

# CLIMATE UPDATE

## July temps above-normal; drought worsens

**W**eather conditions during the month of July were dominated by above-normal temperatures, while precipitation was a mixed bag across the state.

The average monthly temperature was 76.8°F, which is 2.5°F above average for the current period of normal. This ranks in the top 25 percent of warmest temperatures for July. The strongest temperature departures were in the northwestern half of the state, where temperatures were 4 to 8 degrees above average. In the southeastern half of the state, temperatures ranged from normal to 4 degrees above normal.

Isolated pockets primarily in southeastern Nebraska and the southwestern Panhandle saw below-normal temperatures.

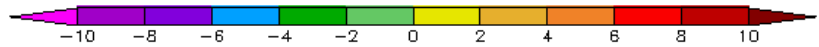
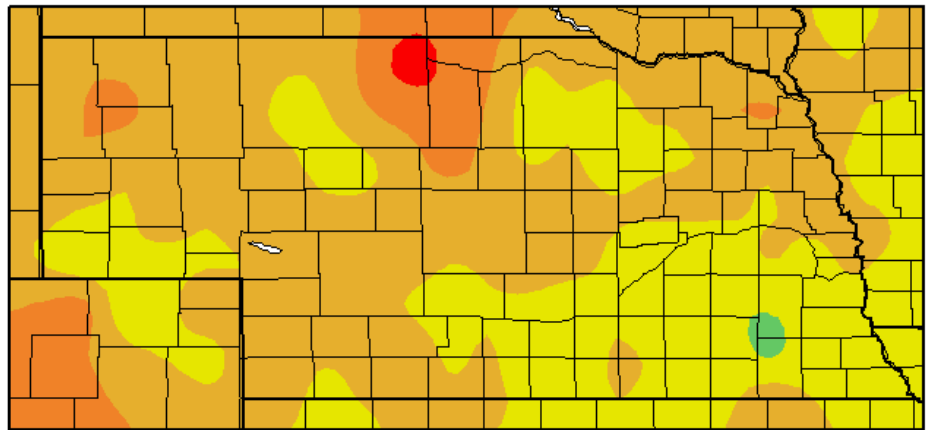
The state high temperature recorded by the Nebraska Mesonet was 107.4°F on July 19 at Sparks 5NE, while the state low temperature was 37.3°F on July 1 at Whitman 5NE. The Nebraska National Weather Service Cooperative Network recorded a state high temperature of 112°F on July 19 and a number of 100°F-plus readings across the state between July 19 and 22.

### Precipitation

The statewide precipitation ranking for July was 2.61 inches, which is 0.58 inches below normal for the current period of normal; it was the 52nd driest recorded since 1895. Monthly precipitation reports from the Nebraska Mesonet ranged from 0.52 inches at Harrison 4NW in northwest Nebraska to 6.26 inches at Alda 3W in south-central Nebraska.

There were three concentrated precipitation events during the month. The first event recorded 1 to 3 inches of rain July 13 along the I-80 corridor from Grand

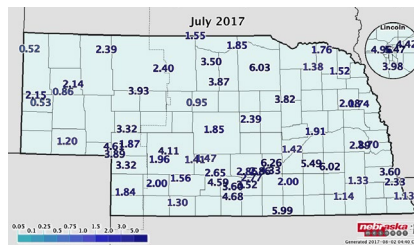
### DEPARTURE FROM NORMAL TEMPERATURE (F)



HIGH PLAINS REGIONAL CLIMATE CENTER

All maps generated using July provisional data.

### LIQUID PRECIPITATION TOTALS (IN)



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Island to Lincoln. Then, on July 18, 2 to 5 inches of precipitation was recorded across south-central Nebraska. The third event on July 26 recorded 0.75 to 2.25 inches of precipitation in the eastern third of the state. Isolated to scattered thunderstorm activity was common in western Nebraska during the last 10 days of the month. It was the result of monsoon moisture combined with temperatures consistently above 90°F, but coverage was not widespread.

### July extremes

Nebraska's statewide weather network operated by the University of Nebraska-Lincoln, the Nebraska Mesonet, cataloged the following extremes this July:

**Highest air temperature:** 107.4°F on July 19 at Sparks 5NE

**Lowest air temperature:** 37.3°F on July 1 at Whitman 5NE

**Highest 4-inch bare soil temperature:** 101.7°F on July 10 at Holdrege 5N

**Lowest 4-inch bare soil temperature:** 57.5°F on July 1 at Ainsworth 2NE

**Highest 1-day precipitation:** 3.41 inches on July 14 at York 2W

**Highest 5-second wind gust:** 70.1 mph July 27 at Alliance 6NW

## Severe Weather

No official reports of tornadic activity across the state were reported in July. However, Storm Prediction Center reports indicate at least one severe weather report was issued for Nebraska on 21 of the 31 days in July. The highest concentration of severe weather occurred across the western half of the state during the afternoon of July 2 through the early morning hours of July 3. A total of 27 hail and 20 wind events were reported by official storm spotters.

The vast majority of thunderstorm reports received during the month of July were from isolated thunderstorms developing during the late afternoon hours when peak atmospheric heating occurred. Considerable monsoon moisture worked its way from the southwestern U.S. into the central Rockies, then spilled out into the western High Plains. Although two-thirds of the days in July brought severe weather, thunderstorm development was localized and lacked widespread coverage.

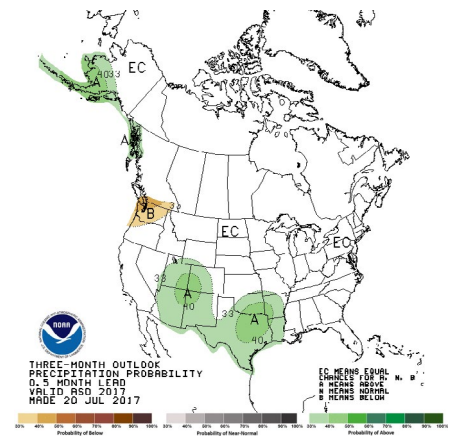
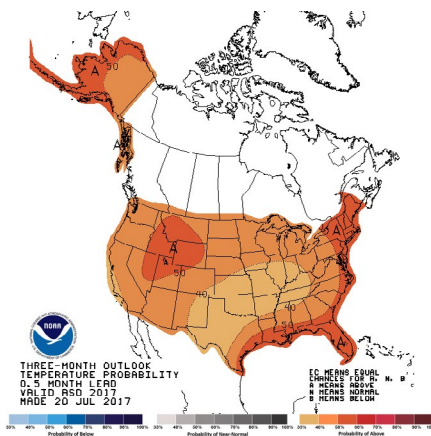
## Drought

The warm and drier-than-normal conditions experienced across a broad area of Nebraska during the month of June resulted in nearly 68 percent of the state being classified as abnormally dry and just under 9 percent of the area was classified in moderate drought (D1) by the end of the month. Intense heat and the lack of widespread precipitation events during the first half of July led to a rapid deterioration of drought conditions as the northern Plains drought built southward into the state.

The Aug. 1 release of the U.S. Drought Monitor indicated that just under 44 percent of the state was reporting abnormally dry (D0) conditions, 35 percent of the area was in moderate drought (D1), and 6 percent was experiencing severe drought (D2). A total of 85.68 percent of the land area in Nebraska was rated D0 or higher.

A widespread heavy precipitation event was reported across south-central Nebraska during the late evening hours of July 17 through the morning hours of July

## 90-DAY OUTLOOK TEMPERATURE (LEFT) & PRECIPITATION



18, with precipitation totals of 2 to 5 inches reported by the Nebraska Mesonet and the NERain reporters. These precipitation totals were sufficient to remove dryness concerns from this region of the state, and the current Drought Monitor indicates normal conditions have returned there.

Periodic episodes of localized heavy precipitation were recorded during the last 10 days of July, but broad-based coverage was lacking. If these type of precipitation events continue into the first half of August, it is likely some improvements will occur across the western third of the state. Isolated improvements are possible across the eastern two-thirds of the state and will be isolated to those areas that received generous moisture late in the month.

## Outlooks

The Climate Prediction Center's 90-day outlook for the August to October indicates the entire contiguous U.S. will likely experience above-normal temperatures into the fall. The greatest probabilities of above-normal temperatures were assigned to portions of the central and northern Rockies. According to CPC, all but extreme southeast Nebraska has greater than a 40 percent probability of experiencing above-normal temperatures, 33 percent chance of normal temperatures, and less than 27 percent chance of below-normal temperatures during the period.

CPC updated their August outlook at the end of July and reverted from an above-normal temperature forecast to a below-normal temperature forecast for the central Plains. This below-normal forecast is centered over Kansas, but all of Nebraska is projected to average below normal for the month of August. The southeastern half of the state has better than a 40 percent probability of below-normal conditions during the month, increasing to 45 percent for extreme south-central Nebraska.

If the updated August temperature forecast verifies, temperatures during September and October will have to average 1°F above normal for each 2°F of temperatures below experienced during August. Cooler-than-normal conditions during August will help alleviate heat stress on maturing crops, but it will take widespread above-normal precipitation for significant improvement in drought across the state from the USDM depiction from Aug. 1. Unfortunately, the current 90-day outlook for precipitation indicates that the closest widespread area of projected above-normal moisture across the southern High Plains lies well south of the state below normal. Even the updated 30-day outlook released on the last day of July keeps above-normal moisture south of the state, except for the southern Panhandle and southwest corner of Nebraska.



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