



North Dakota Monthly Climate Summary

October 2023

Volume 17, No. 10

North Dakota State Climate Office: Your Resource for Climate Information

North Dakota State University
School of Natural Resource Sciences

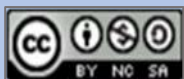
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Precipitation

Based on data from 148 stations* across the North Dakota Agricultural Weather Network (NDAWN) the statewide average precipitation in October 2023 was 1.47 inches, which is typical for normal average precipitation for the month. The greatest measured precipitation was recorded at the Tioga (7NW) NDAWN station in Williams County with 3.16 inches. The least precipitation fell in McIntosh County, where the Zeeland (7NE) NDAWN station measured just 0.43 inches (Figure 1).

Maximum average October precipitation occurred in 1982 with 4.61 inches, and minimum precipitation in 1952 with 0.09 inches. Historical climate data indicates a 0.54 inch increase over a century long trend (NCEI) for the month of October (Figure 2).

Average October precipitation was 0.68 inches less than the previous month and ranks as the 30th wettest October over 129 years of precipitation data (NCEI).

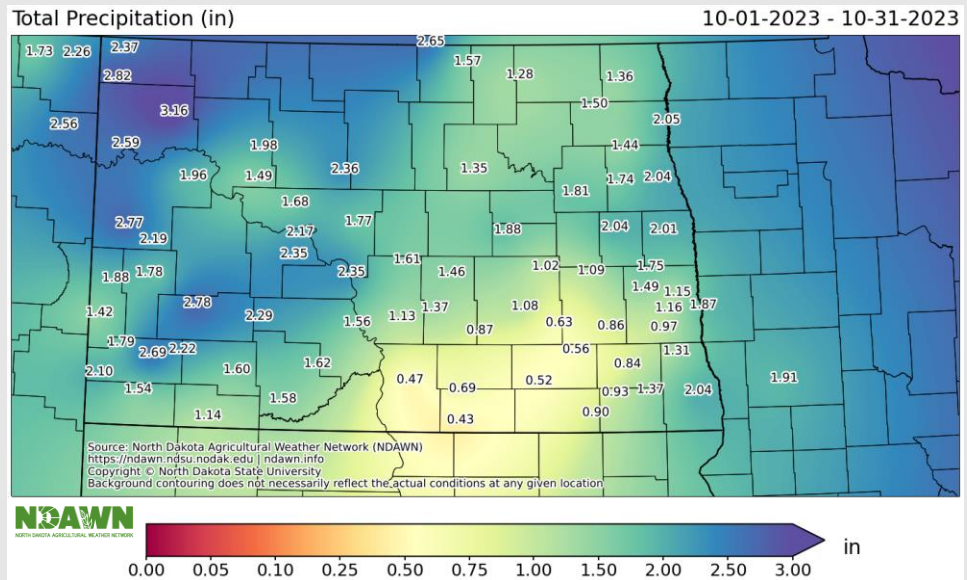


Figure 1: Total precipitation 10/1/2023 - 10/31/2023 at all NDAWN stations (NDAWN)

*Only North Dakota stations used for NDAWN data. All MN and MT stations omitted.

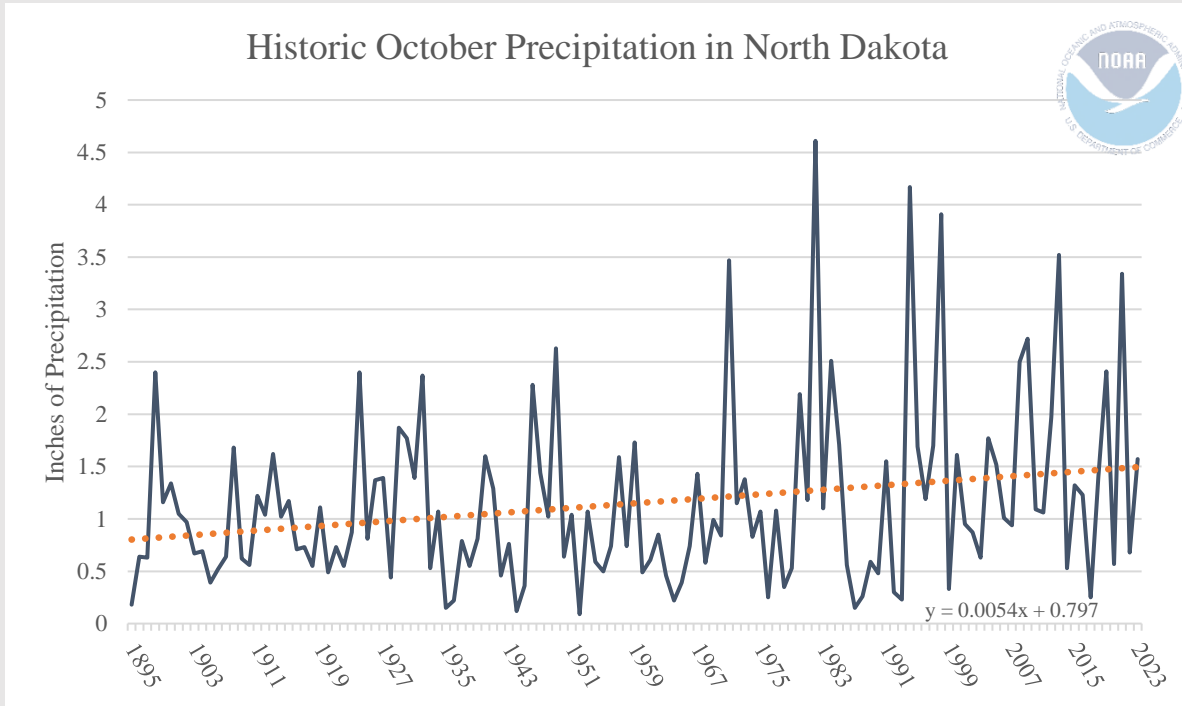


Figure 2: Historic average October precipitation 1895-2023 (NCEI, NOAA) with trendline representing average change per century.

North Dakota October Precipitation Summary

	Precipitation	Normal	Anomaly	Rank	Wettest/Driest Since	Record Year
October 2023	1.47"	1.49"	-0.02"	30 th Wettest	Wettest since 2021	1982
				100 th Driest	Driest since 2022	1952

Table 1: Ranking from NCEI NOAA based on data from October 1885-2023. Precipitation amounts averaged from records at NDAWN stations in North Dakota.

*Only North Dakota stations used for NDAWN data. All MN and MT stations omitted.



North Dakota Monthly Climate Summary

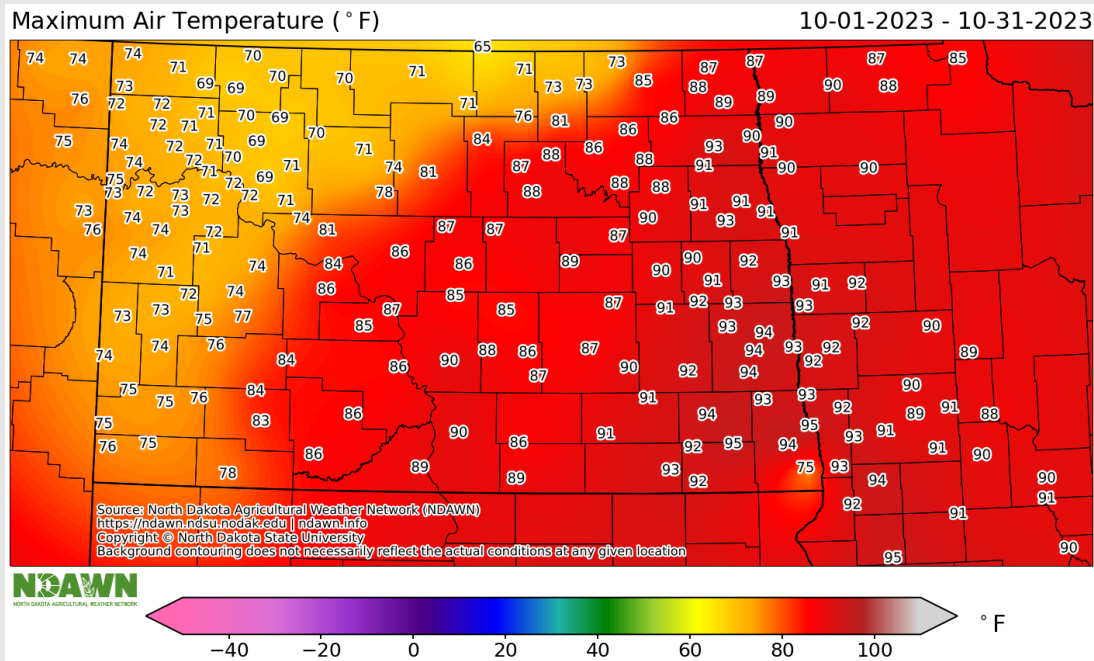
October 2023

Volume 17, No. 10

Temperature

The North Dakota October 2023 average temperature was 42.8°F making it the 61st coolest October within the period of record (129 years) (NCEI). Normal October temperatures average 43.3°F; making October 2023 about 0.5°F below normal (NDAWN, Figure 5). The maximum temperature recorded by NDAWN was 95°F at the Wahpeton (6N) and Milnor (1S) stations in Richland and Sargent County, respectively. The minimum temperature recorded in North Dakota in October was -16°F at the New Hradec (6NW) NDAWN station in Dunn County (Figure 3). Western North Dakota stayed much cooler when compared to the eastern half of North Dakota, regarding both maximum and minimum temperatures.

Statewide Maximum and Minimum Air Temperature



*Only North Dakota stations used for NDAWN data. All MN and MT stations omitted.

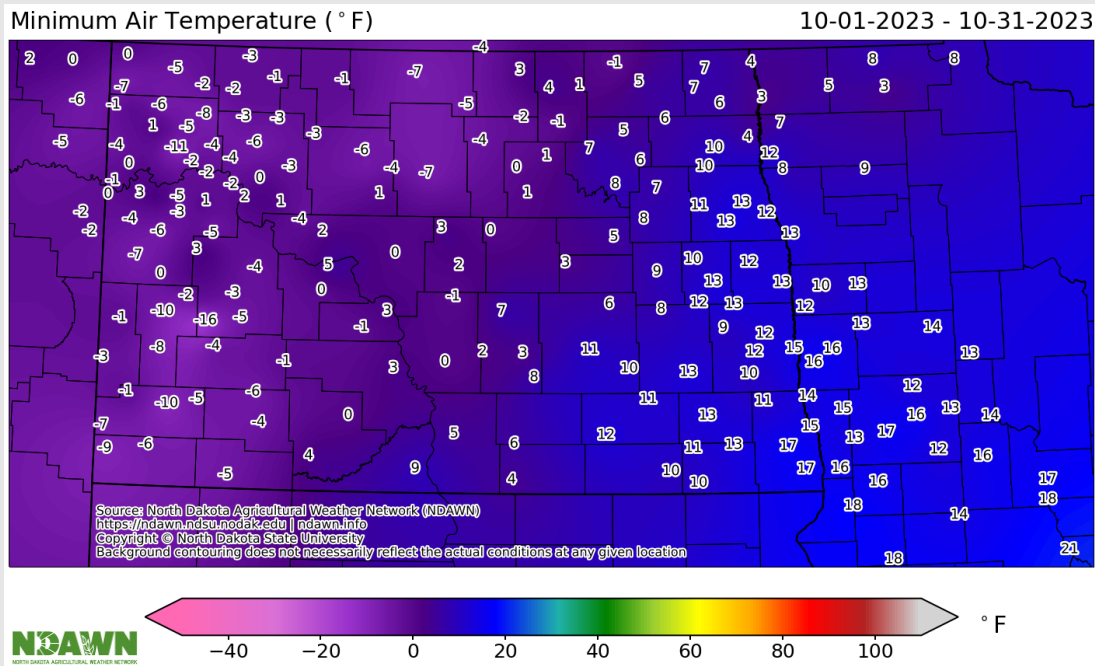


Figure 3: Maximum (Top) and Minimum (Bottom) air temperatures (°F) for October 2023 at all NDAWN Stations

Temperatures in October 2023 were around average, though much cooler than the previous month. September 2023 had an average temperature of 61.6°F, differing by 18.8°F. Maximum temperatures in October stayed below average, with maximum temperatures averaging 52.8°; 2.1°F cooler than normal temperatures for the month. Daily minimum temperatures for October averaged 32.9°F; 1.1°F above normal (NDAWN). NCEI 129-year climate database indicates a 0.6°F increase per century (Figure 4).

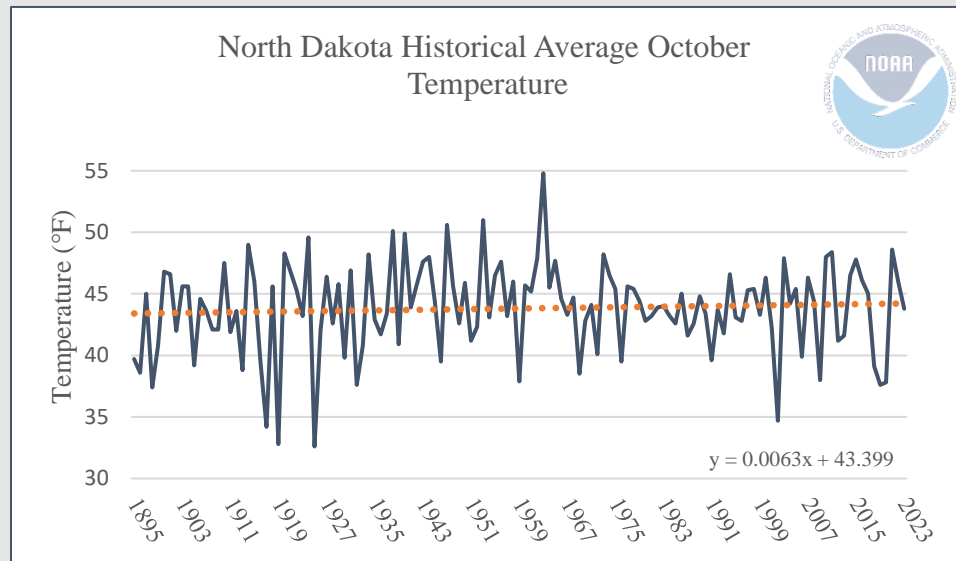


Figure 4: October historic average temperatures in North Dakota with trendline representing change per century. (NCEI)

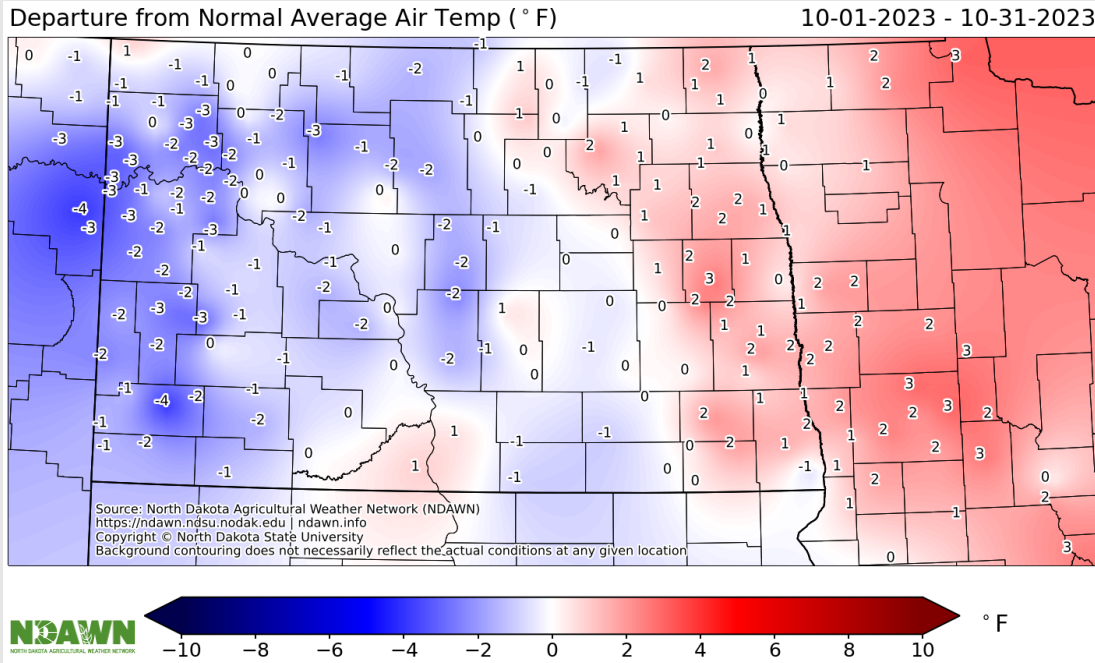


Figure 5: Departure from normal average air temperature for October 2023 at all NDAWN stations.

North Dakota October Temperature Summary

October 2023 Temperature Summary	Average T	Avg max T	Avg min T	Maximum	Minimum
	42.8°F	52.8°F	32.9°F	95°F	-16°F
Anomaly	-0.5°F	-2.1°F	+1.1°F		
Rank					
Warmest	69 th Warmest	91 st Warmest	98 th Warmest		
Coolest	61 st Coolest	39 th Coolest	32 nd Coolest		
Record					
Warmest	54.8°F (1963)	69.4°F (1963)	40.2°F (1963)	98°F (Dunn Center, 2011)	
Coolest	32.6°F (1925)	41.4°F (1925)	21.2°F (1919)		-18°F (Zap, 1919)

Table 2: October temperature summary for North Dakota. 2023 statistics from NDAWN station data. Ranking and records based on NCEI climate data (1885-2023) (NOAA).

*Only North Dakota stations used for NDAWN data. All MN and MT stations omitted.

Storm Reports

October 2023 had many fluctuations regarding the weather. Two severe storm reports on October 3rd were the result of severe hail, however no other severe storms were reported. (Figure 6). Much different than the stormy 90° weather, October 2023 also ushered in an early season snow storm between October 25-27th. Much of North Dakota was blanketed with over 6 inches of snow, excluding Southeastern North Dakota which received 0-4 inches of snow. Snow depth over 12” was reported in the Park River area and high amounts recorded across the Devils Lake Basin. (NWS) (Figure 7). This winter storm interrupted agricultural productions towards the end of harvest season, however snow on the ground did not last into the winter.

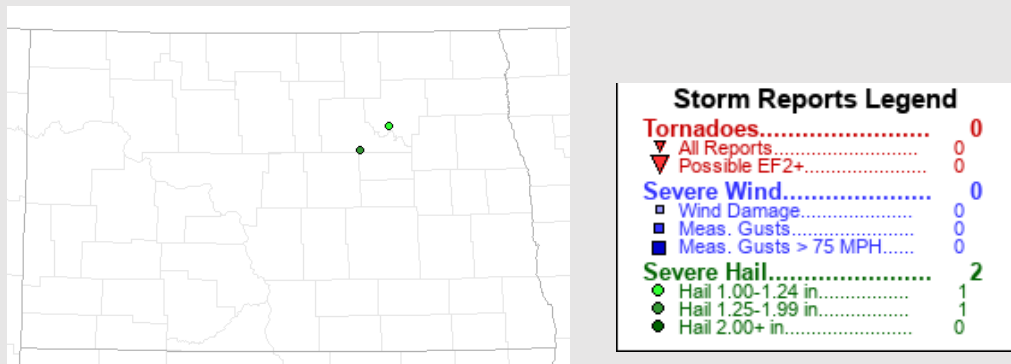


Figure 6: NOAA Storm Prediction Center summary of preliminary storm reports that occurred in October 2023 (NOAA SPC)

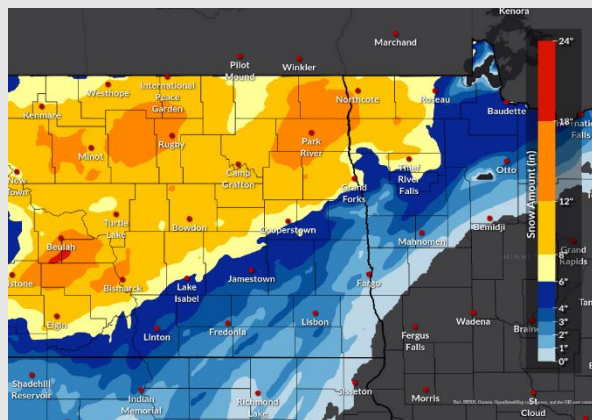


Figure 7: Snow totals from an October 25-27th 2023 snowstorm. Snowfall map courtesy of Grand Forks NWS

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North Dakota Monthly Climate Summary

October 2023

Volume 17, No. 10

Image/Data Sources

Climate at a Glance | National Centers for Environmental Information (NCEI).

NDAWN current conditions

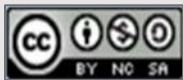
NDAWN Weather

SPC Storm Reports

NCEI Storm Events Database

NWS Heavy Snow Event

XMACIS2



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