



North Dakota Annual Climate Summary

Annual: 2022

Volume 16, No. 13

Precipitation

North Dakota State Climate Office: Your Resource for Climate Information



North Dakota State University

College of Agriculture, Food Systems, and Natural Resources

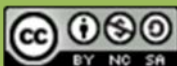
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Based on the National Centers for Environmental Information (NCEI), the statewide average annual precipitation accumulation for 2022 was 18.78 inches, which was 3.15 inches more than in 2021. It was; however, 0.1 inches less than the 1991-2020 average, making it the 43rd wettest year (January through December period) in the 128-year period of record (Table 1).

The counties shaded in green in Figure 1 indicate wetter-than-average conditions, while as brown indicates drier-than-average conditions. A white shading indicates near-average conditions. The numbers inside the counties are the precipitation rankings, with 1 being the lowest (driest) and 128 being the highest (wettest).

The greatest annual precipitation accumulation in 2022 was 40.93 inches, recorded in Walhalla, Pembina County. The greatest annual snowfall accumulation in 2022 was 116.8 inches, recorded in Kenmare, Ward County. Based on historical records, statewide annual precipitation showed a positive long-term trend of 1.19 inches during the last century. The lowest and highest annual precipitation for the state during this period ranged from 8.81 inches in 1936 to 24.39 inches in 2019 (Figure 2).

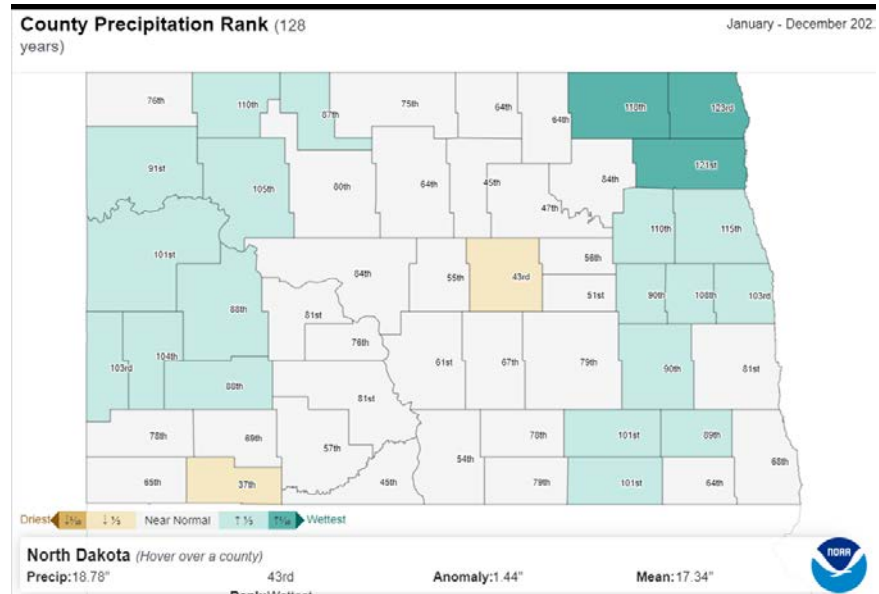


Figure 1. County precipitation ranking map for 2022. (National Centers for Environmental Information, NOAA)



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North Dakota Precipitation
January-December

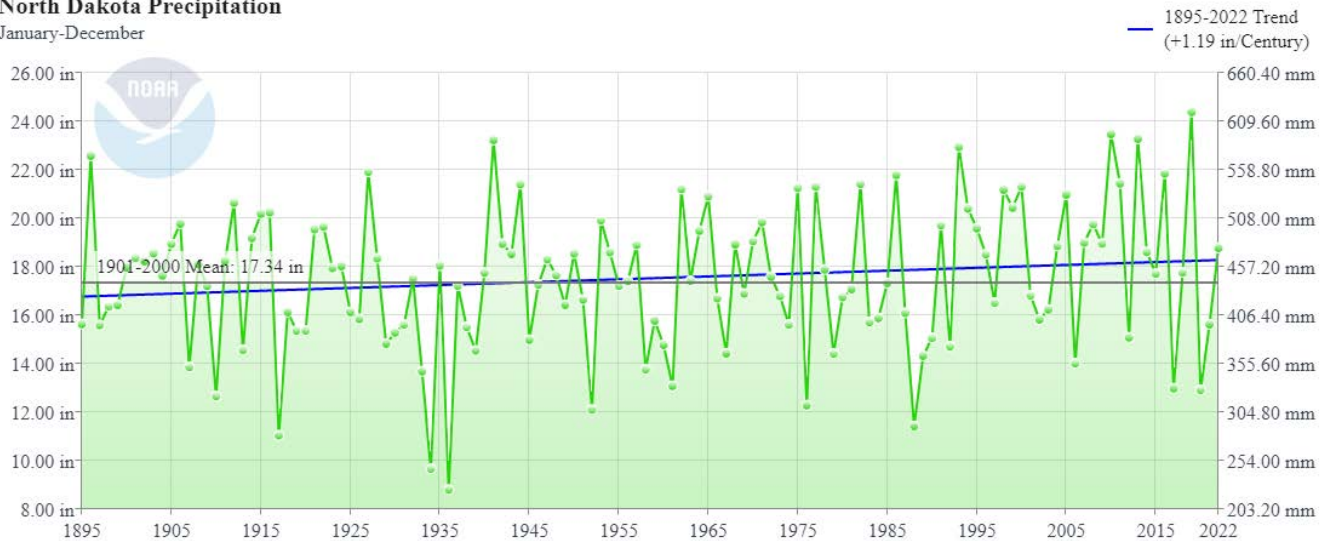


Figure 2. Historical annual precipitation time series for North Dakota. (NCEI, NOAA)

Table 1. North Dakota 2022 Annual Precipitation Ranking Table.

Period	Value	Normal	Anomaly	Rank	Wettest/Driest Since	Record Year
2022	18.78"	18.85"	-0.1"	86th driest 43rd wettest	Driest since 2021 Wettest since 2019	8.81" (1936) 24.39" (2019)



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Temperature

The official state annual average temperature of 2022 was 39.4 F, which is 4.4 degrees colder than in 2021. The state's average January through December temperature was 1.6 degrees colder than the 1991-2020 average, making it the 51st coldest year in the 128 years of record (Table 2).

The counties shaded in blue in Figure 3 indicate colder-than-average conditions. The numbers inside the counties are the temperature rankings, with one being the lowest (coldest) and 128 being the highest (warmest).

The state's lowest and highest daily temperatures ranged from minus 46 F on Feb. 4 in Willow City, Bottineau County, to 103 F on Aug. 4 in Bismarck, Burleigh County. Based on the historical records, the state average annual temperatures showed a positive long-term trend of 2.5 degrees during the last century (the seventh steepest trend in the U.S.).

The lowest and highest monthly state annual average temperatures during this period ranged from 34.9 F in 1950 to 45 F in 1987 (Figure 4).

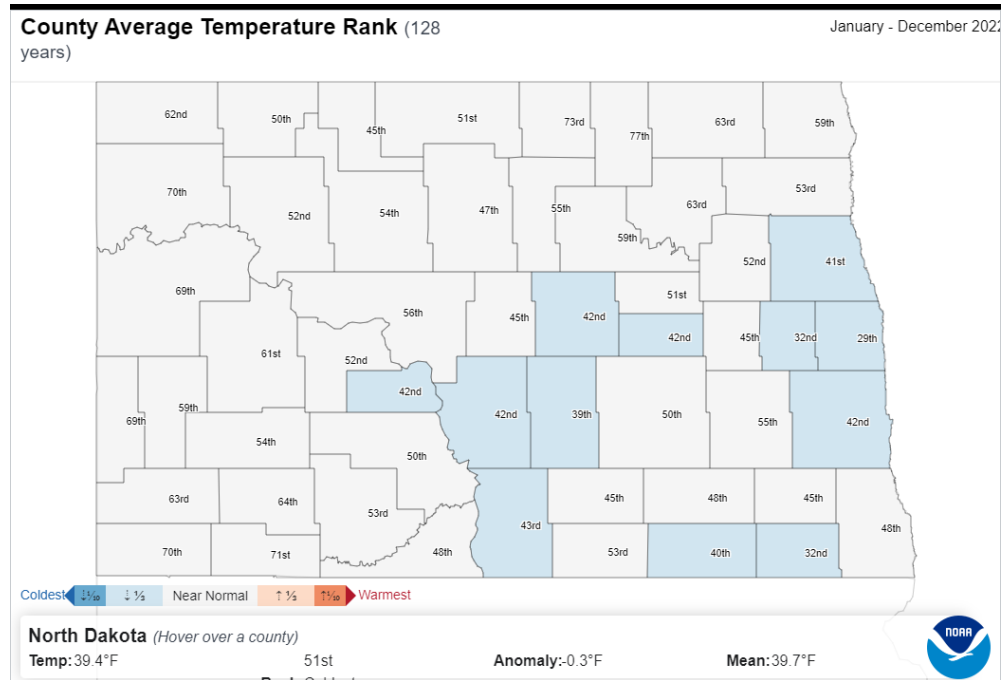


Figure 3. County average temperature ranking map for 2022. (National Centers for Environmental Information, NOAA)



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North Dakota Average Temperature
January-December

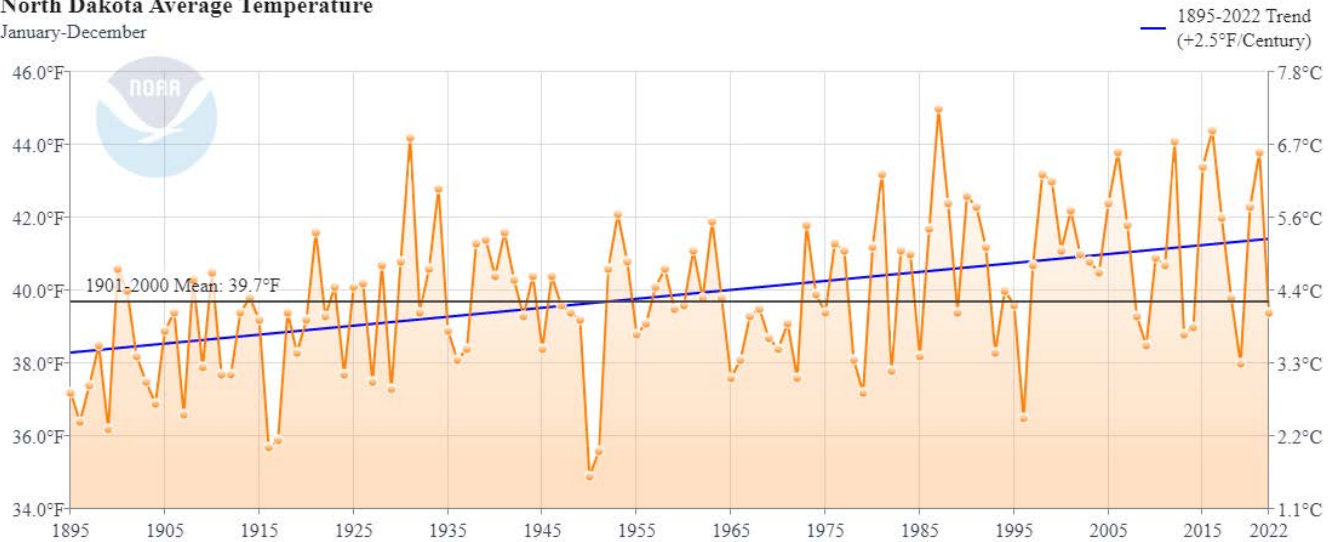


Figure 4. Historical annual temperature time series for North Dakota. (NCEI, NOAA)

Table 2. North Dakota Annual Temperature Ranking Table.

Period	Value	Normal	Anomaly	Rank	Warmest/Coolest Since	Record Year
2022	39.4°	41°	-1.6°	51st coolest 78th warmest	Coolest since 2019 Warmest since 2021	34.9 F (1950) 45 F (1987)



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Storm Reports: The NOAA Storm Report recorded 17 tornado, 132 hail and 294 damaging wind reports, with a total of 443 total significant storm events in 2022. Table 3 summarizes the number of tornado, hail and damaging wind reports.

Table 3. Summary of December Severe Storm Reports in North Dakota. (Storm Prediction Center, NOAA)

Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Tornado reports	0	0	0	1	3	6	2	5	0	0	0	0	17
Hail reports	0	0	0	2	13	42	57	12	6	0	0	0	132
Wind reports	0	0	0	2	17	87	176	12	0	0	0	0	294
Total	0	0	0	5	33	135	235	29	6	0	0	0	443

Daily Record Events in December: Across the observation network of weather stations with at least 30 years of history, 832 daily records were either tied or broken in 2022. Details of the records are in Table 4.

Table 4. Summary of daily records broken or set in North Dakota in December. (NCEI Daily Weather Records)

Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Highest daily max. temp.	0	2	1	0	0	29	4	4	12	6	19	0	77
Highest daily min. temp.	5	7	6	0	1	35	17	4	6	5	11	7	104
Lowest daily max. temp.	25	34	4	103	17	3	2	13	0	2	10	15	228
Lowest daily min. temp.	13	10	0	67	2	2	5	0	0	7	7	6	119
Highest daily precipitation	10	12	1	41	24	6	10	6	1	2	17	40	170
Highest daily snowfall	13	12	1	48	0	0	0	0	0	2	16	42	134
Total	66	77	13	259	44	75	38	27	19	24	80	110	832

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