

THE WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

Apart from the catastrophic floods in New England during the early days of November, the month was without important departures from normal conditions. The temperature for the country as a whole was decidedly above the normal, the only exception being in the Dakotas, eastern Montana, and the northern parts of Minnesota and Wisconsin. Rainfall on the whole was deficient except in the flood-stricken part of New England and in parts of Pacific coast States. Snowfall was light and inconsequential.—A. J. H.

THE WEATHER ELEMENTS

By P. C. DAY

PRESSURE AND WINDS

The important features of the weather for November, 1927, were the unusual warmth and general lack of important precipitation in the Southern States, and the excessive precipitation and attending severe flood conditions in portions of New England and near-by areas.

The month as a whole was stormy over the far Northwest and cyclones were rather frequent and gave important precipitation in the area from the Great Lakes eastward.

Among the cyclones causing important precipitation over considerable areas may be mentioned that of the 3d and 4th which developed as a moderate depression over the east Gulf States and moved to New England by the 4th, developing greatly in severity as it moved northward and attended by heavy to excessive rains over the eastern portions of New York and the adjacent areas of New England. Total falls during the period from near sunset of the 3d to sunset of the 4th, the time of heaviest precipitation, ranged up to as much as 8 inches locally in parts of the storm area, and disastrous floods followed in the Connecticut River and some of its tributaries as well as elsewhere in the area of heavy precipitation, the details of which appear elsewhere in this issue.

A second important cyclone moved from western Montana on the 9th to eastern Iowa by the 10th and thence northeastward to beyond the Great Lakes during the following 24 hours. The precipitation was not particularly heavy but it covered a wide area from the Mississippi Valley eastward to the Appalachian Mountains and generally from New York to New England.

Another storm pursuing a similar course was central over eastern Iowa on the morning of the 15th, moving northeastward to beyond the Great Lakes during the following 24 hours. Before the effects of this storm had passed over the upper Mississippi Valley and lake region, another moderate barometric depression formed over the lower Mississippi Valley and moved northeastward over the Atlantic Coast States to New England by the morning of the 18th. This was attended by heavy rains over most of the Central and east Gulf States, Ohio Valley, and Atlantic Coast States. But little important precipitation occurred during the last decade over the central and eastern districts until near the end, when more or less precipitation occurred over most central and northern districts from the Mississippi Valley eastward.

Over the Pacific coast States precipitation was rather general on several dates during the first half, but during the remainder of the month it was confined chiefly to the more northern portions.

The most important anticyclone of the month entered the far Northwest on the morning of the 11th and moved rapidly southeastward to the Ohio Valley by the 13th, from where it drifted northeastward to New England. This brought temperature reductions of 20° to 40° over most districts in its movement eastward, though the line of freezing temperature did not extend as far southward over the central and eastern districts as on the 6th.

The average pressure for the month reduced to sea level was highest and considerably above normal over the southeastern districts, and it was distinctly low in the Rocky Mountain and Plateau regions.

The distribution of the pressure is graphically shown on Chart VI, and the departures from normal values and changes as compared with October are shown by the insets on Charts I and II.

Severe wind storms were rather infrequent for the last month of autumn and were confined largely to the middle period and near the end. A tornado causing important property damage, but without loss of life, occurred in the vicinity of Washington, D. C., on the 17th, the usual details of which appear elsewhere in this issue.

TEMPERATURE

Rather important temperature changes occurred at intervals during the month, but on the whole warm weather was the rule over the greater part of the country and this was especially the case in the more southern sections.

The first week was mainly cool save for the first day or two over most eastern districts which were in numerous localities the warmest of the month. The remainder of the week was distinctly cool from the Rocky Mountains eastward, save over the more southern portions and in the far West, some of the lowest temperatures of the month occurring at the close.

The second week continued warm in the South and averaged warmer than normal over most other districts save from the upper Mississippi Valley westward where the middle and latter portions were distinctly cold, though the first few days were the warmest of the month over the Plains portion of this area.

The third week averaged warmer than normal from the Rocky Mountains westward and in the Northeastern States. Over the interior portions of the country this week was mainly cold and some of the lowest temperatures of the month were observed from the 16th to 18th in the central valleys and northern districts, the period being from 15° to 20° below normal in eastern Montana and the Dakotas.

The last week averaged warm over the entire country, though the first part had some of the coldest weather of the month in the Plateau and near-by districts and at the end it was again cold over the Rocky Mountain area. The average temperature for this week was unusually high over much of the country, and at a number of points in the Central and Eastern States the maximum readings on some of the last few days were the highest of record for so late in the fall.

The mean temperatures for the month were above normal over all parts of the country save in the northern sections from the Rocky Mountains eastward to the upper Mississippi Valley and Lake Superior region and to the northward into Canada, where it was a distinctly cold month.

Over southern districts from Texas eastward the month was mainly the warmest November of record, and somewhat less pronounced conditions existed over much of the Middle Atlantic Coast States. The extent of the temperature departures is shown on Chart III.

Minimum temperatures of 20° or more below zero were reported from North Dakota and Minnesota and they were nearly as low over some near-by areas and in the high elevations of the Rocky Mountain region. The first killing frosts of the season did not occur until about the 5th and 6th over a large portion of the great agricultural regions of the Central States, much later than usual and too late to do much damage as most crops had fully matured before that time.

PRECIPITATION

There was a considerable deficiency in precipitation over the middle and southern Plains, particularly in the western portions of Kansas and thence southward to the Rio Grande, and severe drought continued in portions of the Southeastern States, notably in Florida where, locally it was the driest November of record and winter, truck was materially damaged or planting and germination delayed. In other portions of the country there was a very general excess of precipitation as compared with the normal fall for November, and it was generally well distributed through the month. Over an extensive area from the Great Lakes and Ohio Valley eastward it was decidedly wet and at many points in the lake region and from Pennsylvania northeastward to New England the monthly totals were the greatest ever known in November.

The general excess of precipitation from the Mississippi Valley eastward, except in some southeastern sections,

assured a good supply of soil moisture, and similar conditions existed over the sections from the Rocky Mountains westward.

SNOWFALL

No unusually heavy snows occurred, though in the northern tier of States from the Rocky Mountains to the Great Lakes snows were rather frequent and the total falls somewhat greater than normal.

In the western mountains there were rather heavy falls in portions of Wyoming and Colorado, but elsewhere snow was rather light due to the very general warmth. The extent of snowfall and the depths over the various areas are shown on Chart VII.

But little snow remained on the ground at the end of the month save in the higher mountains of the West.

RELATIVE HUMIDITY

The amount of moisture in the atmosphere as shown by the average relative humidity was above normal over nearly all parts of the country, only a few localities, mostly in the central and southern Great Plains, showing averages less than normal. The averages were unusually high in the Plateau and some near-by portions of the Pacific Coast States.

SUNSHINE AND CLOUDS

The month had a large excess of cloudy weather in the upper Mississippi Valley and near-by areas, where the number of cloudy days was far above normal and in many instances the greatest for November and in some the greatest for any month of record. Over many southern sections there was much clear weather.

SEVERE LOCAL STORMS, NOVEMBER, 1927

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the annual report of the chief of bureau]

Place	Date	Time	Width of path, yards ¹	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Columbia, Mo.....	1	P. m.....			\$7,000	Thunderstorm and hail.	Damage confined to window glass, roofs of houses and automobile tops; some loss to wire service companies.	Official, U. S. Weather Bureau.
Lower Lake Michigan area.	11					Wind and severe thunderstorms.	Plate-glass windows broken; many houses damaged; power lines affected; lake traffic delayed.	Do.
Guthrie, Okla. (near)	14	6 p. m.....	4 mi.....		3,500	Heavy hail.....	Roofs and crops badly damaged.	Do.
Caddo County, Okla. (southwest part).	14	6 p. m.....	6 mi.....		12,000	do.....	Damage chiefly to crops over path 15 miles long.	Do.
Pensacola, Fla.....	16	5 a. m.....			1,200	Severe thunderstorm.	Roofs and windows damaged and wires disarranged over small area.	Do.
Harrisburg, Pa., and vicinity.	17	1:45 p. m.....			20,000	Electrical and wind.	Buildings and streets damaged.	Do.
Eastern Fairfax County, Va., to western Prince Georges County, Md.	17	2:15-3 p. m.....	16-260.....		690,000	Tornado.....	Many buildings damaged or completely demolished; 31 persons injured.	Do.
Yellow House to Spangville, Pa.	17	4:30-6 p. m.....			200,000	Small tornado.....	One school house and several homes and farm buildings wrecked; bridge torn away.	Do.
Boulder, Colo., and vicinity.	28				15,000	Wind.....	Windows broken; many small buildings blown down; houses and barns damaged; power and telephone lines twisted.	Do.
Grand Haven, Mich.....	28					do.....	Plant under construction wrecked; chimneys, garages, and other small buildings damaged.	Do.
Tiffin, Ohio, and vicinity..	28				6,000	Tornadic wind and electricity.	One home severely damaged; other property damage in vicinity.	Do.
Cumberland, Md.....	30	P. m.....			20,000	Gale.....	Glass factory wrecked; 3 airplanes badly damaged.	Do.
Lexington, Ky.....	30				25,000	Severe thunderstorm.	Roofs, chimneys, telephone and telegraph lines damaged.	Do.
Parkersburg, W. Va.....	30					High wind.....	Wire systems damaged.	Do.

¹ "Mi." signifies miles instead of yards.