



North Dakota Monthly Climate Summary

August 2018

Volume: 12, No: 8

Precipitation

North Dakota State Climate Office: Your Resource for Climate Information

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Based on the National Centers for Environmental Information (NCEI), the statewide average August precipitation was 1.64 inches, which was 1.1 inches less than last month and 1.15 inches less than in August 2017, and also 0.07 inch less than the 1981-2010 average, making it the 42nd driest August in the 124-year period of record. It was the driest August since 2015 (Table 1). Below-average precipitation was observed commonly in all parts of the state except for an area in east-central North Dakota, where some above-average conditions were observed (Figure 1). The greatest monthly precipitation accumulation was 5.46 inches, recorded in Jamestown, Stutsman County. The greatest 24-hour precipitation was 2.73 inches, recorded also in Jamestown, Stutsman County, on Aug. 19. Based on historical records, statewide August precipitation showed a positive long-term trend of 0.06 inch per century since 1895. The highest and lowest August precipitation for the state ranged from 4.54 inches in 1900 to 0.73 inch in 1929 (Figure 2).

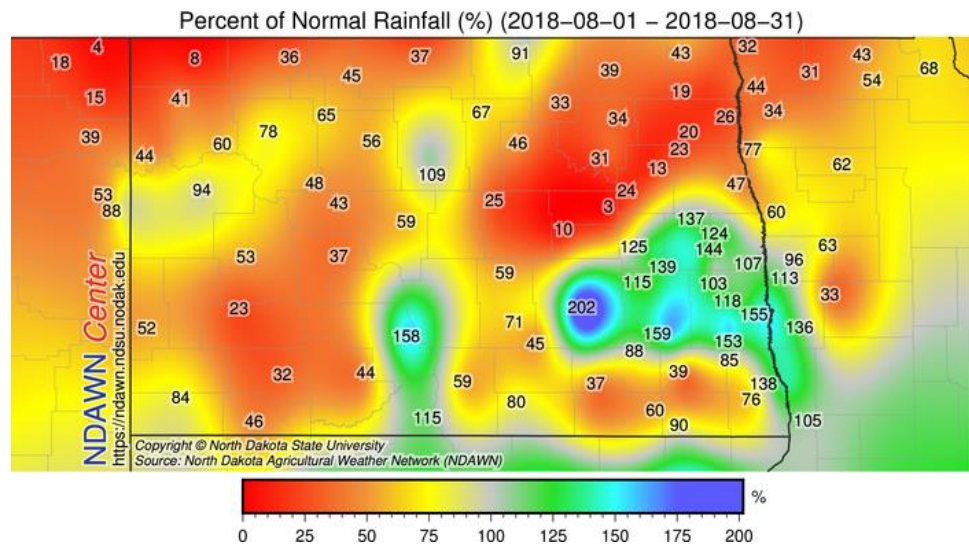


Figure 1. August 2018 precipitation percent of normal for North Dakota. (NDAWN Center, NDSU)



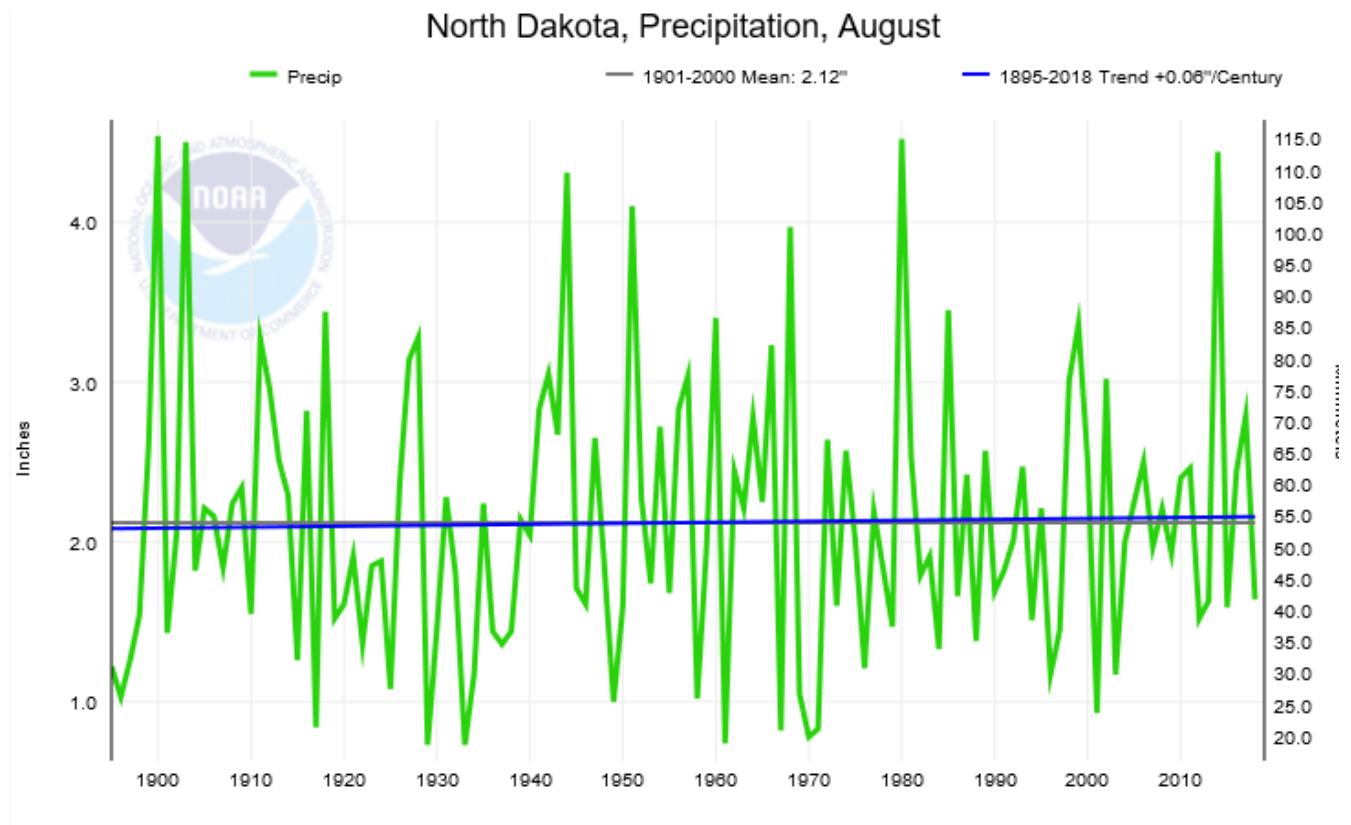
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August Precipitation Statistics

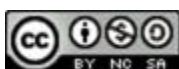
Record high value: 4.54 inches in 1900
 Record low value: 0.73 inch in 1929
 Trend: 0.06 inch per century

August 2018 value: 1.64 inches
 1981-2010 average: 1.71 inches
 Monthly ranking: 42nd driest
 Record length: 124 years

Figure 2. Historical August precipitation time series for North Dakota.

Table 1. North Dakota August Precipitation Ranking Table.

Period	Value	Normal	Anomaly	Rank	Wettest/Driest Since
August 2018	1.64"	1.71"	-0.07	42nd driest 83rd wettest	Driest since 2015 Wettest since 2017



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Temperature

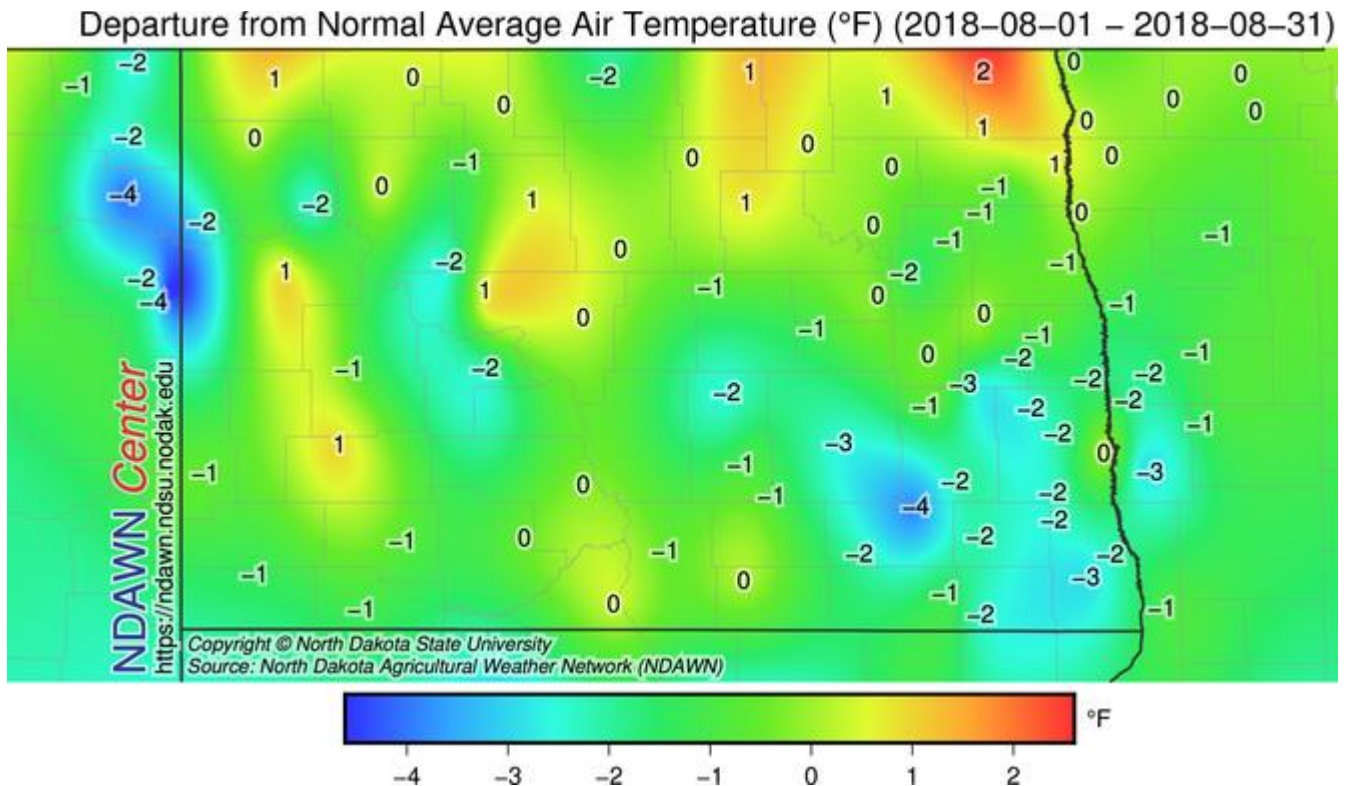


Figure 3. August 2018 temperature departure from normal for North Dakota. (NDAWN).

The official state average August temperature was 67.7 F, 1.6 F cooler than last month but 2.3 F warmer than in August 2017. The average August temperature was the same as the 1981-2010 average, making it the 55th coolest or 70th warmest August in the 124-year period of record. It was the coolest August since 2017 (Table 2). Below-average temperatures were observed commonly in southeastern parts of the state while the northeastern parts observed near to warmer-than-average conditions (Figure 3). The state's highest and lowest daily temperatures ranged from 103 F on Aug. 12 in Hettinger, Adams County, to 33 F on Aug. 29, also in Hettinger, Adams County. Based on the historical records, the state average August temperature showed a positive long-term trend of 0.2 F per decade since 1895. The highest and lowest monthly state August average temperatures ranged from 73.8 F in 1983 to 61.2 F in 1977 (Figure 4).



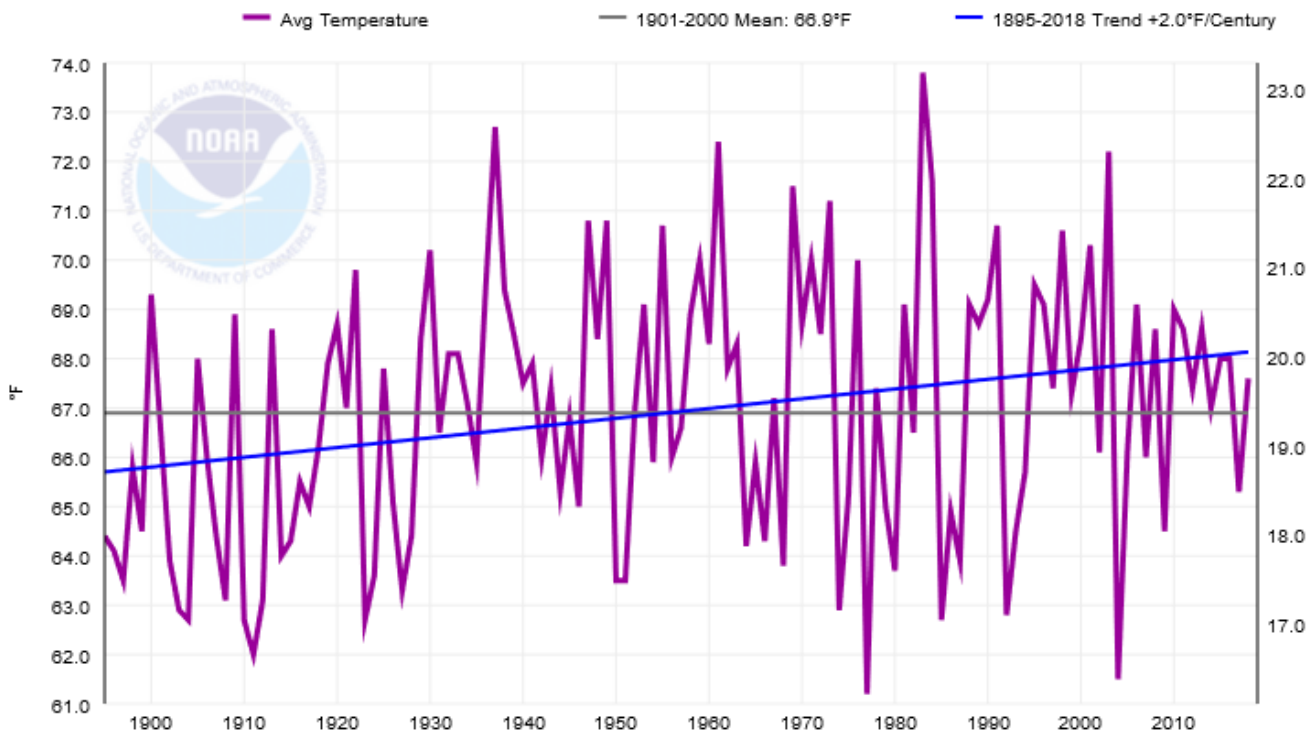


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North Dakota, Average Temperature, August



August Temperature Statistics
 Record high value: 73.8 F in 1983
 Record low value: 61.2 F in 1977
 Trend: 0.2 F per decade

August 2018 value: 67.6 F
 1981-2010 average: 67.6 F
 Monthly ranking: 55th warmest
 Record length: 124 years

Figure 4. Historical August temperature time series for North Dakota.

Table 2. North Dakota August Temperature Ranking Table.

Period	Value	Normal	Anomaly	Rank	Warmest/Coolest Since
August 2018	67.6	67.6	0.0	70th coolest 55th warmest	Coolest since 2017 Warmest since 2016



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Notable Impacts

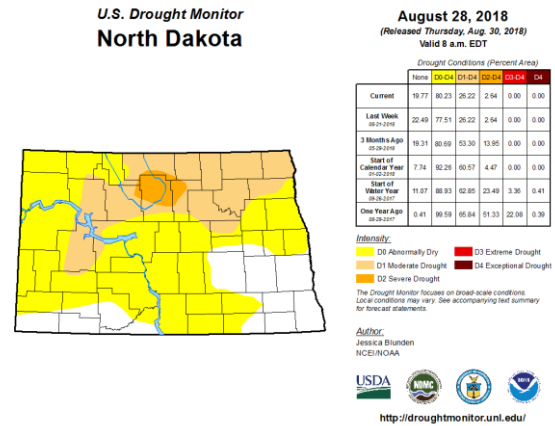
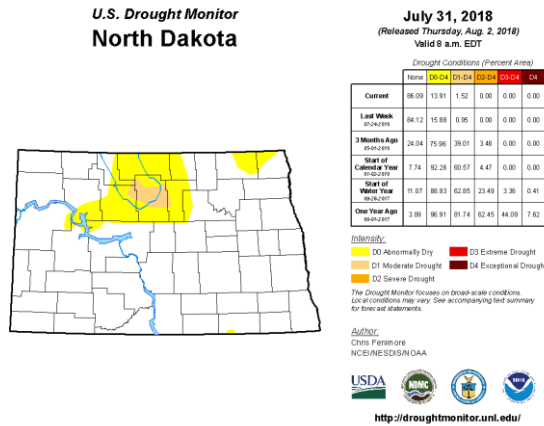


Figure 5. Drought Monitor map comparison for North Dakota in the beginning (on the left) and at the end (on the right) of August 2018.

Drought Monitor (DM): In general, overall drought conditions worsened throughout the month. By the end of August, D2 (severe drought) covered nearly 3 percent of the state. The Aug. 28 map in Figure 5 shows more than 80 percent of the state experiencing drought (increase in coverage by 79 percent, compared with the previous month). Figure 5 shows a comparison of the drought conditions across the state from the beginning to the end of the month. Figure 6 on the right shows the statewide drought coverage in percentage and intensity (D0 and D1) in a time scale representing the state from the beginning to the end of the month, with a one-week resolution.

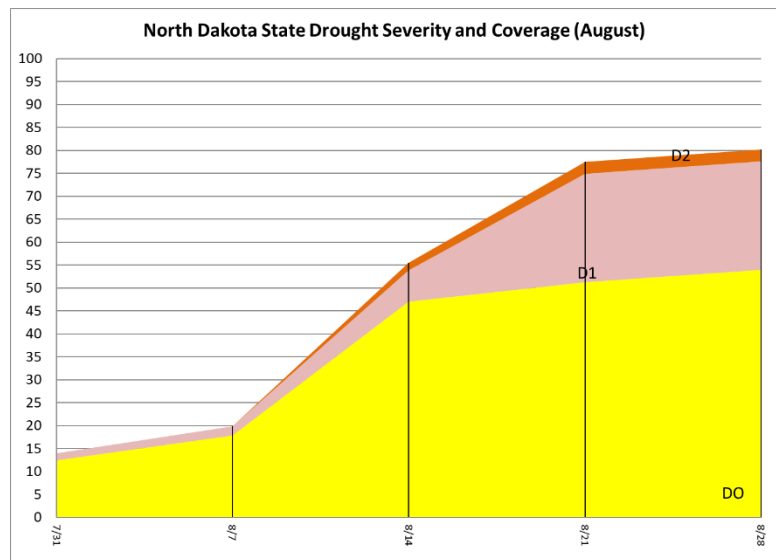
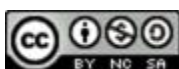


Figure 6. North Dakota drought severity and coverage for August 2018.



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Storm Reports: NDAWN's highest peak gust in August was 59 mph, recorded at the Leonard weather station in Cass County on Aug. 26, 2018.

The NOAA Storm Report reported a total of 33 significant storm events in August. Table 3 summarises the number of tornado (none), hail (21) and damaging wind (12) reports in August, while Figure 7 geographically displays the locations of these storm reports.

Table 3. Summary of August Severe Storm Reports in North Dakota. (SPC, NOAA)

Category	Number of Reports
<i>Tornado reports</i>	0
<i>Hail reports</i>	21
<i>Wind reports</i>	12
Total	33

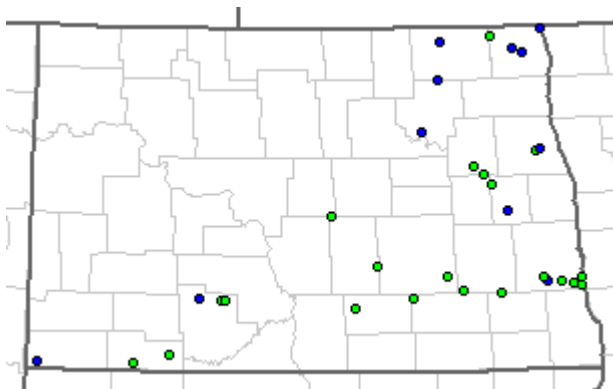
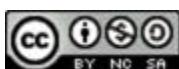


Figure 7. Map of August 2018 North Dakota storm events (red: tornado; blue: wind; green: hail).





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Daily Record Event in August: Across the observation network of weather stations with at least 30 years of history, a total of 48 daily high and 55 daily low-temperature-related records were set or tied. A total of 11 highest daily precipitation-related records were set or tied. Details of the records are in Table 4 below.

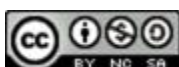
Table 4. Summary of daily records broken or set in North Dakota in August. (NCEI Daily Weather Records)

Category	Number of Records
Highest daily max. temp.	39
Highest daily min. temp.	9
Lowest daily max. temp.	49
Lowest daily min. temp.	6
Highest daily precipitation	11
Highest daily snowfall	0
Total	114

Highlight of the Month*

*A highest daily maximum temperature of 108 degrees was set in **Watford City** on **Aug. 13**, breaking the previous record for that date by 5 degrees, which was set in 1972 (years on record: 106).*

*The records in this box may be different than the record on Pages 1 and 3 due to the fact that this page only includes records for stations with at least 30 years of history.



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