

## SECTION VII.—WEATHER AND DATA FOR THE MONTH.

## THE WEATHER OF JANUARY, 1918.

P. C. DAY, Climatologist and Chief of Division.

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## PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure over the United States and Canada, and the prevailing direction of the winds for January, 1918, are shown graphically on Chart VII (XLVI—7), while the means at the several stations, with the departures from the normal, are shown in Tables I and III.

At the beginning of the month the pressure was relatively high from the New England States to the lower Lakes Region and thence southwestward to the western Gulf; also in the central and southern Plateau region. It was lower than normal from the upper Mississippi Valley westward to the Rocky Mountains, but elsewhere was near the seasonal average. During the next few days lower pressure overspread most portions of the country and continued during much of the first decade. During the second decade extensive low-pressure areas rapidly crossed the country, and while they were followed in turn by areas of higher pressure, the averages during this period were below the normal over most sections. During the remainder of the month rapid changes in pressure continued, but the high areas were more pronounced than during the preceding decade and the prevailing pressure over most sections during much of this period was above the normal. The month closed with pressure above the normal from the Rocky Mountains eastward, except in the extreme eastern Canadian Provinces, but to the westward it was below the seasonal average.

For January as a whole the barometric pressure was slightly above the normal in the Upper Missouri Valley, the northwestern Canadian Provinces, and over the western portions of the Pacific Coast States. In all other sections it was below the seasonal average, the negative departure being rather pronounced east of the Mississippi River and particularly so in the far Northeast.

The distribution of the HIGHS and LOWS resulted in prevailing southwesterly to northwesterly winds in most sections east of the Rocky Mountains, except in the Southwest, where they were generally northerly. West of the Rocky Mountains variable winds prevailed. While the month was characterized in many sections by marked abnormal weather conditions, the prevailing wind directions were not unusual. In fact, they conformed remarkably to the usual seasonal directions.

## TEMPERATURE.

January opened with a damaging cold wave over the Southern States, which caused freezing weather to the Gulf and heavy frost as far south as Miami, Fla. After a few days of slightly higher temperature cold weather again overspread the East and Southeast, causing freezing temperatures nearly to extreme southern Florida, while portions of Virginia experienced the lowest temperatures ever recorded there in January. In marked contrast, the maximum temperatures during this period in portions of Utah and Idaho were the highest ever recorded in those sections during January.

Cold weather continued over many portions of the East, and at the beginning of the second decade another cold wave moved from the Northwest southeastward, causing the lowest temperatures ever recorded at points in Texas. During the next few days the cold was more intense than had been experienced in January during many years, over central and southern districts. Temperatures were somewhat less severe in the Northeastern than in the Central States, but the weather continued cold in most eastern districts throughout the second decade.

Early in the third decade the temperature was again below freezing in extreme southern Texas and while there was a gradual warming up in the Southeast most other sections east of the Rocky Mountains experienced unusually cold weather until the close of the month, at which time temperatures of from 20 to nearly 40 degrees below zero (F.) were experienced in the northern Great Plains Region.

For January, as a whole, the temperature was below the normal, as during the preceding month, in all districts east of the Rocky Mountains, the deficiencies reaching more than 12 degrees per day in portions of the Central Mississippi and lower Ohio valleys. In portions of the above region the month was continuously the coldest of which there is record. At Portsmouth, Ohio, where reliable records exist since 1824, the average temperature for January, 1918, is the lowest observed during the period of nearly 100 years. The only years with temperatures closely approaching those of January, 1918, were January, 1856 and 1857, two remarkably cold months over all eastern parts of the United States, but apparently 2 or 3 degrees warmer than the present January.

Over the southern Canadian Provinces, the month was warmer than is usual for January as far east as Manitoba, and only slightly colder than normal to the eastward; the temperature deficiencies were less marked than to the southward over the central and eastern districts of the United States.

West of the Rocky Mountains most districts had monthly mean temperatures warmer than usual, particularly in the more northern districts where, like December, 1917, the whole month was unusually warm.

Maximum temperatures of about 80° were reached at a few places in the South and Southwest; but in portions of the upper Lakes Region and westward as far as North Dakota, the temperature did not rise above freezing at any time during the month. Even as far south as Missouri, there were only a few days with temperatures as high as 32°.

The lowest temperature reported from a regular Weather Bureau Station, was -38° at Havre, Mont., although temperatures between -40° and -50° were reported from the country districts in portions of the northern border States. Temperatures fell to 0°F. or lower in all central and northern districts, and freezing weather occurred throughout Texas and nearly to the extreme southern limit of Florida, but did not reach central or western California. In some of the northern States, particularly in the Upper Lakes Region, there were only a few days during the month when 0° was not recorded in some portion of the States, while the highest was rarely above freezing.

PRECIPITATION.

The month opened with generally fair weather except in the upper Lakes Region, where light snow prevailed, but this area of precipitation rapidly overspread much of the eastern portion of the country. After a few days of comparatively fair weather, rain occurred in the far South and thereafter snow or rain fell at frequent intervals in many sections of the country east of the Mississippi River. The storms moved rapidly across the country and gave, on the whole, moderate precipitation, although the amounts were heavy in some localities. Toward the latter part of the month extensive and heavy snows occurred in most eastern sections.

Light rains occurred nearly every day during the month in the North Pacific States, and about the middle of the month rather general precipitation occurred over most sections west of the Rocky Mountains.

For the month, as a whole, the precipitation was near the normal in the States east of the Mississippi, with a moderate excess in portions of the Southeast. The monthly totals were rather large, but generally less than normal in the North Pacific States; while in California, Nevada, and portions of adjoining States there was very little precipitation and, as the preceding months had been dry, the accumulated deficiency at the end of January had become unusually large. Over the Great Plains and the States next west of the upper Mississippi River, the precipitation was scanty, and in portions of Texas severe drought still continued.

The total snowfall for January, like that of the preceding month, was much heavier than usual in the central districts from the Mississippi Valley eastward. The falls were particularly heavy from the southern end of Lake Michigan southward and southeastward over the Ohio Valley; and likewise from southwestern Virginia northeastward to and including Pennsylvania, where the monthly totals ranged from 1 to 2 feet or more. From the central Mississippi Valley eastward, the total snowfall was 2 to 4 times as much as is usually recorded in January. High winds caused much drifting of the snow in some of the large business districts, which greatly interfered with outdoor occupations, railway traffic, and other forms of transportation.

RELATIVE HUMIDITY.

For the month as a whole the atmosphere was relatively drier than usual for January throughout most of the coastal portions of the Atlantic and Gulf States and also in central California, Nevada, and western Utah. Elsewhere the relative humidity was generally above the normal, although in many small irregularly distributed areas it was lower than the seasonal average.

GENERAL SUMMARY.

The weather during January, 1918, was decidedly unfavorable for outdoor activities in all sections of the country east of the Rocky Mountains. This was particularly true for the central and northern districts east of the Mississippi, where severe cold and frequent heavy snows prevented practically all farm operations, greatly hindered railroad and other transportation, delayed mining operations, and caused much suffering and inconvenience in the large cities from lack of fuel and other necessary supplies.<sup>1</sup>

<sup>1</sup> Traffic delays, due to snow blockades, served to aggravate those of non-meteorological origin.—C. A., Jr.

In the Pacific Coast States, where mild weather prevailed, farm work progressed favorably and vegetation advanced more rapidly than usual, except where drought continued.

In the Southern States farm work was backward and vegetation made but little progress on account of the continued cold. Tender crops were generally killed by the low temperatures and hardy vegetables were damaged in nearly all districts except in southern Florida. Plowing for corn and cotton made some progress in the more southern portions.

Winter wheat was well covered with snow throughout the month from the Mississippi Valley eastward and from Tennessee and North Carolina northward. There was likewise a good snow cover in portions of Montana and the greater part of Missouri. In Kansas and Oklahoma considerable snow fell, but it drifted badly leaving much ground bare, and the condition of the wheat in the western portions of those States continued poor. The weather was more favorable for winter grains in the Rocky Mountains Region, and in the northern Pacific Coast States the mild, moist weather was very beneficial; these crops made rapid progress and were generally in fine condition.

Some citrus fruit trees were damaged by the cold weather in the central and western Gulf region and a few young trees were killed in Florida. Deciduous fruit buds were apparently not damaged in the Southeastern States, but in some parts of the Mississippi Valley and northeastern districts the unusually low temperatures doubtless killed or greatly damaged the peach buds.

A more extensive review of the severe weather during the month of December, 1917, and January, 1918, will appear in an early issue of the REVIEW.

Average accumulated departures for January, 1918.

Districts.	Temperature.			Precipitation.			Cloudiness.		Relative humidity.	
	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure from the normal.	General mean for the current month.	Departure from the normal.
	° F.	° F.	° F.	Inch.	Inch.	Inch.	0-10.	P. ct.		
New England.....	17.0	-7.4	-7.4	2.75	-0.80	-0.80	5.9	-0.1	75	-1
Middle Atlantic.....	22.7	-8.9	-8.9	4.06	+0.70	+0.70	5.9	-0.1	73	-3
South Atlantic.....	38.6	-6.6	-6.6	2.76	-1.00	-1.00	5.2	-0.1	76	-1
Florida Peninsula.....	61.8	-2.7	-2.7	1.63	-1.10	-1.10	3.8	-1.0	78	-4
East Gulf.....	41.3	-6.1	-6.1	6.77	+1.30	+1.30	5.6	-0.1	69	-8
West Gulf.....	38.7	-7.4	-7.4	1.72	-1.20	-1.20	4.3	-1.1	71	-4
Ohio Valley and Tennessee.....	21.1	-12.1	-12.1	4.55	+0.70	+0.70	6.7	+0.2	82	+5
Lower Lakes.....	13.4	-10.4	-10.4	2.88	+0.20	+0.20	6.8	-0.7	83	+3
Upper Lakes.....	8.6	-9.8	-9.8	2.56	+0.60	+0.60	6.9	-0.1	85	+3
North Dakota.....	-1.1	-5.2	-5.2	0.56	0.00	0.00	6.4	+1.4	88	+7
Upper Mississippi Valley.....	10.7	-10.8	-10.8	1.38	-0.30	-0.30	5.3	-0.3	82	+3
Missouri Valley.....	12.6	-8.5	-8.5	0.95	0.00	0.00	5.5	+0.4	83	+6
Northern slope.....	16.1	-2.9	-2.9	1.18	+0.30	+0.30	6.5	+1.3	78	+5
Middle slope.....	21.4	-7.8	-7.8	0.78	+0.10	+0.10	4.8	+0.5	74	+6
Southern slope.....	34.4	-4.8	-4.8	0.68	0.00	0.00	3.6	-0.9	61	-3
Southern plateau.....	40.1	-0.7	-0.7	1.03	+0.10	+0.10	2.9	-0.6	52	-0
Middle plateau.....	30.0	+1.5	+1.5	1.10	0.00	0.00	4.9	-0.5	66	-0
Northern plateau.....	33.1	+4.3	+4.3	2.20	+0.60	+0.60	7.7	+0.8	80	-0
North Pacific.....	44.8	+4.7	+4.7	6.13	-0.80	-0.80	8.1	+0.5	85	-1
Middle Pacific.....	49.2	+1.9	+1.9	1.13	-3.60	-3.60	4.3	-1.6	70	-11
South Pacific.....	52.6	+1.7	+1.7	0.79	-2.00	-2.00	3.8	-0.9	67	-4