



North Dakota Monthly Climate Summary

August 2024

Volume 18, No. 8

North Dakota State
Climate Office: Your
Resource for
Climate Information

North Dakota State University
School of Natural Resource
Sciences

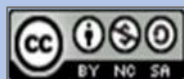
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Precipitation

Based on data from 163 stations* across the North Dakota Agricultural Weather Network (NDAWN), precipitation varied greatly across the state for the month of August. Central and Eastern North Dakota received the bulk of precipitation; the Red River Valley area overall saw average precipitation, with some spots of excess precipitation, as seen in Grand Forks County. Central North Dakota was extremely wet, with a majority of stations receiving 150-200% of normal precipitation.

Drought conditions persist across far western North Dakota, especially the northwest corner of the state. Below average precipitation plagued the area, prompting the U.S. Drought Monitor to increase drought conditions up to Severe. 35.18% of North Dakota is quantified as a drought, 4.48% of which is Severe. (Figure)

The statewide average precipitation in August 2024 was 2.5 inches, around average for the month. The maximum precipitation recorded by NDAWN occurred at the Streeter (6NW) station in Kidder County with 7.05 inches. Very little rain fell in the Northwest; the Grenora (8N) NDAWN station had just 0.23 inches of precipitation for the entire month of August (Figure 1).

The historical maximum statewide-averaged August precipitation occurred in 1900 with 4.54 inches, and minimum precipitation in 1929 and 1933 with 0.73 inches. Average August precipitation was 0.5 inches less than the previous month and ranks as the 32nd wettest August out of 130 years. (NCEI).

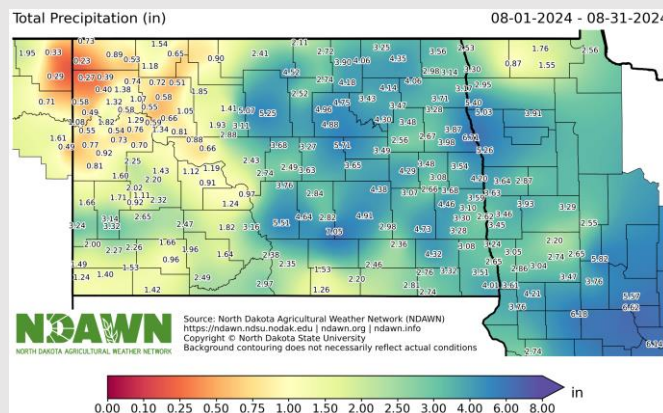


Figure 1: Total precipitation 8/1/2024 – 8/31/2024 at all NDAWN stations (NDAWN)

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



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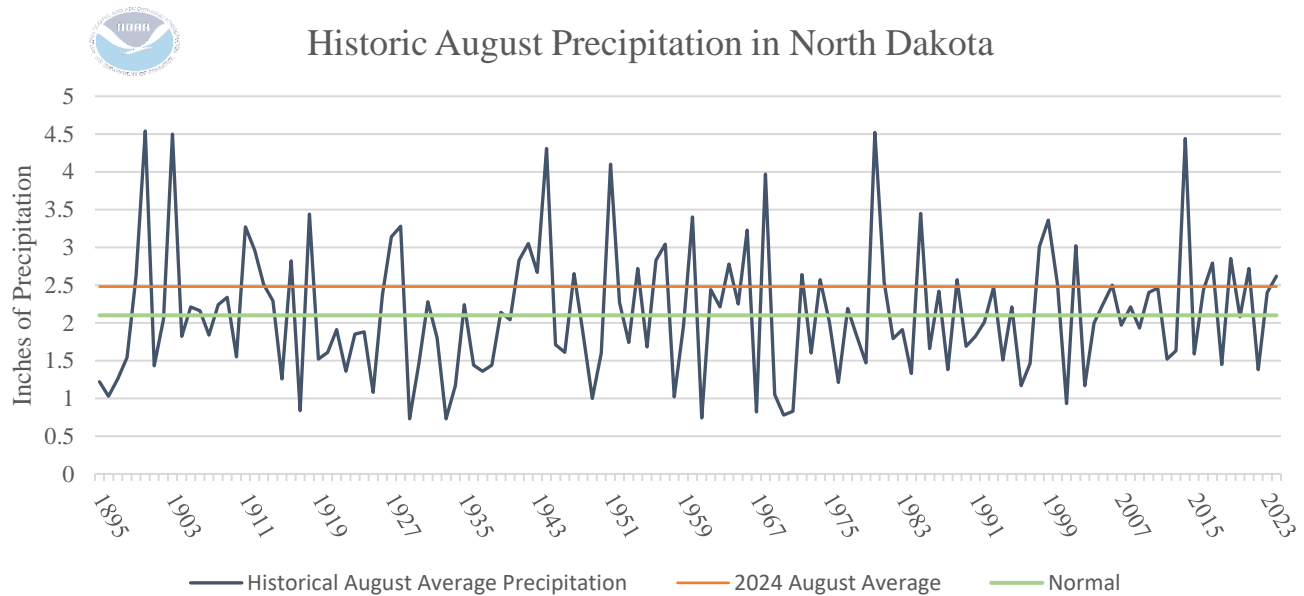


Figure 2: Historical statewide average precipitation in August 1895-2024 (NCEI, NOAA)

North Dakota August Precipitation Summary

	Precipitation	Normal	Anomaly	Rank	Wettest/Driest Since	Record Year
August 2024	2.48"	2.15"	0.33"	32 nd Wettest	Wettest since 2021	1900
				99 th Driest	Driest since 2023	1929, 1932

Table 1: Ranking from NCEI NOAA based on data from August 1885-2024. Precipitation amounts averaged from records at NDAWN stations in North Dakota.

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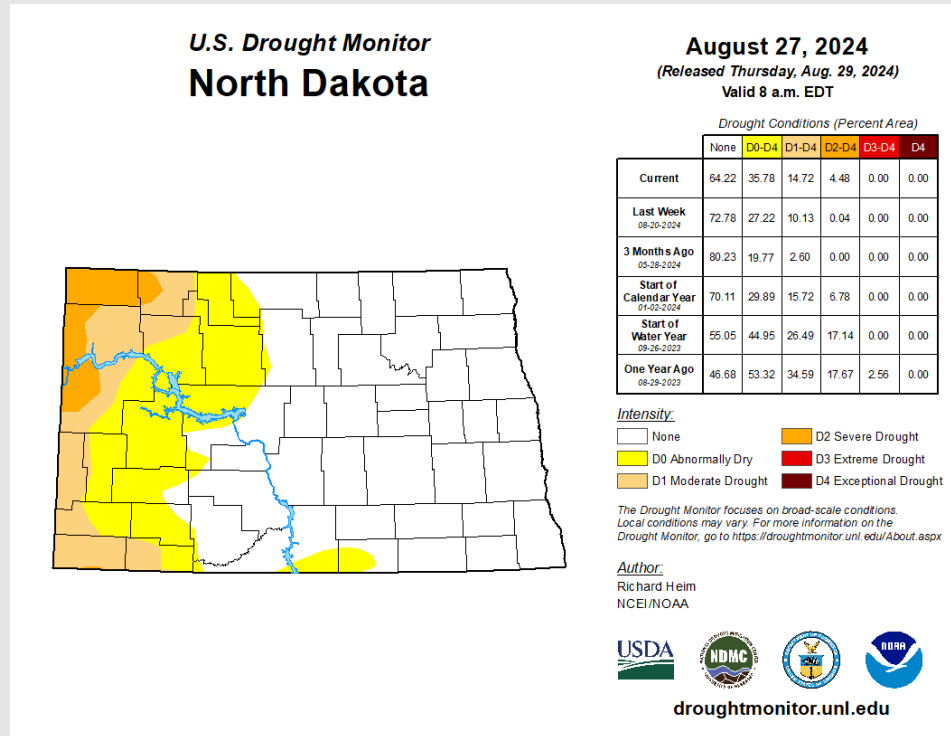


Figure 3: US Drought Monitor interpretation of drought conditions in North Dakota. As of 8/27/2024 64.22% of North Dakota is experiencing some sort of drought (US Drought Monitor)

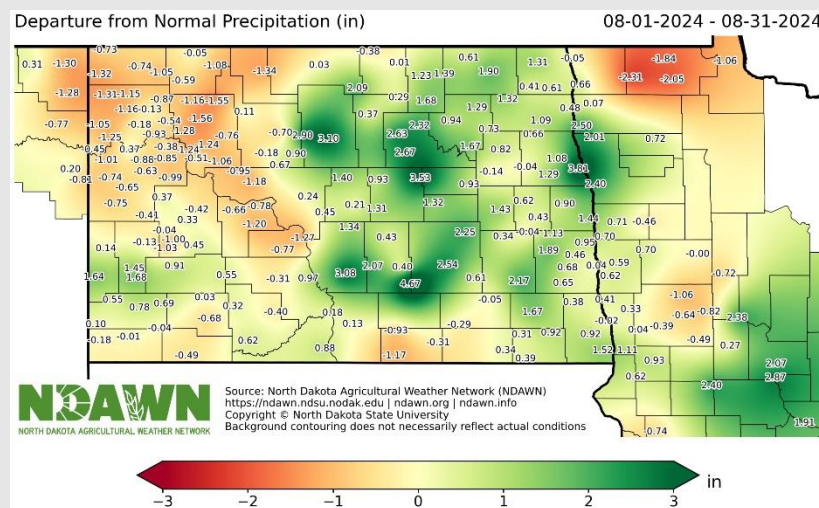


Figure 4: Departure from normal precipitation at each NDAWN station 8/1/2024 – 8/31/2024 (NDAWN)

Temperature

The average temperature in North Dakota for the month of August was 66.5°F, ranking as the 57th coolest August within the period of record (130 years) (NCEI). Normal temperatures average 67.7°F; making 2024 just cooler than average (NDAWN, Figure 3). In Western North Dakota temperatures were slightly higher above average, as maximum temperatures rose into the triple digits in that area. The rest of the state saw upper 80s and well into the 90s. The maximum temperature recorded by NDAWN in August was 103°F at multiple stations: Hettinger (NW), Sunny Slope (3W), Marmarth (2N), and Charbonneau (5NW). The minimum temperature recorded in North Dakota in August was 32°F at the Grenora (8N) NDAWN station in McKenzie County. 39 stations reached into the 30s, most of which occurred in Western ND.

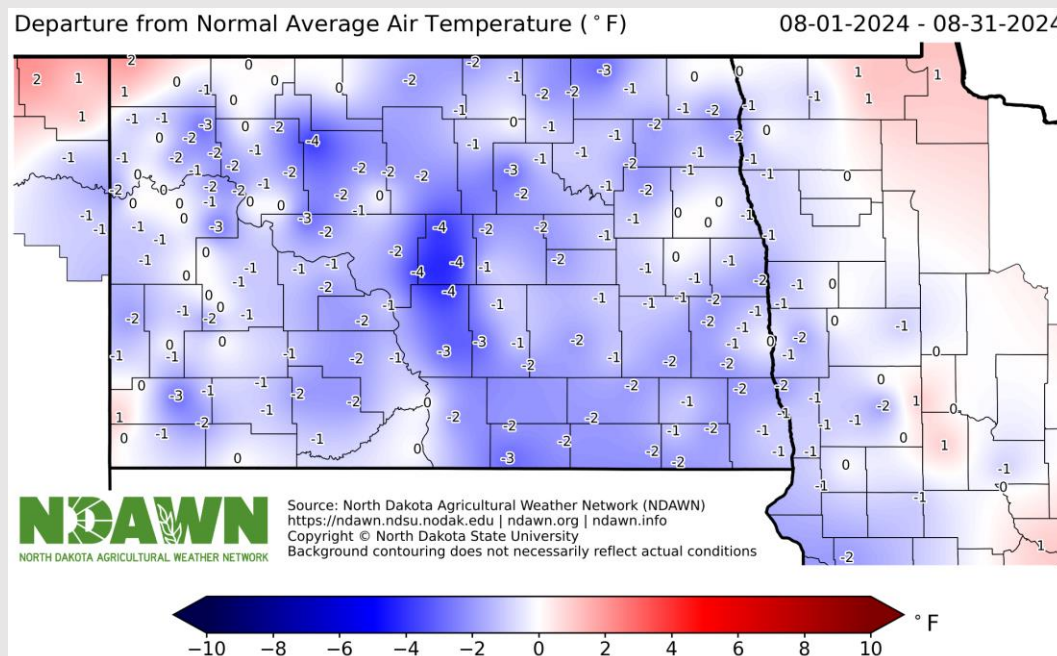


Figure 5: August 2024 departure from normal average temperature. (NDAWN)

Statewide Maximum and Minimum Air Temperature

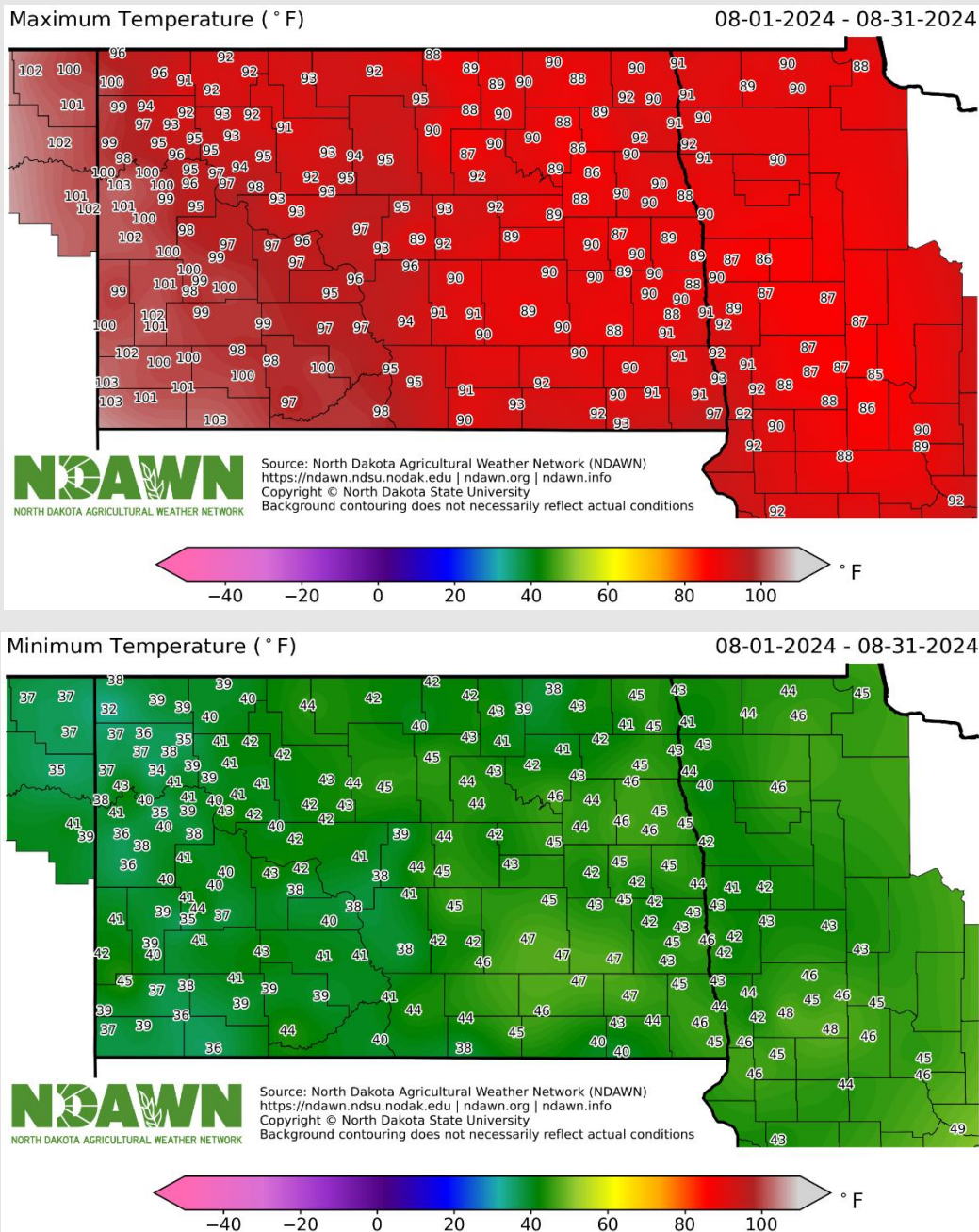


Figure 6: Maximum (Top) and Minimum (Bottom) air temperatures (°F) for August 2024 at all NDAWN Stations



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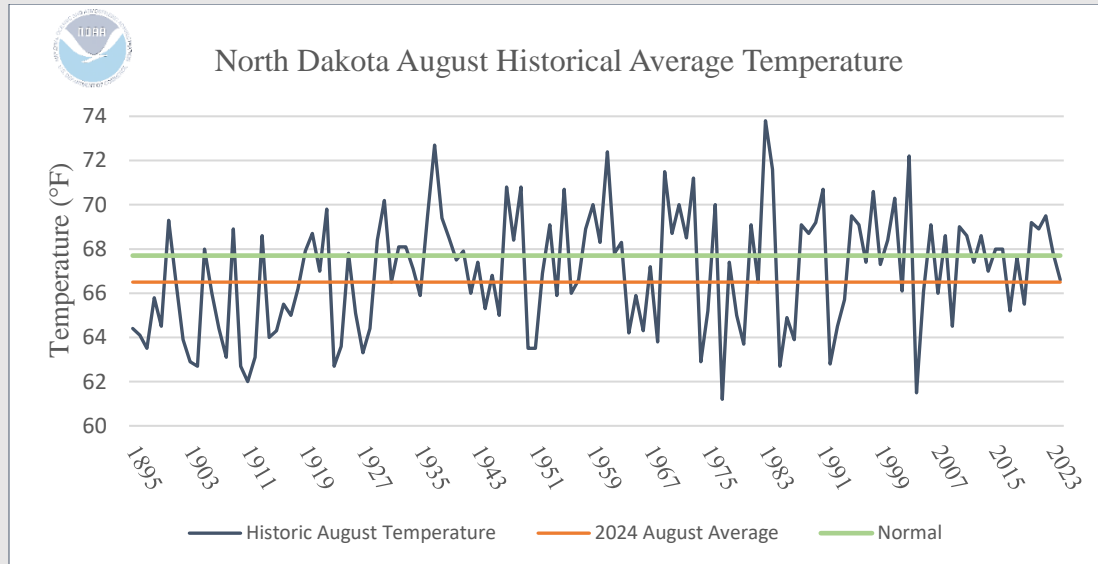


Figure 7: August historic average temperatures by year in North Dakota (NCEI)

The average maximum temperature in August 2024 was below average by almost 3°F, reaching only 78°F. The average minimum temperature of 54.6°F is just slightly warmer than normal. The warmest August on record was 1983 where the average temperature was recorded at 73.8°F, 7.4°F warmer than 2024. The coolest August on record averaged 61.2°F in 1977.

North Dakota August Temperature Summary

August 2024 Temperature Summary	Average T	Avg max T	Avg min T	Maximum	Minimum
	66.5°F	78.3°F	54.6°F	103°F	32°F
Anomaly	-1.26°F	-2.87°F	+0.35°F		
Rank					
Warmest	74 th warmest	99 th warmest	27 th warmest		
Coolest	57 th coolest	32 nd coolest	104 th coolest		
Record					
Warmest	73.8°F (1983)	88.8°F (1961)	58.9°F (1983)	114°F (Medora, 1900)	
Coolest	61.2°F (1977)	74.0°F (1911)	47.7°F (1977)		20°F (Flasher 1907)

Table 2: August temperature summary for North Dakota. 2024 statistics from NDAWN station data. Ranking and records based on NCEI climate data (1885-2024) (NOAA).

Significant Weather

August severe weather was quiet but did pack a punch. The Bismarck/Mandan area experienced excess rainfall that caused flash flooding, some reports of 3-4 inches. On August 28th two preliminary tornadoes were reported to the National Weather Service, in Selfridge ND in Sioux County, and Steele in Kidder County. Most severe thunderstorm warnings issued during the month were a result of the same line of storms that produced the tornadoes.

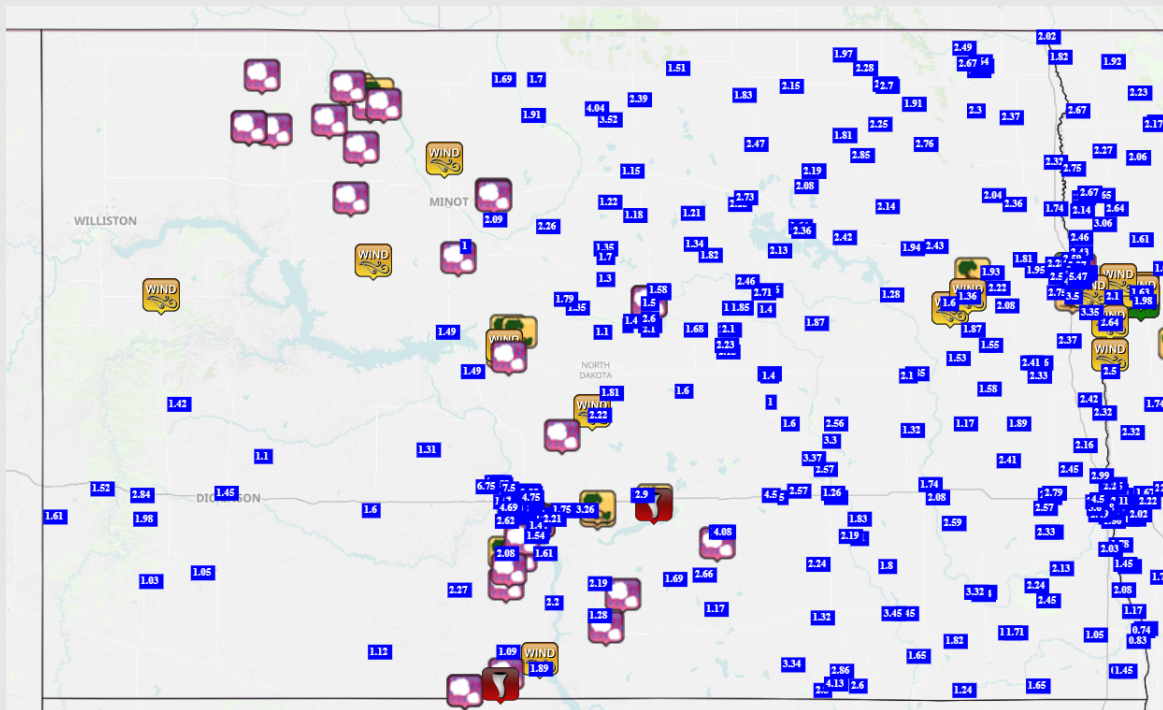


Figure 8: Local storm reports from the month of August. Two tornadoes were reported to the National Weather Service (NWS, IEM)

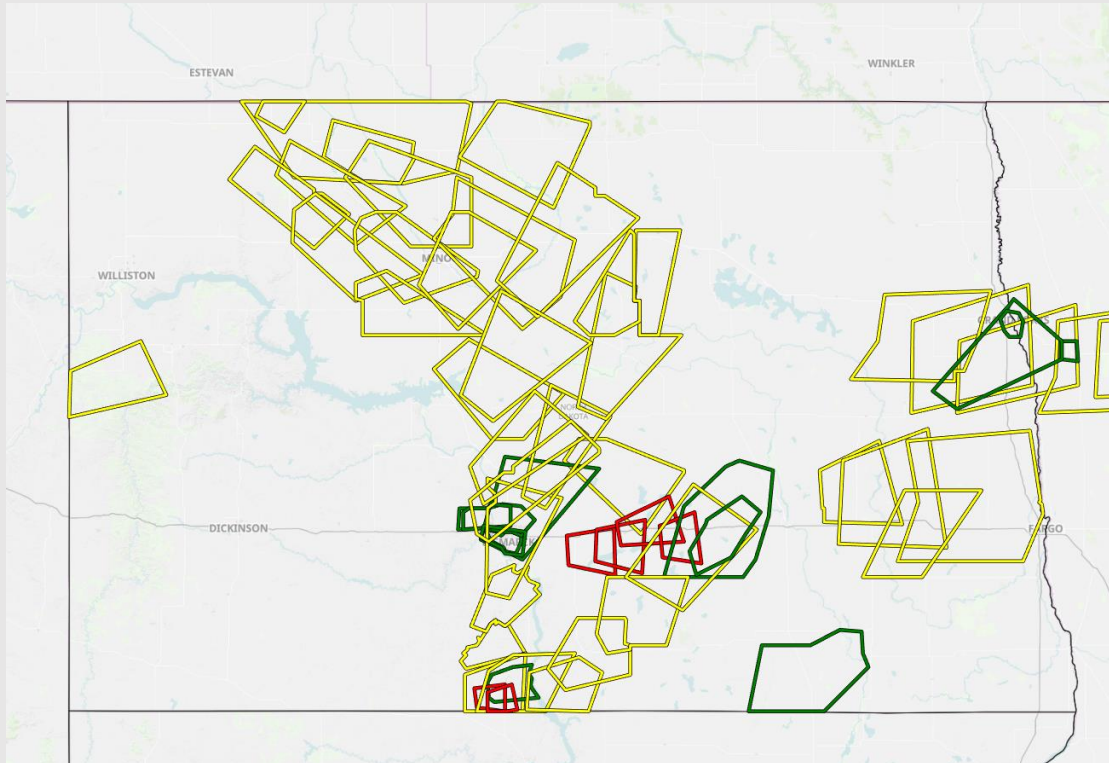


Figure 9: Severe warnings during the month of August. Severe flash flooding impacted the Bismarck/Mandan area due to rainfall from severe weather. Six tornado warnings were issued in various counties. (NWS, IEM)



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Image/Data Sources

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

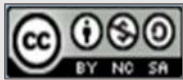
NDAWN current conditions

NDAWN Weather

SPC Storm Reports

NCEI Storm Events Database

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