0 | 35.4 | 1.9 | 78.8 | ..... | 3 | ..... | 2 | 1 | 7 | 16 | 2 | ..... | 12231 | 19684 | 6 | 12.47 | 316.7 |
| Portland | N. 45 32 | W. 122 43 | 3.57 a.m. | 67 | 20 | 29.90 | 759.4 | 29.97 | 761.2 | 29.1 | 1.6 | 83.5 | 3 | 2 | 1 | 3 | 4 | 1 | 10 | 1 | 6 | 3437 | 5531 | 7 | 7.52 | 191.0 |
| Roseburg | N. 43 13 | W. 123 20 | 3.55 a.m. | 523 | 159 | 29.38 | 740.2 | 29.96 | 761.0 | 35.3 | 1.8 | 92.9 | 2 | 3 | 2 | 4 | 3 | ..... | 3 | 1 | 13 | 1531 | 2404 | 8 | 9.20 | 233.7 |
| *Mid Pac. coast reg* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cape Mendocino | N. 40 26 | W. 124 24 | 3.50 a.m. | 637 | 194 | 29.20 | 741.7 | 29.90 | 759.4 | 46.7 | 8.2 | 80.8 | 6 | 7 | ..... | ..... | 9 | 5 | 1 | 1 | 2 | 16870 | 27149 | 8 | 2.58 | 65.5 |
| Red Bluff | N. 40 10 | W. 122 15 | 3.59 a.m. | 332 | 101 | 29.61 | 752.1 | 29.98 | 761.5 | 42.9 | 6.1 | 72.7 | 7 | 11 | 1 | ..... | 7 | 1 | 4 | ..... | ..... | 7702 | 12524 | 4 | 7.73 | 196.3 |
| Sacramento | N. 38 35 | W. 121 30 | 4.02 a.m. | 64 | 19 | 29.90 | 759.4 | 29.97 | 761.2 | 44.8 | 7.1 | 78.9 | 5 | 3 | 1 | 1 | 6 | 11 | 2 | 1 | 1 | 7817 | 12580 | 4 | 10.45 | 265.4 |
| San Francisco | N. 37 48 | W. 122 26 | 3.58 a.m. | 60 | 18 | 29.90 | 759 4 | 29.97 | 761.2 | 50.5 | 10.3 | 77.9 | 5 | 4 | 1 | 8 | 3 | 4 | 2 | 3 | 1 | 7.00 | 11093 | 6 | 7.68 | 195.1 |
| *S. Pac. coast reg'n.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Los Angeles | N. 34 03 | W. 118 15 | 4.15 a.m. | 299 | 91 | 29.62 | 752 3 | 30.02 | 762 5 | 46.8 | 8.2 | 85.3 | 2 | 1 | 2 | ..... | 1 | ..... | 3 | 16 | 5 | 4345 | 6976 | 3 | 4.65 | 118.1 |
| San Diego | N. 32 43 | W. 117 10 | 4.19 a.m. | 67 | 20 | 29.91 | 759.7 | 29.98 | 761.5 | 50.2 | 10.1 | 82.8 | 5 | 2 | 7 | 1 | ..... | 2 | 8 | 5 | 1 | 4039 | 7466 | 6 | 5.12 | 130.0 |
| *Alaska stations.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ft. St. Michael's | N. 63 48 | W. 162 00 | 1.20 a.m. | 30 | 9 | 29.93 | 760.2 | 29.97 | 761.2 | 12.7 | —10.7 | 86.1 | 4 | ..... | ..... | 2 | 6 | 1 | 6 | 6 | 6 | 10687 | 17199 | 3 | 0.20 | 5.1 |
| Sitka | N. 57 03 | W. 135 19 | 3.07 a.m. | 63 | 19 | 29.93 | 760.2 | 30.00 | 762.0 | 31.6 | — 0.2 | 74.4 | ..... | 2 | ..... | 2 | ..... | 4 | 2 | 11 | 10 | 6838 | 11004 | 4 | 7.09 | 180.1 |
| Unalashka | N 53 53 | W. 166 32 | 1.02 a.m. | 13 | 4 | 29.61 | 752 1 | 29.63 | 752.6 | 35.1 | 1.7 | 83.7 | 1 | 1 | 1 | 5 | 4 | 11 | 6 | ..... | 2 | 8480 | 13647 | 7 | 28.17 | 715.5 |
| *Sub-Series.* | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Behring Island | N. 55 12 | E. 165 55 | 11.12 p.m. | 20 | 6 | 29.58 | 751 3 | 29.60 | 751.8 | 26.1 | — 3.3 | 91.3 | 5 | 2 | 1 | 3 | 2 | 2 | 13 | 2 | 1 | 9490 | 15272 | 7 | 0.96 | 24.4 |
| Bluefields | N. 12 00 | W. 83 43 | 6.31 a.m. | 20 | 6 | 29.95 | 760.7 | 29.97 | 761.2 | 73.5 | 23.1 | 92.2 | 9 | 16 | ..... | ..... | ..... | ..... | ..... | 6 | ..... | ..... | ..... | 6 | 11.15 | 283.2 |
| Kingston | N. 18 58 | W. 76 48 | 7.01 a.m. | 10 | 3 | ..... | ..... | 30.04 | 763.0 | 71.2 | 21.8 | 86.5 | 23 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 7 | 2150 | 3460 | 3 | 0 | 0 |
| Paramaribo | N. 5 50 | W. 55 13 | 8.27 a.m. | 6 | 2 | 30.05 | 763.3 | 30.05 | 763.3 | 77.4 | 25.2 | 85.0 | ..... | ..... | ..... | ..... | 1 | 4 | 25 | 1 | ..... | ..... | ..... | 4 | 2.97 | 75.4 |
| Puerto Berrio | N. 6 22 | W. 74 28 | 7.10 a.m. | 542 | 165 | ..... | ..... | ..... | ..... | 77.0 | 25.0 | 89.0 | ..... | ..... | 1 | ..... | 2 | ..... | ..... | ..... | 28 | ..... | ..... | 6 | 3.07 | 78.0 |
| Rivas | N. 11 26 | W. 85 47 | 6.25 a.m. | 150 | 46 | 29.86 | 758.4 | 30.02 | 762.5 | 74.5 | 23.6 | 84.8 | ..... | ..... | ..... | ..... | 1 | 1 | 29 | ..... | ..... | ..... | ..... | 3 | 2.24 | 56.9 |

## OCEAN SQUARE DATA FOR DECEMBER, 1884.

| Location of Centre of each Square. | Barometer. | | Temperature. | | Wind Frequency. | | | | | | | | | | Wind force 0–10. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inch. | Mill. | Fah. | Cent. | N. | NW. | W. | SW. | S. | SE. | E. | NE. | Calm. | Blank. | |
| ° ° N. 12.5 W. 22.5 | 30.01 | 762.2 | 77.8 | 25.4 | 1 | | | | | 1 | 18 | 11 | | | 3.4 |
| 12.5 27.5 | 30.02 | 762.5 | 77.6 | 25.3 | 1 | | | 1 | 1 | 3 | 24 | 1 | | | 3.5 |
| 12.5 32.5 | 30.01 | 762.2 | 78.5 | 25.8 | 1 | | 2 | | 1 | 4 | 22 | 1 | | | 3.7 |
| 12.5 37.5 | 30.01 | 762.2 | 79.0 | 26.1 | | | | | 2 | 2 | 21 | 5 | 1 | | 3.4 |
| 12.5 42.5 | 30.01 | 762.2 | 79.1 | 26.2 | | | | | | 1 | 22 | 8 | | | 3.7 |
| 12.5 47.5 | 30.03 | 762.7 | 78.6 | 25.9 | | | | | | | 14 | 17 | | | 3.8 |
| 12.5 52.5 | 30.05 | 763.3 | 78.3 | 25.7 | 1 | | | | | | 20 | 10 | | | 3.6 |
| 17.5 22.5 | 30.07 | 763.8 | 74.4 | 23.6 | 2 | | | | | | 20 | 8 | 1 | | 3.7 |
| 17.5 27.5 | 30.08 | 764.0 | 75.0 | 23.9 | 1 | | | | 2 | 1 | 25 | 1 | 1 | | 3.9 |
| 17.5 32.5 | 30.07 | 763.8 | 75.9 | 24.4 | 2 | | | | 1 | 3 | 23 | 2 | | | 3.9 |
| 17.5 37.5 | 30.06 | 763.5 | 76.7 | 24.8 | 2 | | | | | 1 | 24 | 4 | | | 3.7 |
| 17.5 42.5 | 30.07 | 763.8 | 76.5 | 24.7 | 2 | | | | | | 24 | 5 | | | 3.9 |
| 17.5 47.5 | 30.08 | 764.0 | 76.6 | 24.8 | 2 | | | | | 1 | 20 | 8 | | | 3.9 |
| 17.5 52.5 | 30.09 | 764.3 | 73.9 | 23.3 | | | | | | 1 | 24 | 6 | | | 4.0 |
| 17.5 57.5 | 30.08 | 764.0 | 78.5 | 25.8 | | | | | | 1 | 25 | 5 | | | 4.1 |
| 22.5 22.5 | 30.12 | 765.0 | 71.8 | 22.1 | 4 | 1 | | | | 1 | 20 | 5 | | | 4.0 |
| 22.5 27.5 | 30.12 | 765.0 | 72.6 | 22.6 | 3 | 1 | | | | 3 | 22 | 2 | | | 4.2 |
| 22.5 32.5 | 30.13 | 765.3 | 73.4 | 23.0 | 5 | | | | | 4 | 19 | 3 | | | 4.0 |
| 22.5 37.5 | 30.12 | 765.0 | 74.0 | 23.3 | 3 | | | | | 2 | 23 | 3 | | | 4.0 |
| 22.5 42.5 | 30.13 | 765.3 | 74.6 | 23.7 | 4 | | | | | 1 | 23 | 2 | | 1 | 4.2 |
| 22.5 47.5 | 30.15 | 765.8 | 74.7 | 23.7 | 4 | | | | | 4 | 16 | 6 | | 1 | 3.9 |
| 22.5 52.5 | 30.14 | 765.5 | 75.1 | 23.9 | 2 | | | | 2 | 1 | 20 | 5 | | 1 | 4.3 |
| 22.5 57.5 | 30.14 | 765.5 | 75.3 | 24.1 | 2 | | | | 2 | 4 | 18 | 5 | | | 4.1 |
| 22.5 62.5 | 30.13 | 765.3 | 75.2 | 24.0 | 1 | | | | 2 | 7 | 17 | 4 | | | 4.0 |
| 22.5 67.5 | 30.12 | 765.0 | 74.9 | 23.8 | 1 | | | | 4 | 5 | 17 | 4 | | | 4.0 |
| 22.5 72.5 | 30.12 | 765.0 | 75.1 | 23.9 | 2 | 1 | | | | 5 | 20 | 3 | | | 4.2 |
| 27.5 22.5 | 30.19 | 766.8 | 67.9 | 19.9 | 7 | | | 1 | 1 | 2 | 15 | 5 | | | 4.0 |
| 27.5 27.5 | 30.19 | 766.8 | 69.2 | 20.7 | 5 | | 2 | | | 6 | 13 | 5 | | | 4.3 |
| 27.5 32.5 | 30.18 | 766.6 | 70.2 | 21.2 | 2 | 1 | 1 | | 1 | 6 | 12 | 8 | | | 4.2 |
| 27.5 37.5 | 30.18 | 766.6 | 71.4 | 21.9 | 1 | 2 | | | 1 | 6 | 16 | 4 | | 1 | 4.3 |
| 27.5 42.5 | 30.19 | 766.8 | 72.0 | 22.2 | | 2 | | | 4 | 4 | 13 | 7 | | 1 | 4.0 |
| 27.5 47.5 | 30.19 | 766.8 | 72.2 | 22.3 | 2 | 1 | | | 4 | 7 | 10 | 6 | | 1 | 4.2 |
| 27.5 52.5 | 30.20 | 767.1 | 74.5 | 23.6 | 4 | 1 | | 1 | 5 | 5 | 10 | 4 | | 1 | 4.2 |
| 27.5 57.5 | 30.20 | 767.1 | 72.3 | 22.4 | 1 | 1 | 1 | 1 | 5 | 4 | 12 | 6 | | | 4.2 |
| 27.5 62.5 | 30.19 | 766.8 | 72.2 | 22.3 | 4 | | 2 | 1 | 7 | 6 | 7 | 4 | | | 4.1 |
| 27.5 67.5 | 30.18 | 766.6 | 72.1 | 22.3 | 3 | | 3 | | 7 | 6 | 8 | 4 | | | 4.1 |
| 27.5 72.5 | 30.17 | 766.3 | 72.2 | 22.3 | 2 | 1 | 3 | 1 | 8 | 6 | 5 | 4 | 1 | | 3.7 |
| 27.5 77.5 | 30.15 | 765.8 | 70.2 | 21.2 | 4 | | | 1 | 6 | 7 | 11 | 1 | | 1 | 3.1 |
| 32.5 12.5 | 30.20 | 767.1 | 61.0 | 16.1 | 6 | 1 | | 1 | 2 | 1 | 9 | 11 | | | 3.2 |
| 32.5 17.5 | 30.23 | 767.8 | 62.7 | 17.1 | 7 | 1 | | 1 | 1 | 4 | 13 | 4 | | | 3.5 |
| 32.5 22.5 | 30.24 | 768.1 | 64.2 | 17.9 | 8 | | | 2 | 3 | 4 | 10 | 4 | | | 3.5 |
| 32.5 27.5 | 30.24 | 768.1 | 65.4 | 18.6 | 5 | | 2 | | 2 | 8 | 11 | 3 | | | 3.7 |
| 32.5 32.5 | 30.24 | 768.1 | 66.6 | 19.2 | 2 | 1 | 1 | | 5 | 9 | 5 | 8 | | | 4.5 |
| 32.5 37.5 | 30.25 | 768.3 | 67.3 | 19.6 | 2 | 1 | 1 | 1 | 6 | 6 | 9 | 4 | | 1 | 4 3 |
| 32.5 42.5 | 30.24 | 768.1 | 67.5 | 19.7 | 2 | 2 | 1 | 4 | 10 | 1 | 8 | 2 | | 1 | 4.0 |
| 32.5 47.5 | 30.23 | 767.8 | 67.5 | 19.7 | 4 | 2 | 2 | 4 | 6 | 5 | 6 | 1 | | 1 | 4.4 |
| 32.5 52.5 | 30.22 | 767.6 | 67.5 | 19.7 | 5 | 2 | 6 | 3 | 3 | 4 | 5 | 3 | | | 4.7 |
| 32.5 57.5 | 30.21 | 767.3 | 67.3 | 19.6 | 2 | 3 | 6 | 4 | 3 | 4 | 5 | 4 | | | 4.5 |
| 32.5 62.5 | 30.19 | 766.8 | 69.9 | 21.1 | 3 | 4 | 2 | 6 | 5 | 3 | 4 | 4 | | | 3.8 |
| 32.5 67.5 | 30.17 | 766.3 | 67.5 | 19.7 | 4 | 3 | 3 | 7 | 4 | 4 | 3 | 3 | | | 4.6 |
| 32.5 72.5 | 30.18 | 766.6 | 65.1 | 18.4 | 5 | 4 | 1 | 7 | 3 | 4 | 2 | 4 | 1 | | 4.0 |
| 32.5 77.5 | 30.20 | 767.1 | 55.1 | 12.8 | 7 | 2 | 3 | 3 | 1 | 3 | 3 | 6 | 3 | | 3.5 |
| 37.5 12.5 | 30.23 | 767.8 | 56.0 | 13.3 | 4 | 5 | 1 | 1 | 5 | 1 | 6 | 7 | 1 | | 3.6 |
| 37.5 17.5 | 30.26 | 768.6 | 59.1 | 15.1 | 8 | 2 | 3 | 4 | 5 | 2 | 2 | 5 | | | 3.4 |
| 37.5 22.5 | 30.29 | 769.4 | 60.3 | 15.7 | 7 | | 3 | 5 | 4 | 1 | 5 | 6 | | | 3.3 |
| 37.5 27.5 | 30.30 | 769.6 | 61.2 | 16.2 | 5 | 2 | 4 | 4 | 3 | 4 | 3 | 6 | | | 3.3 |
| 37.5 32.5 | 30.28 | 769.1 | 62.4 | 16.9 | 4 | 2 | 6 | 5 | 9 | | 2 | 2 | | 1 | 4.0 |
| 37.5 37.5 | 30.26 | 768.6 | 62.3 | 16.8 | 5 | 3 | 1 | 13 | 4 | | 3 | 1 | | 1 | 4.5 |
| 37.5 42.5 | 30.23 | 767.8 | 61.0 | 16.1 | 2 | 2 | 5 | 6 | 5 | 3 | 3 | 3 | | 2 | 4.7 |
| 37.5 47.5 | 30.20 | 767.1 | 59.3 | 15.2 | 1 | 4 | 3 | 9 | 4 | 1 | 4 | 2 | | 2 | 4.6 |
| 37.5 52.5 | 30.18 | 766.6 | 58.6 | 14.8 | 4 | 2 | 5 | 9 | 3 | 2 | 3 | 2 | | 1 | 4.9 |
| 37.5 57.5 | 30.16 | 766.1 | 58.5 | 14.7 | 3 | 6 | 4 | 9 | 4 | | 2 | 2 | | 1 | 5.1 |
| 37.5 62.5 | 30.14 | 765.5 | 58.1 | 14.5 | 2 | 8 | 6 | 7 | 2 | | 2 | 4 | | | 5.2 |
| 37.5 67.5 | 30.13 | 765.3 | 56.1 | 13.4 | 4 | 7 | 8 | 3 | 1 | 2 | 5 | | 1 | | 5.4 |
| 37.5 72.5 | 30.18 | 766.6 | 48.6 | 9.2 | 8 | 3 | 5 | 4 | 1 | 1 | 3 | 6 | | | 5.3 |
| 42.5 12.5 | 30.16 | 766.1 | 53.3 | 11.8 | 3 | 1 | 12 | 7 | 2 | | 1 | 5 | | | 3.7 |
| 42.5 17.5 | 30.17 | 766.3 | 56.1 | 13.4 | 2 | 3 | 11 | 9 | | | 1 | 5 | | | 4.6 |
| 42.5 22.5 | 30.19 | 766.8 | 56.6 | 13.7 | 2 | | 14 | 9 | | | 4 | 2 | | | 4.8 |
| 42.5 27.5 | 30.18 | 766.6 | 57.1 | 13.9 | 3 | 2 | 12 | 11 | | | 1 | 2 | | | 4.9 |
| 42.5 32.5 | 30.17 | 766.3 | 56.8 | 13.8 | 1 | 9 | 7 | 10 | | 1 | | 2 | | 1 | 5.1 |
| 42.5 37.5 | 30.18 | 766.6 | 55.7 | 13.2 | 4 | 6 | 7 | 9 | 2 | | | 2 | | 1 | 5.5 |
| 42.5 42.5 | 30.16 | 766.1 | 52.3 | 11.3 | 5 | 6 | 7 | 10 | 1 | 1 | | | | | 5.1 |
| 42.5 47.5 | 30.10 | 764.5 | 47.4 | 8.6 | 4 | 8 | 0 | 6 | 5 | | | 2 | | | 4.8 |
| 42.5 52.5 | 30.11 | 764.8 | 45.1 | 7.3 | 4 | 4 | 7 | 4 | 4 | 3 | 4 | 1 | | | 4.8 |
| 42.5 57.5 | 30.08 | 764.0 | 44.2 | 6.8 | 6 | 4 | 5 | 4 | 5 | 3 | 3 | 1 | | | 4.8 |
| 42.5 62.5 | 30.07 | 763.8 | 41.5 | 5.3 | 3 | 6 | 7 | 3 | 3 | 2 | 2 | 5 | | | 5.0 |
| 42.5 67.5 | 30.10 | 764.5 | 37.0 | 2.8 | 3 | 7 | 5 | 4 | 1 | 3 | 2 | 6 | | | 4.9 |
| 47.5 12.5 | 30.03 | 762.7 | 52.0 | 11.1 | 1 | 3 | 11 | 9 | 1 | | 2 | 4 | | | 5.4 |
| 47.5 17.5 | 30.02 | 762.5 | 52.7 | 11.5 | 4 | 4 | 9 | 8 | 2 | | | 4 | | | 5.2 |
| 47.5 22.5 | 30.01 | 762.2 | 52.5 | 11.4 | 2 | 2 | 13 | 9 | 2 | | 1 | 2 | | | 5.8 |
| 47.5 27.5 | 29.99 | 761.7 | 51.4 | 10.8 | 2 | 8 | 11 | 9 | | | 1 | | | | 5.7 |
| 47.5 32.5 | 29.98 | 761.5 | 50.0 | 10.0 | 2 | 10 | 7 | 10 | 2 | | | | | | 6.1 |
| 47.5 37.5 | 29.99 | 761.7 | 47.2 | 8.4 | | 13 | 9 | 5 | 1 | | 1 | | | 2 | 5.8 |
| 47.5 42.5 | 30.00 | 762.0 | 40.1 | 4.5 | 2 | 11 | 6 | 9 | 1 | | | | | | 5.7 |
| 47.5 47.5 | 29.99 | 761.7 | 35.2 | 1.8 | 1 | 16 | 7 | 3 | 3 | | 1 | | | | 5.4 |
| 52.5 12.5 | 29.83 | 757.7 | 47.1 | 8.4 | 2 | 6 | 13 | 5 | 4 | | 1 | | | | 5.2 |
| 52.5 17.5 | 29.81 | 757.2 | 47.5 | 8.6 | | 5 | 17 | 9 | | | | | | | 5.9 |
| 52.5 22.5 | 29.79 | 756.7 | 46.3 | 7.9 | 1 | 5 | 14 | 11 | | | | | | | 5.8 |
| 52.5 27.5 | 29.77 | 756.1 | 44.6 | 7.0 | 1 | 6 | 14 | 9 | | | 1 | | | | 6.5 |
| 52.5 32.5 | 29.77 | 756.1 | 42.9 | 6.1 | 1 | 13 | 8 | 6 | 1 | | | | 1 | 1 | 5.7 |
| 52.5 37.5 | 29.80 | 756.9 | 39.9 | 4.4 | 2 | 10 | 9 | 4 | 2 | | | | | 4 | 6.0 |
| 52.5 42.5 | 29.80 | 756.9 | | | 1 | 12 | 4 | 2 | 1 | | | | | 11 | |
| 52.5 47.5 | | | | | | | | | | | | | | | |
| 57.5 12.5 | 29.53 | 750.0 | 41.7 | 5.4 | 1 | 6 | 12 | 11 | 1 | | | | | | 5.9 |
| 57.5 17.5 | 29.52 | 749.8 | 40.4 | 4.7 | 1 | 9 | 13 | 7 | 1 | | | | | | 6.1 |
| 57.5 22.5 | 29.52 | 749.8 | 39.9 | 4.4 | | 11 | 10 | 8 | 1 | | | | | 1 | 6.7 |
| 57.5 27.5 | 29.54 | 750.3 | 39.3 | 4.1 | | 11 | 10 | 7 | | | | | | 3 | 6.4 |
| 57.5 32.5 | | | | | | 9 | 3 | 2 | 2 | | | | | 15 | |
| 57.5 37.5 | | | | | | | | | | | | | | | |
| 57.5 42.5 | | | | | | | | | | | | | | | |
| 57.5 47.5 | | | | | | | | | | | | | | | |

## REVIEW.

### INTERNATIONAL METEOROLOGY FOR DECEMBER, 1884.

[*Pressure expressed in inches and millimetres; temperature in degrees, Fahrenheit and Centigrade; wind-force by scale of* 0–10.]

The following refers to chart ii for the month of December, 1884. This chart continues the series of international charts begun in January, 1877, and exhibits the mean pressure, mean temperature, and the prevailing wind-directions over the northern hemisphere, as determined from one simultaneous observation taken each day at 7 a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time.

The area of lowest mean pressure in December, 1884, occupies Iceland, and is indicated by the isobar for 29.2 (741.7), the mean at Stykkisholm being 29.15 (740.4). To the southward and eastward of the area of barometric minima the gradient increases with moderate rapidity until the isobar for 30.0 (762.0) is reached, that isobar running from the Gulf of Saint Lawrence eastward over the Atlantic along the forty-seventh parallel to the European continent. Over the British Isles and that part of Europe lying north of the forty-seventh parallel, excepting a part of eastern Russia, the mean pressure ranges from 29.5 (749.3) to 30.0 (762.0); in the southern portion of Europe, except the Italian Peninsula, it exceeds the last-mentioned value. In the southern part of British India it ranges from 29.95 (760.7) to 30.0 (762.0), and over the northern part of Japan and the Sea of Okhotsk it ranges from 29.8 (756.9) to 30.0 (762.0); in all other parts of Asia from which reports are received, the mean pressure exceeds 30.0 (762.0). In the North American continent, except on the immediate Pacific coast, the mean pressure exceeds 30.0 (762.0).

Four areas of high mean pressure are shown on the chart; the first is enclosed by the isobar for 30.5 (774.7), and occupies Siberia, the highest mean pressure reported being 30.55 (776.0), at Nerchinsk. The second is shown over the Atlantic Ocean, in the vicinity of the Azores, where the mean pressure is 30.3 (769.6), while the isobar for 30.2 (767.1) covers the ocean between N. 28° and 40° and extends from the Iberian Peninsula westward to the sixtieth meridian. The third area is situated in the British Northwest Territories and extends into the United States, covering northern Montana; this area is indicated by the isobar for 30.3 (769.6), while that for 30.2 (767.1) extends over the northern Rocky Mountain region and southward and eastward over the Mississippi and Missouri Valleys. The fourth area of high pressures occupies the middle and south Atlantic states, and is enclosed by the isobar for 30.2 (767.1).

Compared with the chart for the preceding month (November, 1884), there has been a decrease of pressure over the western and southwestern districts of the United States, the area of high pressures, which in November occupied the plateau regions, having apparently withdrawn northward to the British dominions. Over the eastern part of the United States, and also throughout Canada, there has been an increase of pressure. Over the Atlantic Ocean south of the fiftieth parallel and west of the thirtieth meridian there has been an increase of pressure, while a considerable decrease has occurred over the region to the northward of the above-mentioned parallel. In Europe a considerable decrease of pressure has occurred in all parts of the continent, except Spain, where the pressure has undergone no change. In the northern peninsulas and the British Isles the decrease of pressure, as compared with that for November, is about .3 inch; in Germany it is .26 inch, and in France, Austria, Russia, and Italy it averages .16 inch. In Asia there has been a general increase of pressure.

Compared with the corresponding month of previous years, the mean pressure over the United States was below the normal over the western part of the country, and also in the Gulf States; in the Lake region and along the Atlantic coast it was above the normal. In Canada it was also above normal. In Europe the mean pressure was below the normal, the departures being greatest in the British Isles and the northern peninsulas.

The following table shows the mean pressure and mean temperature for December, 1884, in the several countries of the eastern hemisphere, and the departures as compared with the means determined from observations taken during the last seven years:

| Countries. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Dec. mean of 7 (1877-'83) years. | Dec., 1884. | Departure. | Dec. mean of 7 (1877-'83) years. | Dec., 1884. | Departure. |
| | | | | ° | ° | ° |
| Algeria | 30.12 | | | 56.9 | | |
| Austro-Hungary | 30.06 | 29.98 | — 0.08 | 33.9 | 37.5 | + 3.6 |
| British Isles | 29.93 | 29.83 | — 0.10 | 40.2 | 42.4 | + 2.2 |
| Denmark | 29.85 | 29.74 | — 0.11 | 34.9 | 36.6 | + 1.7 |
| France | 30.09 | 30.02 | — 0.07 | 42.1 | 43.5 | + 1.4 |
| Germany | 29.98 | 29.89 | — 0.09 | 34.1 | 37.5 | + 3.4 |
| India | 30.01 | 30.05 | + 0.04 | 69.1 | 69.3 | + 0.2 |
| Italy | 30.03 | 29.99 | — 0.04 | 48.1 | 48.6 | + 0.5 |
| Norway | 29.73 | 29.60 | — 0.13 | 31.3 | 31.2 | — 0.1 |
| Portugal | | | | | | |
| Russia | 30.02 | 29.95 | — 0.07 | 26.6 | 30.6 | + 4.0 |
| Spain * | 30.14 | 30.15 | + 0.01 | 50.6 | 49.9 | — 0.7 |
| Sweden | 29.79 | 29.73 | — 0.06 | 25.6 | 23.3 | — 2.3 |

* Means for six years only.

The accompanying table shows the deviations in pressure and temperature at isolated stations during the month of December, 1884, as compared with the means for seven years:

| Stations. | Mean pressure. | | | Mean temperature. | | |
|---|---|---|---|---|---|---|
| | Dec. mean of 7 (1877-'83) years. | Dec., 1884. | Departure. | Dec. mean of 7 (1877-'83) years. | Dec., 1884. | Departure. |
| | | | | ° | ° | ° |
| Astrakhan, Russia | 30.22 | 30.23 | + 0.01 | 28.6 | 37.0 | + 8.4 |
| Archangel, Russia | 29.82 | 29.86 | + 0.04 | 15.8 | 5.2 | —10.6 |
| Angra, Azores | | | | | | |
| Athens, Greece | 30.03 | 30.06 | + 0.03 | 55.0 | 59.4 | + 4.4 |
| Beirut, Turkey in Asia | 30.02 | 30.06 | + 0.04 | 64.6 | 65.7 | + 1.1 |
| Barnaul, Siberia, Asia | 30.45 | 30.39 | — 0.06 | 0.7 | 10.8 | +10.1 |
| Bridgetown, Barbadoes | | 30.05 | | | 81.4 | |
| Cape Town, Cape of Good Hope | | | | | 75.5 | |
| Cagliari, Sardinia, Italy | 29.97 | 29.95 | — 0.02 | 55.6 | 55.0 | — 0.6 |
| Ekaterinburg, Russia | 30.23 | 30.06 | — 0.17 | 8.8 | 17.1 | + 8.3 |
| Fort Napier, Natal, South Africa | 29.79 | 29.91 | + 0.12 | 76.9 | 78.7 | + 1.8 |
| Freetown, Sierra Leone | 29.89 | 29.93 | + 0.04 | 85.4 | 83.0 | — 2.4 |
| Funchal, Madeira Islands | 30.18 | | | 65.7 | | |
| Gibraltar † | 30.16 | | | 59.3 | 58.1 | — 1.2 |
| Godthaab, Greenland | 29.62 | | | 17.5 | | |
| Havana, Cuba, W. I. | 30.10 | 30.09 | — 0.01 | 70.2 | 69.8 | — 0.4 |
| Malta, Mediterranean Sea | 30.00 | 30.00 | 0.00 | 61.6 | 59.8 | — 1.8 |
| Mauritius, Indian Ocean | 29.97 | 30.00 | + 0.03 | 79.9 | 79.7 | — 0.2 |
| Melbourne, New South Wales | 29.90 | 29.77 | — 0.13 | 59.7 | 60.0 | + 0.3 |
| Mexico, Mexico † | 30.32 | 30.22 | — 0.10 | 45.4 | 45.0 | — 0.4 |
| Nassau, Bahamas, W. I. | 30.13 | 30.13 | 0.00 | 71.8 | 73.7 | + 1.9 |
| Nikolaevsk on the Amoor, Asia | | | | — 6.2 | — 2.4 | + 3.8 |
| Paramaribo, D. Guiana, S. A | 30.00 | 30.05 | + 0.05 | 79.2 | 77.4 | — 1.8 |
| Pekin, China | 30.39 | | | 25.2 | | |
| Ponta Delgada, Azores | 30.17 | 30.30 | + 0.13 | 63.0 | 60.3 | — 2.7 |
| Sandwick Manse, Orkney Islands | 29.73 | | | 38.9 | | |
| San Juan de Puerto Rico, W. I. | 30.03 | 30.06 | + 0.03 | 75.9 | 74.5 | — 1.4 |
| Stykkisholm, Iceland | 29.56 | 29.15 | — 0.41 | 27.6 | 31.6 | + 4.0 |
| Tashkend, Toorkistan, Asia | 30.36 | 30.37 | + 0.01 | 35.0 | 40.3 | + 5.3 |
| Thorshavn, Färöe Islands | 29.69 | 29.30 | — 0.39 | 39.2 | 40.5 | + 1.3 |
| Tiflis, Russia | 30.19 | 30.26 | + 0.07 | 43.3 | 46.8 | + 3.5 |
| Tokei, Japan | 30.01 | 30.05 | + 0.04 | 39.5 | 36.7 | — 2.8 |
| Yeniseisk, Siberia, Asia | 30.51 | 30.38 | — 0.13 | — 8.4 | 3.4 | +11.8 |
| York Factory, B. A | 30.04 | | | —16.5 | | |
| Zi-Ka-Wei, China | 30.37 | 30.43 | + 0.06 | 39.1 | 35.8 | — 3.3 |

† Means for six years only.

In the United States the mean temperature of the air was below normal in all districts, except those along the Atlantic coast and in the middle Pacific coast region, where it was but slightly above normal. In Europe it was mostly above the normal. In British India it was 0°.2 above the normal as determined from seven years' observations; the highest mean temperature there reported was 79°.7 Fahr. (26°.5 Cent.), at Bellary, and the lowest was 60°.2 Fahr. (15°.7 Cent.), at Allahabad.

The following are some of the extremes reported at isolated stations:

| Highest. | Fahr. | Cent. | Lowest. | Fahr. | Cent. |
|---|---|---|---|---|---|
| | ° | ° | | ° | ° |
| Freetown, Sierra Leone | 83.0 | 28.3 | Nerchinsk, Siberia | —14.1 | —25.6 |
| Bridgetown, Barbadoes | 81.4 | 27.4 | Nikolaevsk on the Amoor, Asia | — 2.4 | —19.1 |
| Paramaribo, Dutch Guiana, S. A. | 77.4 | 25.2 | Yeniseisk, Siberia | 3.4 | —15.9 |
| Puerto Berrio, S. A | 77.0 | 25.0 | Archangel, Russia | 5.2 | —14.9 |
| Manila, Philippine Islands | 75.4 | 24.1 | Barnaul, Siberia | 10.8 | 11.8 |

NOTE.—Report from York Factory, B. A., not received.

In the United States the prevailing winds were from west to northwest and north. Over the Atlantic Ocean they were westerly and northwesterly over the region north of 30° N. and from the American to the European coasts; south of 30° N. easterly winds prevailed. In Europe the winds were mostly from southwest and west.

The precipitation during December, 1884, was in excess of the average in the United States; in Europe it also exceeded the average.

TRACKS OF AREAS OF LOW PRESSURE FOR DECEMBER, 1884.

Chart iii for December, 1884, exhibits the paths of forty-two areas of low pressure which appeared in the northern hemisphere during that month. This chart continues the series of international charts begun in November, 1877, and in its preparation the following data have been used, viz.: Chart i, for each day of the month, containing the data of one simultaneous observation taken at 7 a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time; abstracts of ships' logs; special reports; and other miscellaneous data on file at this office.

Ten areas of low pressure (i to x, inclusive) are traced over the North American continent; three of these entered the continent from the Pacific Ocean and moved eastward and southeastward across the country to the west Gulf states and thence northeastward over the Lake region to the Gulf of Saint Lawrence; two originated in, and moved over, the British dominions north of the United States; one passed from Texas northeastward over the southern part of the United States, and entered the Atlantic from the coast of Delaware; and the remaining disturbances developed over the region south of the Lakes, their general direction of movement being northeasterly. These disturbances, for the most part, were accompanied by abundant precipitation, in the form of rain and snow, and by dangerously high winds, which caused considerable damage to shipping and other property. Detailed descriptions of the same will be found under "Areas of low barometer" in the MONTHLY WEATHER REVIEW for December, 1884.

Thirteen areas of low pressure (xi to xxiii, inclusive) are shown over the north Atlantic Ocean; of this number, only two (xv and xx) appear to have been continuations of storms which had previously traversed the American continent. Three (numbers xi, xvi, and xviii) developed in the vicinity of Nova Scotia and the Banks of Newfoundland, and one (number xiii) over the ocean between Bermuda and the coast of the Carolinas. Three areas of low pressure (xii, xix, and xxii) appeared in the neighborhood of Iceland; one (xxi) apparently developed near the Madeira Islands, whence it moved in an east-northeasterly direction to southeastern Spain, where its course changed to the northward and westward, and the low area passed into the Bay of Biscay. The remaining disturbances (numbers xiv, xvii, and xxiii) are shown over the ocean between W. 30° and the British coasts; the path of the last-mentioned was decidedly abnormal, the low area having apparently moved from southeast to northwest during the last three days of the month, this abnormal movement being probably caused by the advance of an extensive area of high pressure, 30.6 (777.2) to 31.0 (787.4), which, during the above dates, had moved from southeastern Russia northwestward to northern Scandinavia. The general direction of movement of the areas of low pressure which traversed the Atlantic during December, 1884, was northeasterly, until they arrived off the northwestern coast of Scotland, when the course changed to east or slightly south of east. During the first and second decades of December, 1884, the weather over the north Atlantic Ocean was of an unsettled and stormy character. The depressions were generally deep, and exhibited much storm-energy; especially was this the case in the disturbances which appeared in the vicinity of Iceland and the northern part of the British Isles, the pressure near the centres of disturbances ranging from 28.2 (716.3) to 29.0 (736.6), and but seldom reaching the latter value. During the last decade the weather became more settled, and an area of high barometer occupied mid-ocean and extended northward to, and occasionally beyond, the fifty-fifth parallel. Towards the close of the period, however, the pressure again gave way on the formation of the low areas charted as numbers xxii and xxiii. Under "North Atlantic storms" in the MONTHLY WEATHER REVIEW for December, 1884, will be found data referring to the weather conditions over the Atlantic.

Of the eleven areas of low pressure traced over the British Isles and Europe, seven appeared in the northern districts of the continent during the first and second decades of the month, while areas of high pressure occupied, generally, the southern districts. The remaining low areas appeared in the southern districts during the last decade, while the high pressures, during that period, were transferred to the northern districts. The depressions in the north were mostly deep, the pressure rarely exceeding 29.3 (744.2), and frequently falling below 29.0 (736.6). They were attended by strong gales on the coasts and in the North Sea, causing numerous marine disasters, and also damage to property at inland stations. The area of low pressure traced as number xxxiii was the most severe of the month in Europe, and is noteworthy on account of its somewhat unusual track. It appeared on the 18th and 19th as a deep depression, with pressure near the centre less than 28.9 (734.0), then covering the northern part of the British Isles and the North Sea. By the 20th it had moved southward over the North Sea and was central near the coast of the Netherlands, with barometer down to 28.65 (727.7). By the following day it had reached the Italian Peninsula, where the pressure was 29.05 (737.9), and it continued over the basin of the Mediterranean until the 25th.

Eight areas of low pressure are traced over Japan and the Pacific Ocean; four of these traversed the northern part of Japan, and caused unsettled weather in that region; at stations in Japan the barometer did not fall below 29.5 (749,3). Three low areas occupied the Aleutian Archipelago and Alaska, and were apparently of great extent, covering the ocean southward as far as the thirtieth parallel; in these disturbances the atmospheric pressure ranged from 28.8 (731.5) to 29.4 (746.7). Number xl was a low area which appeared off the California coast from the 21st to 27th, with pressure ranging from 29.4 (746.7) to 29.6 (751.8).

TRACKS OF AREAS OF LOW PRESSURE FOR FEBRUARY, 1883.

Chart iii for February, 1883, shows the approximate paths of thirty-six areas of low pressure that appeared in the northern hemisphere during that month. Of this number, nine (i to ix, inclusive) are traced in the North American continent; thirteen (x to xxii, inclusive) over the Atlantic Ocean and in Greenland; five (xxiii to xxvii, inclusive) in Europe, or near the coasts of that continent, and the remaining nine (xxviii to xxxvi, inclusive) are traced over the Pacific Ocean.

Of the areas of low pressure traced in the North American continent, four (numbers iii, iv, vii, and ix) advanced from the British Northwest Territories toward the Lake region and thence eastward, passing into the Atlantic from the coasts of New England and Nova Scotia. One area (v) first appeared off the Alaskan coast and moved southeastward along the western coasts of the continent for three days, when it passed into California and moved eastward and southward across the country to Nebraska; its course then changed to northeasterly, and the disturbance moved over the Lakes and northern Canada to Greenland. Number viii appears to have developed near the Rio Grande, whence it passed northeastward over the country to the Lakes and the Gulf of Saint Lawrence. One disturbance (number i) occupied the southwestern districts, and the remaining two (ii and vi) are shown to the southward and westward of the Lake region. The more important of the above disturbances were numbers v and vii, the former being most violent on the Pacific coast, and the latter during its progress northeastward after leaving Texas. Many of the depressions were attended by abundant precipitation, frequently in the form of snow, and by strong winds to moderate gales. Descriptions of the areas of low pressure traced in the United

States will be found under "Areas of low pressure" in the MONTHLY WEATHER REVIEW for February, 1883.

Of the depressions traced over the Atlantic Ocean and in Greenland, five, viz., numbers xiii, xiv, xvi, xvii, and xxi, were continuations of low areas which had previously moved over the United States and Canada. One (x) appeared over the Gulf of Saint Lawrence, and one (xviii) to the southward of Nova Scotia; one (xi) was a continuation of a severe storm which occupied mid-ocean at the close of January, and one (xv) was first shown near N. 50°, W. 30°. The remaining low areas (numbers xii, xix, xx, and xxii) occupied Greenland and Iceland. Many of the above were cyclones of great extent, and were attended by furious gales, in which the wind-squalls were frequently reported as having attained the force of a hurricane. The most noteworthy of the cyclones of February, 1883, was number xvi, which, as regards depth and intensity, may be ranked as one of the most remarkable storms on record. On the 13th and 14th the barometer fell to the phenomenally low values of 27.72 (704.1), in N. 46°, W. 31°, on the first-mentioned date, and to 27.5 (698.5), in about N. 55°, W 24°, on the last-mentioned, while the attendant gales and stormy weather extended southward to the thirty-fifth parallel. The general direction of movement of the storm-centres was northeasterly, until they reached the thirtieth meridian, after which the direction of movement appears to have been materially affected by the distribution of pressure over northern and central Europe. On reaching the meridian mentioned, the storm-centres were forced to the northward and westward, and, in consequence of the steep barometric gradients which formed over the British Isles and western Europe, those districts experienced strong gales and generally unsettled and stormy weather during the first and second decades of the month. During the last decade of the month the area of maximum pressures occupied the southwestern districts of Europe and stretched westward to, and beyond, the Azores, while the region of low pressures now appeared in the northern and eastern parts of Europe. Over the ocean the most stormy period of the month was that from the 1st to about the 25th, and during that time the pressure over the ocean north of the fifty-fifth parallel remained almost constantly low, the barometer rarely exceeding 29.0 (736.0) throughout the entire period. Descriptions of the more important of the Atlantic storms, with special observations, will be found under "North Atlantic storms" in the MONTHLY WEATHER REVIEW for February, 1883.

The areas of low pressure which appeared in Europe were few in number, and of slight importance. Those areas, however, which entered the continent from the Atlantic were quite severe. Number xi passed northeastward over the British Isles and the North Sea to southern Scandinavia, and thence eastward and southeastward over Russia. During its passage over the British Isles and North Sea the barometer fell below 29.0 (736.0), but on reaching the Baltic the pressure increased to 29.8 (756.9); during the early part of its passage it was attended by heavy rains and strong gales. The next important low areas were those which appeared in northern Scandinavia from the 24th until the close of the month; the course was to the south of east, and the barometric pressures ranged from 28.9 (734.0) to 29.2 (741.7).

Four of the areas of low pressure traced over the Pacific Ocean appear to have passed northeastward near the eastern coast of Niphon; two appeared in the Sea of Okhotsk; one between the parallels of 30° and 40° N., and the meridians of 160° and 170° E; and the remaining low areas are traced over the ocean to the southeastward of the Alaska Peninsula. During the first twelve days of the month the atmospheric pressure over Alaska and over the Pacific ocean, from 180° eastward to W. 140°, was high, the barometer reading 31.21 (792.7), at Fort Saint Michael's, on the 11th. During the above period the pressure over the Pacific, between E. 155° and E. 175°, was comparatively low. On the 16th an area of low pressure (xxxiii), in which the barometer ranged from 29.15 (740.4) to 29.3 (744.2), appeared near N. 40°, W. 150°. It moved northward, with increasing pressure, and disappeared on the 20th, but was succeeded, three days later, by another low area, which remained in the vicinity of the Alaska Peninsula until the 26th.

## SPECIAL NOTES.

### DAILY BULLETIN.

On and after July 1, 1884, the DAILY BULLETIN OF SIMULTANEOUS METEOROLOGICAL OBSERVATIONS will be discontinued. The daily chart accompanying this bulletin, or international chart No. i, will continue to be issued as heretofore, but on an enlarged scale, and will contain data referring to pressure (at sea-level), temperature, wind-direction, and state of weather for each day at all reporting stations in the northern hemisphere, and over the northern portions of the Atlantic and Pacific Oceans, as heretofore published in the DAILY BULLETIN.

The observations are taken at 7 h. 0 m., a. m., Washington, or 0 h. 8 m., p. m., Greenwich, mean time, except at the following stations, viz.: Arlon, Belgium, at 1 p. m., local time, or 28 minutes late; Upernavik, Greenland, at 8 a. m., local time, or 24 minutes early; Ivigtut, Greenland, at 8 a. m., or 56 minutes early; Brono, Norway, at 2 p. m., or 68 minutes late.

All data referring to force, velocity, or pressure (in pounds per square foot) of the wind, are reduced to the scale of 0-10, and the approximate value is indicated by the number of feathers on the arrow (see below). The state of the weather is indicated by the following symbols:

○ clear; ◔ fair; ◑ cloudy; ● precipitation (rain, snow, hail, sleet).

### INTERNATIONAL CHARTS.

International chart i shows the atmospheric pressure at sea-level in English inches, the isobars being drawn for every two-tenths of an inch; temperature (by figures only) in degrees Fahrenheit.

Arrows show direction of, and fly with, the wind; force is shown as follows:

| SYMBOLS. | FORCE. | VELOCITY. | |
|---|---|---|---|
| | | MILES PER HOUR. | METRES PER SECOND. |
| ○ | 0 | 0 | 0 |
| → | 1, 2 | 0 to 9 | 0 to 4 |
| → | 3, 4 | 9.1 to 22.5 | 4.1 to 10.1 |
| → | 5, 6 | 22.6 to 40.5 | 10.1 to 18.1 |
| → | 7, 8 | 40.6 to 67.5 | 18.1 to 30.2 |
| → | 9, 10 | 67.6 up. | 30.2 and over. |

International chart ii (monthly mean chart) shows the mean pressure at sea-level in English inches; the mean temperature in degrees, Fahrenheit; the mean force and prevailing direction of the wind, as determined from observations taken at 7 a. m., Washington mean time.

International chart iii shows the tracks of centres of low barometer. The Arabic numerals show the location of the centres of low barometer at 7 a. m., Washington mean time of that date.

In the above charts, broken lines indicate that the lines so drawn are doubtful.

### MONTHLY SUMMARY OF INTERNATIONAL SIMULTANEOUS METEOROLOGICAL OBSERVATIONS.

The positions of stations (latitude and longitude) are obtained from Keith Johnson's "Index Geographicus," except where more exact information is furnished. The elevations of stations are obtained either from the annual, semi-annual, and monthly publications of the various meteorological bureaus here represented, or from the original forms upon which are entered the daily observations. In the United States series the elevations are computed from the latest surveys, and are carefully revised each month, in order to note any change in the elevation of the barometer-cistern at any station. It is believed for the most part that, throughout the European and other series, the elevations as given represent the height of the barometer-cistern above sea-level; at least this should be the case. The local time, where omitted or not given correctly in the original, is carefully computed at this office. A letter placed opposite the name of a station, or some portion of the data credited thereto, indicates that a certain number of observations are missing, corresponding to the relative position in the English alphabet of the letter so used.

At Hobart Town, Tasmania, the observations are taken at 9 p. m. instead of at 9.57 p. m.

At Astrakhan, Ashurada, and Baku the barometer-cisterns are below sea-level.

On and after July 1, 1884, all stations in the United States series will be grouped by states and territories under each district, in the following order:

NEW ENGLAND: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

MIDDLE ATLANTIC STATES: New York, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia.

SOUTH ATLANTIC STATES: North Carolina, South Carolina, Georgia, Florida.

EASTERN GULF STATES: Georgia, Florida, Alabama, Mississippi, Louisiana.

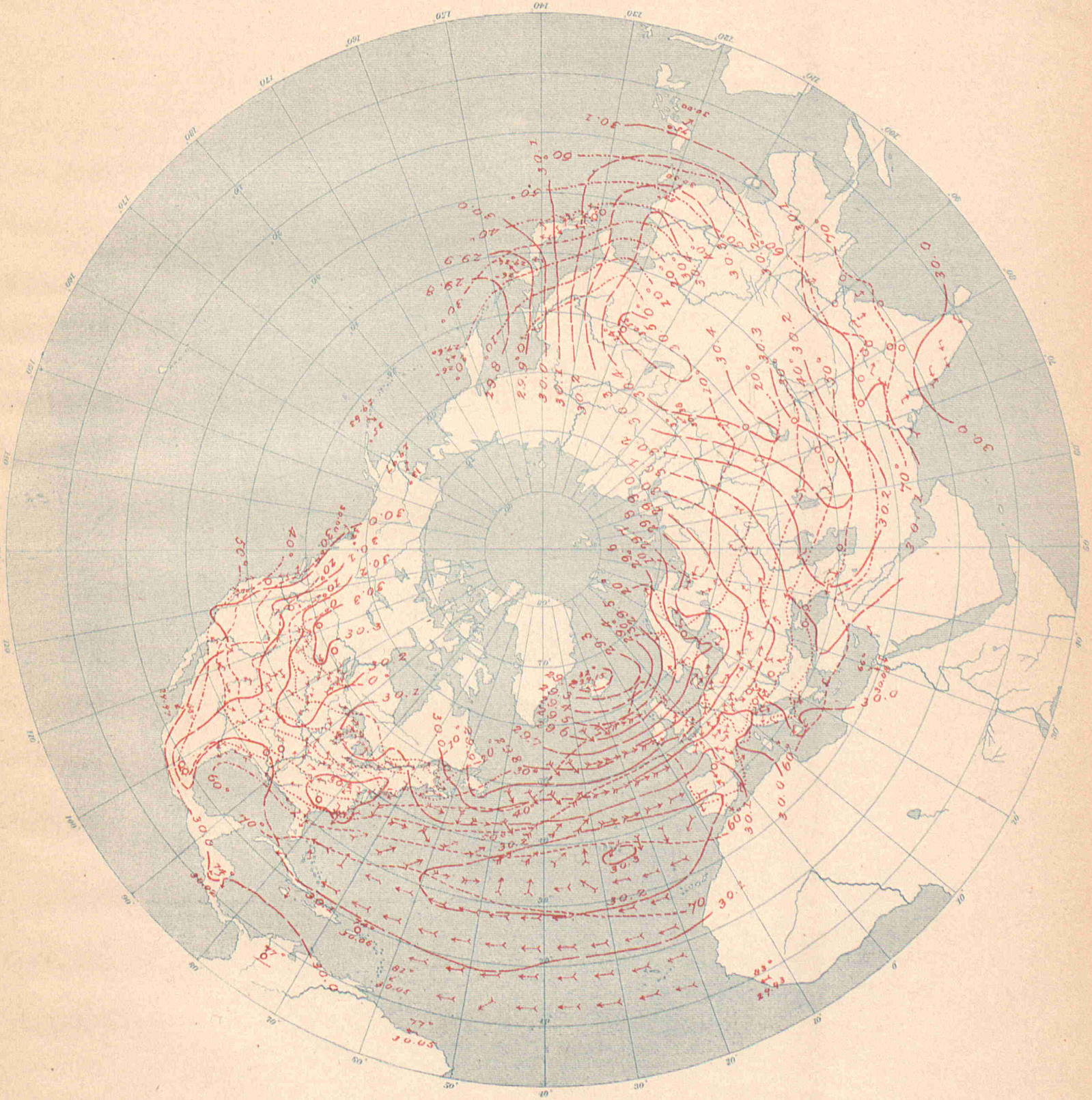
WESTERN GULF STATES: Louisiana, Arkansas, Indian Territory, Texas.
RIO GRANDE VALLEY: Texas.
OHIO VALLEY AND TENNESSEE: Tennessee, Kentucky, Illinois, Indiana, Ohio, West Virginia, Pennsylvania.
LOWER LAKES: New York, Pennsylvania, Ohio, Michigan.
UPPER LAKES: Michigan, Indiana, Illinois, Wisconsin, Minnesota.
UPPER MISSISSIPPI VALLEY: Minnesota, Wisconsin, Iowa, Illinois, Missouri.
MISSOURI VALLEY: Missouri, Kansas, Nebraska, Iowa, Dakota.
EXTREME NORTHWEST: Minnesota, Dakota.
NORTHERN SLOPE: Montana, Dakota, Wyoming, Nebraska.
MIDDLE SLOPE: Nebraska, Colorado, Kansas, Indian Territory, Texas, New Mexico.
SOUTHERN SLOPE: Indian Territory, Texas, New Mexico.
SOUTHERN PLATEAU: New Mexico, Arizona, California, Nevada.
MIDDLE PLATEAU: California, Nevada, Utah, Colorado, Wyoming.
NORTHERN PLATEAU: Wyoming, Montana, Idaho, Oregon, Washington.
NORTH PACIFIC COAST: Washington, Oregon.
MIDDLE PACIFIC COAST: California.
SOUTH PACIFIC COAST: California.

OCEAN SQUARES.—The table of ocean square data shows (1) the location of the centres of squares whose sides extend 5° each in latitude and longitude, (2) the monthly mean pressure and temperature of the air, and the mean force and total frequency of the wind at 7 a. m., Washington time, computed for the centre of each square from daily readings as obtained by interpolation between the isobars and isotherms of the daily international simultaneous weather maps.

PUBLISHED BY ORDER OF THE SECRETARY OF WAR.

W. B. HAZEN,
*Brig. & Bvt. Maj. Gen'l,*
*Chief Signal Officer, U. S. A.*

# International Chart II. December, 1884. Isobars, Isotherms, and Winds.

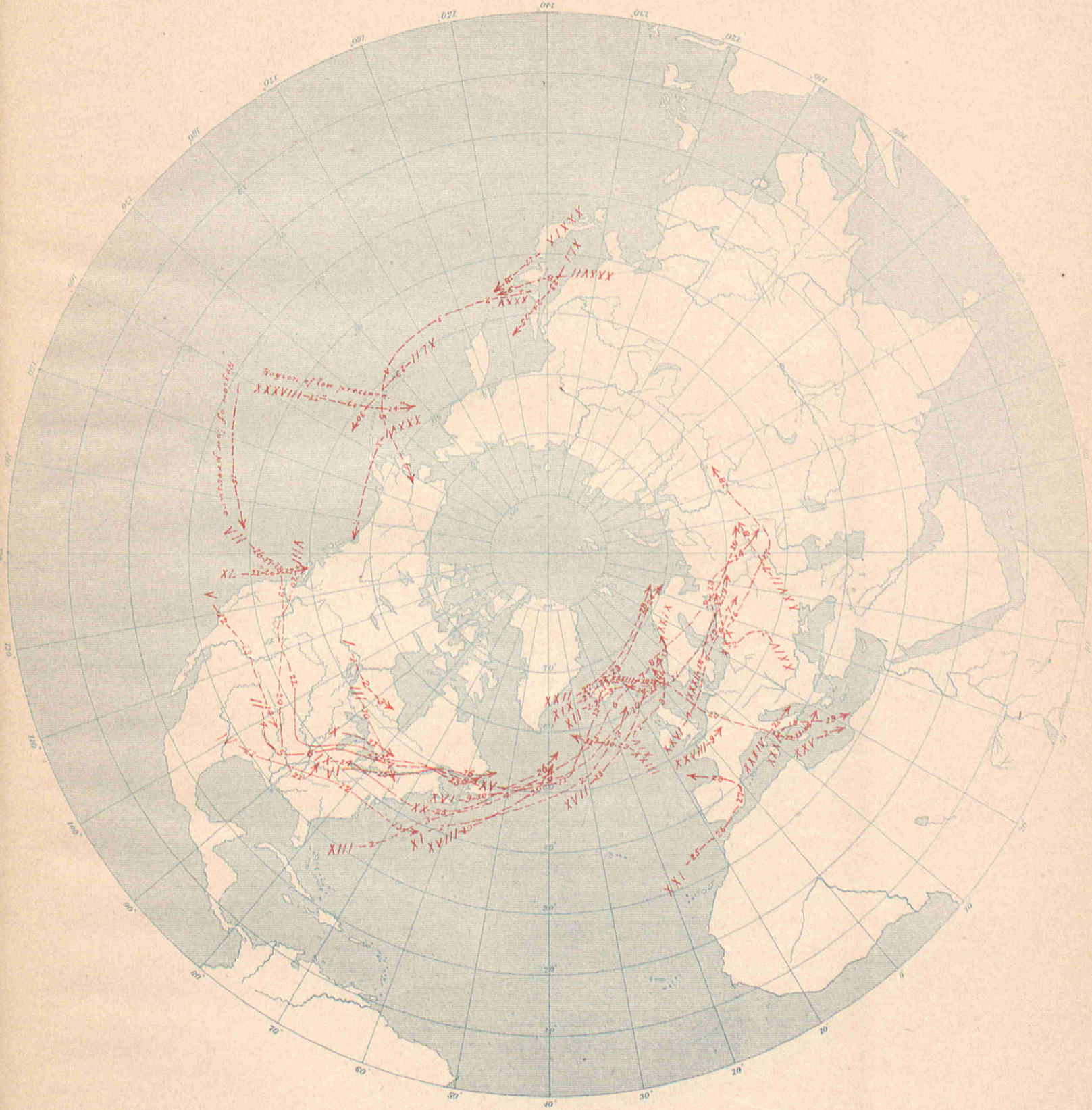


UNITED STATES OF AMERICA.

By Order of the Secretary of War:
W.B. Hazen, Chief Signal Officer.

Signal Office 14th.

# International Chart III. December, 1884. Tracks of Areas of Low Pressure.

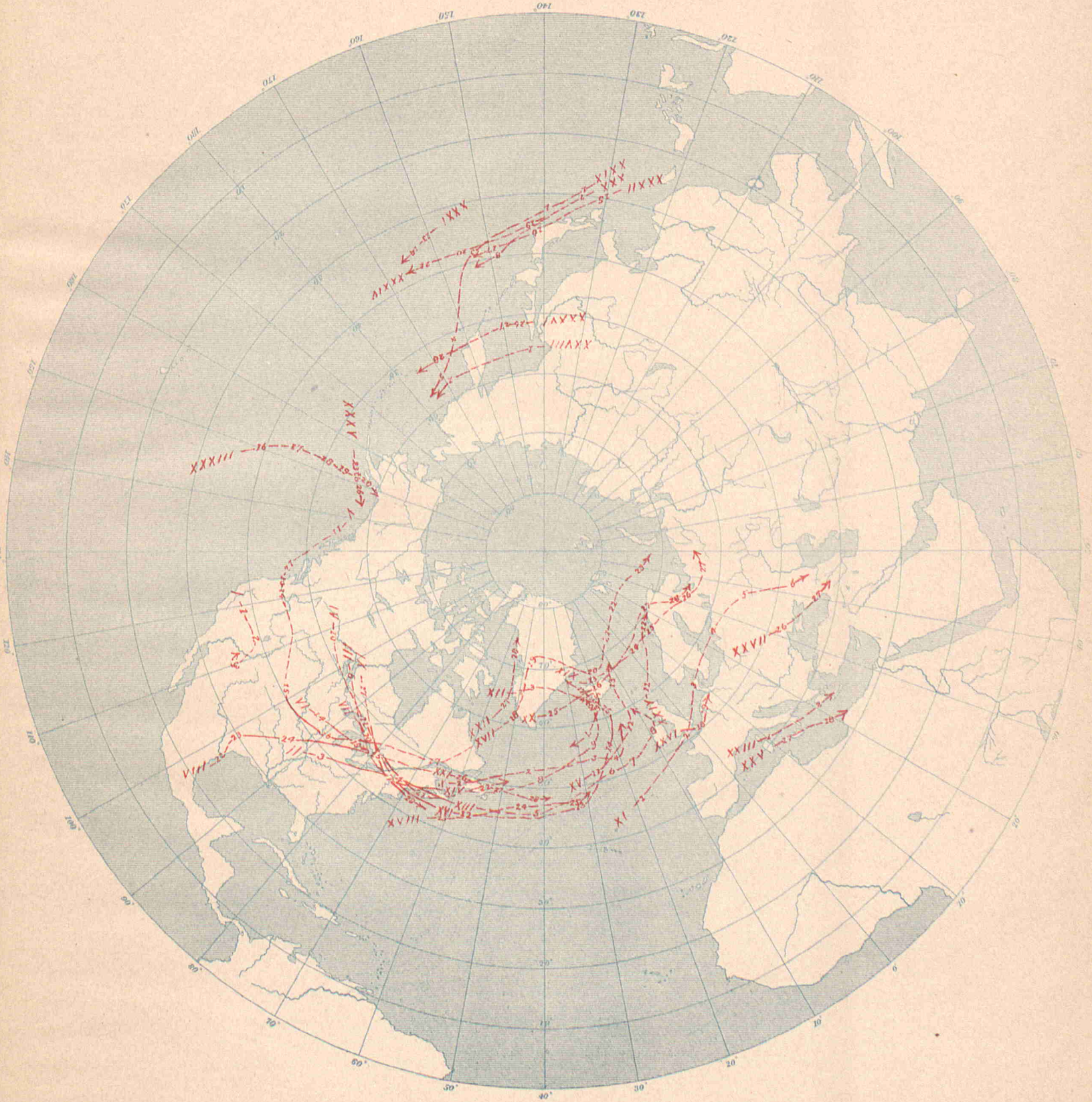


UNITED STATES OF AMERICA.

By Order of the Secretary of War.
W.B.Hazen, Chief Signal Officer.

Signal Office Lith.

# International Chart III. February, 1883. Tracks of Areas of Low Pressure.



UNITED STATES OF AMERICA.

By Order of the Secretary of War:
W.B.Hazen, Chief Signal Officer.

Signal Office 1ath.