North Dakota Monthly Climate Summary

February 2017 **Volume: 11, No: 2**

Precipitation

North Dakota State Climate Office

NDSU NORTH DAKOTA STATE UNIVERSITY

North Dakota State University

College of Agriculture, Food Systems, and Natural Resources

304 Morrill Hall, Fargo, ND 58108

http://www.ndsu.edu/ndsco

Adnan.Akyuz@ndsu.edu

701-231-6577

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Based on the National Centers for Environmental Information (NCEI), statewide total February precipitation was 0.45”, 0.5” greater than the last year, 0.01” greater than the 1981-2010 average, making it the 47th wettest (77th driest) February in the 123-year period of record. It was the wettest February since 2016. Above-average precipitation was observed in central, south central, northwest and north central parts of the state. Dryer than normal conditions were observed in southwest ND and in Devils Lake Basin, which was a much needed break from a wet rest of the winter (Figure 1). The greatest monthly precipitation accumulation was 1.27” recorded in Williston, Williams County.The greatest monthly snowfall accumulation was 14” recorded also in Williston, Williams County. The greatest 24-hr precipitation was 0.82” that was recorded in Rhame, Bowman County on February 22. The highest 24-hr snowfall of 6” was recorded in both Williston in Williams County on February 4 and Tolley in Renville County on February 7. Based on historical records, statewide February precipitation showed a negative long-term trend of 0.07” per century since 1895. The highest and the lowest February precipitation for the state ranged from 1.59” in 1998 to 0.07” in 1934 (Figure 2).

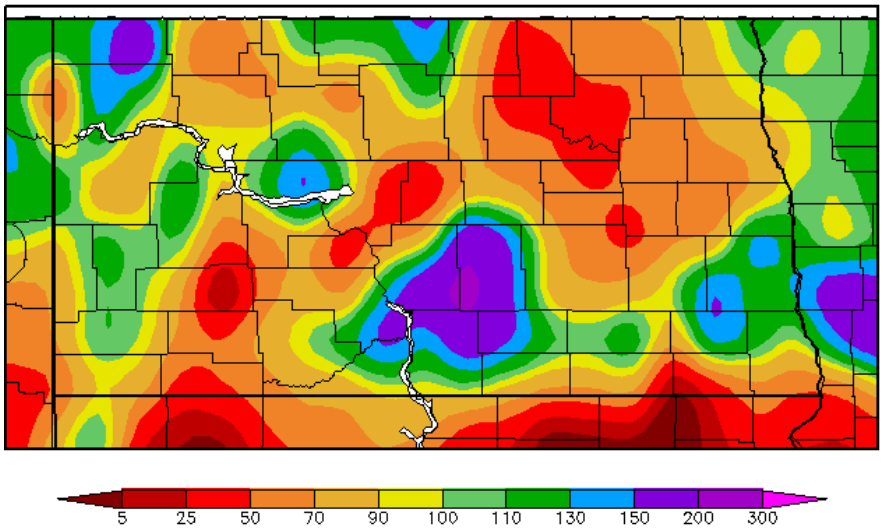
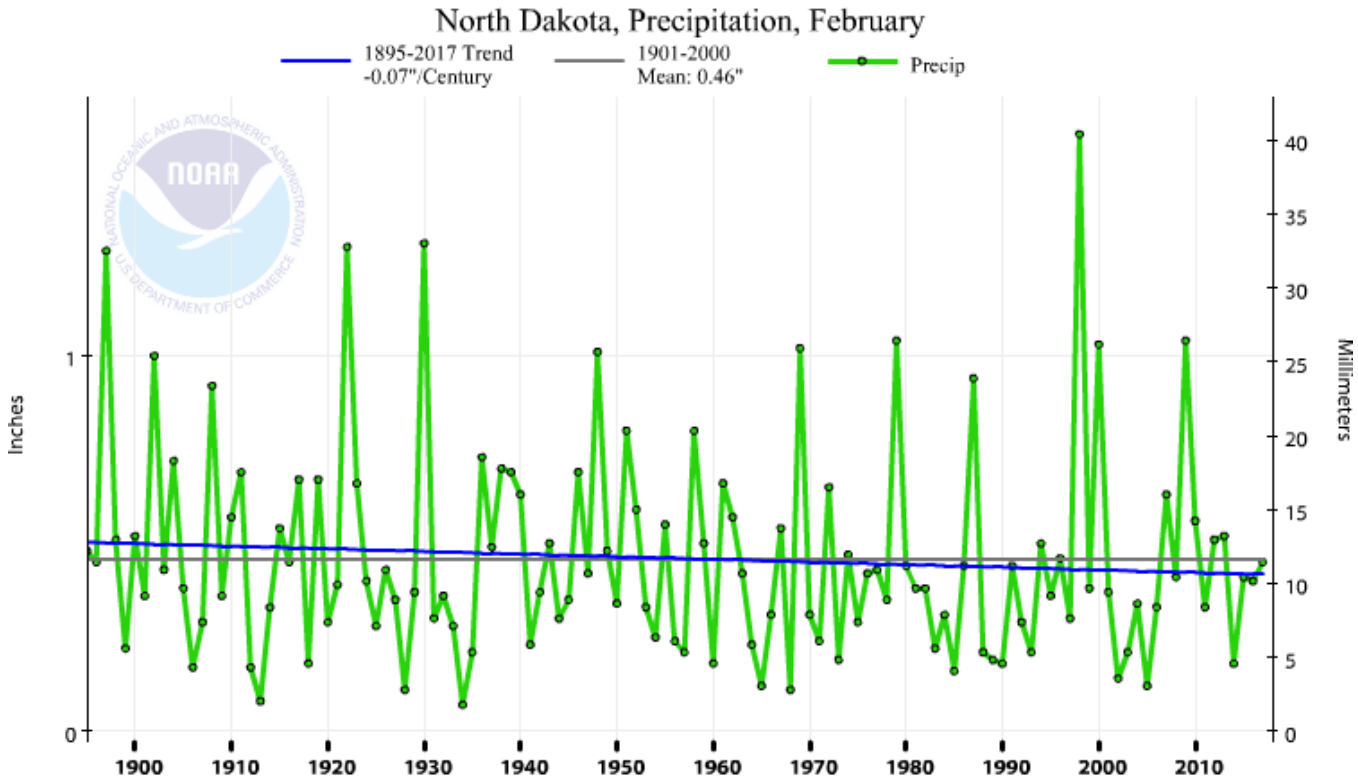


Figure 1. Precipitation Percent of Normal in February 2017 for North Dakota (High Plains Regional Climate Center, NOAA)

North Dakota Monthly Climate Summary

February 2017 **Volume: 11, No: 2**



February Precipitation Statistics
Record High Value: 1.59 inches in 1998
Record Low Value: 0.07 inches in 1934
Trend: -0.07” per Century

February 2017 Value: 0.45 inches
1981-2010 Average: 0.44”
Monthly Ranking: 47th Wettest
Record Length: 123 Years

Figure 2. Historical February Precipitation Time Series for North Dakota.

North Dakota Monthly Climate Summary

February 2017 **Volume: 11, No: 2**

Temperature

The official state average February temperature was 20.5°F, 5.1° colder than the last year, but 4.8° warmer than the 1981-2010 average, making it the 19th warmest February in the 123-year period of record. Above-average temperatures were observed almost all over the state except in Bottineau county where near normal conditions were observed. The warmest anomalies were observed in the southeastern regions (Fig. 3). The state's highest and lowest daily temperatures ranged from 66° on February 17 in Hettinger, Adams County to -28° on February 8 in Belcourt, Rolette County. Based on historical records, the state average February temperature showed an increasing trend of 0.73°F per decade since 1895 (The steepest February trend in the US). The highest and the lowest monthly state February average temperatures ranged from 29.6° in 1954 to -14.1° in 1936 (Figure 4).

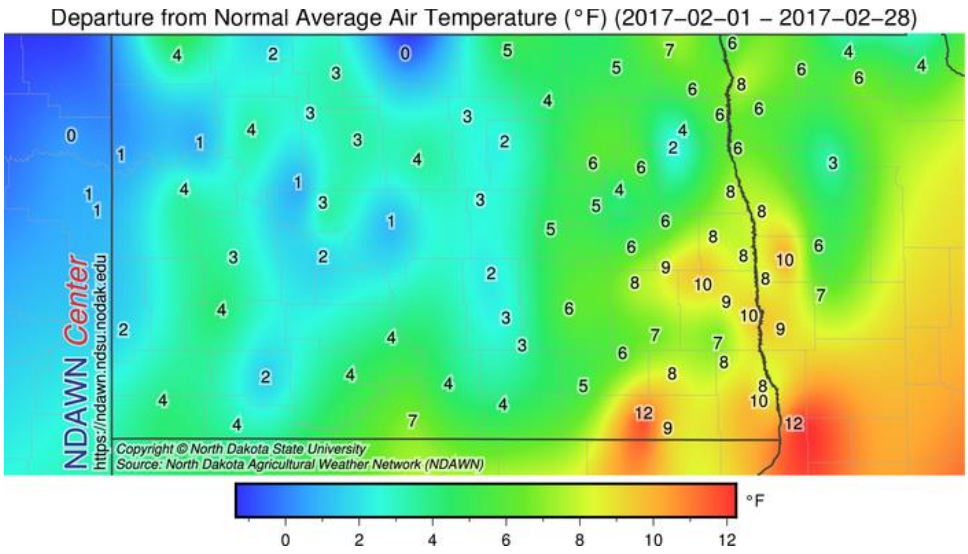
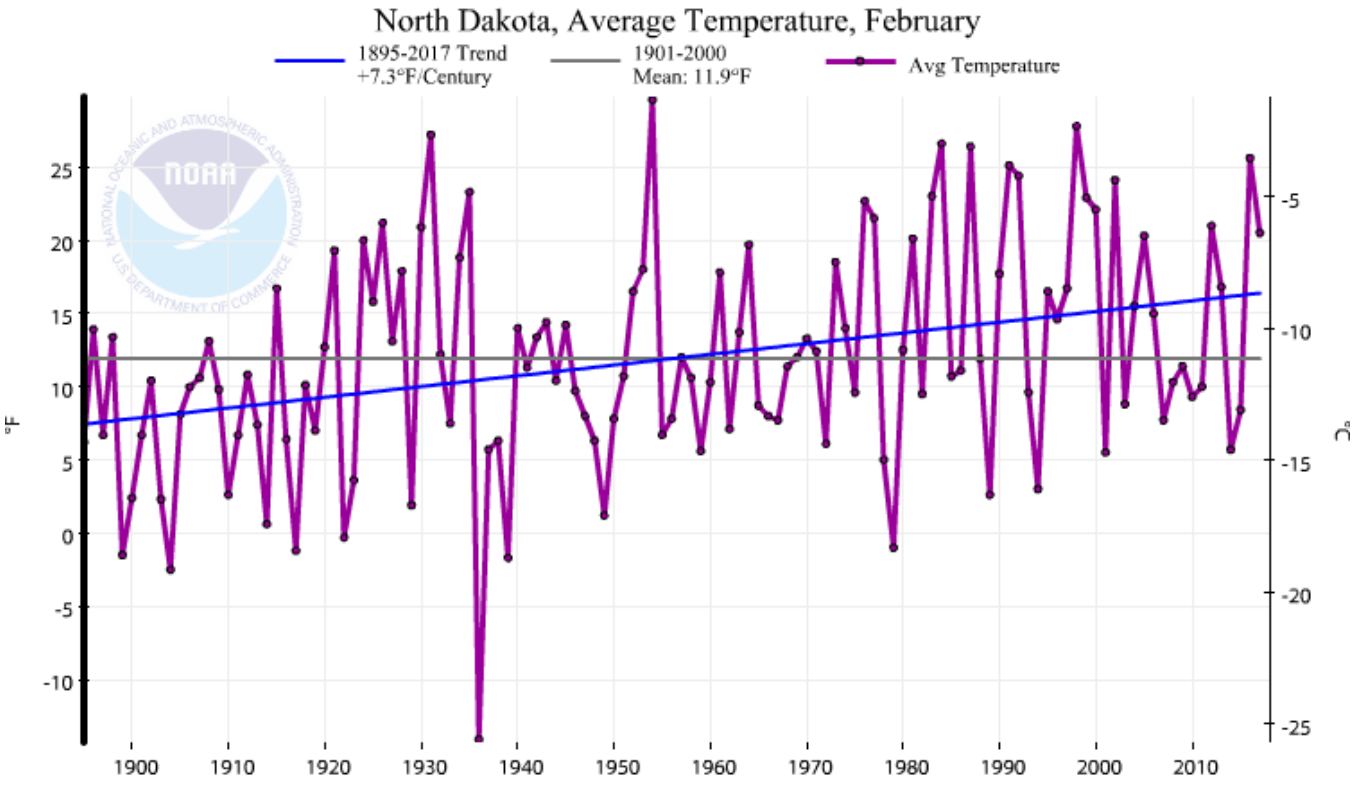


Figure 3. Temperature Departure from Normal in February 2017 for North Dakota (NDAWN).

North Dakota Monthly Climate Summary

February 2017 **Volume: 11, No: 2**



February Temperature Statistics
Record High Value: 29.6°F in 1954
Record Low Value: -14.1°F in 1936
Trend: 0.73°F per Decade

February 2017 Value: 20.5°F
1981-2010 Average: 15.7°F
Monthly Ranking: 19th Warmest
Record Length: 123 Years

Figure 4. Historical February Temperature Time Series for North Dakota.

North Dakota Monthly Climate Summary

February 2017 **Volume: 11, No: 2**

Notable Impacts

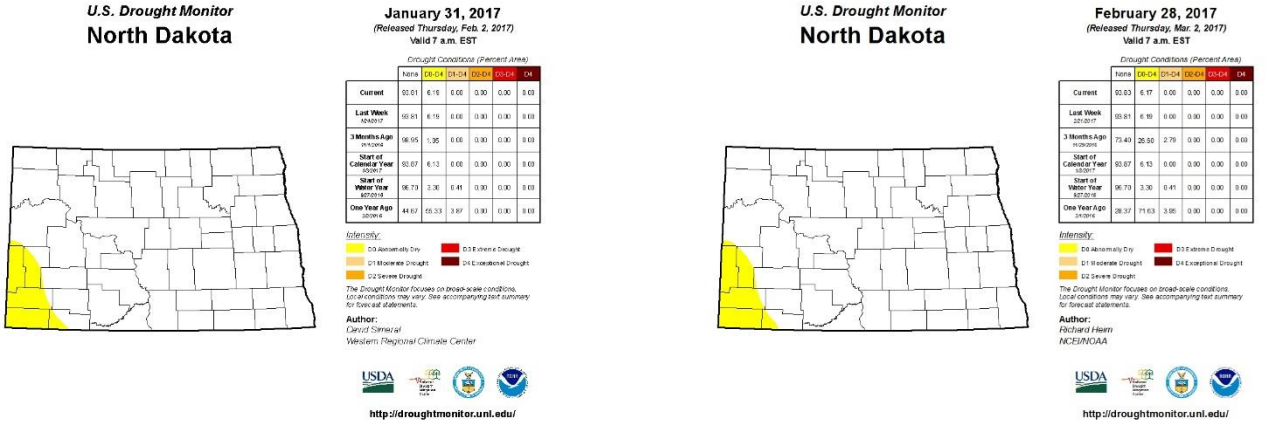


Figure 5. Drought Monitor map Comparison for North Dakota in the Beginning (on the left) and at the end (on the right) of February 2017.

Drought Monitor: Based on the Drought Monitor (DM) and given the nature of the frozen ground in winter, the drought conditions did not change throughout February as expected in ND (Figure 5). Less than 10% of the state was consistently designated as "Abnormally Dry". Figure 6 below shows the statewide drought coverage in % and intensity (i.e. DO, D1, etc…) in time scale representing the state from the beginning to the end of the month with one-week resolution.

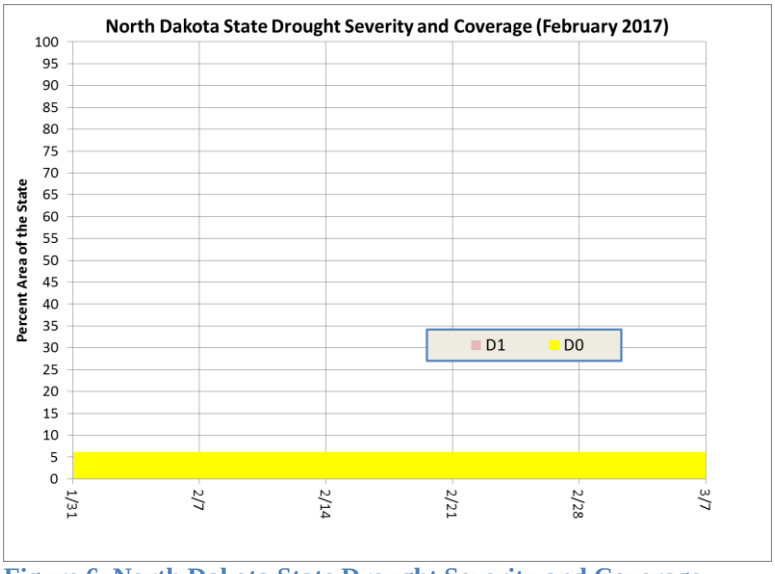


Figure 6. North Dakota State Drought Severity and Coverage Graph for February 2017.

Storm Reports: NDAWN's highest peak gust in February was 42 mph recorded at the Berthold weather station on February 11, 2017. Edgeley, Bowman, Leonard and Finley locations also had wind speeds in excess of 40 mph on the same day.

North Dakota Monthly Climate Summary

February 2017 **Volume: 11, No: 2**

Daily Record Event in February: Across the observation network of weather stations with at least 30 years of history, a total of 69 daily high-temperature related and zero daily low-temperature related records were set or tied. A total of 23 highest daily precipitation related records (including snowfall) were set or tied. Details of the records are in Table 1 below.

Table 1. Summary of daily February records broken or set in North Dakota in February (NCEI Daily Weather Records)

Category	Number of Records
Highest Daily Max Temp.	25
Highest Daily Min Temp.	44
Lowest Daily Max Temp.	0
Lowest Daily Min Temp.	0
Highest Daily Precipitation	11
Highest Daily Snowfall	12
Total	**92**

Highlight of the Month

*A daily highest maximum temperature record **56°F** set in **Fargo** on **Feb 19**, breaking the previous record by 8° that was broken in 2016 (Years on record: 126).*

Agricultural Impact: USDA's National Agricultural Statistics Service (NASS) reported that snow melt towards the end of the month helped livestock access to feed supplies. Based on the NASS report, 94 % of winter wheat conditions are fair or better in the state. Northern Red River flood potential remains problematic. Snow cover in the southern valley diminished or melted significantly and moved into the river. Based on the Advanced Hydrological Prediction Center of NOAA, there is a 75% chance that the river level at Fargo will exceed the flood stage during the period from March 5 to June 3, 2017. There is also approximately 10% chance of exceeding the major flood stage at the same location and during the same time span. The chance of flood conditions increases northward. For instance, there is a 95% chance that the river level will exceed the flood stage in Pembina during the same time span.

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