

CLIMATOLOGICAL DATA FOR OCTOBER, 1913.

DISTRICT NO. 6, MISSOURI VALLEY.

MONTROSE W. HAYES, District Editor.

GENERAL SUMMARY.

The weather of October, 1913, was marked by a number of unusual features. In Montana and Wyoming the month was exceptionally cold and the snowfall was heavy; in North Dakota small lakes and streams were frozen over, an unusual occurrence for the season of the year; in most of South Dakota, Nebraska, Kansas, and Iowa, and the western part of Missouri, the lowest temperatures ever experienced in October were recorded. Other abnormal features were the deficiency in precipitation over nearly all the western portion of Kansas and in almost the entire State of Nebraska, and the unusually heavy snowfall in parts of southern Missouri; at one station the fall was 18 inches, which probably was the heaviest snow of record in Missouri during October.

In the district as a whole the weather was generally favorable for outdoor work, despite the marked extremes, and good progress was made with seasonable farm work, although in some parts of South Dakota thrashing was retarded. Throughout the mountain districts the conditions were favorable from a standpoint of forestry, on account of the precipitation; the woods have been kept moist and no fires have occurred.

Two storms of tornadic character occurred, accounts of which appear elsewhere in this report.

TEMPERATURE.

The mean temperature was below the normal in all parts of the district. The greatest deficiency was 4.0° in North Dakota and the least was 2.5° in Missouri, indicating that the departures from the normal were exceptionally uniform when the great extent of the district is considered. During the first 7 or 8 days the highest temperature occurred at almost all of the stations, and temperatures that were above the normal were general for the first half of the month. In the latter half the weather was cold, the coldest day being the 29th. In all the States of the district, except Missouri, zero temperatures occurred, and in a large part of what may be termed the central section of the drainage area the cold-weather record for October was broken. In Iowa the first zero temperatures of record for October occurred. The lowest temperature in the district was 6° below zero at South Pass City, Wyo., and the highest was 95° at Forestburg, S. Dak.

PRECIPITATION.

The precipitation was distributed uniformly as to the time of occurrence but unevenly as to the amounts. Over Wyoming, Montana, North Dakota, Iowa, and Missouri the amounts were above the normal; they were deficient in the remainder of the district. The greatest excess occurred in Missouri and the greatest deficiency in Nebraska. In a large portion of Kansas, Nebraska, and South Dakota practically no rain fell during the month. In Wyoming and the mountain portions of South Dakota, Montana, and Colorado practically all of the precipitation was in the form of snow, and at one station in Wyoming the fall amounted to 60 inches. The snowfall was also heavy over a large part of the Osage and Gasconade

watersheds in Missouri, but at the end of the month practically no snow was on the ground, except in the mountainous country. The greatest precipitation for the month was 9.12 inches at Eskridge, Kans., while at a number of stations in Nebraska there was none. The average precipitation for Nebraska was less than one-third of the normal, and at more than 80 of the reporting stations the total for the month was less than 0.50 inch; at only one station in the State was there a total fall of as much as 3 inches.

RIVERS.

Stream flow was very uniform throughout the month; there was just about enough precipitation to keep the rivers from falling, but not enough to cause rises of any consequence. The stages of the Missouri River were about normal.

THE TORNADO OF OCTOBER 9, 1913, IN NEBRASKA.

By G. A. LOVELAND, Section Director.

On October 9 a tornado moved from a point south of Lodi and west of Oconto in southwestern Custer County, Nebr., almost straight northeastward about 90 miles, and disappeared near Chambers, in southern Holt County, Nebr. It started soon after 5 p. m. and ended soon after 8 p. m., its rate of progress being about 30 miles an hour. Fortunately the path of the tornado did not pass through a village, although it narrowly missed several, but was in a sparsely settled region which had been given over mostly to large ranches. The path was practically continuous; many farm or ranch buildings were destroyed, and three persons were killed. The amount of property damage can not be ascertained accurately.

THE TORNADO OF OCTOBER 9, 1913, AT LEBANON, KANS.

By EARL V. BOWER, Cooperative Observer.

This storm was first seen 2 miles west of Lebanon at 4.02 p. m., October 9, 1913, and its peculiar appearance about 15 minutes before it broke gave people warning of its character. The funnel-shaped cloud ended in a long, slender pendant that reached the earth. Part of the time this pendant was straight and part of the time curved, and a cloud of dust rose a short distance on each side of where it touched the earth. The storm was accompanied by a greenish-colored sky, large hailstones, and severe lightning.

The tornado moved in a nearly straight course from the southwest to the northeast, destroying everything in its path, covering a distance of 15 miles in 18 minutes.

No people lost their lives, as they had ample time to reach safe places, but eight head of horses and hundreds of chickens were killed, and telephone and telegraph wires were torn down. The total damage to buildings, live stock, and implements amounted to about \$7,500. A force of 200 men worked in the devastated district the next day straightening out the wreckage.

There were many freaks connected with the storm, one of the most curious reported being on the Henry Churchill place, where an apple tree nearly a foot in diameter was torn up by the roots and twisted to pieces, while a beehive within 3 feet of the tree was not even turned over.