

THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, Acting Chief, Climatological Division.

PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure for April, 1909, over the United States and Canada is graphically shown on Chart VI, and the average values and departures from the normal are shown for each station in Tables I and III.

The average atmospheric pressure during April, 1909, was decidedly high over the north Pacific coast and the adjacent portions of British Columbia, the excess above the normal pressure amounting to from .10 to .20 inch. Pressure was also comparatively high over the entire Atlantic coast districts, the maximum departures, about +.10 inch, occurring over the extreme eastern portion of the Canadian Maritime Provinces, and it was also above the normal by smaller amounts over all southern districts from the Atlantic to the Pacific.

The average pressure was below the normal from .05 to .10 inch over the upper Lake region, the upper Mississippi Valley, and the adjoining districts of Canada.

Marked increases in the mean pressure of the month over that for March, 1909, occurred over all eastern districts of the United States and Canada, the maximum excess ranging from .25 to .30 inch over the Canadian Maritime Provinces. From the Rocky Mountains westward to the Pacific, including the Northwest Provinces of Canada, there was also a marked increase in pressure over that for the preceding month.

Between the Rocky Mountains and the Mississippi Valley there was a general but comparatively small decrease in pressure from that of the preceding month.

With decreasing pressure from the Atlantic and Gulf coasts westward and northward to the Lake region the winds over all eastern and southern districts were largely from the south. High pressure over the north Pacific coast, diminishing eastward and southward, gave prevailing northerly and westerly winds from the Lake region and middle Missouri Valley to the Pacific. April was a comparatively windy month, the average hourly movement of the wind exceeding the normal over nearly all districts, the excess being especially marked in the Mississippi and Ohio valleys and Lake region, where it ranged from 10 to 40 per cent of the normal wind movement.

TEMPERATURE.

The month opened with cool weather prevailing over nearly all districts, the line of freezing temperature extending from northwestern Texas to the Lake region.

Cool, showery weather continued over most districts till the 5th, when decidedly warm weather dominated the more eastern districts, but over the mountain regions of the West cool weather still continued.

From the 5th to the 8th a storm of wide extent moved from the southern Rocky Mountain region to the Great Lakes and New England, accompanied by heavy rains in the central valleys during the 6th and 7th, and by light snows in portions of the Plains region and northern districts. Cool weather again dominated nearly all sections until the end of the first decade.

The mean temperature during this decade was generally below the normal in all districts between the Rocky and Appalachian mountains and over the Northwest. It was generally above normal over the Atlantic coast districts, the middle and southern Plateau regions, and over most of California.

The second decade of the month opened with a well-defined storm area over the central valleys, with warm weather over eastern districts and cool weather over the Great Plains and mountain regions. The storm area moved eastward during the 13th and 14th, with heavy rains in nearly all districts, followed by generally cold weather for the season, with frosts as far south as the central portions of Louisiana and Mississippi.

Warm weather prevailed during the latter part of the decade over most of the districts east of the Mississippi River, but over the Plains region and the Northwest the weather continued cold and unseasonable.

The mean temperature during the second decade continued below the normal over the districts between the Mississippi River and the Rocky Mountains and generally over the Northwest. It continued above the normal, as in the previous decade, over the Atlantic coast districts and from central Texas westward to the Pacific and over most of California and Nevada.

The last decade of the month was marked by unseasonably cold, cloudy weather, with frequent showers, followed during the last two or three days of the month by a storm of unusual severity that developed over the Great Plains on the 28th and moved eastward during the 29th and 30th.

The month closed with unseasonably cold weather, snow, and rain over the districts between the Rocky Mountains and the Mississippi River, and with warmer, but cloudy, rainy weather over the more eastern districts.

The mean temperatures during this decade continued below the normal, as in the previous decades, over the central valleys and the Northwest, and it was also below normal over all the remaining portions of the United States, except the south Atlantic and east Gulf States, portions of the west Gulf States, and the south Pacific coast.

PRECIPITATION.

The precipitation was generally abundant and well distributed during the month over all districts east of the Mississippi River, except over the eastern slope of the Appalachian Mountains from Maryland to central South Carolina and in portions of Florida.

Over much of the Lake region, the eastern portion of the Mississippi Valley, and in portions of the Ohio Valley, the interior of the east Gulf States, and the northern portion of the Appalachian Mountain district the rainfall was heavy, ranging generally from 2 to 4 inches above the normal, and at points in central Alabama the excess amounted to from 6 to 8 inches.

Precipitation was generally deficient in the districts west of the Mississippi River, except locally at points in the mountain regions of Montana and Colorado. There was a general deficiency of about 2 inches over most of Texas, and over large portions of the Great Plains the deficiency ranged from 1 to 2 inches. Over the Pacific slope rainfall was everywhere deficient, being especially pronounced in northern California and over northwestern Oregon and western Washington, where the fall was generally less than 50 per cent of the normal. In California the month as a whole was one of the driest on record. At the end of the month rain was badly needed in Arizona and New Mexico, and over most of Texas drought conditions existed. East of the Mississippi rainfall was needed in portions of North Carolina and South Carolina, and central Florida. Heavy rains during the night of April 30 and May 1 relieved the dry conditions in the last-named districts, however, except in portions of Florida.

Storms during the last few days of the month over the central valleys were severe and widespread, bringing heavy rains, severe thunderstorms, high winds, and tornadoes to many portions of the Mississippi and Ohio valleys, Gulf States, and Great Lakes. More than one hundred persons were killed, many more injured, and much damage was done to property, full accounts of which appear in other portions of the REVIEW.

SNOWFALL.

Snow in measurable quantities occurred over the entire northern half of the country, and traces of snow occurred as

far south as the northern portions of the cotton belt. Snow was unusually heavy in the upper Lake region and upper Mississippi Valley, and there were some heavy falls in the central Rocky Mountain districts, especially in Colorado, where the snowfall for the month exceeded the amount melted, the amount of snow on the ground at the end of the month being greater than at the beginning. At the end of the month the ground was free of snow in all districts, except along the northern border from New England to North Dakota, and over the mountain districts of the West. A heavy covering, ranging from 5 to 15 and 20 inches, remained on the ground in the northern portions of Michigan, Wisconsin, and Minnesota, and there was a heavy accumulation of snow in nearly all the mountain districts of the West. Melting had proceeded but slowly on account of the prevailing cool weather, and the snow was reported to be in condition to furnish a good supply of water until late in the coming summer.

HUMIDITY AND SUNSHINE.

The relative humidity was below the normal on the Pacific coast and the middle and southern portions of the districts between the Mississippi River and the Rocky Mountains, and at a few points on the middle Atlantic coast. From New England westward to the Great Lakes the humidity was generally above the normal, and there was a general and well-marked excess of humidity in most of the mountain and Plateau regions.

Cloudy weather was general over the northern tier of States from New England westward to the Pacific. Over all southern districts, however, much less cloudiness prevailed, the percentage of sunshine ranging between 50 and 60 per cent of the possible amount over the South Atlantic and Gulf States, and from 70 to 90 per cent over the Southwest.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
New England	12	43.4	- 0.3	+ 5.0	+ 1.2
Middle Atlantic	16	51.8	+ 1.0	+11.0	+ 2.8
South Atlantic	10	63.4	+ 2.2	+11.7	+ 2.9
Florida Peninsula*	8	72.4	+ 2.2	+14.0	+ 3.5
East Gulf	11	64.7	+ 0.1	+ 8.7	+ 2.2
West Gulf	10	64.5	- 1.0	+ 9.4	+ 2.4
Ohio Valley and Tennessee	13	54.8	- 0.2	+ 9.4	+ 2.4
Lower Lake	10	43.6	- 1.1	+ 7.1	+ 1.8
Upper Lake	12	37.5	- 2.9	+ 5.4	+ 1.4
Upper Dakota*	9	34.2	- 6.5	- 2.0	- 0.5
Upper Mississippi Valley	15	46.9	- 3.6	+ 5.3	+ 1.3
Missouri Valley	12	46.9	- 3.6	+ 5.4	+ 1.4
Northern Slope	9	37.4	- 5.4	- 1.7	- 0.4
Middle Slope	6	50.6	- 3.1	+ 3.7	+ 0.9
Southern Slope*	7	60.7	- 0.7	+ 8.1	+ 2.0
Southern Plateau*	12	54.9	- 1.6	- 2.4	- 0.6
Middle Plateau*	10	44.6	- 2.3	+ 3.1	+ 0.8
Northern Plateau*	12	43.7	- 3.2	+ 1.6	+ 0.4
North Pacific	7	47.4	- 1.0	- 4.0	- 1.0
Middle Pacific	8	57.1	+ 1.7	+ 2.8	+ 0.7
South Pacific	4	59.6	+ 1.6	+ 1.8	+ 0.4

* Regular Weather Bureau and selected cooperative stations.

largely above the average, except in the eastern portion of Quebec and in parts of Prince Edward Island and Cape Breton, where the deficiency was rather marked. In the Province of Ontario the positive departure was very generally from 2 to 4 inches. Snow fell at intervals, the usual April snowfall record in the several provinces being as a rule much exceeded.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
New England	12	4.58	149	+ 1.5	+ 3.0
Middle Atlantic	16	3.65	120	+ 0.6	+ 0.6
South Atlantic	10	3.73	109	+ 0.3	+ 3.5
Florida Peninsula*	8	2.70	129	+ 0.6	+ 2.6
East Gulf	11	7.37	181	+ 3.3	+ 2.7
West Gulf	10	2.50	71	- 1.0	+ 5.4
Ohio Valley and Tennessee	13	5.09	138	+ 1.4	+ 2.4
Lower Lake	10	3.64	156	+ 1.3	+ 3.3
Upper Lake	12	4.77	230	+ 2.7	+ 2.3
Upper Dakota*	9	0.85	52	- 0.8	- 1.9
Upper Mississippi Valley	15	5.40	180	+ 2.4	+ 3.1
Missouri Valley	12	2.19	147	+ 0.7	+ 0.5
Northern Slope	9	1.02	63	- 0.6	- 0.7
Middle Slope	6	1.62	73	- 0.6	- 0.9
Southern Slope*	7	0.80	33	- 1.6	- 2.9
Southern Plateau*	12	0.16	24	- 0.5	- 0.7
Middle Plateau*	10	0.94	76	- 0.3	+ 0.4
Northern Plateau*	12	0.63	36	- 1.1	- 0.4
North Pacific	7	0.92	28	- 2.4	- 0.3
Middle Pacific	8	0.64	2	- 1.9	+ 7.9
South Pacific	4	0.01	1	- 1.0	+ 5.8

* Regular Weather Bureau and selected cooperative stations.

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Alpena, Mich	7	52	w.	Mount Tamalpais, Cal.	4	56	nw.
Bismarck, N. Dak.	2	52	nw.	Do.	18	61	nw.
Block Island, R. I.	8	60	w.	Do.	19	71	nw.
Buffalo, N. Y.	7	75	sw.	Do.	20	72	nw.
Do.	8	64	w.	Do.	23	53	nw.
Do.	13	54	s.	Do.	27	84	nw.
Do.	21	54	sw.	Do.	28	74	nw.
Do.	25	50	sw.	Mount Weather, Va.	7	57	nw.
Burlington, Vt.	12	55	s.	Nashville, Tenn.	3	52	w.
Do.	13	50	s.	Do.	12	54	se.
Canton, N. Y.	7	64	sw.	Do.	19	54	s.
Do.	8	65	w.	New York, N. Y.	7	83	w.
Do.	21	61	se.	Do.	8	54	w.
Chicago, Ill.	7	60	w.	Do.	9	52	nw.
Do.	20	50	e.	North Head, Wash.	1	54	s.
Cleveland, Ohio	7	50	sw.	Oklahoma, Okla.	11	54	s.
Do.	13	58	se.	Do.	25	70	n.
Do.	21	66	w.	Oswego, N. Y.	13	50	s.
Columbia, Mo.	6	52	sw.	Pittsburg, Pa.	7	68	w.
Columbus, Ohio	3	50	nw.	Do.	18	52	se.
Do.	7	60	nw.	Do.	29	62	n.
Do.	21	54	w.	Point Reyes Light, Cal.	3	93	nw.
Corpus Christi, Tex.	5	54	se.	Do.	4	76	nw.
Do.	7	55	ne.	Do.	10	74	nw.
Des Moines, Iowa	11	53	sw.	Do.	18	78	nw.
Detroit, Mich.	7	70	sw.	Do.	19	79	nw.
Do.	12	50	s.	Do.	20	77	nw.
Do.	21	58	w.	Do.	21	73	nw.
Do.	29	54	nw.	Do.	27	73	nw.
Duluth, Minn.	26	50	w.	Do.	28	70	nw.
Do.	29	60	ne.	Port Huron, Mich.	7	54	w.
Do.	30	50	ne.	Providence, R. I.	8	50	nw.
El Paso, Tex.	5	60	w.	Richmond, Va.	3	52	nw.
Do.	11	52	w.	Rochester, N. Y.	7	58	w.
Do.	20	58	w.	St. Paul, Minn.	7	50	nw.
Evansville, Ind.	29	36	s.	Santa Fe, N. Mex.	11	51	sw.
Grand Rapids, Mich.	7	52	sw.	Sioux City, Iowa	2	54	nw.
Green Bay, Wis.	7	58	nw.	Do.	28	56	nw.
Indianapolis, Ind.	12	56	s.	Do.	3	58	nw.
Do.	29	50	s.	Do.	4	60	n.
Kansas City, Mo.	4	50	s.	Do.	19	55	nw.
Do.	29	50	s.	Syracuse, N. Y.	7	58	sw.
La Salle, Ill.	6	60	sw.	Do.	8	58	sw.
Lexington, Ky.	29	64	sw.	Do.	18	58	s.
Lincoln, Neb.	28	60	nw.	Do.	21	54	s.
Little Rock, Ark.	29	50	nw.	Toledo, Ohio	6	50	sw.
Madison, Wis.	11	51	s.	Do.	7	70	sw.
Marquette, Mich.	11	54	s.	Do.	12	57	s.
Milwaukee, Wis.	28	52	e.	Do.	13	61	s.
Do.	29	54	ne.	Do.	21	60	sw.
Minneapolis, Minn.	7	52	w.	Do.	29	54	nw.
Mount Tamalpais, Cal.	3	62	nw.	Topeka, Kans.	11	54	s.

In Canada.—Director R. F. Stupart says:

The temperature over the Dominion was below the average, except in portions of Prince Edward Island and Cape Breton, where the average was somewhat exceeded. The negative departures were marked, especially so in the Western Provinces, where they ranged from 9° to 12°. The northern portions of British Columbia, Ontario, and Quebec also recorded as much as 7° and 8° below the normal.

In British Columbia the precipitation was much below the average amount, except in Cariboo, where there was more than usual. In Alberta and Saskatchewan there was a positive amount in some districts and a negative in others. Calgary recorded 100 per cent above the average, while Battleford experienced nearly 100 per cent below the average quantity. In Manitoba the excess throughout the Province ranged from 31 to about 50 per cent; elsewhere in the Dominion the precipitation was

Average relative humidity and departures from the normal.

Average cloudiness and departures from the normal.

Table with columns for Districts, Average, Departure from the normal, and data for various regions like New England, Middle Atlantic, South Atlantic, Florida Peninsula, East Gulf, West Gulf, Ohio Valley and Tennessee, Lower Lake, Upper Lake, North Dakota, and Upper Mississippi Valley.

CLIMATOLOGICAL SUMMARY.

By Mr. P. C. DAY, Acting Chief, Climatological Division.

TEMPERATURE AND PRECIPITATION BY SECTIONS, APRIL, 1909.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting greatest and least monthly precipitation, and other data, as indicated by the several headings.

lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have ten or more years of observation. Of course the number of such records is smaller than the total number of stations.

The mean temperatures for each section, the highest and

Main table with columns for Section, Temperature (Average, Departure from normal, Monthly extremes: Station, Highest, Date, Station, Lowest, Date), and Precipitation (Average, Departure from normal, Greatest monthly: Station, Amount; Least monthly: Station, Amount). Rows list various states and territories.

* Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

DESCRIPTION OF TABLES AND CHARTS.

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For description of tables and charts see page 34 of Review for January, 1909.