



# North Dakota Monthly Climate Summary

September 2018

Volume: 12, No: 9

## 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 September precipitation was 1.72 inches, which was 0.08 inch more than last month but 0.75 inch less than in September 2017, and only 0.01 inch more than the 1981-2010 average, making it the 51st driest September in the 124-year period of record. It was the driest September since 2015 (Table 1). The numbers less than 100 in Figure 1 below are shaded in yellow 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 and blue to depict the region with above-average rainfall in September. The greatest monthly precipitation accumulation was 3.87 inches, recorded in Bismarck, Burleigh County. The greatest 24-hour precipitation was 2.10 inches, recorded in Ashley, McIntosh County, on Sept. 21. Based on historical records, statewide September precipitation showed a positive long-term trend of 0.28 inch per century since 1895. The highest and lowest September precipitation for the state ranged from 4.68 inches in 1941 to 0.2 inch in 2012 (Figure 2).

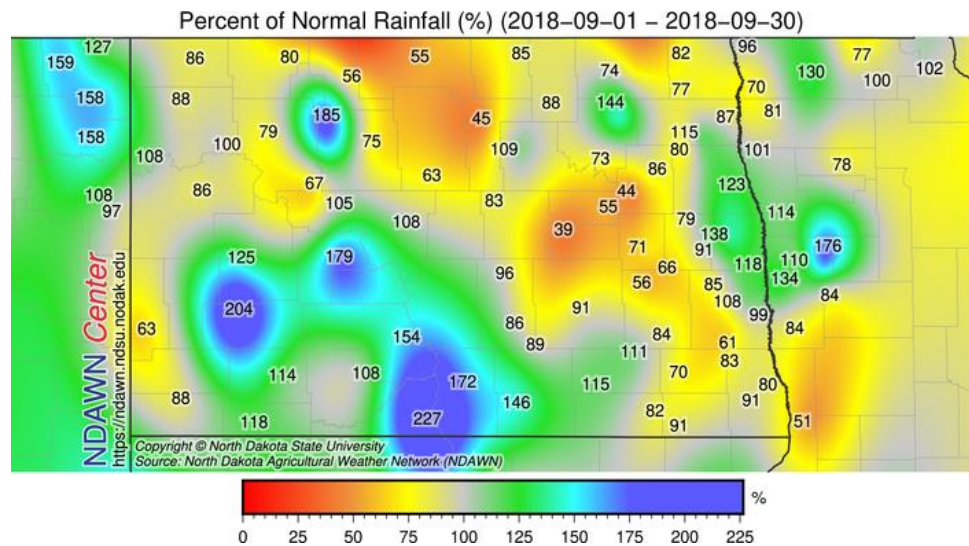


Figure 1. September 2018 precipitation percent of normal for North Dakota. (NDAWN Center, NDSU)



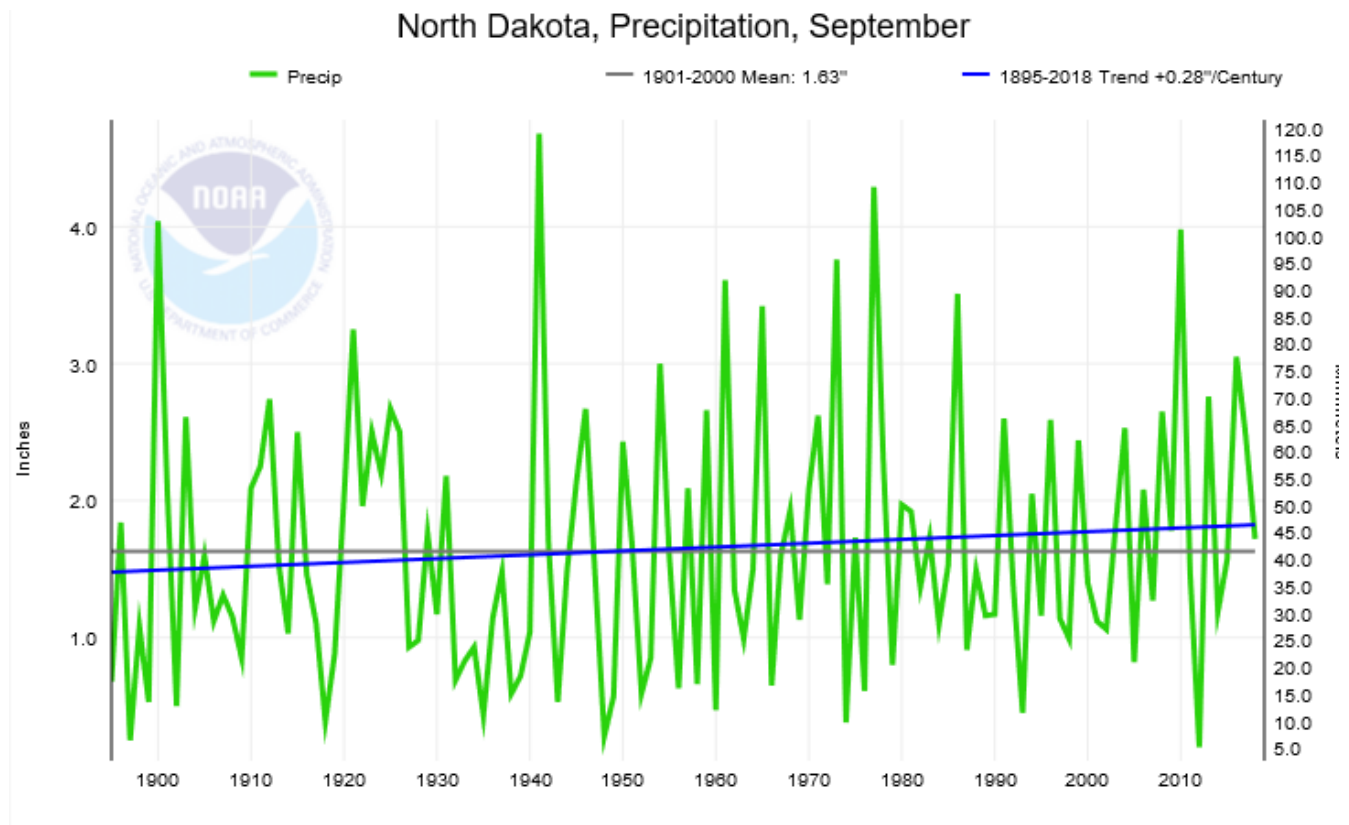
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### September Precipitation Statistics

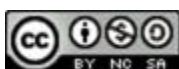
Record high value: 4.68 inches in 1941  
 Record low value: 0.20 inch in 2012  
 Trend: 0.28 inch per century

September 2018 value: 1.72 inches  
 1981-2010 average: 1.71 inches  
 Monthly ranking: 51st wettest  
 Record length: 124 years

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

Table 1. North Dakota September Precipitation Ranking Table.

Period	Value	Normal	Anomaly	Rank	Wettest/Driest Since
September 2018	1.72"	1.71"	+0.01	74th driest 51st wettest	Driest since 2015 Wettest since 2017



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## Temperature

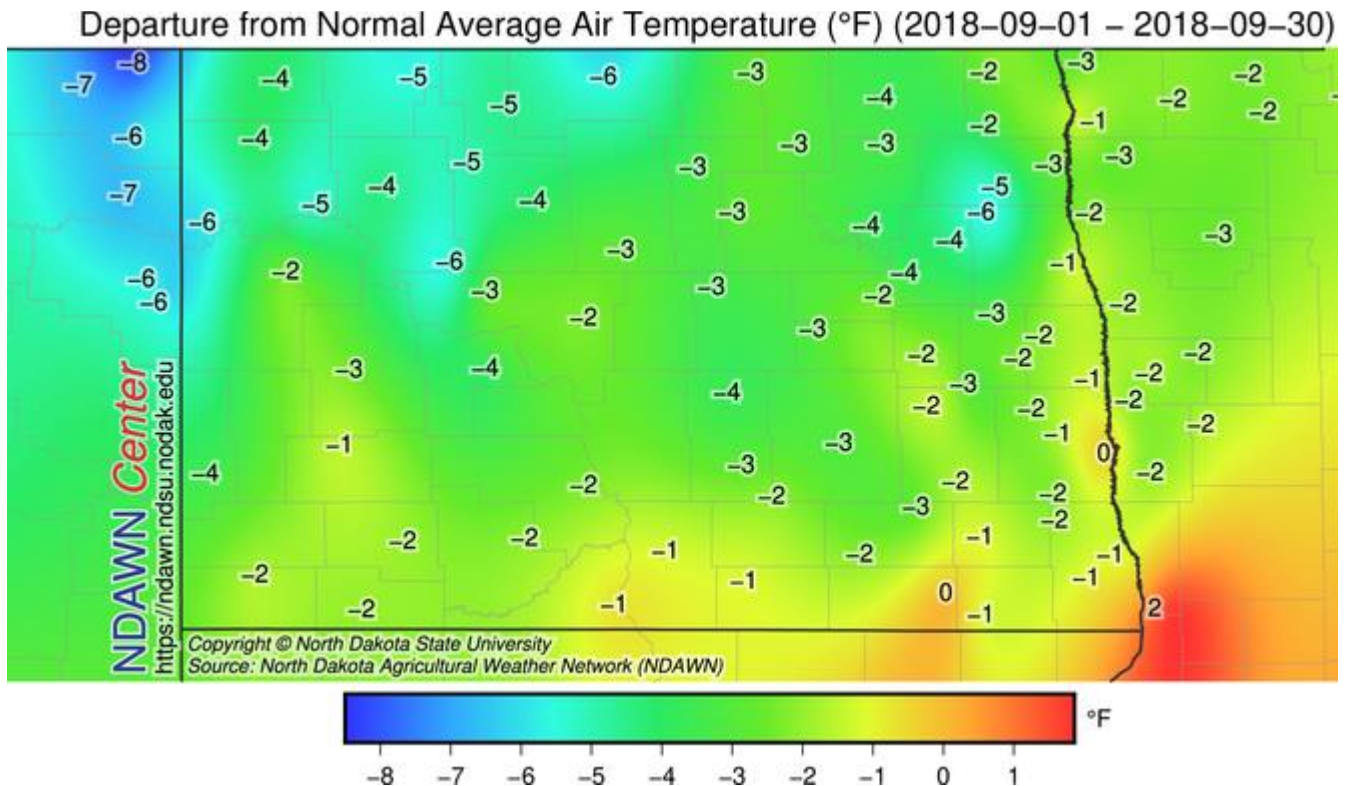


Figure 3. September 2018 temperature departure from normal for North Dakota. (NDAWN)

The official state average September temperature was 55.6.7 F, 12 F cooler than last month and 2.7 F cooler than in September 2017. The average September temperature was 1.3 F cooler than the 1981-2010 average, making it the 47th coolest September in the 124-year period of record. It was the coolest September since 2010 (Table 2). The positive numbers in Figure 3 above are shaded in yellow and red to depict the region with above-average temperature. In contrast, the negative numbers in the same figure are shaded in green and blue to depict the region with below-average temperature in September. The state's highest and lowest daily temperatures ranged from 95 F on Sept. 17 in Lisbon, Ransom County, to 20 F on Sept. 28, in Crosby, Divide County. Based on the historical records, the state average September temperature showed a positive long-term trend of 0.17 F per decade since 1895. The highest and lowest monthly state September average temperatures ranged from 63.5 F in 1897 to 45.5 F in 1965 (Figure 4).



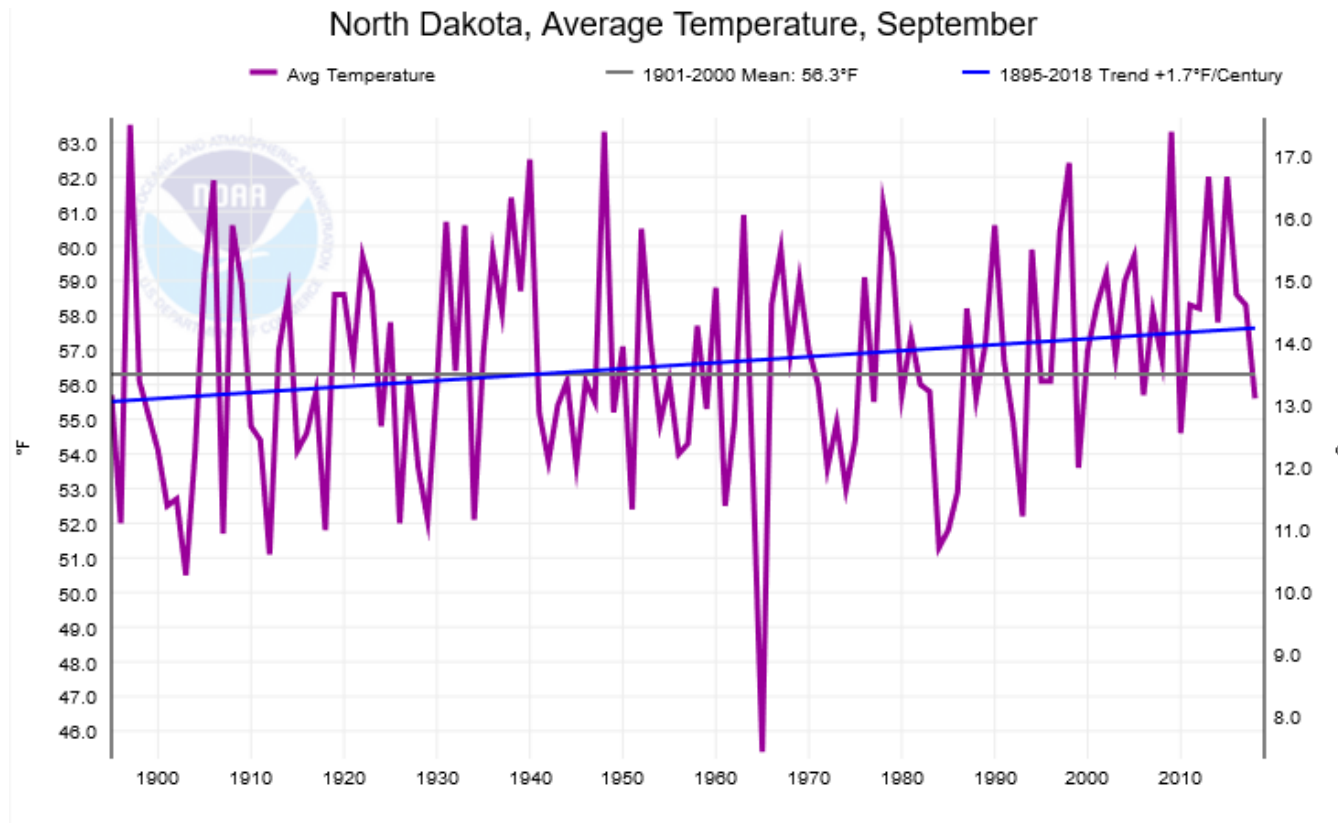
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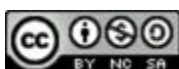
**September Temperature Statistics**  
 Record high value: 63.5 F in 1897  
 Record low value: 45.5 F in 1965  
 Trend: 0.17 F per decade

September 2018 value: 55.6 F  
 1981-2010 average: 56.9 F  
 Monthly ranking: 47th coolest  
 Record length: 124 years

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

Table 2. North Dakota September Temperature Ranking Table.

Period	Value	Normal	Anomaly	Rank	Warmest/Coolest Since
September 2018	55.6	56.9	-1.3	47th coolest 78th warmest	Coolest since 2010 Warmest since 2017



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## Notable Impacts

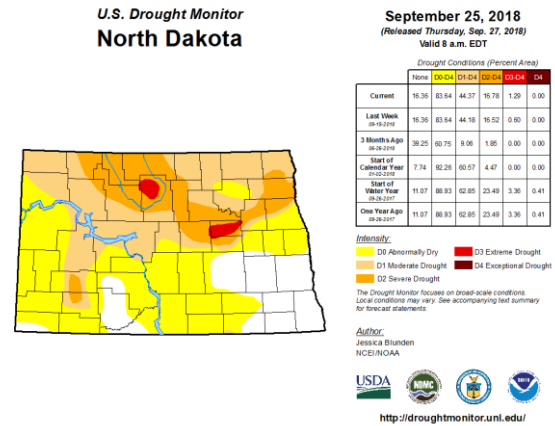
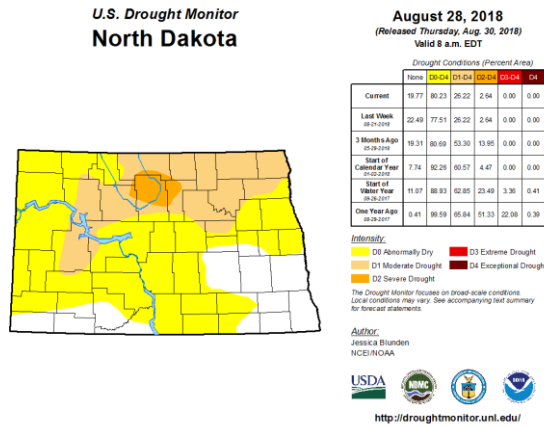


Figure 5. Drought Monitor map comparison for North Dakota in the beginning (on the left) and at the end (on the right) of September 2018.

**Drought Monitor (DM):** In general, overall drought conditions worsened throughout the month. By the end of September, D2 (severe drought) or worse covered nearly 17 percent of the state, 1.5 percent of which was under D3 (extreme drought). The Sept. 25 map in Figure 5 shows more than 44 percent of the state experiencing drought (18 percent increase in coverage, 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.

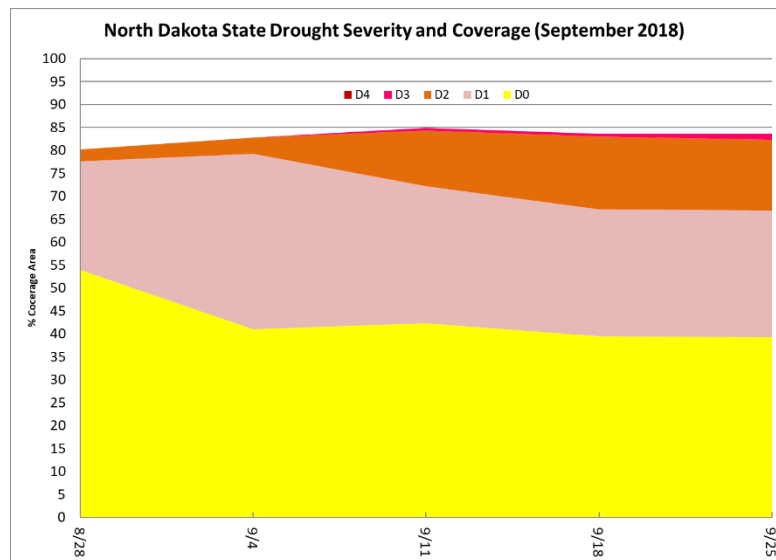


Figure 6. North Dakota drought severity and coverage for September 2018.



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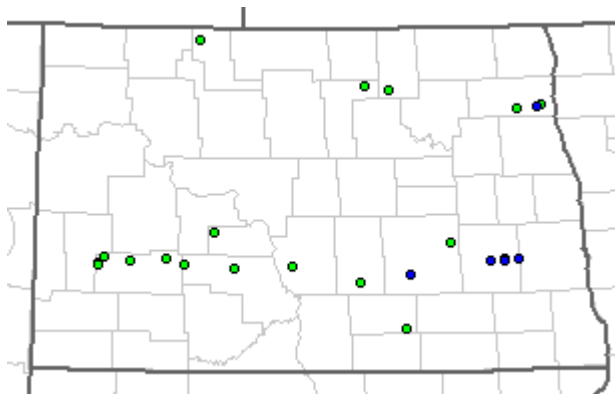
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**Storm Reports:** NDAWN's highest peak gust in September was 50 mph, recorded at the Streeter weather station in Stutsman County on Sept. 14, 2018.

The NOAA Storm Report reported a total of 23 significant storm events in September. Table 3 summarises the number of tornado (none), hail (18) and damaging wind (five) reports in September, while Figure 7 geographically displays the locations of these storm reports.

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

<b>Category</b>	<b>Number of Reports</b>
<i>Tornado reports</i>	0
<i>Hail reports</i>	18
<i>Wind reports</i>	5
<b>Total</b>	<b>23</b>



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





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**Daily Record Events in September:** Across the observation network of weather stations with at least 30 years of history, a total of eight daily high and 14 daily low-temperature-related records were set or tied. A total of 18 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 September. (NCEI Daily Weather Records)

Category	Number of Records
Highest daily max. temp.	5
Highest daily min. temp.	3
Lowest daily max. temp.	14
Lowest daily min. temp.	0
Highest daily precipitation	16
Highest daily snowfall	2
<b>Total</b>	<b>40</b>

### Highlight of the Month\*

*A highest daily maximum temperature of 95 degrees was set in **Lisbon** on **Sept. 17**, breaking the previous record for that date by 3 degrees, which was set in 1955 (years on record: 115).*

\*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.

