



North Dakota Monthly Climate Summary

July 2019

Volume 13, No. 7

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 July precipitation was 3.24 inches, which was 0.45 inch more than last month, 0.33 inch more than in July 2018 and 0.37 inch more than the 1981-2010 average, making it the 23rd wettest July in the 125-year period of record. It was the wettest July since 2016 (Table 1). The numbers less than 100 in Figure 1 below are shaded in yellow, orange and red to depict the region with below-average rainfall. In contrast, the numbers that are greater than 100 in the same figure are shaded in green, blue and purple to depict the region with above-average rainfall in July. The greatest monthly precipitation accumulation was 7.85 inches, recorded in LaMoure, LaMoure County. The greatest 24-hour precipitation was 3.34 inches, recorded in Tolley, Renville County, on July 10. The greatest monthly snowfall accumulation was a trace, recorded in Bismarck, Burleigh County; Litchville, Barnes County; and Underwood, McLean County. The greatest 24-hour snowfall was a trace, recorded also in Bismarck on July 8, Underwood on July 9 and Litchville on July 10. Based on historical records, statewide July precipitation showed a positive long-term trend of 0.29 inch per century since 1895. The highest and lowest July precipitation for the state ranged from 7.97 inches in 1993 to 0.64 inches in 1936 (Figure 2).

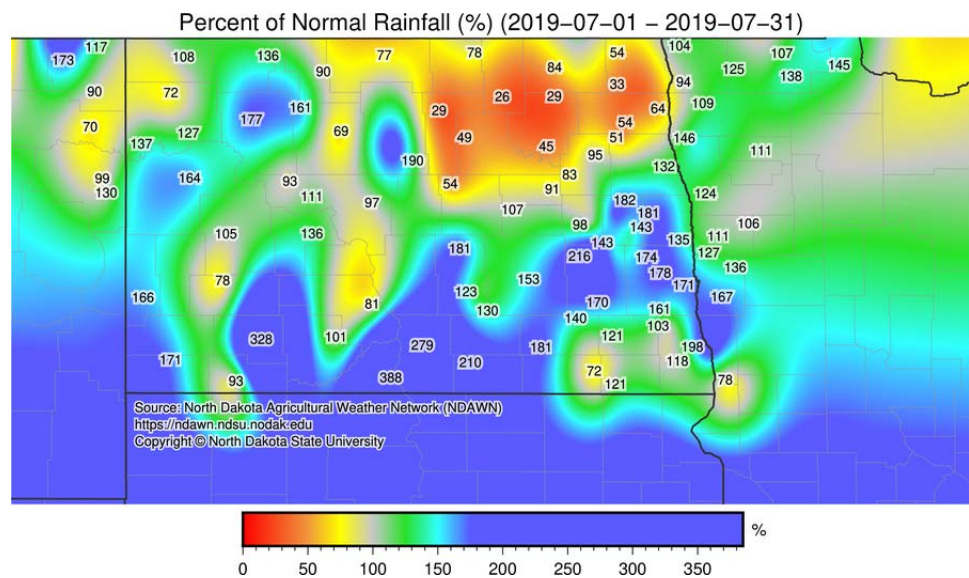


Figure 1. July 2019 precipitation percent of normal for North Dakota. (North Dakota Agricultural Weather Network)



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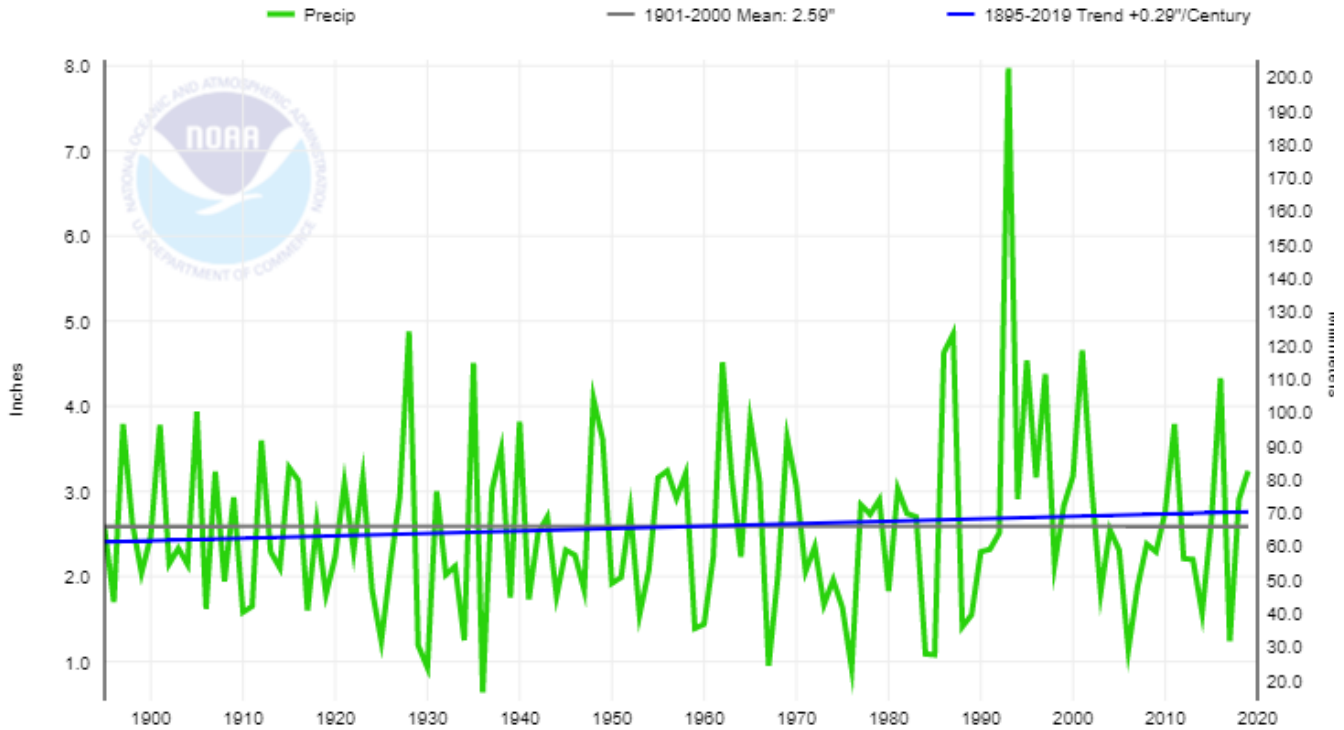


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North Dakota, Precipitation, July



July Precipitation Statistics

Record high value: 7.97 inches in 1993
 Record low value: 0.64 inches in 1936
 Trend: minus 0.29 inch per century

July 2019 value: 3.24 inch
 1981-2010 average: 2.87 inch
 Monthly ranking: 23rd wettest
 Record length: 125 years

Figure 2. Historical July precipitation time series for North Dakota (NCEI, NOAA).

Table 1. North Dakota July Precipitation Ranking Table.

Period	Value	Normal	Anomaly	Rank	Wettest/Driest Since	Record Year
July 2019	3.24"	2.87"	+ 0.37	103th driest 23rd wettest	Driest since 2018 Wettest since 2016	1936 1993



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Temperature

The official state average July temperature was 69.4 F, which is 5.5 F warmer than last month and 0.2 F warmer than in July 2018. The average July temperature was 0.3 F warmer than the 1981-2010 average, which made it the 59th warmest July in the 125-year period of record. It was the warmest July since 2017 (Table 2).

The negative numbers in Figure 3 are shaded in green and blue to depict the region with cooler-than-average temperatures in July.

In contrast, the positive numbers in the same figure are shaded in red and orange to depict the region with warmer-than-average temperatures in July. The state's highest and lowest daily temperatures ranged from 95 F on July 27 in Williston, Williams County, to 39 F on July 17 in Foxholm, Ward County. Based on the historical records, the state average July temperature showed a slight positive long-term trend of 0.1 F per decade since 1895. The highest and lowest monthly state July average temperatures ranged from 80.1 F in 1936 to 61.8 F in 1992 (Figure 4).

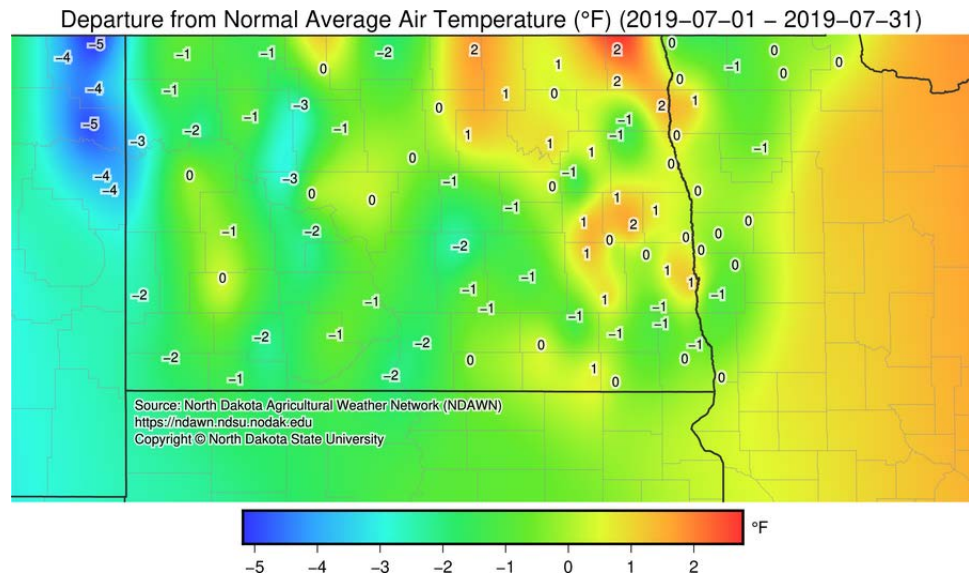


Figure 3. July 2019 temperature departure from normal for North Dakota. (North Dakota Agricultural Weather Network)



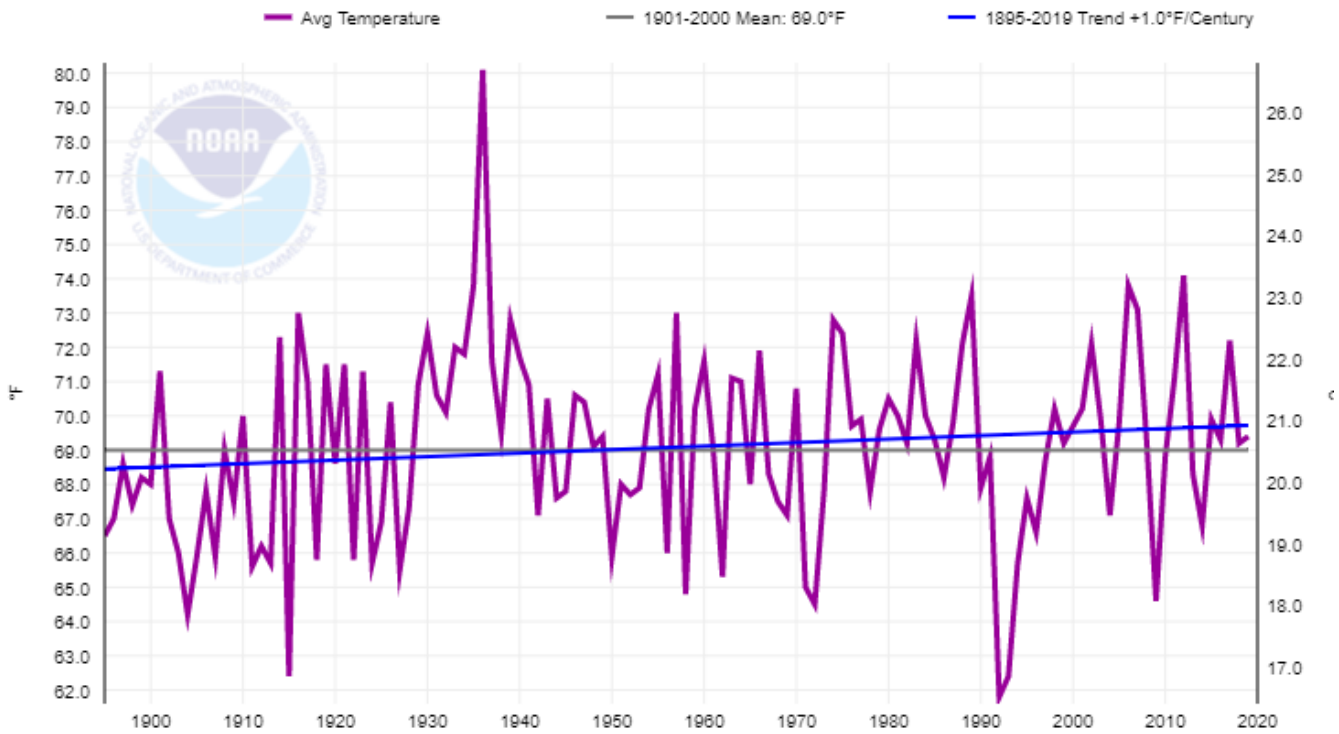


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North Dakota, Average Temperature, July



July Temperature Statistics

Record high value: 80.1 F in 1936
 Record low value: 61.8 F in 1992
 Trend: 0.1 F per decade

July 2019 value: 69.4 F
 1981-2019 average: 69.1 F
 Monthly ranking: 59th warmest
 Record length: 125 years

Figure 4. Historical July temperature time series for North Dakota (National Centers for Environmental Information, NOAA).

Table 2. North Dakota July Temperature Ranking Table.

Period	Value	Normal	Anomaly	Rank	Warmest/Coollest Since	Record Year
July 2019	69.4	69.1	+0.3	67th coolest 59th warmest	Coollest since 2018 Warmest since 2017	1992 1936



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Storm Reports: Table 3 below shows the summary of July Severe Storm Reports in North Dakota (Storm Prediction Center, NOAA).

The NOAA Storm Report showed 28 significant storm events in July. Table 3 summarizes the number of tornado, hail and damaging wind reports in July, while Figure 5 geographically displays the locations of these storms.

Table 3. Summary of July Severe Storm Reports in North Dakota. (Storm Prediction Center, NOAA)

Category	Number of Reports
Tornado reports	0
Hail reports	20
Wind reports	8
Total	28

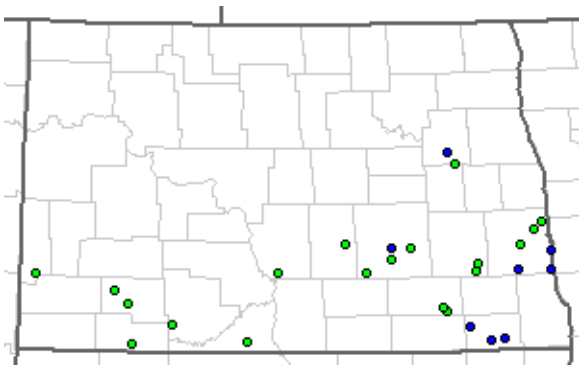


Figure 5. Map of July 2019 North Dakota storm events (red: tornado; blue: wind; green: hail). (Storm Prediction Center, NOAA)



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Daily Record Events in July: Across the observation network of weather stations with at least 30 years of history, 15 daily high- and one daily low-temperature records were set or tied. A total of 28 highest daily precipitation-related records were set or tied. Details of the records are in Table 4.

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

Category	Number of Records
Highest daily max. temp.	0
Highest daily min. temp.	15
Lowest daily max. temp.	0
Lowest daily min. temp.	1
Highest daily precipitation	28
Highest daily snowfall	0
Total	44

The Highlight of the Month*

A highest daily precipitation record of 3.12 inches was set in **Williston** on **July 9**, breaking the previous record for that date by 1.71 inches, which was set last year in 2018 (years on record: 125).

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

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