



# North Dakota Monthly Climate Summary

January 2017

Volume: 11, No: 1

## Precipitation

North Dakota  
State Climate  
Office

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STATE UNIVERSITY

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request.

Based on the National Centers for Environmental Information (NCEI), statewide total January precipitation was 0.45", 0.23" greater than the last year, but 0.04" less than the 1981-2010 average, making it the 67th driest (57th wettest) January in the 123-year period of record. It was the wettest January since 2015 and the driest January since last year. Above-average precipitation was observed in most central and south central parts of the state where between 100 and 300% of normal precipitation was common. Drier than normal conditions were observed in the northern parts of the state (Figure 1). The greatest monthly precipitation accumulation was 2.13" recorded in Steele, Kidder County. The greatest monthly snowfall accumulation was 18" recorded in Jamestown, Stutsman County. The greatest 24-hr precipitation was 1.08" that was recorded in Steele, Kidder County on January 2. The highest 24-hr snowfall of 11" was recorded in both Streeter in Stutsman County and Center in Oliver County on January 2. Based on historical records, statewide January precipitation showed no significant long-term trend since 1895. The highest and the lowest January precipitation for the state ranged from 1.27" in 1916 to 0.09" in 1942 (Figure 2).

January 01, 2017 Monthly Percent Precipitation

Created on: February 08, 2017 - 21:42 UTC  
Valid on: February 01, 2017 12:00 UTC

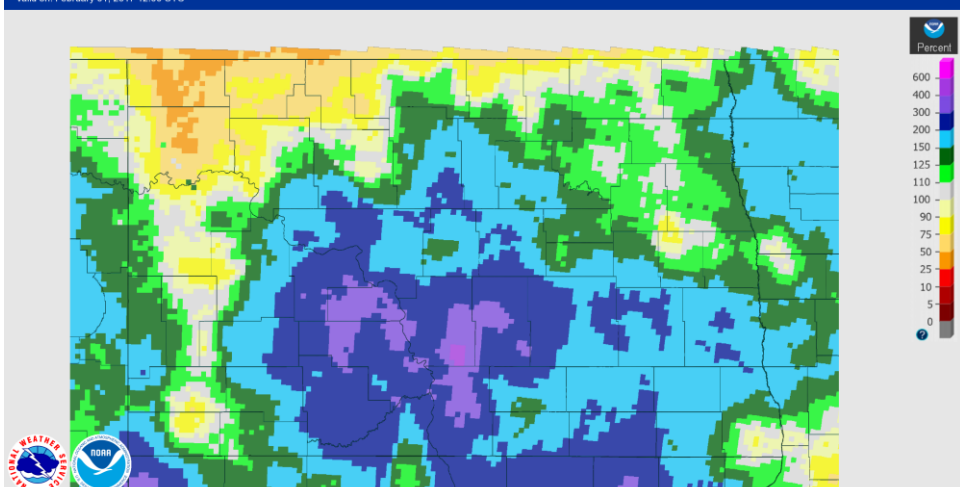
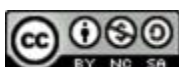


Figure 1. Precipitation Percent of Normal in January 2017 for North Dakota (NOAA)



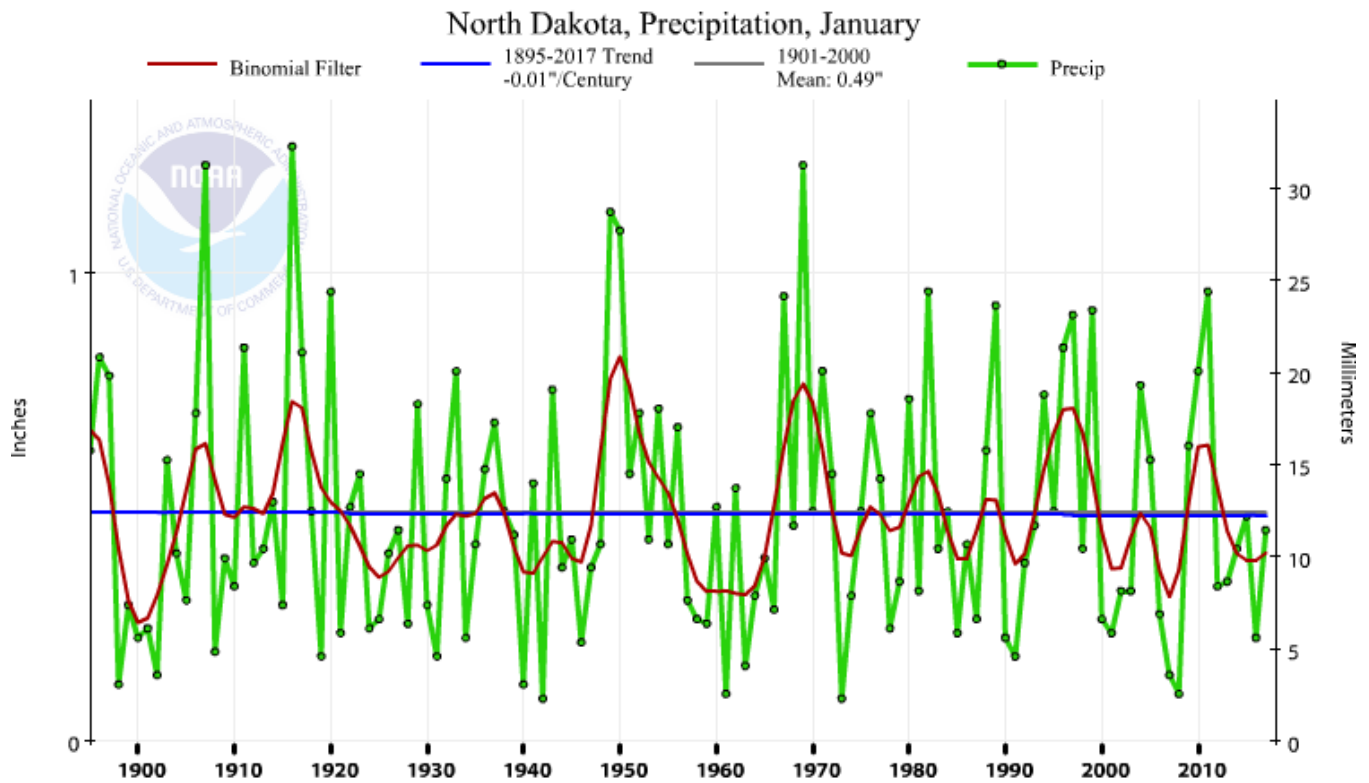
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Volume: 11, No: 1



### January Precipitation Statistics

Record High Value: 1.27 inches in 1916  
 Record Low Value: 0.09 inches in 1942  
 Trend: -0.01" per Century

January 2017 Value: 0.45 inches  
 1981-2010 Average: 0.49"  
 Monthly Ranking: 67th Driest  
 Record Length: 123 Years

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



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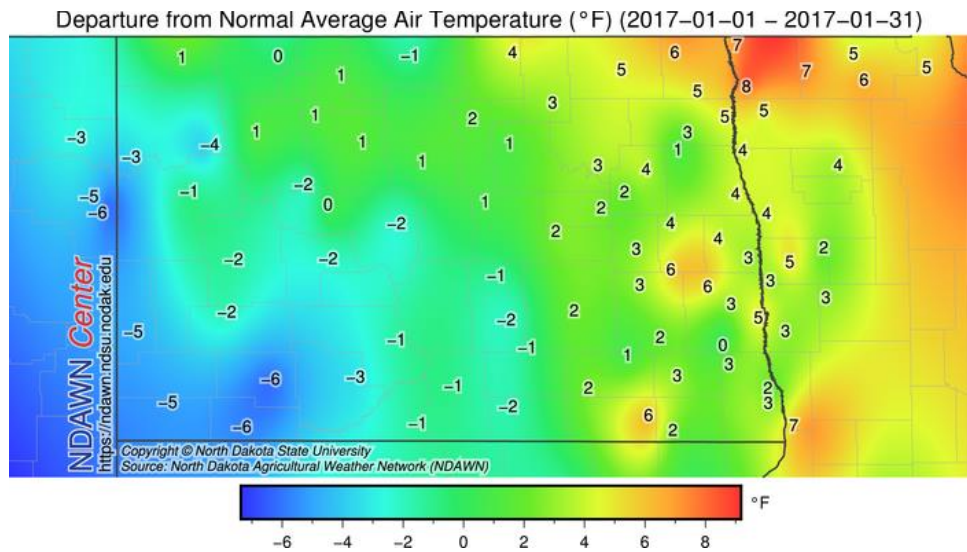
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## Temperature

The official state average January temperature was 11.3°F, 3.3° colder than the last year, but 0.7° warmer than the 1981-2010 average, making it the 40th warmest January in the 123-year period of record. Above-average temperatures were observed in northeastern half while below-average temperatures were observed in the southwestern half of North Dakota. The warmest anomalies were

observed in the northeastern regions. Similarly, the coldest anomalies were observed in the southwestern regions (Fig. 3). The state's highest and lowest daily temperatures ranged from 50° on January 19 in Hettinger, Adams County to -35° on January 8 in Watford City, McKenzie County. Based on historical records, the state average January temperature showed an increasing trend of 0.5°F per decade since 1895 (The steepest January trend in the US). The highest and the lowest monthly state January average temperatures ranged from 25.9° in 2006 to -11.9° in 1950 (Figure 4).



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



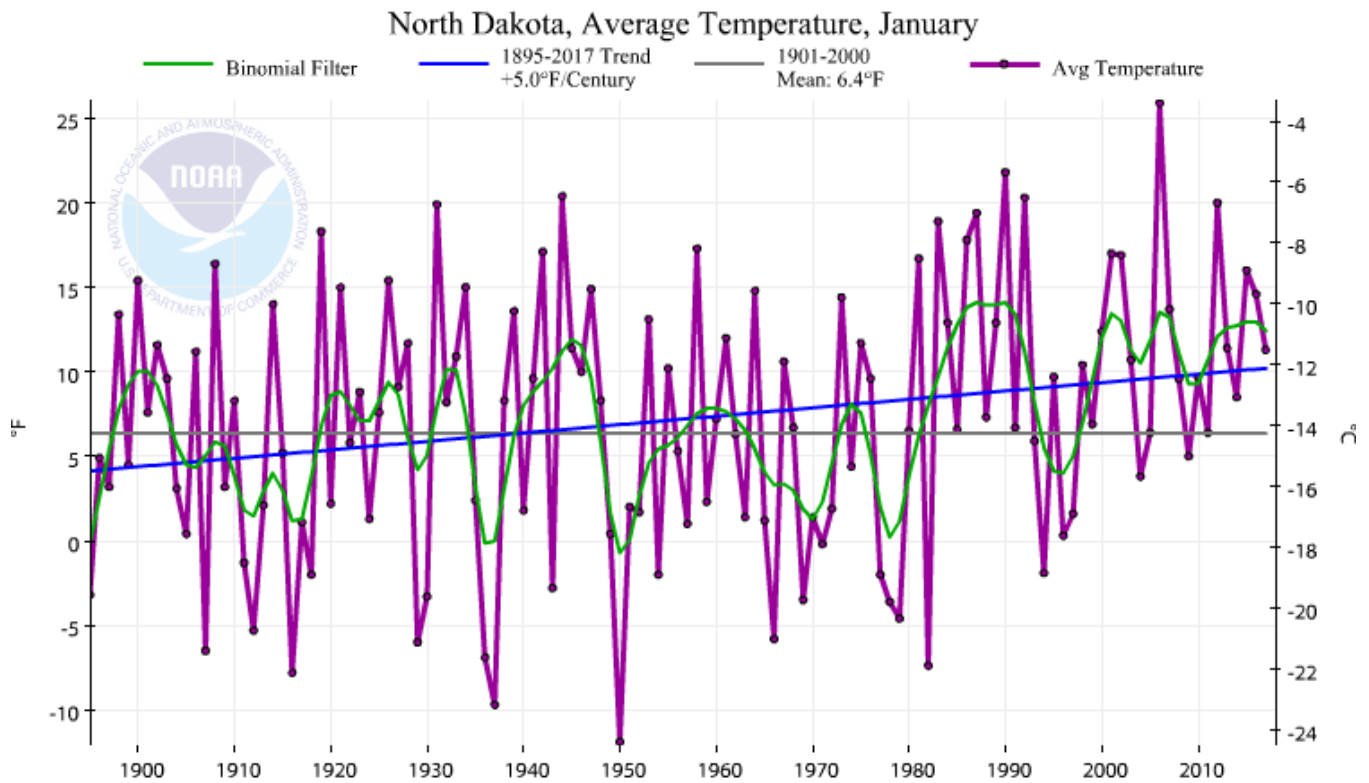
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Volume: 11, No: 1



**January Temperature Statistics**  
 Record High Value: 25.9°F in 2006  
 Record Low Value: -11.9°F in 1950  
 Trend: 0.5°F per Decade

January 2017 Value: 11.3°F  
 1981-2010 Average: 10.6°F  
 Monthly Ranking: 40th Warmest  
 Record Length: 123 Years

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



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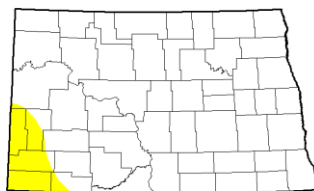
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January 2017

Volume: 11, No: 1

## Notable Impacts

### U.S. Drought Monitor North Dakota



December 27, 2016  
(Released Thursday, Dec. 29, 2016)  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0	D1	D2	D3	D4
Current	93.87	6.13	0.00	0.00	0.00	0.00
Last Week (10/26/16)	87.75	12.25	1.38	0.00	0.00	0.00
3 Months Ago (9/27/16)	96.70	3.30	0.41	0.00	0.00	0.00
Start of Calendar Year (1/1/17)	91.32	30.68	5.47	0.00	0.00	0.00
Start of Water Year (10/1/16)	96.70	3.30	0.41	0.00	0.00	0.00
One Year Ago (1/31/15)	91.32	30.68	5.47	0.00	0.00	0.00

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

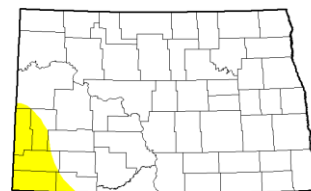
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Eric Riggley  
U.S. Department of Agriculture



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

### U.S. Drought Monitor North Dakota



January 31, 2017  
(Released Thursday, Feb. 2, 2017)  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0	D1	D2	D3	D4
Current	93.81	6.19	0.00	0.00	0.00	0.00
Last Week (1/24/17)	93.81	6.19	0.00	0.00	0.00	0.00
3 Months Ago (10/26/16)	96.95	1.95	0.00	0.00	0.00	0.00
Start of Calendar Year (1/1/17)	93.87	6.13	0.00	0.00	0.00	0.00
Start of Water Year (10/1/16)	96.70	3.30	0.41	0.00	0.00	0.00
One Year Ago (1/31/16)	44.87	55.13	3.97	0.00	0.00	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:  
David Sinner  
Western Regional Climate Center



<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 January 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 January as expected in ND (Figure 5). Less than 10% of the state consistently was designated as “Abnormally Dry”. Figure 6 below shows the statewide drought coverage in % and intensity (i.e. D0, D1, etc...) in time scale representing the state from the beginning to the end of the month with one-week resolution.

**Storm Reports:** NDAWN’s highest peak gust in January was 53 mph recorded at the Robinson weather station on January 30, 2017. Linton, Turtle Lake, Edgeley, Hazen, and Tappen locations also had wind speeds in excess of 50 mph on the same day. A blizzard warning issued by the National Weather Service (NWS) in Grand Forks on January 12 encompassed an area within the Devils Lake basin and the northern Red River Valley, including the northwestern Minnesota areas adjacent to the Red River.

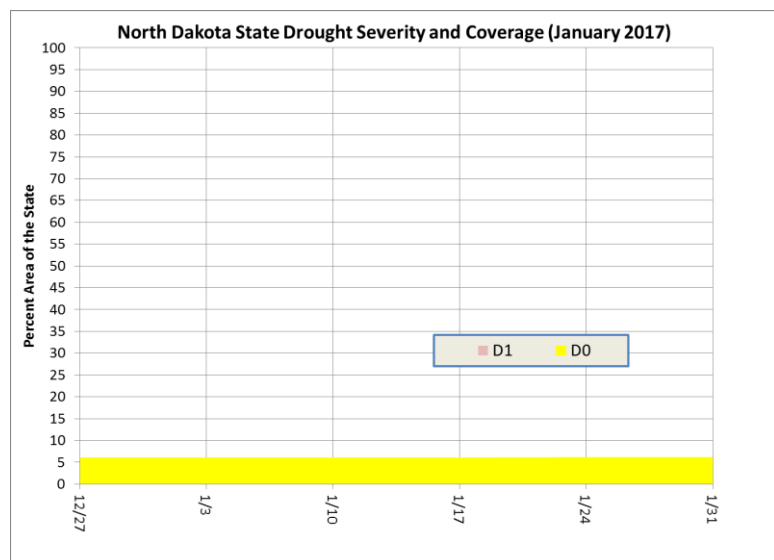
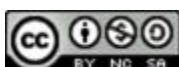


Figure 6. North Dakota State Drought Severity and Coverage Graph for January 2017.



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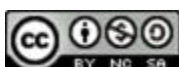
Locations breaking the highest daily snowfall records early in January included Fargo (9.21" on Jan 2), Grand Forks (8.82" on Jan 3), Jamestown (7.99" on Jan 3), and Bismark (7.80" on Jan 2).

**Daily Record Event in January:** Across the observation network of weather stations with at least 30 years of history, a total of 91 temperature and precipitation related records were set or tied, and 28 daily highest snowfall records were set or tied. Details of the records are in the following table.

<i>Category</i>	<i>January</i>
<i>Highest Daily Max Temp.</i>	1
<i>Highest Daily Min Temp.</i>	64
<i>Lowest Daily Max Temp.</i>	3
<i>Lowest Daily Min Temp.</i>	1
<i>Highest Daily Precipitation</i>	22
<i>Highest Daily Snowfall</i>	28
<b><i>Total</i></b>	<b>119</b>

**Agricultural Impact:** USDA's National Agricultural Statistics Service (NASS) reported hardship for the livestock producers due to the snow and freezing rain in much of the state. Based on the NASS report, 94 % of winter wheat conditions are fair or better in the state. Red River stage levels at Fargo measured at greater than the 99 percentile before freeze up in January. Combined with the snowpack especially in the northern Red River Valley, spring planting may be negatively impacted for farmlands along the Red River Valley of the North. Based on the Advanced Hydrological Prediction Center of NOAA, there is between 75 and 90% chance that the river level at Fargo will exceed the flood stage during the week of April 9. There is also between 25 and 50% chance of exceeding the moderate flood stage at the same location and during the same time span.

*Acknowledgment: Many thanks to Loretta Herbel (NDAES) for her diligent editorial corrections.*



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