



# North Dakota Monthly Climate Summary

July 2018

Volume: 12, No: 7

## Precipitation

North Dakota State Climate Office: Your Resource for Climate Information

**NDSU** NORTH DAKOTA STATE UNIVERSITY

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Based on the National Centers for Environmental Information (NCEI), the statewide total July precipitation was 2.74 inches, which was 1.26 inches less than last month and 1.5 inches more than in July 2017, but 0.13 inch less than the 1981-2010 average, making it the 48th wettest July in the 124-year period of record. It was the wettest July since 2016 (Table 1). Below-average precipitation was observed commonly in all parts of the state except for an area in south-eastern North Dakota, where well-above-average conditions were observed (Figure 1). The greatest monthly precipitation accumulation was 9.77 inches, recorded in Ellendale, Dickey County. The greatest 24-hour precipitation was 5.55 inches, recorded in Ellendale, Dickey County, on July 19. Based on historical records, statewide July precipitation showed a positive long-term trend of 0.26 inch per century since 1895. The highest and lowest July precipitation for the state ranged from 7.97 inches in 1993 to 0.64 inch in 1936 (Figure 2).

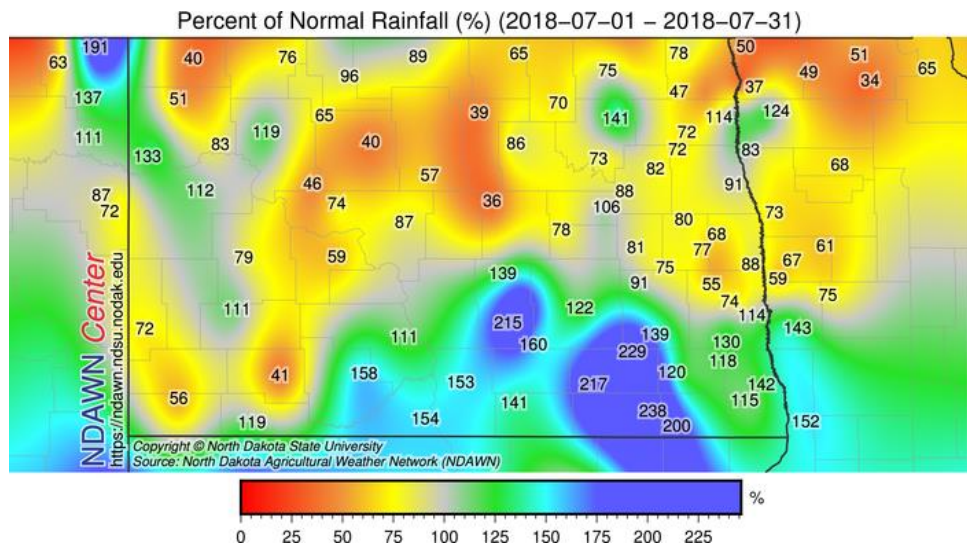


Figure 1. July 2018 precipitation percent of normal for North Dakota. (NDAWN Center, NDSU)



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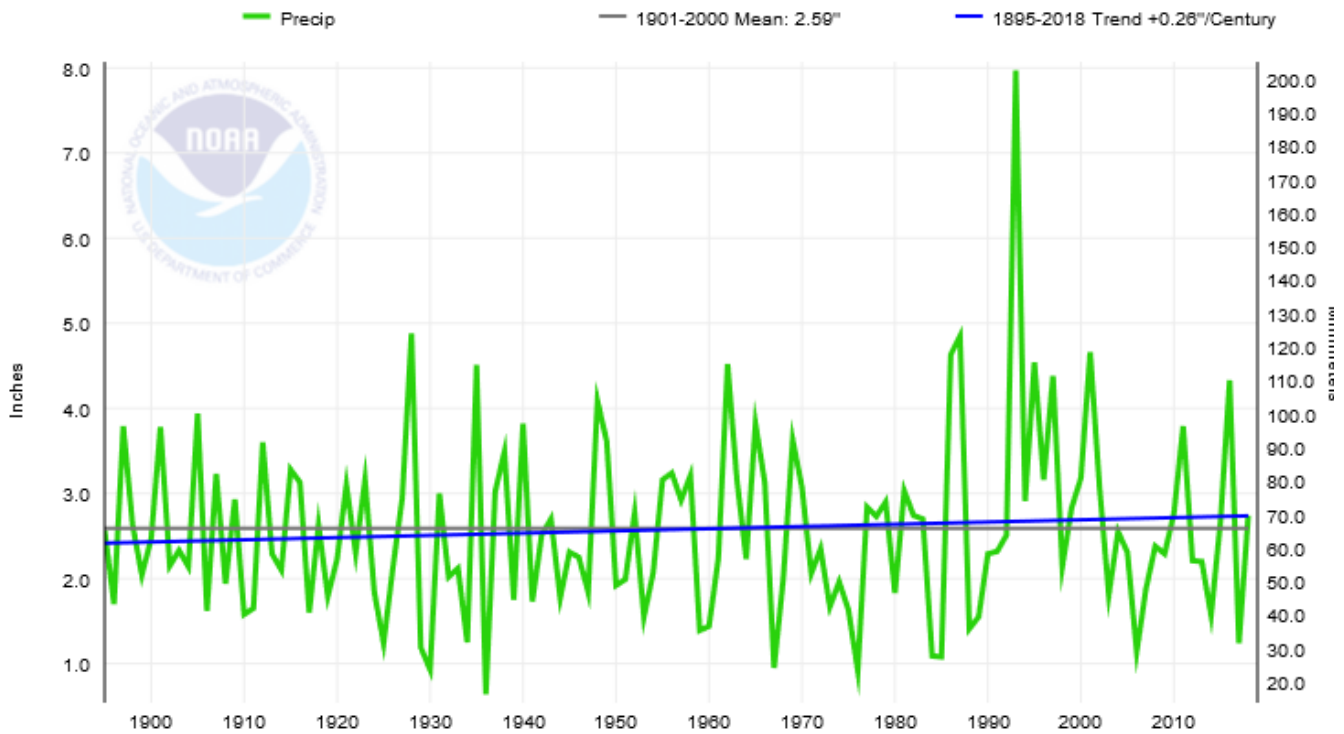


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Volume: 12, No: 7

North Dakota, Precipitation, July



### July Precipitation Statistics

Record high value: 7.97 inches in 1993  
 Record low value: 0.64 inch in 1936  
 Trend: 0.26 inch per century

July 2018 value: 2.74 inches  
 1981-2010 average: 2.87 inches  
 Monthly ranking: 48th wettest  
 Record length: 124 years

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

Table 1. North Dakota July Precipitation Ranking Table.

Period	Value	Normal	Anomaly	Rank	Wettest/Driest Since
July 2018	2.74"	2.87"	-0.13	77th driest 48th wettest	Driest since 2017 Wettest since 2016



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## Temperature

Departure from Normal Average Air Temperature (°F) (2018-07-01 – 2018-07-31)

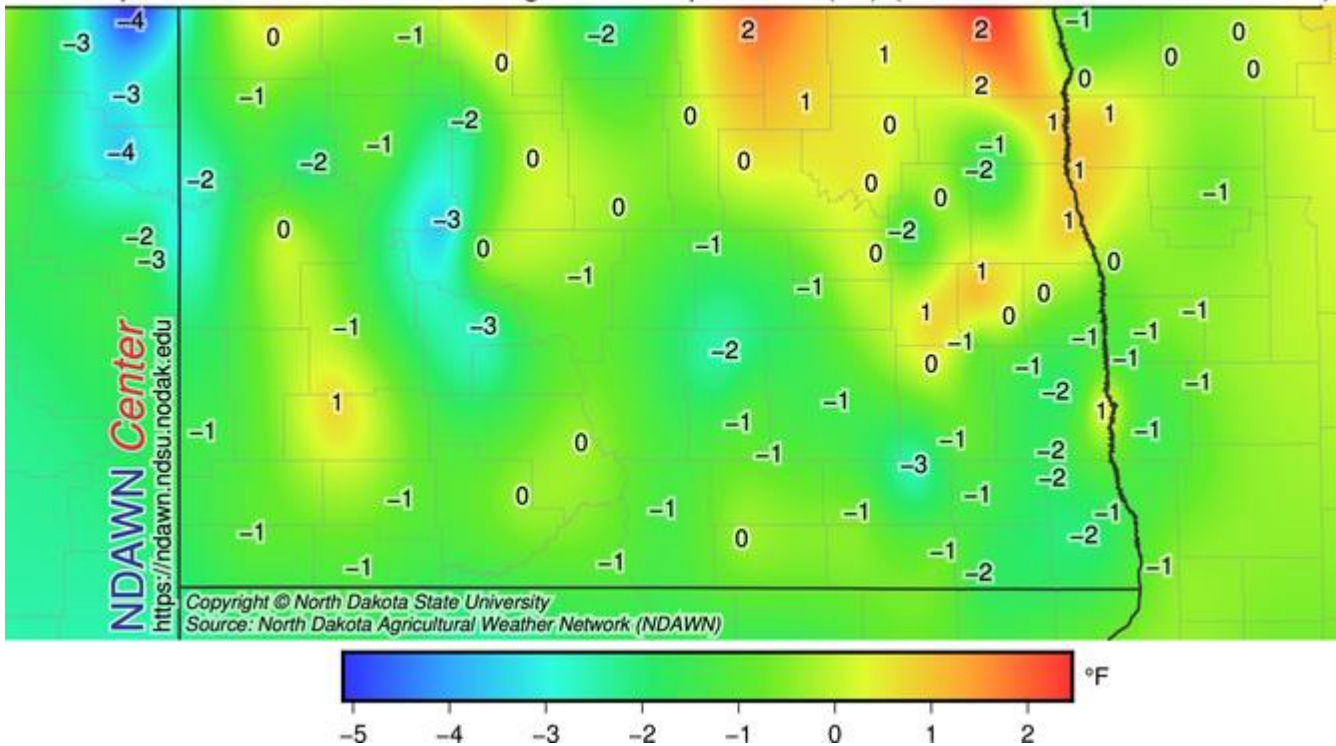


Figure 3. July 2018 temperature departure from normal for North Dakota. (NDAWN)

The official state average July temperature was 69.3 F, 1.9 F warmer than last month and 2.9 F cooler than in July 2017, but 0.2 F warmer than the 1981-2010 average, making it the 65th coolest July in the 124-year period of record. It was the warmest July since 2017 (Table 2). Below-average temperatures were observed commonly in the state, except for a small area in north-eastern North Dakota, where above-average conditions were observed (Figure 3). The state's highest and lowest daily temperatures ranged from 101 F on July 15 in Kildeer, Dunn County, to 41 F on July 26 in Taylor, Stark County. Based on the historical records, the state average July temperature showed a 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).



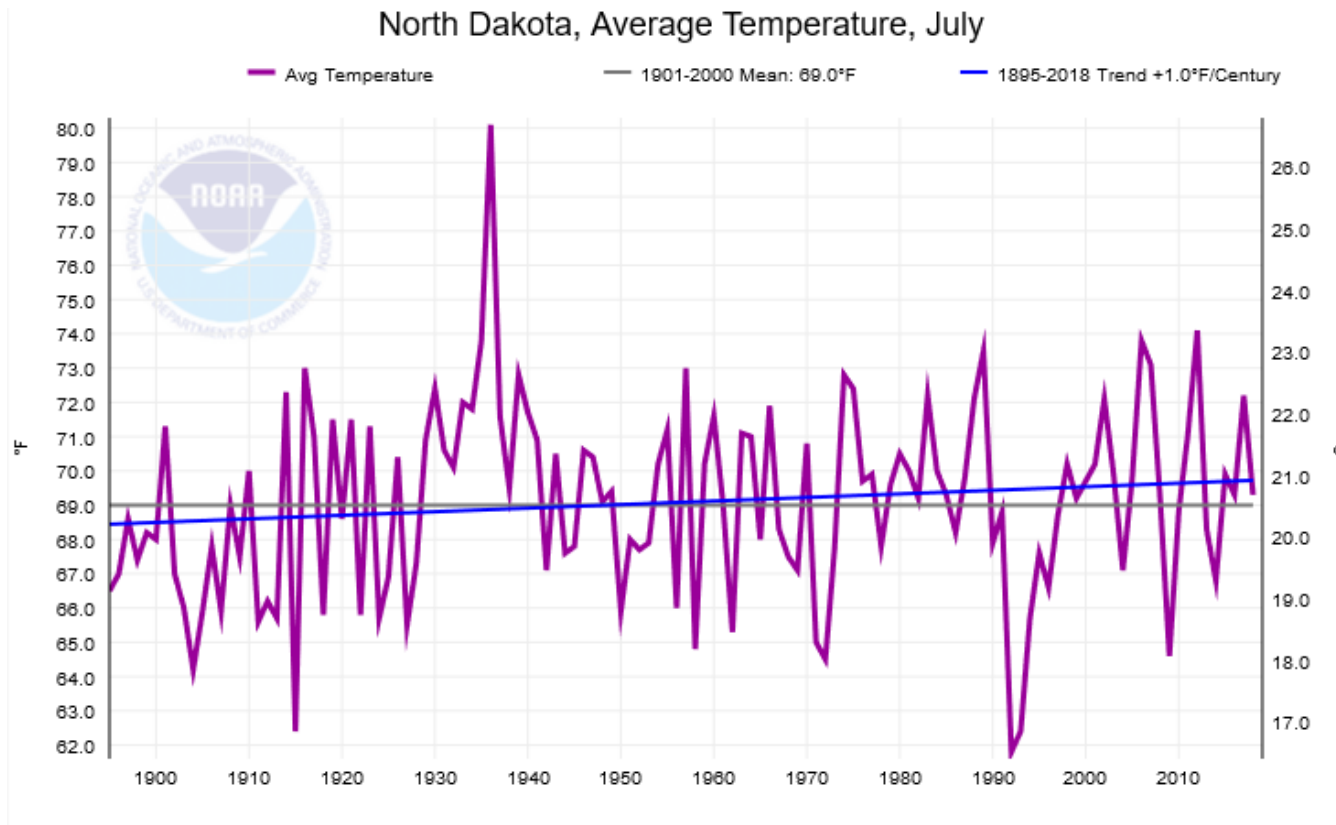
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Volume: 12, No: 7



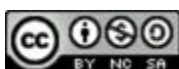
**July Temperature Statistics**  
 Record high value: 80.1 F in 1936  
 Record low value: 61.8 F in 1992  
 Trend: 0.1 F per decade

July 2018 value: 69.3 F  
 1981-2010 average: 69.1 F  
 Monthly ranking: 65th coolest  
 Record length: 124 years

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

Table 2. North Dakota July Temperature Ranking Table.

Period	Value	Normal	Anomaly	Rank	Warmest/Coollest Since
July 2018	69.3	66.1	0.2	60th warmest 65th coolest	Warmest since 2017 Coolest since 2016



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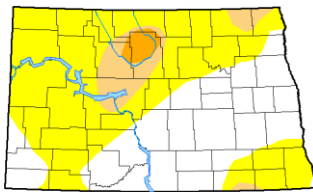
# North Dakota Monthly Climate Summary

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Volume: 12, No: 7

## Notable Impacts

U.S. Drought Monitor  
North Dakota



June 26, 2018  
(Released Thursday, Jun. 28, 2018)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0	D1	D2	D3	D4
Current	39.25	60.75	9.06	1.85	0.00	0.00
Last Week	39.25	60.75	9.06	1.85	0.00	0.00
3 Months Ago	9.21	90.79	49.24	4.08	0.00	0.00
Start of Calendar Year	7.74	92.26	60.57	4.47	0.00	0.00
Start of Water Year	11.07	88.93	62.85	23.49	3.36	0.41
One Year Ago	0.02	99.98	69.77	46.90	25.06	0.00

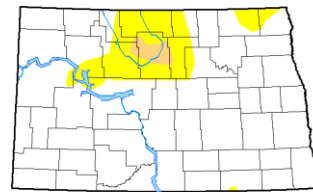
Intensity:  
 D0 Abnormally Dry    D3 Extreme Drought  
 D1 Moderate Drought    D4 Exceptional Drought  
 D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Richard Heim  
NCEI/NOAA

<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor  
North Dakota



July 31, 2018  
(Released Thursday, Aug. 2, 2018)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0	D1	D2	D3	D4
Current	98.09	13.91	1.52	0.00	0.00	0.00
Last Week	94.12	15.88	0.96	0.00	0.00	0.00
3 Months Ago	24.04	75.96	26.01	3.48	0.00	0.00
Start of Calendar Year	7.74	92.26	60.57	4.47	0.00	0.00
Start of Water Year	11.07	88.93	62.85	23.49	3.36	0.41
One Year Ago	3.09	96.91	81.74	62.45	44.09	7.62

Intensity:  
 D0 Abnormally Dry    D3 Extreme Drought  
 D1 Moderate Drought    D4 Exceptional Drought  
 D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Chris Ferrelle  
NCEI/NOAA

<http://droughtmonitor.unl.edu/>

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

**Drought Monitor (DM):** In general, overall drought conditions improved throughout the month. By the end of July, severe drought conditions in the north-central part were eliminated. The July 31 map in Figure 5 shows less than 2 percent of the state experiencing drought (decreasing in coverage by 8 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.

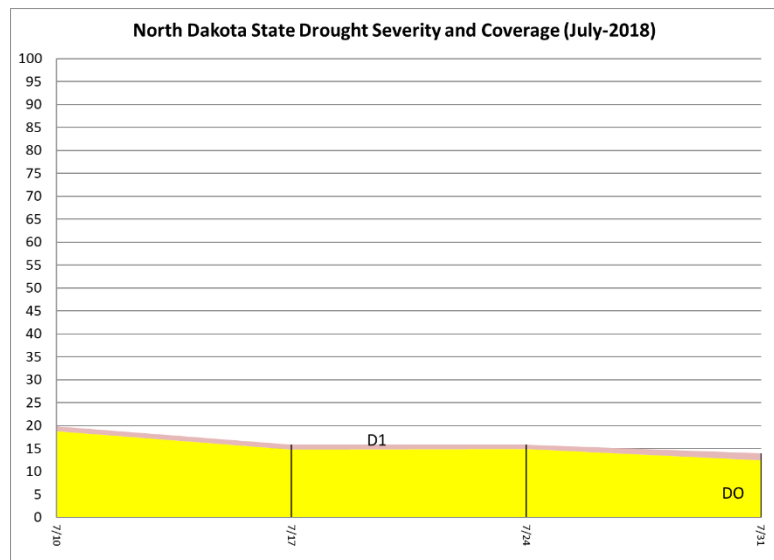


Figure 6. North Dakota drought severity and coverage for July 2018.



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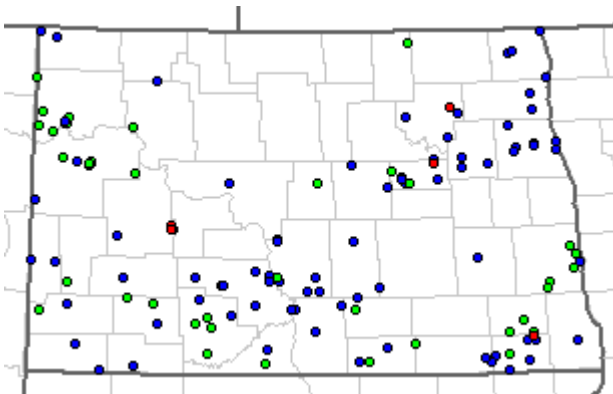
Volume: 12, No: 7

**Storm Reports:** NDAWN's highest peak gust in July was 92 mph, recorded at the Robinson weather station in Kidder County on July 8, 2018.

The NOAA Storm Report reported a total of 134 significant storm events in July. Table 3 summarises the number of tornado (seven), hail (42) and damaging wind (85) reports in July, while Figure 7 geographically displays the locations of these storm reports.

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

Category	Number of Reports
Tornado reports	7
Hail reports	42
Wind reports	85
<b>Total</b>	<b>134</b>



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





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**Daily Record Event in July:** Across the observation network of weather stations with at least 30 years of history, a total of 22 daily high and five daily low-temperature-related records were set or tied. A total of 23 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 July. (NCEI Daily Weather Records)*

<i>Category</i>	<i>Number of Records</i>
<i>Highest daily max. temp.</i>	0
<i>Highest daily min. temp.</i>	22
<i>Lowest daily max. temp.</i>	4
<i>Lowest daily min. temp.</i>	1
<i>Highest daily precipitation</i>	23
<i>Highest daily snowfall</i>	0
<b><i>Total</i></b>	<b>50</b>

## *Highlight of the Month\**

*A highest daily rainfall of 3.5 inches was set in **Fullerton** on **July 18**, breaking the previous record for that date by 1.21 inches, which was set 99 years ago in 1919 (years on record: 120).*

*\*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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