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THE WEATHER OF THE MONTH.

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PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure for October, 1908, 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.

In general the main features of the pressure distribution were along the usual lines, high pressure penetrating well into the interior portions of the United States, from both the Atlantic and Pacific coasts, with diminishing pressure along both the northern and southern borders. High atmospheric pressure prevailed over the districts east of the Mississippi River and north of the Gulf States, with the crest over the Ohio Valley, Lake region, and New England, where the average for the month was slightly above 30.15 inches. To the southward pressure diminished rapidly with an average of but 29.90 inches over the southern portion of the Florida Peninsula.

Over the western districts a ridge of comparatively high mean pressure, slightly above 30.05 inches, extended from northern California to central Washington, and eastward to Wyoming with diminishing pressure northward and southward.

The average pressure was above the normal over all districts in the United States and Canada, except over the southern portion of Florida, the maximum excess, .10 to .14 inch occurring from the Lake region northeastward over New England, the St. Lawrence Valley, and the Maritime Provinces of Canada.

The pressure for October increased over that for the preceding month in all districts, except a slight decrease over a small area in western Texas and eastern New Mexico, and a sharp decrease over the western portions of Oregon and Washington. Over the Great Lakes the increase was about .10 inch and similar increases were shown along the west Gulf coast and over southwestern Arizona.

With high pressure dominant from the upper Ohio Valley northeastward to New England, the resulting winds along the Atlantic coast and over the east Gulf States were generally from the northeast, while over the Mississippi Valley, Lake region and westward to the Rocky Mountains they were as a rule from the south. Storm activity showed a considerable increase above the normal along the Atlantic coast and from the upper Lakes westward to the Rocky Mountains, and southwestward over the Great Plains and southern Rocky Mountain district to southern California, and also over Oregon and Washington, where the average velocities ranged from 10 to 50 per cent above the normal.

From northern New England southwestward in a rather narrow area over the lower Lakes, Ohio and lower Mississippi valleys to central Texas, the wind movement was generally less than the average, and a similar area extended from the northern Rocky Mountains southwestward to the middle Pacific coast.

TEMPERATURE.

The mean temperature during October, 1908, was above the normal from eastern North Dakota southeastward over the upper Mississippi Valley, Lake region, Ohio Valley, Middle Atlantic States, and New England, averaging about 3° per day above from the upper Lake region to New England.

There was a slight excess over portions of western Montana, Idaho, and eastern Washington, and near the coast of southern California. From the South Atlantic and east Gulf States westerly and northwesterly to the Pacific coast, except as noted above, the mean temperature for the month was generally below the normal, ranging from 3° to 5° below over the east Gulf and southern portions of the Rocky Mountain and Plateau districts.

During the first decade the mean temperature was below normal over all districts, except along the immediate Pacific coast and at a few points over the Great Plains States where it was normal or slightly above.

Over the lower Mississippi and Ohio valleys, Gulf and South Atlantic States the first ten days of the month were generally cold, due to the slow passage eastward of an extensive area of high pressure central over the upper Mississippi Valley, on the morning of the 1st, with resulting mean temperatures for the period ranging from 3° to 7° daily below the normal.

Some comparatively low temperatures occurred along the southern border from Texas to California, and minimum temperatures below freezing occurred in northern New England, the Appalachian Mountains, and from the upper Lakes westward to and including the greater part of the Rocky Mountain districts and at exposed points in Utah and Nevada.

Comparatively cold weather continued over the central valleys and all eastern districts until near the middle of the second decade when warmer weather set in over all districts east of the Rocky Mountains and continued without material interruption until near the close of the month.

The mean temperature during the second decade was above the normal from 3° to 9° per day over all districts from the eastern foot hills of the Rocky Mountains to the Atlantic, except over the South Atlantic and Gulf States where it ranged from slightly above over the northern to slightly below normal over the more southerly portions of those districts.

From the Rocky Mountains westward the weather was cool, the average for the decade ranging from 2° to 4° below the normal.

High day temperatures for the season of the year prevailed from the Great Plains eastward to the Atlantic, the maximum readings ranging from 80° to 90°.

Over the Pacific coast districts and in southern Arizona the minimum temperatures were unusually low.

During the third decade the temperature continued above normal over the districts east of the Mississippi until near the end of the month, when cooler weather set in, and the month closed with cold weather prevailing over all districts, except from the northern Rocky Mountains westward to Washington.

The mean temperature during this decade was decidedly low over the southern portions of the Great Plains, Rocky Mountain, and Plateau districts, where the average was from 5° to 10° per day below the normal.

Freezing temperatures and killing frosts extended as far south as central Texas and from thence northeasterly over the lower Ohio Valley and the Appalachian Mountains to southern New England, and over all western districts, except the lower elevations of southwestern Arizona, the valleys and coast districts of California, and over the portions of Oregon and Washington west of the Coast Range.

Temperatures below 20° were reported from points in northern New York and the interior of New England, from the upper Lakes westward to the Dakotas, and generally over the mountain and Plateau regions of the West.

PRECIPITATION.

Over the Atlantic coast districts and extending westward to the Appalachian Mountains the precipitation ranged from 2 to 4 inches, with amounts in excess of 6 inches on the coast and in the western portions of North Carolina and above 20 inches on the east coast of Florida. Amounts from 2 to 3 inches were general over most of the States between the Mississippi Valley and the Rocky Mountains, except over portions of southern and eastern Texas, the greater part of Louisiana, and Arkansas and eastern and central Missouri, with local amounts from 6 to 10 inches in portions of eastern Kansas, central Oklahoma, northern Texas, and western Missouri. Amounts from 2 to 4 inches occurred in the northern and central portions of the Rocky Mountain districts and over the Pacific coast from northern California northward.

From the Appalachian Mountains westward to the Mississippi Valley, and over Louisiana, Arkansas, and eastern Missouri, the rainfall for the month was generally less than 1 inch, and over an extensive area from southern Michigan to the coast of Louisiana, including the immediate lower Mississippi and Ohio valleys, the amounts were less than one-half inch, and at a number of points no measurable amount of precipitation occurred during the entire month.

The drought conditions that had prevailed over the Lake region, Ohio Valley, and adjoining districts, partially relieved by the general rains of the latter part of September, were continued during the greater part of the month over most of the above districts and extended southward into the lower Mississippi Valley, where the need of rain was also being felt.

Over much of the western portions of New York and Pennsylvania, parts of Ohio, West Virginia, Kentucky, Tennessee, Indiana, Illinois, and southern Michigan, the water supply at the end of the month was very low, many of the smaller springs and streams were dry, the larger streams greatly reduced in volume, and much inconvenience to industrial pursuits and suffering to animal life were being experienced thereby.

Precipitation was above the normal over the southern Appalachian Mountain district, in the southern portion of Florida, and generally over the Great Plains, northern and central Rocky Mountain and Plateau districts, and the north Pacific coast States, except extreme western Washington. Over the immediate south Atlantic and Gulf coasts, the Mississippi Valley, Lake region, and Middle Atlantic States there was a marked deficiency in precipitation.

SNOWFALL.

Some unusually heavy falls of snow, for the period of the year, were reported from the higher elevations of the southern Appalachian Mountains, over a restricted area in eastern Kansas, northwestern Missouri and southwestern Iowa, and generally over the Rocky Mountain region. Over portions of the Main Divide from northern New Mexico to the Canadian boundary amounts from 10 to more than 60 inches were reported, and heavy snows occurred also in the Cascade Mountains of Oregon.

The unusually early fall of such heavy snow with attendant high winds caused the loss of several human lives and heavy loss of life and great suffering among sheep and cattle in the northern portions of the Rocky Mountain district.

But little snow remained on the ground at the end of the month, except in the high elevations of the Rocky Mountains.

HUMIDITY AND SUNSHINE.

The distribution of the average relative humidity conformed in a marked degree to the rainfall distribution. It was above the normal over the south Atlantic coast and Florida Peninsula, and in the Great Plains and northern portions of the Rocky Mountains, Plateau and Pacific coast districts, the greatest excess, about 20 per cent, occurring over the northern Plateau.

Relative humidity was below the normal from New England southwestward over the Great Lakes, Ohio and Mississippi valleys and in the southwest, the greatest deficiencies, about 10 per cent, occurring in the lower Ohio and middle Mississippi valleys.

Much clear weather prevailed over portions of New England, the Gulf States, the lower portions of the Mississippi and Ohio valleys and generally in the southwest.

In the southern portions of Mississippi and Louisiana the amount of sunshine was about 80 per cent of the possible, and in portions of Arizona the sunshine was almost continuous. Along the northern border from the upper Lakes westward to Washington the sunshine was less than 40 per cent of the possible.

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

During October warm weather predominated from Manitoba to the Maritime Provinces, and the mean temperature for that portion of Canada was from 1° to 5° above the normal. Maximal temperatures were very high, and in some parts of Ontario exceeded 80°. From Saskatchewan to British Columbia the mean temperature was subnormal, the difference from average being from 1° to 5°.

Among the marked features of the October weather were the large amount of precipitation over the Western Provinces and the continuance of severe drought from Ontario to the Maritime Provinces. With local exceptions in North Saskatchewan and Western Manitoba the amount registered in the Western Provinces was from 36 per cent to 200 per cent in excess of the normal, the fall being mostly rain but partly in the form of snow. From Ontario to the Maritime Provinces, with the exception of the Gaspé Peninsula of Quebec and locally in Southwestern Nova Scotia, where an amount in excess of the average was recorded, the total amount of the fall was generally much less than normal, and in some districts did not reach 20 per cent of the usual quantity.

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	53.2	+ 2.6	+ 8.8	+ 0.9
Middle Atlantic	16	57.2	+ 2.0	+ 3.3	+ 0.3
South Atlantic	10	62.4	− 1.3	+ 6.0	+ 0.6
Florida Peninsula*	8	71.6	− 1.8	+ 5.3	+ 0.5
East Gulf	11	62.8	− 2.8	+ 7.0	+ 0.7
West Gulf	10	64.5	− 1.8	+11.4	+ 1.1
Ohio Valley and Tennessee	13	57.5	+ 0.5	+12.2	+ 1.2
Lower Lake	10	53.6	+ 2.0	+ 7.3	+ 0.7
Upper Lake	12	50.5	+ 2.9	+18.8	+ 1.9
North Dakota*	9	42.7	− 0.7	+19.8	+ 2.0
Upper Mississippi Valley	15	53.4	+ 0.6	+14.8	+ 1.5
Missouri Valley	12	52.2	− 0.5	+19.8	+ 2.0
Northern Slope	9	43.2	− 1.5	+ 7.4	+ 0.7
Middle Slope	6	54.0	− 1.5	+13.3	+ 1.3
Southern Slope*	7	60.4	− 2.0	+ 4.9	+ 0.5
Southern Plateau*	12	55.5	− 4.2	− 6.7	− 0.7
Middle Plateau*	10	45.1	− 3.6	− 7.8	− 0.8
Northern Plateau*	12	46.6	− 1.2	+ 4.6	+ 0.5
North Pacific	7	50.5	− 0.6	− 2.4	− 0.2
Middle Pacific	8	57.4	− 1.2	− 1.3	− 0.1
South Pacific	4	61.7	− 0.6	+ 4.2	+ 0.4

* Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	12	3.07	86	— 0.5	— 5.2
Middle Atlantic	16	2.89	91	— 0.3	— 1.4
South Atlantic	10	4.54	115	+ 0.6	+ 2.2
Florida Peninsula*	8	4.66	104	+ 0.2	— 1.5
East Gulf	11	1.57	57	— 1.2	— 2.0
West Gulf	10	1.19	43	— 1.6	+ 1.2
Ohio Valley and Tennessee	13	0.81	31	— 1.8	— 4.6
Lower Lake	10	1.48	50	— 1.5	— 2.6
Upper Lake	12	1.06	37	— 1.8	— 2.7
North Dakota*	9	1.52	136	+ 0.4	+ 0.7
Upper Mississippi Valley	15	1.18	48	— 1.3	— 0.8
Missouri Valley	12	3.46	402	+ 2.6	+ 3.9
Northern Slope	9	2.34	249	+ 1.4	+ 4.0
Middle Slope	6	2.67	170	+ 1.1	+ 5.7
Southern Slope*	7	3.10	163	+ 1.2	+ 5.8
Southern Plateau*	12	0.32	44	— 0.4	+ 0.1
Middle Plateau*	10	1.58	162	+ 0.6	+ 1.5
Northern Plateau*	12	1.63	133	+ 0.4	— 0.7
North Pacific	7	4.31	107	+ 0.3	— 4.1
Middle Pacific	8	1.24	93	— 0.1	— 4.5
South Pacific	4	0.27	31	— 0.6	— 1.3

* Regular Weather Bureau and selected cooperative stations.

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	5.0	— 0.5	Missouri Valley	5.0	+ 1.1
Middle Atlantic	4.6	— 0.2	Northern Slope	5.5	+ 1.3
South Atlantic	4.1	+ 0.1	Middle Slope	4.1	+ 1.0
Florida Peninsula	4.7	0.0	Southern Slope	3.0	+ 0.2
East Gulf	2.8	— 0.8	Southern Plateau	1.6	— 0.4
West Gulf	2.8	— 0.8	Middle Plateau	3.9	+ 0.7
Ohio Valley and Tennessee	3.8	— 0.7	Northern Plateau	6.0	+ 0.9
Lower Lake	4.6	— 1.2	North Pacific	6.5	— 0.6
Upper Lake	5.6	— 0.5	Middle Pacific	4.0	+ 0.8
North Dakota	6.1	+ 1.0	South Pacific	2.1	— 1.4
Upper Mississippi Valley	4.5	+ 0.1			

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	78	— 1	Missouri Valley	68	+ 1
Middle Atlantic	76	0	Northern Slope	72	+12
South Atlantic	79	+ 1	Middle Slope	63	+ 4
Florida Peninsula	80	0	Southern Slope	61	— 2
East Gulf	68	— 5	Southern Plateau	40	— 7
West Gulf	68	— 4	Middle Plateau	53	+ 4
Ohio Valley and Tennessee	69	— 2	Northern Plateau	65	+ 2
Lower Lake	68	— 6	North Pacific	82	+ 2
Upper Lake	76	— 2	Middle Pacific	68	— 2
North Dakota	78	+ 6	South Pacific	61	— 9
Upper Mississippi Valley	68	— 3			

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Bismarck, N. Dak.	20	58	se.	North Head, Wash.	19	64	nw.
Block Island, R. I.	30	55	w.	Do	20	56	nw.
Do	31	50	w.	Do	29	52	se.
El Paso, Tex.	18	50	nw.	Oklahoma, Okla.	19	54	s.
Flagstaff, Ariz.	2	58	sw.	Point Reyes Light, Cal.	1	90	nw.
Modena, Utah	15	56	sw.	Do	2	63	nw.
Mount Tamalpais, Cal.	1	74	nw.	Do	16	50	nw.
Do	2	64	n.	Do	19	64	nw.
Do	17	52	n.	Do	20	68	nw.
Do	18	50	n.	Sand Key, Fla.	3	51	ne.
Do	19	54	nw.	Southeast Farallon, Cal.	1	58	nw.
Mount Weather, Va.	30	54	nw.	Do	2	56	n.
Nantucket, Mass.	19	54	ne.	Do	20	51	nw.
Do	30	56	n.	Tatoosh Island, Wash.	12	52	s.
North Head, Wash.	1	53	nw.	Do	19	50	w.
Do	12	66	se.	Do	29	54	s.
Do	18	62	se.				