



North Dakota Monthly Climate Summary

May 2017

Volume: 11, No: 5

Precipitation

North Dakota State Climate Office

Based on the National Centers for Environmental Information (NCEI), the statewide total May precipitation was 1.02", 1.29" less than the last year, and 1.51" less than the 1981-2010 average, making it the 15th driest May in the 123-year period of record. It was the driest May since 1997. Below-average precipitation was common in all parts of the state (Figure 1). The greatest monthly precipitation accumulation was 2.79" recorded in Oakes, Dickey County. The greatest 24-hr precipitation was 0.32" recorded in Kulm, LaMoure County on May 21. Based on historical records, statewide May precipitation showed a slight positive long-term trend of 0.37" per century since 1895. The highest and the lowest May precipitation for the state ranged from 5.96" in 1927 to 0.23" in 1901 (Figure 2).

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Percent of Normal Rainfall (%) (2017-05-01 – 2017-05-31)

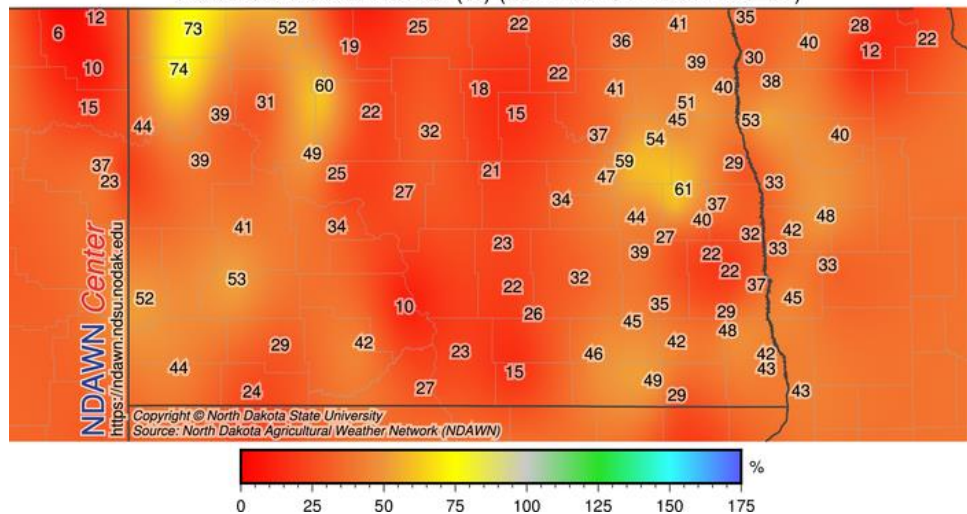


Figure 1. Precipitation Percent of Normal in May 2017 for North Dakota (North Dakota Agricultural Weather Network)



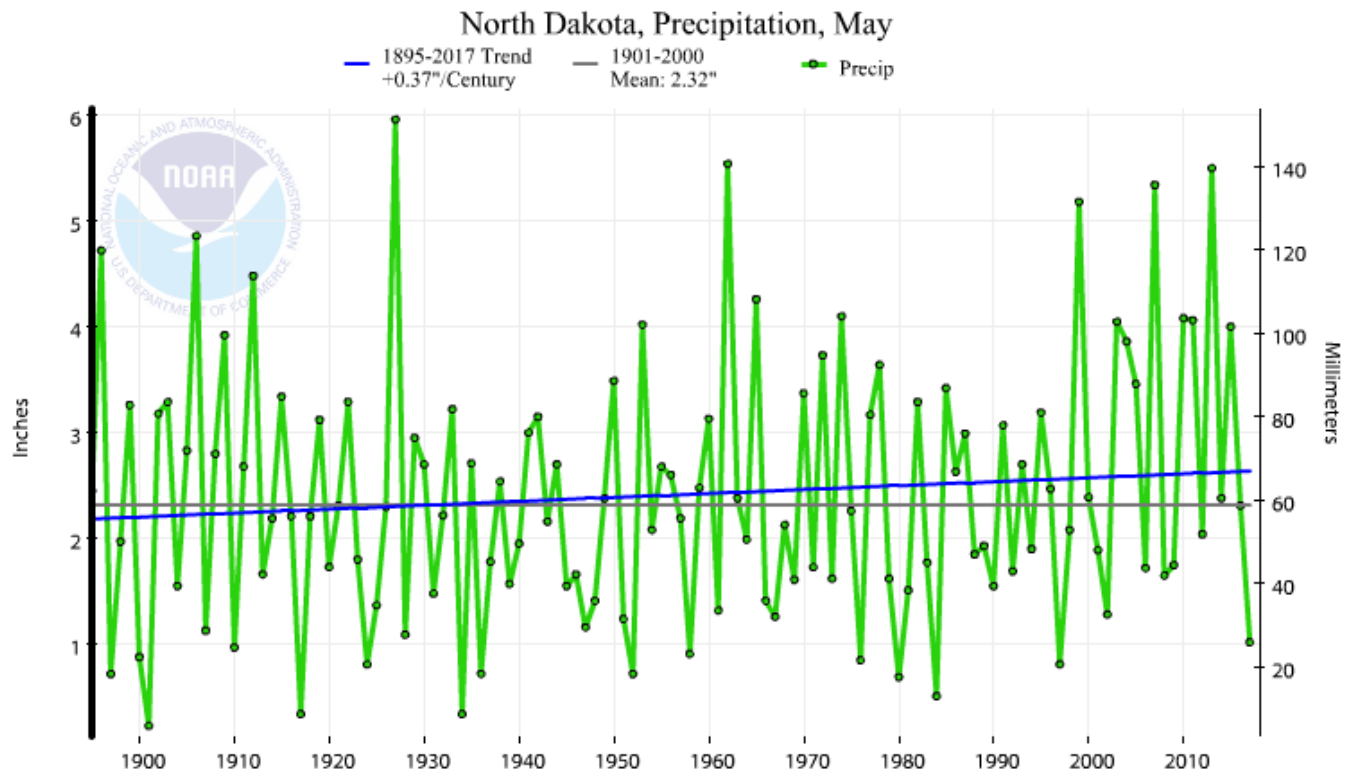
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May Precipitation Statistics

Record High Value: 5.96 inches in 1927
 Record Low Value: 0.23 inches in 1901
 Trend: 0.37" per Century

May 2017 Value: 1.02 inches
 1981-2010 Average: 2.53"
 Monthly Ranking: 15th Driest
 Record Length: 123 Years

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



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Temperature

The official state average May temperature was 54.7°F, 1.9° colder than the last year, but 0.6° warmer than the 1981-2010 average, making it the 46th warmest May in the 123-year period of record. Above-average temperatures were observed in western parts of the state. There were also some warm pockets along the Red River Valley north of Grand Forks. Below average conditions were observed elsewhere

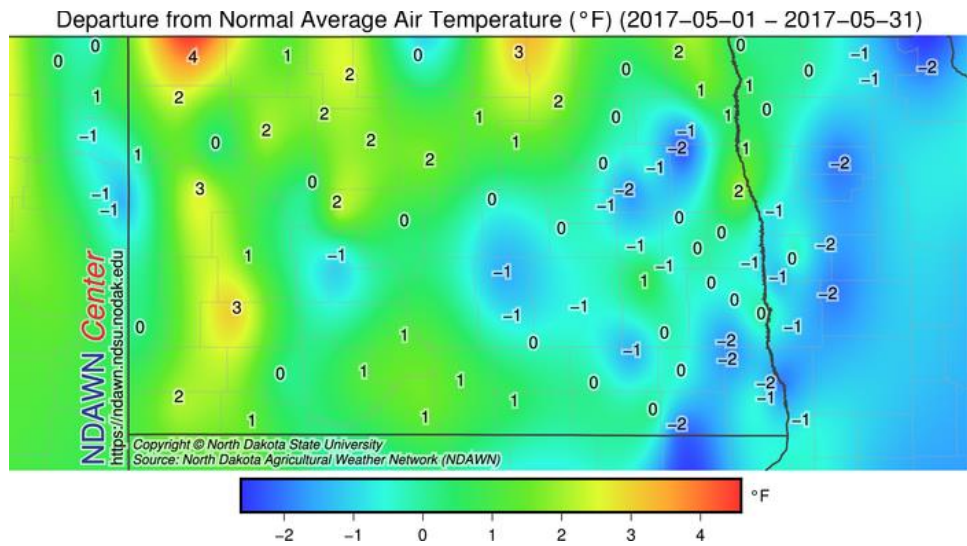


Figure 3. Temperature Departure from Normal in May 2017 for North Dakota (NDAWN).

(Fig. 3). The state’s highest and lowest daily temperatures ranged from 91° on May 8 in Hettinger, Adams County to 23° on May 21 in Pretty Rock, Grant County. Based on historical records, the state average May temperature showed no discernable trend since 1895. The highest and the lowest monthly state May average temperatures ranged from 63.5° in 1934 to 44.4° in 1907 (Figure 4).



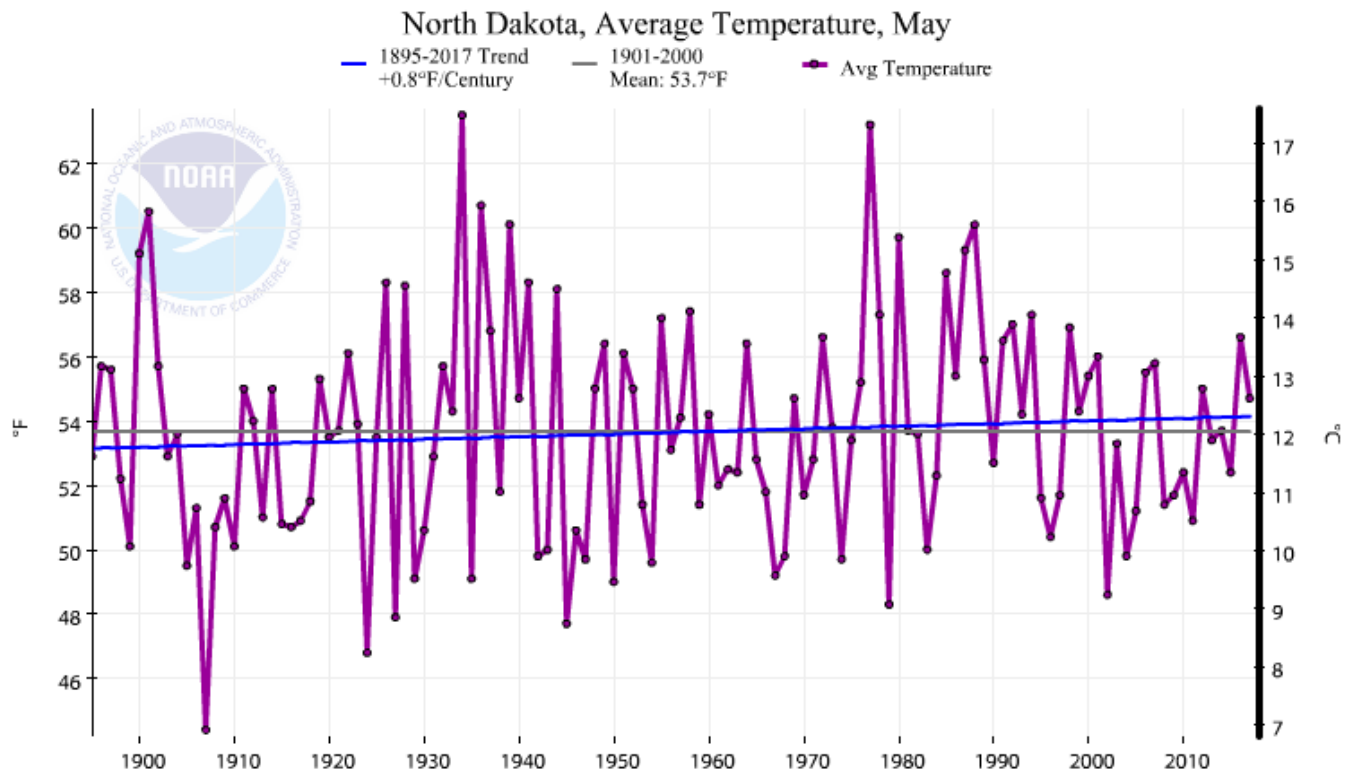
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May Temperature Statistics

Record High Value: 63.5°F in 1934
 Record Low Value: 44.4°F in 1907
 Trend: 0.08°F per Decade

May 2017 Value: 54.7°F
 1981-2010 Average: 54.1°F
 Monthly Ranking: 46th Warmest
 Record Length: 123 Years

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



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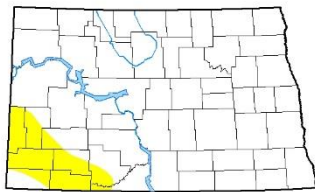
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Notable Impacts

U.S. Drought Monitor North Dakota



May 2, 2017
(Released Thursday, May 4, 2017)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4	D5
Current	91.22	6.76	0.00	0.00	0.00	0.00	0.00
Last Week (5/2/2017)	91.22	6.76	0.00	0.00	0.00	0.00	0.00
3 Months Ago (2/2/2017)	95.81	5.19	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year (1/1/2017)	93.87	6.13	0.00	0.00	0.00	0.00	0.00
Start of Water Year (9/27/2016)	96.79	3.30	0.41	0.00	0.00	0.00	0.00
One Year Ago (5/2/2016)	72.34	27.65	0.00	0.00	0.00	0.00	0.00

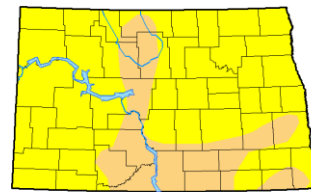
Intensity:
■ D0 Abnormally Dry ■ D3 Extreme Drought
■ D1 Moderate Drought ■ D4 Exceptional Drought
■ D2 Severe Drought

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

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

U.S. Drought Monitor North Dakota



May 30, 2017
(Released Thursday, Jun. 1, 2017)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4	D5
Current	61.10	36.89	24.11	0.00	0.00	0.00	0.00
Last Week (5/23/17)	58.39	43.61	6.36	0.00	0.00	0.00	0.00
3 Months Ago (2/28/17)	93.83	6.17	0.00	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	0.00
Start of Water Year (9/27/16)	96.70	3.30	0.41	0.00	0.00	0.00	0.00
One Year Ago (5/30/16)	67.24	12.78	0.00	0.00	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:
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<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 May 2017.

Drought Monitor: Consistently dry conditions during the last three-month period depleted the moisture left over from Fall and Winter season. The conditions across the state quickly deteriorated resulting in an area of Moderate Drought or D1 based on a scale developed by the National Drought Monitor (DM), in south central ND along the MO River. By the end of May, nearly 25% of the state was in Moderate Drought. Figure 5 shows a comparison of the drought conditions across the state between the beginning and the end of the month. Figure 6 on the right shows the statewide drought coverage in % and intensity (i.e. D0, and D1) in time scale representing the state from the beginning to the end of the month with one-week resolution. A steep increase in coverage and intensity were observed during the last week of May reflecting true conditions in all parts of the state. If timely precipitation is not received, conditions will worsen especially in areas with warmer temperatures promoting higher evaporative loss.

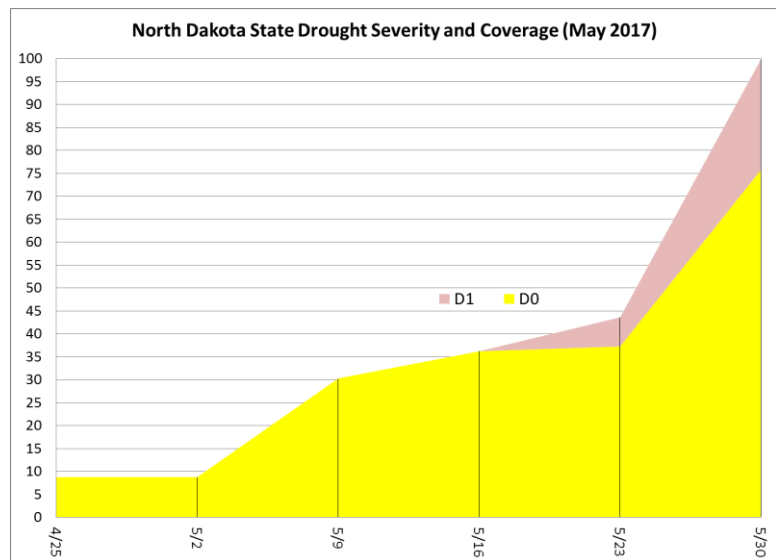


Figure 6. North Dakota State Drought Severity and Coverage Graph for May 2017.



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Counties in moderate drought areas as of May 30: Bottineau, Renville, Ward, McHenry, McLean, Mercer, Oliver, Burleigh, Morton, Grant, Sioux, Emmons, Kidder, Stutsman, Barnes, Cass, Logan, McIntosh, LaMoure, Dickey, Ransom, Sargent, and Richland.

Storm Reports: NDAWN's highest peak gust in May was 62 mph, recorded at the Crary weather station in Ramsey County on May 27, 2017. A hail storm on the same day brought hail up to one inch in diameter in Jamestown, Stutsman County around 7:20 pm. Also, the NOAA Storm Report indicated a car blown off Interstate 29 near MM 50 due to a high wind of unknown intensity. Table 1 summarises the number of tornado, hail and damaging wind reports in May, whileas Figure 7 geographically displays the locations of these storm reports.

Table 1. Summary of May Severe Storm Reports of North Dakota (SPC, NOAA)

Category	Number of Reports
Tornado Reports	0
Hail Reports	1
Wind Reports	4
Total	5

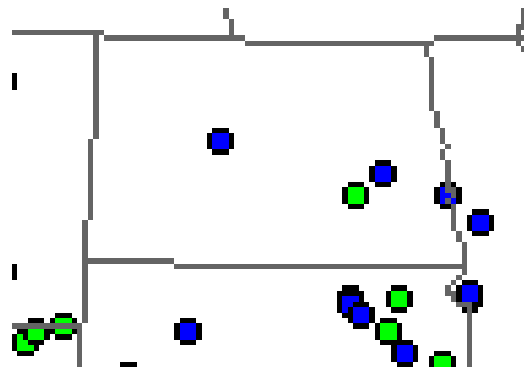
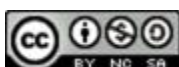


Figure 7. May 2017 North Dakota Storm Events (Red: Tornado; Blue: Wind; Green: Hail).





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Daily Record Event in May: Across the observation network of weather stations with at least 30 years of history, a total of 14 daily high-temperature related and 4 daily low-temperature related records were set or tied. A total of 2 highest daily precipitation related records (including snowfall) were set or tied. Details of the records are in Table 2 below.

Table 2. Summary of daily May records broken or set in North Dakota in May (NCEI Daily Weather Records)

Category	Number of Records
Highest Daily Max Temp.	4
Highest Daily Min Temp.	10
Lowest Daily Max Temp.	0
Lowest Daily Min Temp.	4
Highest Daily Precipitation	2
Highest Daily Snowfall	0
Total	20

Highlight of the Month

*A daily lowest minimum temperature record of 30°F set in **Heart Butte** on **May 21**, breaking the previous record by 3° that was broken in 1987 (Years on record: 32).*

Agricultural Impact: Much warmer than normal temperatures towards the end of the month along with persisting dry conditions caused drought to intensify. Areas in late start will be severely impacted as seed is begging for moisture to germinate. Blowing dust due to loose soil and dry conditions in central ND is reported. Cattle producers are worried about deteriorating pasture and hayland conditions and reduction of cattle size in drought stricken areas. Alfalfa is starting to dry out from the ground up; therefore, farmers in Kidder County are starting to consider harvesting winter wheat and rye for hay since they fear that plants will not fill for the planned grain crop. Alfalfa conditions are similar in the counties of Adams and Logan as well as those located between them. Blowing dust became a common observation during high wind in the most drought prevalent areas.



Figure 8. Blowing Dust in Logan County, ND (by Sheldon Gerhardt)

Drought conditions are expected to continue and intensify throughout the summer season with warmer temperatures and higher evapotranspiration rates.

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



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