

coast south of west to southern Missouri, northern Oklahoma, and northern New Mexico, thence to central and northwestern Nevada, and thence over central Oregon and central Washington. The minimum temperature was highest, 59, at Key West, Fla., and the minimum values were 40 to 45 over the Florida Peninsula. At Port Eads, La., a reading of 49 was recorded, and at San Diego, Cal., the lowest temperature of the month, 40, was registered on the 20th.

LIMITS OF FREEZING WEATHER.

The southern limit of freezing weather is shown on Chart V by a line traced from Southport, N. C., over the central parts of the east Gulf states, southern Mississippi, central Louisiana, and thence inside the Texas coast line to the Rio Grande River. The western limit of freezing weather is traced from the Pacific coast in about latitude north 39°, southeastward inside the coast line to about the 35th parallel, thence eastward over southern California, and thence southward to Yuma, Ariz.

In the preceding month the line of freezing weather crossed the Florida Peninsula south of Titusville and Tampa, and was traced just inside the west Gulf coast line. On the Pacific coast the limit of freezing weather was about 3° farther north in January, 1893.

RANGES OF TEMPERATURE.

The greatest daily range of temperature is shown in the table of miscellaneous meteorological data. The greatest monthly range of temperature, 93, occurred at Miles City, Mont. From Montana the monthly ranges decreased eastward to less than 50 on the immediate south New England and middle Atlantic coasts, and to less than 40 at points on the south Atlantic coast, southeastward to less than 30 over extreme southern Florida and extreme southern Louisiana, southward to less than 50 over the southern plateau region, and westward to less than 30 along the immediate middle Pacific coast.

COLD WAVES.

The month opened with temperature 40 to 45 below zero in Montana and North Dakota, and zero temperature to northern Missouri. During the 1st the temperature fell 50 in the Southwest and 40 over Lake Superior, the line of zero temperature reached southern Kansas, and the evening temperature at Abilene, Tex., was 12. By the morning of the 2d the temperature had fallen 30 to 40 over the interior of Texas, 20 to 30 over the eastern lake region, and a reading of -2 was reported at Dodge City, Kans. The evening of the 2d a slight fall in

temperature was shown over the middle Atlantic and New England states. By the morning of the 3d a temperature fall of 20 to 30 was noted over Maine, and a reading of -2 was recorded at Eastport.

A cold wave advanced from the upper Missouri valley to the Atlantic coast from the 2d to the 4th, attended by a fall in temperature of 20 to 30 in the upper Mississippi and Ohio valleys, the Lake region, and the Atlantic coast states from southern New England to the Carolinas. A cold wave of marked severity advanced from the middle-eastern slope of the Rocky Mountains to the Atlantic coast from the 5th to the 8th, with a temperature fall of 40 to 50 in the middle Mississippi and lower Missouri valleys, a fall of 20 to 30 in the Ohio Valley and the east Gulf and Atlantic coast states, zero temperature to southern Missouri, and freezing weather south of San Antonio, Tex.

A moderate cold wave overspread the middle Mississippi valley and the region north of Lake Superior on the 10th, and reached the east Gulf and south Atlantic states and Quebec during the 11th. A cold wave appeared over the middle Missouri valley on the 13th, and overspread the central valleys as a moderate cold wave during the 14th and 15th. The morning of the 16th a fall in temperature of 20 to 30 was shown in the region north of Lake Superior; by the evening report of the 16th the cold wave had extended over northern Ontario and northern New England; and on the 17th a temperature fall of 20 to 30 occurred along the middle Atlantic coast.

A cold wave advanced from the region north of Lake Superior to the middle Atlantic and New England coasts from the 19th to the 21st, attended by a fall in temperature of about 20. From the 26th to the 28th a cold wave advanced from the northeast slope of the Rocky Mountains over the central valleys, with a temperature fall of 20 to 30 in the Western and Southwestern States, and a fall of 10 to 20 from eastern Texas to the western lake region.

FROST.

Frost was reported at points in the interior of the Florida Peninsula as far south as Jupiter on the 23d; at Mobile, Ala., on the 20th and 23d; in southern Louisiana on the 8th and 13th; in the vicinity of Corpus Christi, Tex., on the 8th; and at San Antonio, Tex., on the 7th and 8th. At Bakersfield, Kern county, Cal., frost was noted on the 2d, 6th, 14th to 18th, 24th, 27th, and 28th; at Fresno, Cal., on the 14th, 16th, 18th, 24th, 27th, and 28th; and at San Francisco, Cal., on the 15th.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for February, 1893, as determined from reports of more than 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

In February the normal precipitation is usually greatest on the extreme north Pacific coast, where it exceeds 11.00 at Neah Bay, Wash. In areas on the immediate Pacific coast north of the 42d parallel, and along the line of the Central Pacific Railroad crossing the summit of the Sierra Nevada

Mountains in California, the average precipitation for February exceeds 8.00, and it is 4.00 to 6.00 generally along the Pacific coast and in the central valleys of California north of the 38th parallel. In an area extending southward over central Utah and in the mountains of Colorado the normal amount is 2.00 to 4.00.

East of the Rocky Mountains the greatest precipitation for February is generally noted over a great part of the Gulf states east of the 95th meridian, and in parts of southern Tennessee, where it exceeds 6.00, and the normal amount exceeds 4.00 in the Gulf States, Kentucky, Tennessee, the interior of the south Atlantic states, over the southwest and northern parts of the Florida Peninsula, and along the Atlantic coast from North Carolina to the Gulf of Saint Lawrence.

Over the greater part of the Rocky Mountain and plateau region the February precipitation is usually less than 1.00 and in large areas in that district it is less than 0.50. The average amount is less than 2.00 from Lake Superior westward

and southwestward to the eastern Rocky Mountain slope, and thence southward to the Rio Grande River.

In February, 1893, the monthly precipitation exceeded 10.00 along the immediate Oregon and Washington coasts. 10.00, or more, was also reported at Edmanton, in the Sierra Nevada Mountains, California, and at points in northeastern Alabama, southeastern Tennessee, and extreme western North Carolina. At stations on the middle and northern California coasts, in eastern California between the 38th and 41st parallels, in areas covering east-central Mississippi, central Alabama, southeastern Tennessee, and northern Georgia, and at points in central and southeastern New England and southeastern New York the monthly amount exceeded 8.00.

In the Atlantic coast states from southern New Hampshire and southern Vermont to the northern part of the Florida Peninsula, from the southern lake region to the middle and east Gulf coasts, and in the mountains of Colorado, the precipitation exceeded 4.00, and in central and southern New England, southeastern New York, northeastern Pennsylvania, in an area extending from southern Virginia and the interior of North Carolina over interior and northern parts of the south Atlantic and east Gulf states, in a strip extending from Jacksonville, Fla., southwestward over the Florida Peninsula, and at Corpus Christi, Tex., the monthly amount exceeded 6.00.

From the Rocky Mountains to about the 95th meridian, over the southern plateau, and in an area extending from central Nevada and northwestern Utah over a part of eastern and central Oregon the precipitation was generally less than 1.00, and over the west part of the southern plateau region it was less than 0.25.

DEPARTURE FROM NORMAL PRECIPITATION.

The monthly precipitation was in excess of the normal amount in the middle and upper Ohio valleys and the eastern lake region, in the Atlantic coast states, except along the immediate Carolina coast, in an area extending from Minnesota and Wisconsin over the middle and southern plateau regions, and on the north Pacific coast. The monthly precipitation was less than the February average over the Canadian Maritime Provinces, the lower Saint Lawrence valley, in an area extending from northern Lower Michigan over the Mississippi Valley and the Southwest, along the middle and south Atlantic coasts, and in an area extending from northern California over eastern Oregon, central Idaho, Montana, and North Dakota. The greatest excess in monthly precipitation was noted on the north Pacific coast near the mouth of the Columbia River, where it was 4.00 to 5.00; at Columbus, Ohio, Jacksonville, Fla., and Charlotte, N. C., the precipitation was 3.00 to 4.00 greater than the normal amount for February. The most marked deficiency was reported in northwestern Louisiana and east-central Texas, where the monthly precipitation was 2.00 to 3.00 less than the normal amount.

Considered by districts the average percentage of the normal in districts where the monthly precipitation was in excess was about as follows: middle plateau region, 177; northern plateau region, 139; middle Atlantic states, 138; north Pacific coast, 136; New England and the Ohio Valley and Tennessee, 135; lower lake region, 133; south Atlantic states, 124. In districts where the precipitation was deficient the percentage of the normal was about as follows: south Pacific coast, 48; Key West, Fla., 54; west Gulf states, 63; extreme northwest and middle-eastern slope of the Rocky Mountains, 83; middle Pacific coast, 84. In the east Gulf states, the upper Mississippi and Missouri valleys, the upper lake region, on the northeast and southeast slopes of the Rocky Mountains, and over the middle plateau region the monthly precipitation averaged about normal.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for February for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for February, 1893; (4) the departure of the current month from the average; (5) and the extremes for February during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of Feb.	(2) Length of record.	(3) Total for Feb., 1893.	(4) Departure from average.	(5) Extremes for February.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
<i>Arizona.</i>	<i>Inches.</i>	<i>Years.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Year.</i>	<i>Year.</i>
Fort Apache	1.94	17	1.10	- 0.84	4.10	1891	0.89	1889
Fort Mohave	0.95	21	T.	- 0.95	5.00	1874	0.00	*
Whipple Barracks	1.91	21	0.47	- 1.44	6.55	1884	0.01	1876
<i>Arkansas.</i>								
Keesees Ferry	4.47	11	4.20	- 0.27	10.93	1884	1.24	1892
<i>California.</i>								
Fort Bidwell	2.37	22	2.92	+ 0.55	6.00	1881	0.00	1879
Riverside	2.62	12	1.84	- 0.78	7.94	1884	0.00	1885
<i>Colorado.</i>								
Las Animas	0.28	11	0.10	- 0.18	0.59	1888	0.00	1891
<i>Florida.</i>								
Merritts Island	2.70	15	4.23	+ 1.53	6.01	1888	0.15	1882
<i>Georgia.</i>								
Forsyth	4.59	19	7.65	+ 3.06	8.11	1891	1.19	1879
<i>Idaho.</i>								
Boise Barracks	1.69	19	1.79	+ 0.10	6.49	1872	T.	1889
Fort Sherman	2.11	10	4.25	+ 2.14	5.81	1890	0.42	1889
<i>Indiana.</i>								
Lafayette	3.18	13	4.84	+ 1.66	7.43	1883	1.20	1889
<i>Indian Territory.</i>								
Fort Supply	0.85	14	0.62	- 0.23	3.06	1874	0.00	1887
<i>Iowa.</i>								
Cresco	1.01	21	1.23	+ 0.22	1.88	1887	0.07	1877
<i>Kansas.</i>								
Independence	2.23	21	0.54	- 1.69	7.04	1881	0.25	1872
Salina	0.70	10	0.13	- 0.57	2.01	1892	T.	1891
<i>Louisiana.</i>								
Grand Coteau	3.39	10	2.03	- 1.36	8.42	1891	1.37	1886
<i>Maine.</i>								
Orono	4.01	23	.....	.....	8.39	1876	1.20	1877
<i>Maryland.</i>								
Cumberland	2.59	20	3.58	+ 0.99	4.92	1882	0.60	1877
<i>Michigan.</i>								
Kalamazoo	2.66	17	2.35	- 0.31	5.44	1881	0.12	1877
<i>Missouri.</i>								
Sedalia	2.71	14	1.63	- 1.08	6.42	1892	0.65	1879
<i>Montana.</i>								
Fort Custer	0.46	13	0.72	+ 0.26	1.29	1885	0.02	1882
<i>Nebraska.</i>								
Fort Robinson	0.62	9	0.26	- 0.36	1.12	1885	0.19	1892
Genoa (near)	0.81	17	1.03	+ 0.22	2.55	1891	0.10	1889
<i>Nevada.</i>								
Browns	0.56	22	0.88	+ 0.32	2.05	1872	0.00	1882, 1889
Carson City	1.35	16	2.42	+ 1.07	4.18	1891	0.08	1877
<i>New Hampshire.</i>								
Hanover	2.33	21	6.43	+ 4.10	7.67	1887	1.20	1875
<i>New Mexico.</i>								
Deming	0.46	10	0.59	+ 0.13	1.78	1888	0.00	1883, 1890
Fort Wingate	1.70	22	0.63	- 1.07	11.20	1873	0.05	1881
<i>New York.</i>								
Cooperstown	2.23	22	4.99	+ 2.76	5.21	1887	0.63	1877
Plattsburg Barracks	1.39	22	1.54	+ 0.15	2.69	1880	0.20	1888
<i>North Carolina.</i>								
Lenoir	4.28	21	5.20	+ 0.92	9.00	1873	0.60	1877
<i>Oklahoma.</i>								
Fort Reno	1.14	8	0.72	- 0.42	2.84	1889	0.13	1891
Fort Sill	1.24	21	1.17	- 0.07	3.45	1881	T.	1876
<i>Oregon.</i>								
Bandon	8.75	15	13.01	+ 4.26	17.82	1881	2.11	1892
<i>Pennsylvania.</i>								
Dyberry	2.73	22	6.58	+ 3.85	6.58	1893	0.60	1877
Grampan	3.61	21	6.77	+ 3.16	7.62	1887	1.56	1872
Wellaboro	5.40	13	6.55	+ 1.15	10.93	1884	0.95	1887
<i>South Carolina.</i>								
Statesburg	2.89	11	5.03	+ 2.14	5.47	1889	1.18	1883
<i>South Dakota.</i>								
Fort Sully	0.42	22	0.60	+ 0.18	1.50	1871	0.03	1877
<i>Texas.</i>								
Austin	2.62	21	T.	- 2.62	7.22	1888	T.	1885, 1893
Silver Falls	0.71	6	1.29	+ 0.58	2.07	1887	T.	1891
<i>Utah.</i>								
Terrace	0.34	18	1.20	+ 0.86	1.30	1881	0.00	†
<i>Vermont.</i>								
Strafford	2.83	19	5.10	+ 2.27	5.90	1887	0.30	1877
<i>Virginia.</i>								
Dale Enterprise	3.28	13	4.47	+ 1.19	9.00	1884	0.83	1882
<i>Washington.</i>								
Fort Townsend	1.85	18	3.36	+ 1.51	3.94	1879	0.37	1886
<i>West Virginia.</i>								
Parkersburg	3.81	8	3.28	- 0.53	7.42	1887	1.40	1886
<i>Wisconsin.</i>								
Embarrass	2.31	22	.....	.....	4.70	1887	0.35	1877
Madison	1.73	22	1.04	- 0.69	5.42	1881	0.30	1877
<i>Wyoming.</i>								
Fort Washakie	0.31	10	0.54	+ 0.23	1.04	1881	0.04	1882

*Frequently. †1875, 1876, 1889.

PRECIPITATION, JANUARY AND FEBRUARY, 1893.

For the period January 1 to February 28, 1893, the precipitation averaged about normal in the middle Atlantic and New England states, at Key West, Fla., in the Lake region, and on the northeast slope of the Rocky Mountains. Over the middle plateau region and in the extreme northwest the precipitation was one-fourth to one-half greater than usual. In the west Gulf states and on the middle-eastern slope of the Rocky Mountains the precipitation was about one-half, and in the south Atlantic and east Gulf states, the Ohio Valley and Tennessee, the upper Mississippi and Missouri valleys, on the southeast slope of the Rocky Mountains, over the southern and northern plateau regions, and along the Pacific coast the precipitation was seven-tenths to nine-tenths of the normal amount for the period named.

YEARS OF GREATEST PRECIPITATION FOR FEBRUARY.

At Woods Holl, Mass., New York and Albany, N. Y., Dyberry, Pa., Charlotte, N. C., Columbus, Ohio, Escanaba, Mich., Fort Stanton, N. Mex., Montrose, Colo., Spokane and Fort Canby, Wash., the precipitation for the current month was the greatest noted for February during the respective periods of observation.

In the upper Ohio valley and at Lake Erie stations the greatest precipitation for February occurred in 1887; in the middle Ohio valley, Maine, and from New Jersey southwestward over central North Carolina, on the south Pacific coast, and over the west part of the southern plateau region in 1884; in the middle Mississippi and lower Ohio valleys in 1882; from the southeast slope of the Rocky Mountains to the upper Mississippi and Red River of the North valleys, and over the northern plateau region and the west part of the middle plateau region in 1881; on the middle Pacific coast in 1878; in the lower Rio Grande valley in 1877; and along the south Atlantic coast in 1874.

YEARS OF LEAST PRECIPITATION FOR FEBRUARY.

At Shreveport, La., and Palestine, Tex., the monthly precipitation was the least ever reported for February.

Over the northern plateau region and generally on the north Pacific coast the least precipitation for February occurred in 1889; along the middle Pacific coast in 1886; along the south Pacific coast in 1885; in the lower Rio Grande valley in 1884; in southern Arizona in 1881; and in the middle and upper Mississippi valleys, the middle and lower Ohio valleys, the Lake region, New York, New England, and Virginia in 1877.

EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in February, 1893:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Oregon	5	California	1
Washington	5	North Carolina	1
Alabama	2	Tennessee	1

Precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Alabama	14	14-15, 15, 15-16, 28.	Florida	9	4, 4-5, 5, 12, 12-13, 13.
California	10	3-4, 4, 9.			

Precipitation to equal or exceed 2.50 in 24 hours—Continued.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Tennessee	8	10, 15-16, 16, 16-17, 19.	Arkansas	1	16.
Georgia	7	14-15, 27, 27-28.	Kentucky	1	13.
Louisiana	3	11-12, 14, 26.	Massachusetts ..	1	22.
Oregon	3	11.	North Carolina ..	1	12-13.
Mississippi	2	16-17, 17.	Texas	1	3.
New York	2	6-7, 21-22.	Washington	1	2-3.

Precipitation to equal or exceed 1.00 in 1 hour.

Texas	2	3, 20.	Mississippi	1	27.
Florida	2	25, 28.	Tennessee	1	16.

Table of excessive precipitation, February, 1893.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Alabama.</i>						
Demopolis	Inches.	Inches.	15-16	Inches.	h. m.	
Gadsden	2.50	3.63				
Geneva	3.05	2.95				
Greensboro	3.95	4.21				
Livingston	4.21	4.02				
Livingston b.	4.00	4.00	15-16			
Lock No. 4	3.10	11.78				
Maple Grove	2.50	4.41				
Maysville	4.41	4.00	15-16			
Newbern	4.20	4.20	15-16			
Oxanna	4.10	4.10	14-15			
Talladega	10.45	3.00	15-16			
Tuscaloosa						
Union						
Wilsonville						
<i>Arkansas.</i>						
Osceola	3.30		16			
<i>California.</i>						
Cloverdale	2.84	3.90	3			
Edmonton	13.07	2.70	9			
Fall Brook	3.90	3.30	4			
Fount Springs	3.18	3.18	9			
Glendora	3.90	2.63	3-4			
Healdsburg	2.63	4.45	9			
Independence	4.45	3.57	4			
Middletown	3.57	2.90	9			
Nevada City	2.90					
San Luis Obispo ..						
<i>Florida.</i>						
Amelia	3.00	13				
Brooksville	3.00	13				
Clermont	3.45	12-13				
Federal Point	5.53	4-5				
Green Cove Springs	3.00	4				
Jacksonville	1.05	1.00	28			
Jupiter	2.60	25	1.15	0.42	25	
Manatee	3.00	25				
Oxford	3.00	12				
Saint Francis Barracks	3.10	5				
<i>Georgia.</i>						
Albany	3.00	27				
Blakely	3.65	27-28				
Homerville	2.75	27				
Morgan	2.82	27				
Mount Vernon	2.64	28				
Rome	3.50	14-15				
Savannah	2.67	27-28				
<i>Kentucky.</i>						
Williamsburg	2.79	13				
<i>Louisiana.</i>						
Farmersville	3.00	14				
New Orleans	2.72	11-12				
Port Eads	4.05	26				
<i>Massachusetts.</i>						
Wakefield	3.05	22				
<i>Mississippi.</i>						
Aberdeen	2.50	17				
Corinth	2.90	16-17				
Meridian		1.00	1.00			27
<i>New York.</i>						
Boyd's Corners	2.60	21-22				
Eden Center	2.84	6-7				
<i>North Carolina.</i>						
Douglas	2.60	12-13				
Highlands	11.37					
<i>Oregon.</i>						
Astoria	12.42					
Bandon	13.01	2.62	11			
Cascade Locks	10.74	2.59	11			
Gardiner	19.97	3.35	11			
Glenora	13.44					
Langlois						
<i>Tennessee.</i>						
Bethel Springs	3.20	19				
Covington	3.14	16-17				

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Tennessee—Continued.</i>						
Dunlap	10.91	2.74	10			
Lynnville		5.15	16-17			
Memphis		2.81	16-17	1.15	1 00	16
Rockwood		2.53	16-17			
Savannah		2.77	16			
Waynesboro		2.65	15-16			
<i>Texas.</i>						
Corpus Christi		5.80	3	1.25	0 50	3
Mountain Springs				1.37	1 00	20
<i>Washington.</i>						
Aberdeen	10.46					
East Clallam	14.60	2.70	2-3			
Fort Canby	11.66					
Neah Bay	11.83					
Tatoosh Island	11.64					

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during February, 1893, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Maximum rainfall in one hour or less.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Atlanta, Ga.	0.10	15, 27	0.15	15	0.45	15
Bismarck, N. Dak *						
Boston, Mass *						
Buffalo, N. Y *						
Cincinnati, Ohio	0.10	14	0.15	14	0.35	14
Chicago, Ill *						
Cleveland, Ohio *						
Denver, Colo *						
Detroit, Mich *						
Dodge City, Kans *						
Duluth, Minn *						
Eastport, Me *						
Galveston, Tex	0.15	21	0.17	21	0.30	3
Indianapolis, Ind *						
Jacksonville, Fla.	0.25	28	0.45	28	1.05	28
Jupiter, Fla	0.45	25	0.75	25	1.15	25
Kansas City, Mo	0.05	27	0.08	27	0.35	27
Key West, Fla	0.05	13	0.09	13	0.18	13
Marquette, Mich *						
Memphis, Tenn	0.20	16	0.30	16	1.15	16
Milwaukee, Wis *						
New Orleans, La	0.08	11	0.11	11	0.33	26
New York, N. Y *						
Norfolk, Va	0.10	17	0.18	17	0.37	17
Philadelphia, Pa *						
Pittsburg, Pa						
Portland, Oregon *	0.02	12	0.04	12	0.14	11
Saint Louis, Mo *	0.10	14	0.12	14	0.16	14
Saint Paul, Minn *						
Salt Lake City, Utah *						
San Diego, Cal	0.01	9	0.02	9	0.10	9
San Francisco, Cal †						
Savannah, Ga	0.14	28	0.20	27	0.72	27
Tampa, Fla.						
Washington, D. C *	0.04	10	0.06	10	0.20	10
Wilmington, N. C.	0.10	13	0.14	13	0.38	13

* Record incomplete on account of snow.

† Self-register out of order.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for February during the last 23 years:

Excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
California	15	North Carolina	0
Oregon	12	Texas	0
Washington	11	Alabama	0
Tennessee	10	Indiana	0

Excessive monthly precipitation—Continued.

State.	No. years noted.	State.	No. years noted.
Mississippi	6	Utah	1
New York	5	Colorado	0
Georgia	5	The Dakotas	0
Florida	4	Delaware	0
Louisiana	4	District of Columbia	0
Arkansas	3	Idaho	0
Connecticut	3	Indian Territory	0
Kentucky	3	Iowa	0
Pennsylvania	3	Maine	0
Illinois	2	Maryland	0
Massachusetts	2	Minnesota	0
Ohio	2	Missouri	0
Rhode Island	2	Montana	0
South Carolina	2	Nebraska	0
Kansas	1	Nevada	0
Michigan	1	New Jersey	0
New Hampshire	1	Vermont	0
New Mexico	1	West Virginia	0
Virginia	1	Wisconsin	0
Arizona	1	Wyoming	0

Excessive daily precipitation (24 hours).

Texas	14	Massachusetts	3
Alabama	13	Arizona	2
Georgia	13	Iowa	2
Tennessee	13	The Dakotas	1
New York	11	Delaware	1
Arkansas	10	New Jersey	1
Louisiana	10	Rhode Island	1
North Carolina	10	South Carolina	1
Florida	9	Washington	1
Illinois	9	Colorado	0
Mississippi	8	District of Columbia	0
Oregon	7	Idaho	0
California	6	Indian Territory	0
Kentucky	6	Minnesota	0
Connecticut	5	Montana	0
Ohio	5	Nebraska	0
Indiana	4	Nevada	0
Michigan	4	New Hampshire	0
Pennsylvania	4	New Mexico	0
Kansas	3	Utah	0
Maryland	3	Vermont	0
Virginia	3	West Virginia	0
Maine	3	Wisconsin	0
Missouri	3	Wyoming	0

Excessive hourly precipitation.

State.	No. years noted.	State.	No. years noted.
Tennessee	8	Kentucky	0
Texas	4	Maine	0
Mississippi	4	Maryland	0
North Carolina	4	Massachusetts	0
California	3	Minnesota	0
Alabama	2	Missouri	0
Arkansas	2	Montana	0
Florida	2	Nebraska	0
Georgia	1	Nevada	0
Louisiana	1	New Hampshire	0
Michigan	1	New Jersey	0
Pennsylvania	1	New Mexico	0
Arizona	0	New York	0
Colorado	0	Ohio	0
Connecticut	0	Oregon	0
The Dakotas	0	Rhode Island	0
Delaware	0	South Carolina	0
District of Columbia	0	Utah	0
Idaho	0	Vermont	0
Illinois	0	Virginia	0
Indiana	0	Washington	0
Indian Territory	0	West Virginia	0
Iowa	0	Wisconsin	0
Kansas	0	Wyoming	0

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for February during the last 23 years:

Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
Boulder Creek, Cal	Inches.	1891	Felton, Cal	Inches.	1891
Cuyamaca, Cal	34.03	1891	Summit, Cal	21.69	1887
Laurel, Cal	32.20	1891	Crescent City, Cal	20.70	1891
Cisco, Cal	28.95	1891	Highlands, N. C.	20.55	1891
	22.85	1887		20.20	1891

Daily (24 hours).

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
Stonewall Mine, Cal...	23.90	21-24, 1891	Palermo, Cal.....	6.12	14-15, 1891
Cuyamaea, Cal.....	22.40	22-23, 1891	Vacaville, Cal a.....	6.10	14-15, 1891
Santa Ross Ranch, Cal.	15.33	21-23, 1891	Highlands, N. C.....	6.01	8-9, 1891
Oneida, N. Y.....	10.10	13, 1874	Mt. Vernon B'ks, Ala..	5.82	13, 1891
Emilie, La.....	8.42	12-14, 1891	Corpus Christi, Tex...	5.80	3, 1891
Maurepas, La.....	7.55	15, 1891	Monroe, La.....	5.73	12-13, 1891
Julian, Cal.....	7.48	23-24, 1891	Athens, Ga.....	5.71	7, 1891
Oakland, Cal a.....	6.65	15, 1891	Lynnville, Tenn.....	5.15	16-17, 1893
Farleys Camp, Ariz....	6.45	17-18, 1891	Los Gatos, Cal.....	5.12	14-15, 1891
Campo, Cal.....	6.40	21-22, 1891	Kosciusko, Miss.....	5.00	12-13, 1891
Luling, La.....	6.24	13-14, 1891			

One hour and less.

Station and state.	Amount.	Time.	Date.
Jupiter, Fla.....	0.45	0 05	25, 1893
Memphis, Tenn.....	0.30	0 05	6, 1892
Do.....	0.25	0 05	8, 1891
Do.....	0.58	0 10	6, 1892
Little Rock, Ark.....	0.70	0 12	6, 1892
Louisville, Miss.....	1.93	0 30	26, 1890
Galveston, Tex.....	3.31	1 00	22, 1888

SNOW.

On the 1st trains in eastern Upper Michigan, parts of eastern Kansas, and at Havre, Mont., were delayed by drifting snow. On the 2d and 3d a heavy snowstorm prevailed over Washington and Oregon and the northern lake region. During the 3d and 4th heavy snow, with high winds, prevailed over the middle lake region. On the 5th heavy snow set in over Iowa and extended over Minnesota, Wisconsin, and western Lower Michigan by the 6th. Trains on the Duluth, Red Wing, and Southern Railroad were snowbound from the 2d to the 9th. Heavy snow fell in Massachusetts on the 13th, and the storm extended over New Hampshire and western Maine by the 14th. Heavy snow was reported in northwestern Texas on the 15th and 16th.

During the 17th and 18th gales and heavy snow prevailed from southern New England to eastern Pennsylvania. A severe storm of wind and snow continued in New York, Pennsylvania, parts of Maryland, and in northern Ohio and eastern Michigan on the 19th, and heavy snow fell the night of the 19-20th in eastern Massachusetts and New Hampshire. During the 20th the storm continued in New England and along the middle Atlantic coast. On the 21st and 22d heavy snow was reported in the mountains of New Mexico. A snowstorm, with high winds, prevailed over New England, New York, and Pennsylvania on the 22d. On the 27th heavy snow, with thunderstorms, occurred in northern Iowa, and the snow area extended over Minnesota. During the 28th the snowstorm continued over northern Iowa and Minnesota, and extended over Wisconsin and Upper Michigan.

MONTHLY SNOWFALL (in inches and tenths).

Chart V shows the depth of snowfall reported for the month.

The greatest depth of snowfall reported was 99, at Edmanton, Plumas County, Cal. A depth of 90 was noted at Climax, Colo.; 78 at Monroe, Mass., and Monroe, N. H.; 76 at East Clallam, Wash.; 72 at Utica, N. Y.; 67 at Jacksonville, Vt.; 66 at Cornish, Me.; 50 to 60 over southwestern Maine, southern New Hampshire, southern Vermont, and northwestern Massachusetts, and at Dyberry, Pa., Chama, N. Mex., and Stofiel, Nev.; 40 to 50 generally over the interior of New England and eastern New York, and at Dover, N. J., Wheeler, Ohio, Bayfield, Wis., and Fort Sherman, Idaho.

In an area extending generally over New England and eastern New York and thence over northern New Jersey and eastern Pennsylvania, and in northwestern Wisconsin, the mountains of Colorado and extreme north-central New Mexico, in adjoining parts of northern Idaho and eastern Washington, and in an area extending over west-central and northwestern Washington the monthly snowfall exceeded 30.

Areas of 20, or more, of snowfall covered New England, New York, Pennsylvania, western Maryland, northeastern West Virginia, interior parts of Lower and Upper Michigan, northern Wisconsin, southeastern Minnesota, central Colorado, north-central New Mexico, the northern Rocky Mountain region, northeastern California, central and southern Oregon, and the greater part of Washington.

DEPTH OF SNOW ON GROUND ON THE 15TH AND AT THE CLOSE OF THE MONTH.

Chart VI shows the depth of snow reported on the ground on the 15th. At points in the mountains of Colorado a depth of 70 was reported. In the northern Rocky Mountain region, in an area covering western Upper Michigan and north-central Wisconsin, and at stations in northeastern California, central Washington, northern Lower Michigan, and eastern Upper Michigan the depth was 30, or more. At stations in the interior of New England north of Connecticut, over interior and northern parts of Wisconsin and Minnesota, and in northeastern North Dakota 20, or more, were reported. The area of 10, or more, covered the greater part of the interior of New England and eastern New York, Upper and Lower Michigan, Wisconsin, Minnesota, northeastern Iowa, northeastern South Dakota, eastern and northern North Dakota, northeastern Montana, north-central and south-central Colorado, northeastern California, and the interior of Washington. A depth of 10, or more, was also noted from the northern Rocky Mountains over the central part of the middle plateau region.

Chart VII shows the depth of snow reported on the ground at the close of the month. A depth of 70 to 80 was reported at points in the mountains of Colorado; 40, or more, at stations in the interior of New England, and in an area covering north-central Wisconsin and western Upper Michigan; 30 to 40 generally in central and west-central New England, northwestern Wisconsin, southeastern Minnesota, the northern Rocky Mountain region, and at points in northeastern California; 20, or more, over the greater part of New England, central and eastern New York, Upper Michigan, the northern half of Lower Michigan, northern Wisconsin, Minnesota, in northeastern North Dakota, from the northern Rocky Mountain region to north-central Utah, and at points in central Washington. The area of 10, or more, reached southeastern Pennsylvania and western Maryland, southern Lower Michigan, southern Wisconsin, central Iowa, northeastern South Dakota, eastern and northern North Dakota, and covered the middle and northern Rocky Mountain regions, northern and central Utah, and northeastern Nevada.

Monthly snowfall of 10 inches, or more, was reported as follows, and in states and territories where the maximum depth was below that amount the station reporting the greatest is given:

Arizona.—Teviston and Wood Canyon, 14; Chiricahua Mountains, 13; Dragoon Summit, 12; Wilgus, 10. Arkansas.—Corning, 5.5. California.—Edmanton, 99; Cisco, 85; Boca, 79; Templeton, 75; Emigrant Gap, 54; Dunsmuir, 48; Susanville, 35; Sisson, 28; Fort Bidwell, 24.5; Shasta, 24; Truckee, 22; Sims, 20; Delta, 19.

Colorado.—Climax, 90; Breckenridge, 84.5; Cumbres, 70; Dillon, 48; Pikes Peak, 43.3; Rico, 42.5; Stamford, 42; Red Cliff, 40.6; Steamboat Springs, 39; Collbran, 37.9; Pagoda (near), 34; Ward District, 32; Moraine, 29; Gold Hill,

25.5; Greenhorn, 24; Lavender, 22; Lay, 21.5; Paonia and Smoky Hill Mine, 21; Alma, 20.5; Arboles and Como (near), 19.2; Grand Junction, 18.8; Georgetown, 18.1; Delta, 17; Fruita, 15.7; Scissors, 15; Dumont, 13.9; T. S. Ranch, 13.5; Meeker, 13; Le Roy, 12.2; La Jara, 12; Garnett, 11.5; Amherst, 11; Bennet, 10.1; Avoca, Robb, and Saint Cloud, 10.

Connecticut.—New Hartford (a), 47.5; Lebanon, 45; North Franklin and Waterbury, 43; Canton and West Simsbury, 40; Middletown and South Manchester, 38; Falls Village, 36.5; North Grosvenor Dale, 35; Stevenson, 33; New Haven, 32.9; New Hartford (b), 32.3; Southington, 31.5; Hartford (b) and Wallingford, 31; Voluntown, 30.5; Colchester and Storrs, 29; Norwalk (b), 25.9; New London, 19.7. *Delaware.*—Dover, 10. *District of Columbia.*—Washington, 8.7. *Georgia.*—Union Point, trace. *Idaho.*—Fort Sherman, 42.5; Garden Valley, 40; Henrys Lake, 32; Moscow, 31; Kootenai, 29; Idaho Falls, 20.6; Bonanza City, 20; American Falls, 19; Ruthburg, 16.

Illinois.—Watseka, 23; New Haven, 18; Monmouth, 17; Peoria (b), 16.5; Peoria (a), 16; Havana, 14.2; Ellsworth, 14; Rockford, 12.5; East Peoria, 12; Chicago, 11.8; Rushville, 11.5; Bloomington and Bushnell, 11; Dixon and Winnebago, 10. *Indiana.*—Angola, 22.5; Hawpatch, 17.5; Columbia City, 15.5; Marion, 13.5; Mount Vernon and Princeton, 13; Kokomo, 12; Logansport (b), 11.5; Evansville, Michigan City, and Point Isabel, 11; Indianapolis, 10.1; Seymour, 10. *Indian Territory.*—Fort Supply, 6.2. *Iowa.*—Denison, 24.6; Algona, 20.4; Carroll, 19.5; Storm Lake, 15.7; Hampton, 15.4; Audubon, 15.2; Logan and Osage, 15; Charles City, 14.5; Keokuk, 14.4; Eagle Grove and Sac City, 14; Alta (a) and College Springs, 13; Fort Madison, 12.5; Cedar Falls and Iowa Falls, 12.5; Blakeville and Clinton, 11.5; Jefferson, 11; Panama, 10.5.

Kansas.—Leavenworth, 15; Topeka, 14.6; Pauline, 13; Hutchinson, 12.4; Englewood, 11.8; Bucklin, 10. *Kentucky.*—Wickliffe, 8. *Maine.*—Cornish, 65.5; Portland, 50.9; Lewiston, 46; Kennebec Arsenal, 45; Farmington, 40.2; Kents Hill, 38?; Gardiner, 35.2; Bar Harbor, 33.5; Fairfield, 32.5; Belfast and Easton, 32; Houlton, 27.9; East Machias, 26.5; Calais, 25; Indian Stream, 22.7; Eastport, 20.5; Petit Menan, 18.5. *Maryland.*—Boettcherville, 29; Sunnyside, 22; Cumberland (a), 20; Glyndon, 19.8; Mount Saint Marys, 15.3; Darlington, 15; Westminster, 13.6; Oakland, 13; New Market, 12; Baltimore, 11.7; Barren Creek Springs, Denton, and Taneytown, 11; Fenby, 10.6; Frederick, 10.

Massachusetts.—Monroe, 78; North Billerica, 61.5; Groton (a), 56; Andover, 55.8; Wakefield, 50; Mount Nonotuck, 49.5; Amherst Experiment Station (b), Salem (b), and Westboro, 49; Springfield Armory, 48.5; Adams (a), 48; Gilbertville, 47; Monson, 46; Lawrence, 45.5; Amherst Experiment Station (a), Beverly Farms, and Concord (a), 45; Fitchburg (b), 44.5; Wayland, 44; Newburyport (b), 43; Leominster, 42.5; Kendall Green and Ludlow Center, 42; Fitchburg (a), 41.5; Williamstown, 38.8; Roxbury, 38.1; Mystic Lake and Wakefield, 38; Dudley, 37.8; Blue Hill (summit), Leeds, and Somerset, 37; Framingham, 36.5; Amherst, 36; Mansfield, 35.5; Boston, 35.3; Webster, 35; Chestnut Hill, 34.2; Leicester, Plymouth, Randolph, and Taunton (b), 34; Hingham, 32; Woods Holl, 31.5; Middleboro, 30.5; Fall River (a) and Milton, 28; New Bedford (a), 27; New Bedford (b), 26.5; Taunton (a), 25.1; Fiskdale, 25; Provincetown, 24.7; Wellesley, 24; Hyannis, 22.8; Royalston, 18; Long Plain, 15; Vineyard Haven, 13.9; Nantucket, 13.

Michigan.—Caldwell, 33; Harrisville, 32.2; Harbor Springs, 32; Jeddo, 30.5; Brown City, 29; Escanaba, 28.7; Berlin, 26.1; Sand Beach, 26; Fairview and Hayes, 25; Paris, 24.5; Bear Lake, Ivan, Olivet, and Stockbridge, 24; Grape, 23.2; Hastings, 22.8; Boon, 22.7; Fitchburg, Gaylord, and Harrison, 21.5; Bellaire, 21.2; Williamstown, 21; Ann Arbor, Arbel, and Washington, 20.5; Saint Ignace and Thornville,

20; Hart, 19.5; Vandalia, 19.3; Marquette, 19.1; Hanover and Howell, 19; Adrian, 18.7; Ovid, 18.5; Birch Run, Detroit, and Lake City, 18; Grayling, 17; Madison, 16.6; Calumet and Noble, 16.5; Mayville, 16; Albion, 15.9; Manistee, 15.6; East Tawas and Rawsonville, 15.5; Port Huron, 15.2; Ball Mountain, 14.9; Marshall, 14.4; Birmingham, 14.3; Allegan and Clinton, 14.2; McMillan, 14; Lansing, 13.8; Benton Harbor, 13.7; Alpena and Grand Haven, 13.4; Alma and Berrien Springs (a), 13.2; Evart, 12.5; Flint, 12.4; Kalamazoo, 12.2; Hillsdale, 12; Sault Ste. Marie, 11.6; Bronson, North Marshall, and Parkville, 11; Berrien Springs (b), 10.5; Charlevoix, 10.

Minnesota.—Wabasha, 30.5; Red Wing, 28.1; Blooming Grove, 25; Farmington, 22.6; Maple Plain, 22.2; Saint Paul, 20; Albert Lea, 19; Easton and Rolling Green, 18; Minneapolis and Rochester, 17.8; Alma City, 17; Duluth, 16; Redwood Falls, 15.5; Pokegama Falls, 15; Caledonia and Moorhead, 14.7; Cambridge, 14.5; Alexandria (a) and Grand Meadow, 14; Bird Island, 13.5; Lake Winnibigoshish, 13.1; Saint Charles, 12.7; Minnesota City, 12; Park Rapids and Winona, 11.5; Sheldon, 11.1; Fort Ripley and Ortonville, 11; Leech Lake, 10.1; Montevideo and Sandy Lake Dam, 10. *Mississippi.*—Water Valley, trace. *Missouri.*—Canton, 18; Steffenville, 17; Edina, 14.5; Sublette, 14; Pickering and Platte River, 11.5; New Boston, 11.2; Hannibal, 11; Palmyra, 10.8; Farmersville, 10.7; Kansas City, 10.4; Gallatin, 10.

Montana.—Fort Missoula, 19.8. *Nebraska.*—Tekamah, 22.5; Stanton and West Point, 16; Marquette and Minden, 15.8; Hartington, 15; Syracuse, 14.2; Genoa, Kennedy, and Lexington, 14; David City and Turlington, 13; Ravenna, 12.5; Table Rock, 12; Auburn (b), 11.5; Kearney, 11.2; Arborville, Mullen, and Norfolk, 11; Thedford and Weeping Water, 10.5; Madrid, 10. *Nevada.*—Stofiel, 52; Virginia City, 47.5; South Camp, 33.8; Tuscarora, 30.5; Lewers Ranch, 29.9; Verdi, 29; Palmetto, 24; Elko, 22; Tybo, 18; Wells, 17.2; Carson City, 16.6; Belmont, 15.5; Genoa, 15; Halleck, 14; Pioche, 12; Cranes Ranch, 11; Austin, 10.3; Reno, 10.

New Hampshire.—Monroe, 78; North Conway, 66; Grafton, 64; Antrim, 59.5; Concord (a), 59; Plymouth, 57.6; Walpole, 56.8; Sanbornton, 54.5; Hanover (a), 53.2; Keene and Nashua, 53; Berlin Mills, 47.2; Peterboro, 46.8; Newton, 44.5; Manchester, 44.2; Brookline, 43; Dublin, 42; East Canterbury, 34.5; Littleton, 33.5; Bethlehem, 31; Stratford, 30; West Milan, 26; Lancaster, 21.3. *New Jersey.*—Dover, 40.1; Belvidere and River Vale, 29; Elizabeth, 28.5; Butler, 27; South Orange, 26; Paterson, 25; Junction, 23.5; Gillette, 23; Newark (a), 21.5; Newark (b), 20.2; Bayonne, 17.5; Plainfield, 16.7; Boonton and Locktown, 16.5; Lambertville, 15; Beverly, 14.7; New Brunswick, 13.5; Somerville, 12.2; Trenton, 12; Franklinville, 11; Moorestown, 10.5. *New Mexico.*—Chama, 50; Monero, 26; Hillsboro, 15; Fort Stanton, 14.7; East Las Vegas, 10.2.

New York.—Utica, 72.2; Rondout, 54; Honeymead Brook, 51.6; Gloversville, 50.6; Turin, 49.8; Middletown, 47.5; Carmel, 47; West Point, 46.8; Eden Center, 46; Boyds Corners, 44.5; Le Roy, 42; Glens Falls, 41; Albany, 40.7; Port Jervis, 39.5; Lebanon Springs, 37.2; Palermo, 33.8; Alfred Center and New York, 32; Angelica and Cooperstown, 31.5; Poughkeepsie, 31; Brookfield, 30.5; Victor, 30.2; Rochester, 29.8; Binghamton and Lyons, 29.5; Lowville, 29; Baldwinsville, 28; Ampersand, 26.5; Geneva, 25.5; South Canisteo, 25; Factoryville, 24.8; Ithaca, 24.2; Brentwood, 24; Perry City, 23.9; Wedgwood, 23.6; Lockport and Potsdam, 23; Romulus, 21.8; Buffalo, 21.6; Humphrey and Setauket, 21; North Hammond, 19.9; Arcade, 19.1; Friendship, 18.1; Madison Barracks, 17.8; Canton, 16.3; Addison, 15.7; Plattsburg Barracks, 15.2; Elmira, 12.5; Oswego, 11.5. *North Carolina.*—Bakersville, 11. *North Dakota.*—Mayville, 17; Lakota, 16.1;

Wild Rice, 12.1; Saint Johns, 12; Grafton, 11.5; Milton, 11; Grand Forks, 10.6; Grand Rapids, 10.

Ohio.—Wheeler, 44; Bissells, 31.4; Chicago, 24.5; Warren, 23.6; Fostoria and Youngstown, 23; Sandusky, 22.1; Auburn, 20.8; Harbor, 20.4; Colebrook, 20; Akron, 19.8; Wauseon, 19.3; Garrettsville and Strongsville, 19; Upper Sandusky, 18.9; Lordstown, 18.5; Orangeville and Rittman, 18; New Berlin, 17.8; Annapolis and Ashland, 17.5; Findlay, Green Hill, North Royalton, and Ridgeville Corners, 17; Benton Ridge and Carrollton, 16; Montpelier, 15.6; Kenton and New Alexandria, 15.5; Sylvania, 15; Canton, 14.3; Wooster (a), 14.2; Mansfield and Tiffin, 14; Gratiot, 13.8; North Lewisburg and Van Wert, 13.5; Wooster (b), 13.4; Bangorville and Cleveland, 13.2; Oberlin, 13; Tyrone, 12.5; Ohio State University, 12.1; Bloomingburg and Piqua, 12; Millport, 11.8; Ridge, 11.5; Bement, Caledonia, Ellsworth, McLuney, and New Comerstown, 11; West Milton, 10.6; Big Prairie and New Holland, 10.5; Toledo and Weymouth, 10.4; Bethany, 10.2; Columbus and Pataskala, 10.

Oklahoma.—Gate City, 12.6. *Oregon.*—Siskiyou, 84; Glencora and Hood River (near), 42.5; Canyon City, 23.5; Crook and Joseph, 23.2; Lakeview, 23; Junction City, Leland, The Dalles, and Williams, 22; Portland, 20; Sparta, 18; Aurora and West Fork, 17.5; Lafayette, 17; Baker City, 16.8; La Grande, 16.5; Monmouth, 16; Comstock and Eugene, 15; Beulah and Springfield, 14.5; Ashland (b), 14; Albany (a) and Ashland (a), 12.5; Weston, 12; Happy Valley, 11.3; Fife and Hubbard, 11; Mount Angel, 10.8; Roseburg, 10.6; Arlington, Salem (a), and Newberg, 10.

Pennsylvania.—Dyberry, 57; Blooming Grove, 45; Honesdale, 44; Wilkesbarre, 42.5; Blue Knob, 41.5; Saegerstown, 39.7; Girardville, 38; Meadville, 37; Somerset, 35.5; Kane and Stoyestown, 33.5; Mahoning, State College, and South Eaton, 33; Bloomsburg, 32.3; Grampian and Lock Haven, 32; Davis Island Dam, 31.2; East Mauch Chunk, 30.7; Johnstown, 30.5; Harrisburg, 30.3; Drifton, 30; Oil City, 29; Emporium, 26.3; Le Roy, 25.5; Aqueduct, 24.8; Warren, 24.6; Lebanon, 24.2; Huntingdon and Kilmer, 23.5; Hollidaysburg, 23.2; Easton, 23; York, 22.2; Wellsboro, 22; Carlisle, 21.7; Clarion and Quakertown, 21; Pottstown, West Newton, and Wysox, 20; Coopersburg, 19.9; Confluence, 19.3; McConnellsburg and Parker, 19; Coatesville, 18.7; Pittsburg, 18.3; Lancaster, 17.2; Erie, 17.1; Gettysburg, 17; Freeport and Saltsburg, 16; Ridgway, 14.5; Swarthmore, 13.5; Kennett Square, 12.8; West Chester, 12.5; Lock No. 4, 10.5.

Rhode Island.—Lonsdale, 42.5; Pawtucket and Providence (a), 36; Providence (b), 35; Providence (c), 33; Kingston (a) and Olneyville, 29; Bristol and Kingston (b), 26; Narragansett Pier, 21.5; Block Island, 11.2. *South Carolina.*—Greenville, 1. *South Dakota.*—Spearfish, 20.5; Millbank, 20; Webster, 18.8; Travere, 18; Oelrichs, 17.5; Aberdeen and Wessington Springs, 16; Castlewood and Gary, 14; Watertown, 13.5; Frankfort and Sioux Falls, 12.5; Howard and Kimball, 12; Forestburg, 11; Cross and Parkston, 10.8; Britton, 10.5; Wolsey, 10. *Tennessee.*—Clarksville, 8. *Texas.*—Amarillo, 17.3; Hartley, 15.5; Coldwater, 15.2; Ochiltree, 12.

Utah.—Heber, 27.5; Ogden (a), 27.2; Levan, 25; Logan, 24.5; Blue Creek, 21; Salt Lake City, 18.8; Snowville, 18; Promontory, 17; Scofield, 16; Corinne, 15; Grouse Creek, 14.5; Castle Gate, 14; Beaver, 13.8; Parowan, 12.7; Provo City and Terrace, 12; Loa, 11.2. *Vermont.*—Jacksonville, 67.3; Brattleboro, 57; Hartland and Strafford, 51; Woodstock, 50.8; Vernon, 45.5; Norwich and Saxtons River, 44.5; South Royalton, 40.8; Chelsea, 38.5; Wells, 37; Enosburg Falls, 33.5; Cornwall, 33; Northfield, 30.8; Hyde Park, 29.5; Burlington, 19. *Virginia.*—Staunton, 18; Stephens City, 17; Riverton, 16; Woodstock, 15.2; Wytheville, 13.5; Lexington, 10.8; Dale Enterprise, 10.2.

Washington.—East Clallam, 76; Madrone, 62.5; Neah Bay, 45; Aberdeen, 44; Port Angeles, 41.9; Spokane, 39.7; Elbe and Fort Spokane, 37; Pine Hill, 35.6; Fort Simcoe, 34.5; Seattle, 30.5; Tatoosh Island, 30.1; Colfax, 29; East Sound, 28.8; Watervale, 26; Fort Townsend, 25.5; Moxee Valley, 25; Olympia, 21.5; Ferry, 20; Vashon, 18; Rosalia, 17.8; Olga, 16; Chelan, 15.5; Silver Creek, 15.3; Chehalis, 14.8; Pullman, 13. *West Virginia.*—Martinsburg, 21.5; Pleasant Hill, 20?; Marlinton, 18.5; Tannery, 17; Davis, 14.5.

Wisconsin.—Bayfield, 42; Weston, 35.8; Barron, 34.8; Menomonie, 34.3; Hudson, 33; Florence, 30.2; Chippewa Falls, 28; Eau Claire, 27; Medford (a), 26.5; Pepin, 26; Osceola, 25; Grantsburg, 23.5; Oconto, 23.4; Amherst, 23; Crandon and Medford (b), 22.5; Shell Lake, 22?; Koepenick and Shawano, 21; Columbus, 19; Depere, 16.6; Meadow Valley, 16; Green Bay, 15.9; Manitowoc, 15.8; Lincoln, 15.7; White Hall, 14?; Appleton and Oshkosh, 13; Westfield, 12.5; Baraboo, 12.3; Lancaster and Neillsville, 12; Fond du Lac, 11; Beaver Dam, 10.8; Beloit and Viroqua, 10.3; Black River Falls and Centralia, 10. *Wyoming.*—Lander, 15.5; Camp Pilot Butte, 10.5.

SLEET.

Description of the more severe sleetstorms is given under "Local storms." Sleet was reported as follows: 1st, Arkansas, Connecticut, Illinois, Indiana, Kansas, Massachusetts, Michigan, Missouri, Nevada, New Jersey, New York, Ohio, Oregon, Pennsylvania, Texas, and Utah. 2d, Arkansas, Connecticut, Illinois, Indiana, Indian Territory, Iowa, Kansas, Massachusetts, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin. 3d, Arkansas, Connecticut, Illinois, Indiana, Louisiana, Maine, Massachusetts, Michigan, New Hampshire, New York, Ohio, Vermont, and West Virginia. 4th, California, Indiana, Nevada, and Vermont.

5th, California, Colorado, Delaware, District of Columbia, Illinois, Kentucky, Maryland, Michigan, Missouri, New Jersey, New York, North Carolina, South Carolina, Utah, Virginia, and Wisconsin. 6th, Georgia, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, New Jersey, New York, North Carolina, Oregon, Pennsylvania, South Carolina, Texas, Vermont, Virginia, Washington, and West Virginia. 7th, Illinois, Indiana, Kentucky, Louisiana, New York, Ohio, Pennsylvania, Tennessee, Texas, and West Virginia. 8th, Arkansas, California, Illinois, Iowa, Mississippi, Missouri, Nevada, Oregon, Texas, and Utah.

9th, Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Michigan, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, South Carolina, Virginia, and Wisconsin. 10th, Arkansas, Kentucky, Michigan, New Mexico, Ohio, Tennessee, and Virginia. 11th, Delaware, Iowa, Maryland, Nebraska, New Jersey, North Carolina, Oregon, Virginia, and Washington. 12th, California, Louisiana, Maryland, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Virginia, and Washington. 13th, Connecticut, Iowa, Kansas, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Texas, Virginia, West Virginia, and Wisconsin.

14th, Arkansas, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Oklahoma, South Dakota, Vermont, Washington, West Virginia, and Wisconsin. 15th, Arizona, Arkansas, Illinois, Kansas, New York, North Carolina, Ohio, Oklahoma, Texas, and Vermont. 16th, Illinois, Indiana, Kansas, Maryland, Missouri, North Dakota, Ohio, Oklahoma, and Texas. 17th, Delaware, District of Columbia, Illinois, Indiana, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Ohio, Pennsylvania, Texas, Vir-

ginia, and West Virginia. 18th, New Jersey, New Mexico, Ohio, Oregon, Tennessee, and Washington. 19th, Maryland, New Jersey, and Utah. 20th, Kentucky, Missouri, New Jersey, North Dakota, and Ohio.

21st, Arkansas, District of Columbia, Georgia, Illinois, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Ohio, Tennessee, and Virginia. 22d, Connecticut, Maine, Maryland, Massachusetts, Nebraska, New Jersey, New York, South Dakota, and Virginia. 23d, Indiana, Iowa, and Nebraska. 25th, Nevada. 26th, Colorado, Iowa, Massachusetts, and Wisconsin. 27th, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Nevada, North Carolina, South Carolina, Virginia, and Wisconsin. 28th, Delaware, Iowa, Maryland, Michigan, New Jersey, New York, Pennsylvania, Vermont, and Wisconsin.

HAIL.

Description of the more severe hailstorms of the month is given under "Local storms."

Hail was reported as follows: 3d, Mississippi. 4th, California. 5th, California and Oregon. 6th, Oregon. 8th, California, Mississippi, and Oregon. 12th, California, Florida, Oregon, Texas, and Utah. 13th, Kansas and Oregon. 14th, Arkansas, Louisiana, and Texas. 16th, Arizona, Arkansas, and Indian Territory. 20th, Indian Territory, Oklahoma, and Texas. 21st, Louisiana, Mississippi, and North Carolina. 22d, Colorado. 25th, Florida and Washington. 26th, Arizona, Florida, Oregon, and Texas. 27th, Alabama, Florida, Georgia, Kansas, Missouri, Oregon, and South Carolina. 28th, Florida and Louisiana.

WINDS.

The prevailing winds in February, 1893, are shown on Chart II by arrows flying with the wind. In the middle Atlantic and New England states, the Ohio Valley, and Tennessee the winds were generally from the northwest; in the south Atlantic states, from the northeast; over the Florida Peninsula and along the north Pacific coast, from east to south; in the west Gulf states, from north to northeast; in the Lake region, on the northeast slope of the Rocky Mountains, over the southern plateau region, and along the middle Pacific coast, from southwest to northwest; in the upper Mississippi valley and the extreme northwest, from west to northwest; in the Missouri Valley, from northwest to north; on the southeast slope of the Rocky Mountains, from west to north; over the middle and northern plateau regions, from southeast to southwest; along the south Pacific coast, from northwest to northeast; and in the east Gulf states, and on the middle-eastern slope of the Rocky Mountains, variable.

HIGH WINDS (in miles per hour).

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 1st, 80, se., at Fort Canby, Wash.; 50, e., at Tatoosh Island, Wash. 2d, 96, w., at Pikes Peak, Colo.; 78, e., at Tatoosh Island, Wash.; 60, sw., at Amarillo, Tex.; 57, se., at Fort Canby, Wash.; 55, sw., at Lander, Wyo.; 50, e., at Chicago, Ill. 3d, 84, sw., at Pikes Peak, Colo.; 68, se., at Fort Canby, Wash.; 63, e., at Tatoosh Island, Wash.; 51, nw., at Woods Holl, Mass.; 50, nw., at Cleveland, Ohio. 4th, 98, w., at Pikes Peak, Colo.; 72, sw., at Winnemucca, Nev.; 64, e., at Tatoosh Island, Wash.; 54, nw., at Woods Holl, Mass. 5th, 54, s., at Fort Canby, Wash.; 54, e., at Tatoosh Island, Wash.; 52, sw., at Winnemucca, Nev.; 50, sw., at Amarillo, Tex. 6th, 50, e., at Tatoosh Island, Wash. 7th, 60, se., at Fort Canby, Wash.; 54, e., at Tatoosh Island, Wash. 8th, 61, sw., at Keeler, Cal.; 54, e., at Tatoosh Island, Wash.; 52, sw., at Winnemucca, Nev.; 52, se., at Fort Canby, Wash.

9th, 82, sw., at Pikes Peak, Colo.; 60, nw., at Kearney, Nebr.; 50, w., at Fort Stanton, N. Mex. 10th, 60, sw., at Buffalo, N. Y.; 56, sw., at Kittyhawk, N. C. 13th, 65, ne., at Block Island, R. I.; 56, s., at Amarillo, Tex. 15th, 60, se., at Fort Canby, Wash. 16th, 57, se., at Fort Canby, Wash. 17th, 60, e., at Tatoosh Island, Wash.; 54, e., at Chicago, Ill.; 52, sw., at Lexington, Ky. 18th, 61, ne., at Block Island, R. I. 19th, 60, nw., at Cleveland, Ohio; 52, nw., at Columbus, Ohio. 20th, 69, nw., at Block Island, R. I.; 66, sw., at Woods Holl, Mass.; 54, nw., at Atlantic City, N. J.; 53, n., at Kittyhawk, N. C.; 50, n., at Northfield, Vt.; 50, ne., at Eastport, Me. 22d, 92, w., at Pikes Peak, Colo.; 62, nw., at Woods Holl, Mass.; 50, nw., at Block Island, R. I.; 50, se, at Nantucket, Mass. 23d, 60, nw., at Cleveland, Ohio; 60, w., at Lexington,

Ky.; 56, nw., at Columbus, Ohio; 55, nw., at Woods Holl, Mass. 26th, 56, nw., at Keeler, Cal. 27th, 60, sw., at Abilene, Tex.; 56, nw., at El Paso, Tex. 28th, 60, sw., at Chicago, Ill.

LOCAL STORMS.

1st.—In eastern Upper Michigan drifted snow delayed trains. At Saint Louis, Mo., a thunderstorm, with sleet and snow, began 7 p. m. and ended 10.05 p. m. The temperature during the storm was 13°. High northerly winds and drifting snow interrupted traffic in parts of eastern Kansas. High wind and snow caused a suspension of railroad traffic at Havre, Mont., on the 1st and 2d. A severe "norther" swept over the Western and Southwestern States.

2-3d.—At Springfield, Ill., rain and snow damaged electric wires, and snow delayed trains on the 2d. An unusually severe storm of snow and sleet prevailed at Grand Haven, Mich. Railroads were operated with difficulty, and no trains arrived from the south on the 3d. A Milwaukee steamer went ashore while attempting to enter the harbor, and was not floated until the 5th. Heavy snow blocked railroad lines in northern Wisconsin and northeastern Minnesota. At Climax, Colo., a snowfall of 8 inches was reported on the 2d. Heavy snow was noted in Oregon and Washington.

3d.—A northwest gale, with sleet and snow, prevailed over eastern Lower Michigan. On the 4th trains about Port Huron, Mich., were delayed by snow and ice. An exceptionally severe wind and snow storm prevailed over eastern Upper Michigan; trains were delayed and business was suspended. At Corpus Christi, Tex., a thunder and rain storm began 3.30 a. m. The storm reached its height at 5 a. m., when the lightning was continuous, the thunder deafening, and the rain falling heavily.

5-6th.—Heavy snow fell in central and eastern Iowa. The 6th was intensely cold, and on the 7th no trains were moving at Dubuque, Iowa. During the 6th the storm extended over Minnesota, Wisconsin, and Lower Michigan, seriously interfering with railroad traffic.

8th.—At Keeler, Cal., the wind increased in the evening and attained a velocity of 61 miles per hour from the southwest; rain fell at intervals during the day, and became general in the evening; heavy snow fell in the mountains.

10th.—Southeast to southwest gales prevailed along the Atlantic coast, with heavy rain on the south New England coast. A schooner ran ashore 1 mile north of Point Judith at 3 a. m.; the crew was saved; the vessel and cargo were lost. A schooner went ashore near Kittyhawk, N. C., but was gotten off without damage.

12th.—At De Land, Fla., a heavy rain and hail storm occurred in the afternoon. At 3 p. m. the temperature was 82°. At 3.35 p. m. the wind increased from the south, with tor-