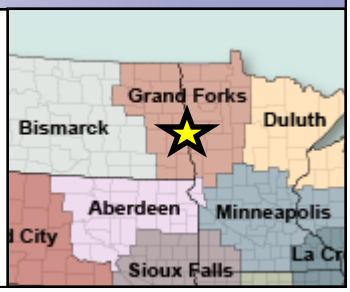
National Weather Service Grand Forks

Weather & Climate Review

June-July 2022



June

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	65.3	1.8	96	39	3.15	-0.61	0.0	45
NWS GF	67.3	1.9	100	39	2.50	-1.63	0.0	M
GFK	66.8	2.2	100	37	2.16	-1.61	0.0	56
RDR	65.9	1.3	99	38	2.20	-1.57	0.0	53
FAR	68.4	1.6	101	37	2.27	-2.02	0.0	65
BDE	63.2	0.9	95	38	1.72	-2.60	0.0	41
PKD	65.7	1.5	98	37	3.86	-0.22	0.0	61
BJI	62.8	0.4	96	33	2.53	-2.04	0.0	39
TVF	65.2	0.6	99	38	1.86	-2.63	0.0	51
Y63	69.0	2.7	99	41	M	M	M	M
AGA	61.7	-4.2	97	37	5.98	2.06	0.0	M

Table 1 June 2022 Temperature and Precipitation Statistics

In Table 1, (ND) **DVL** = Devils Lake, **NWS GF** = NWS Grand Forks, **GFK** = GF Airport, **RDR** = GF Air Force Base, **FAR** = Fargo, (MN) **BDE** = Baudette, **PKD** = Park Rapids, **BJI** = Bemidji, **TVF** = Thief River Falls, **Y63** = Elbow Lake, **AGA** = Agassiz MN NWR.

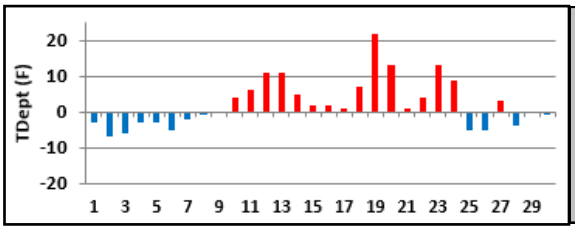


Figure 1 June Daily Departure from Normal Temperatures at the NWS Grand Forks ND

Blue Bars = Colder than Normal Days & Red Bars = Warmer than Normal Days

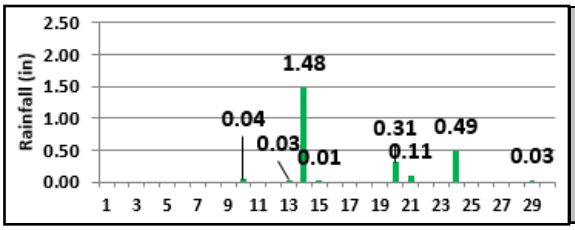


Figure 2 June Daily Precipitation Totals NWS Grand Forks ND

Table 1 shows the June average temperature (AveT), departure from normal temperature (TDept), highest temperature (THigh), lowest temperature (TLow), precipitation (Pcpn), departure from normal precipitation (PDept), snowfall (Snow), and peak wind speed (PWnd in mph) for 11 climate stations. The June average temperature was slightly above normal at most sites. Precipitation amounts were below normal at most sites. Figure 1 plots the daily departure from normal temperatures in June 2022 at the NWS Grand Forks. Temperatures were above normal from June 10th to 24th, with the 19th being the hottest day, at 22 degrees above normal. Figure 2 shows the June daily precipitation totals at NWS Grand Forks. There was no measurable precipitation for the first 9 days of the month, and only one day (June 14th) had a precipitation total above one inch.

Records At Fargo-Moorhead, our longest running climate site, the daily high temperature of 101F on June 19th tied the record high for that date. The daily low temperature of 75F on June 19th tied the record high minimum.

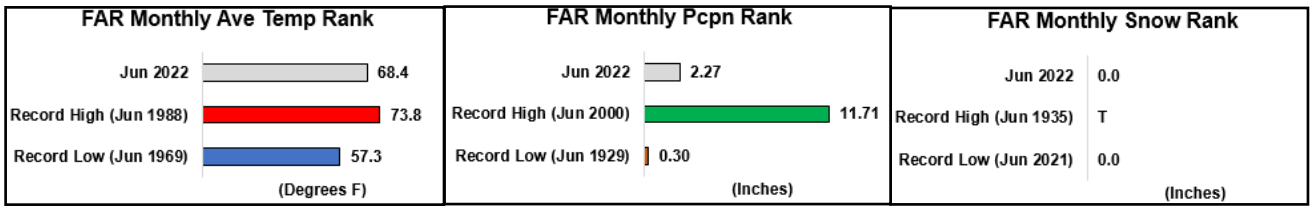


Figure 3 June 2022 Fargo Temperature and Precipitation Statistics Compared to Records

Figure 3 compares the June 2022 average temperature (AveT), precipitation (Pcpn), and snowfall (Snow) at Fargo to the established records.

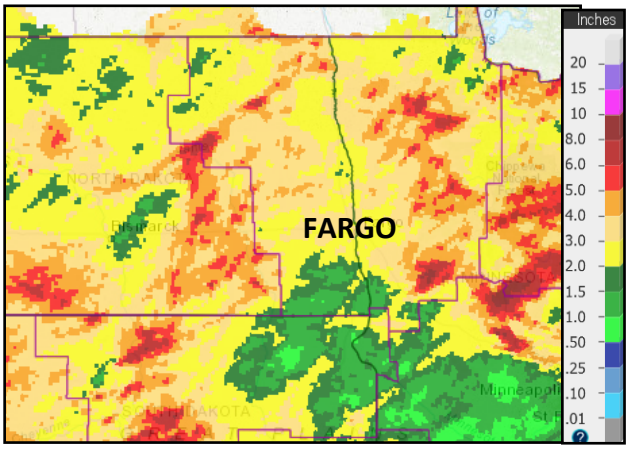


Figure 4 June Observed Precipitation

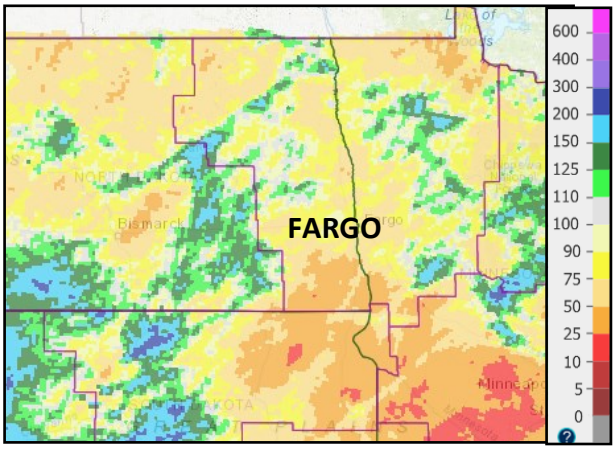


Figure 5 June Percent of Normal Precipitation

Figure 4 gives a June precipitation estimate for all of eastern North Dakota and the northwest quarter of Minnesota. As is typical in the summer, there was a high degree of variability in the monthly totals. Most of the area received 2 to 4 inches of precipitation (yellow and light orange colors). Figure 5 shows the June percent of normal precipitation. Most of the area received 50 to 100 percent of normal precipitation (light orange to yellow colors).

Temperature

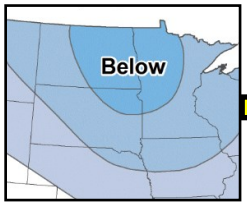


Figure 6 CPC Temp Outlook

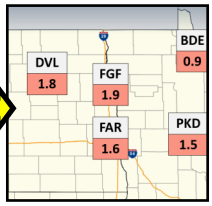


Figure 7 Obs Temp Dept

Precipitation

Figure 8 CPC Pcpn Outlook

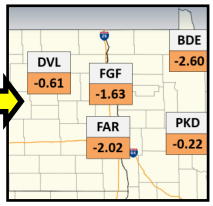


Figure 9 Obs Pcpn Dept

The June temperature (Figure 6) and precipitation (Figure 8) outlooks issued by the Climate Prediction Center (CPC) in late May are shown above. Compare these with the observed June departures from normal temperatures (Figure 7) and precipitation (Figure 9).

Longer Term Trends

Looking at just the Fargo climate site (FAR), Figures 10 and 11 show how June 2022 fits into the previous 5 months. Figure 10 plots the monthly departures from normal temperatures at Fargo. The blue bars represent months that were colder than normal, while the red bars represent months that were warmer than normal. Figure 11 plots the monthly departures from normal precipitation at Fargo. The green bars represent months that were wetter than normal, while the brown bars represent months that were drier than normal.

After a string of below normal temperatures, June was slightly above normal (Figure 10). After the very wet April, the June precipitation total was below normal again (Figure 11).

Figure 12 tracks how much precipitation has fallen since January 1, 2022, and how it compares to normal and last year. Snowfall is also tracked for the snow season, which began on July 1, 2021.

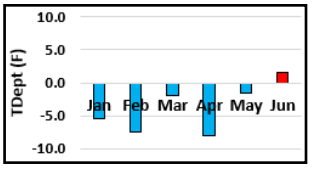


Figure 10 Monthly Departures from Normal Temps at Fargo, ND

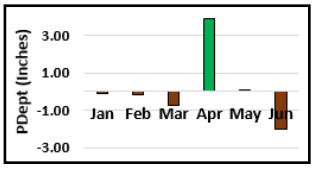


Figure 11 Monthly Departures from Normal Pcpn at Fargo, ND

	Observed Value	Normal	Departure from Normal	Last Year
Pcpn Since Jan 1	12.56	11.57	0.99	6.54
Snow Since Jul 1	56.2	51.4	4.8	28.8

Figure 12 Yearly Precipitation & Seasonal Snowfall Trends at Fargo

U. S. Drought Monitor

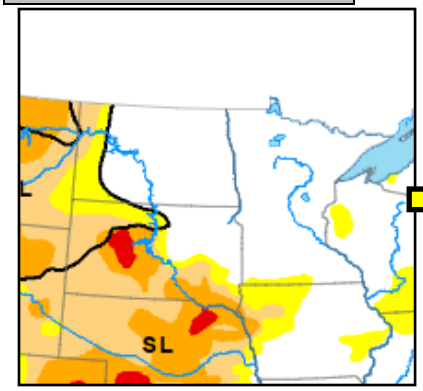


Figure 13 U. S. Drought Monitor, May 26

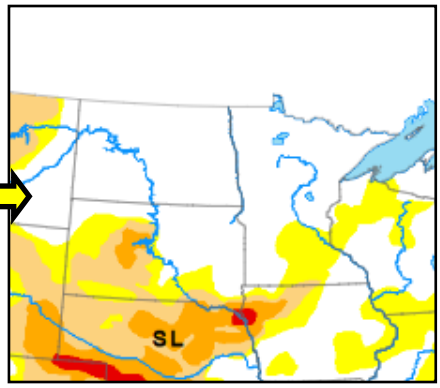
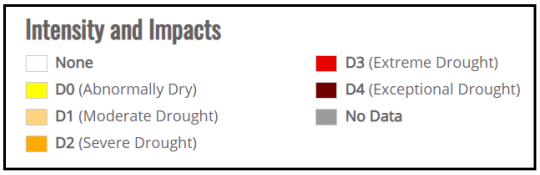


Figure 14 U. S. Drought Monitor, June 28

For eastern North Dakota and the northwest quarter of Minnesota, there were no drought designations in June (Figures 13 & 14). The key for both figures is shown below.



Summer Warnings

June 19th brought an Excessive Heat Warning to the Red River Valley and a Heat Advisory on either side (Figure 15). The high temperatures for June 19th are shown in Figure 16. Finally, a few of the highest temperatures on June 19th are shown below both images below.

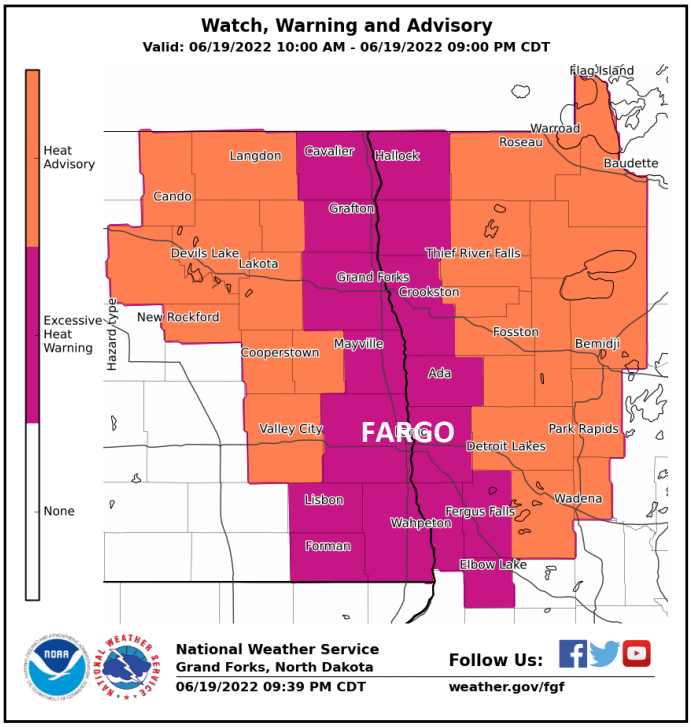


Figure 15 June 19th Warning Area

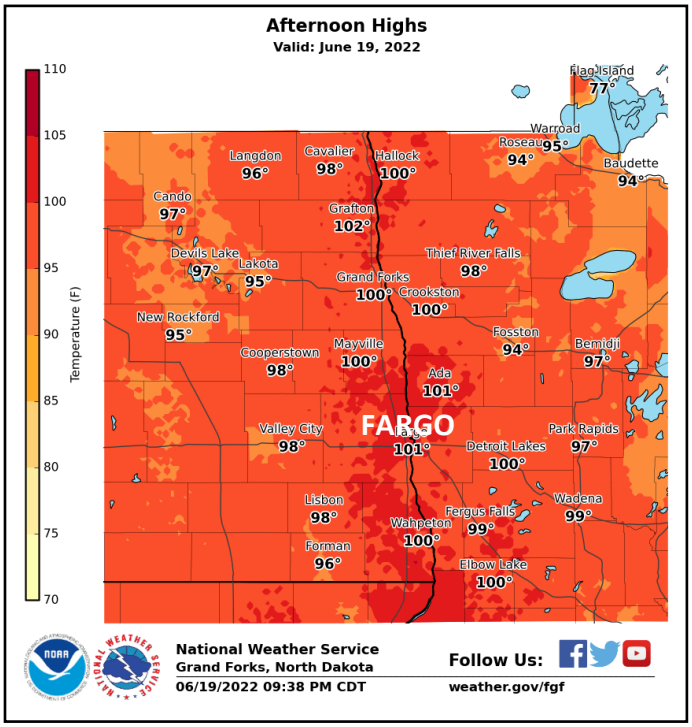


Figure 16 June 19th Afternoon Highs

<u>Highest June 19th Temperatures</u>

Wahpeton ND 6N 104F

Warren MN 6SW 103F

Prosper ND 5NW 103F

East Grand Forks MN 103F

Eldred MN 2W 102F

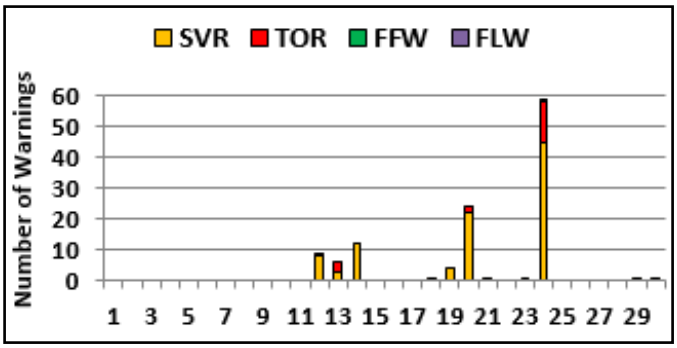


Figure 17 Number of June Warnings

No convective warnings were issued until June 12th (Figure 17), but clearly the busiest day was June 24th, when a total of 59 warnings were issued. Figure 18 shows the surface map on the afternoon of June 24th. The preliminary local storm reports for June 24th are shown in Figure 19. A 2-day rainfall map showing totals from 7 am on June 23rd to 7 am on June 25th is included in Figure 20. Finally, this localized heavy rainfall washed out a road north of U. S. Highway 2 in northwest Grand Forks County (Figure 21—courtesy ND DOT).

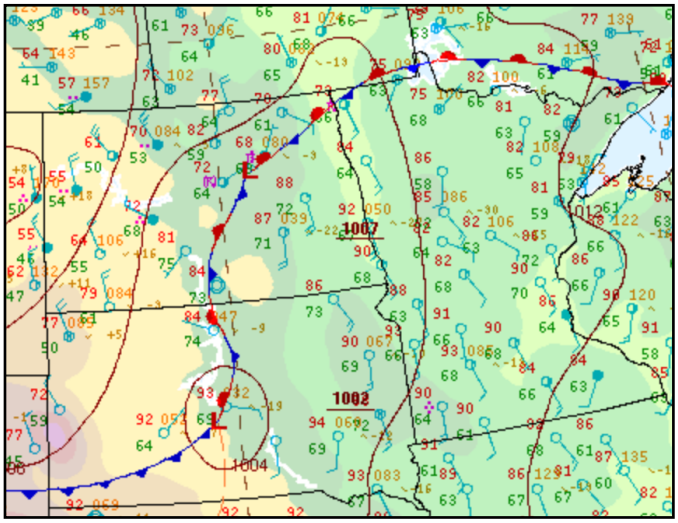


Figure 18 June 24th 4 PM Surface Map

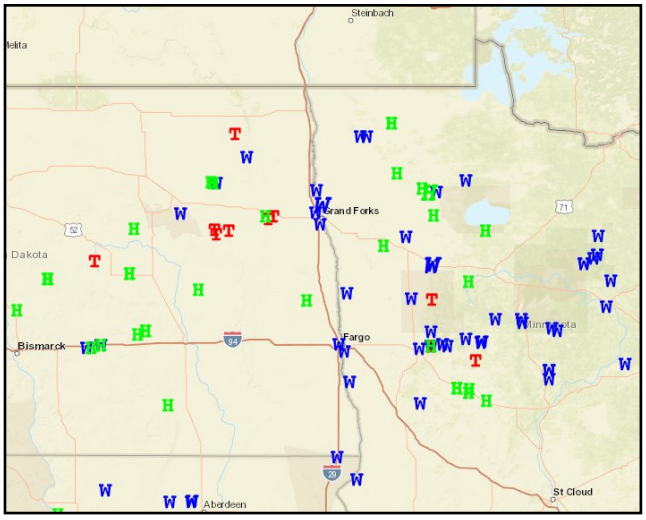


Figure 19 June 24th Preliminary Storm Reports

W= Wind Damage, T = Tornado, H = Hail

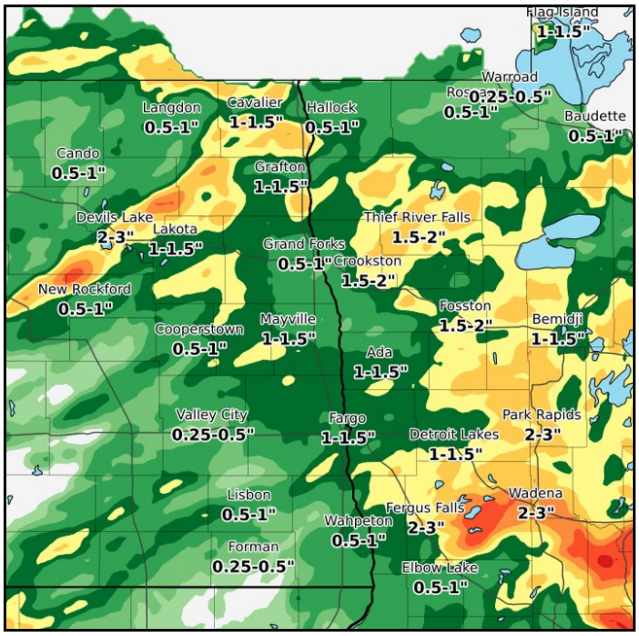


Figure 20 7 am June 23—7 am June 25 Rainfall Amounts

Figure 21 Washed out road 9N of US Highway 2 on ND32

Flooding

The rivers over eastern North Dakota and northwest Minnesota finally fell back below minor flood stage in June. Figures 22 and 23 show the Red River gage heights at Fargo and East Grand Forks through the month of June. Figures 24 and 25 show how the Red River looked in mid-May versus mid-June at Drayton.

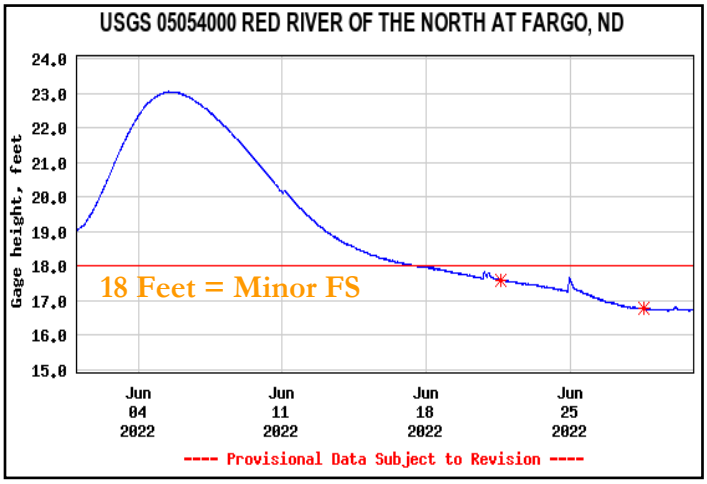


Figure 22 June Red River levels at Fargo

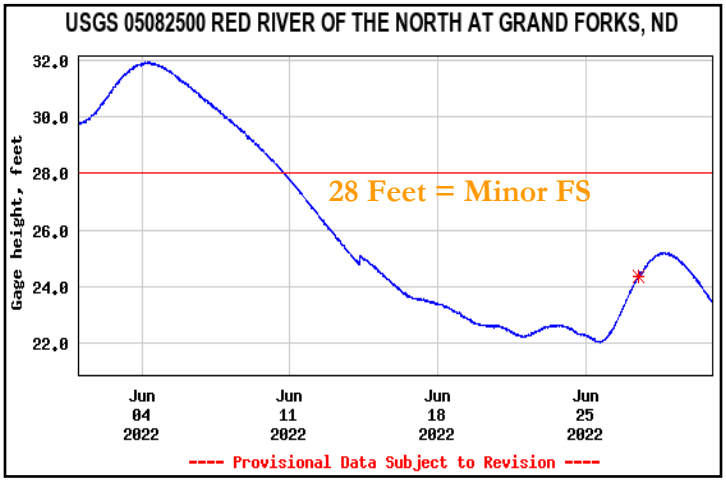


Figure 23 June Red River levels at East Grand Forks

Figure 24 Drayton ND Red River Bridge May 15th

Figure 25 Drayton ND Red River Bridge June 17th

July

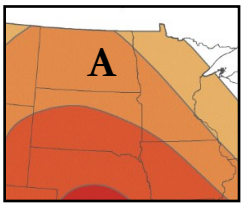


Figure 26 Temperature

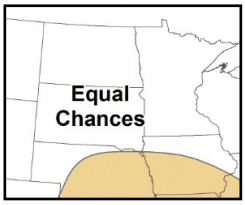


Figure 27 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 26) and precipitation (Figure 27) outlooks for July 2022 are shown to the left. For eastern North Dakota and the northwest quarter of Minnesota, the CPC is forecasting higher probabilities for above normal temperatures and equal chances for above, normal, or below normal precipitation amounts.

Sunrise/Sunset

Fargo, ND	Jul 1	Sunrise: 5:37 am	Sunset: 9:26 pm
	Jul 31	Sunrise: 6:05 am	Sunset: 9:02 pm

Last Year & Normals

Per Table 2, in July 2021, the average temperature (TDept) was well above normal at all sites. Precipitation amounts (Pcpn) were below normal at all sites.

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	73.5	5.5	93	51	0.98	-1.45	0.0	48
NWS GF	74.5	5.0	97	55	0.56	-2.99	0.0	M
GFK	73.0	4.1	96	52	0.42	-3.10	0.0	41
RDR	73.0	4.1	98	47	0.94	-2.58	0.0	35
FAR	74.8	4.1	96	55	0.66	-2.41	0.0	61
BDE	69.7	3.0	94	44	0.80	-3.23	0.0	46
PKD	72.1	3.4	94	50	2.19	-1.74	0.0	58
BJI	69.9	3.0	95	43	1.11	-2.42	0.0	38
TVF	71.9	3.2	95	50	0.38	-3.20	0.0	33
Y63	72.5	1.7	91	55	M	M	M	M

Table 2 July 2021 Temperature and Precipitation Statistics

Figure 28 shows normal highs and lows on July 1st for selected cities across eastern North Dakota and northwest Minnesota. Figure 29 shows how normal highs and lows change by July 31st. As an example, at NWS Grand Forks on July 1st, the normal high is 79 and the normal low is 58. By July 31st, the normal high rises to 81 and the normal low rises to 59. Figure 30 shows the normal precipitation for a few selected sites. As an example, the normal precipitation at NWS Grand Forks in July is 3.55 inches.

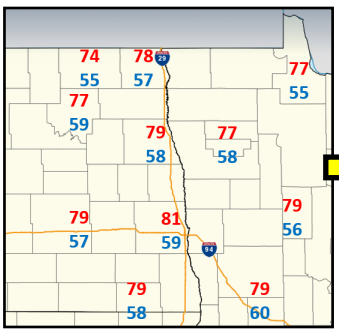


Figure 28 Normal Temps Jul 1

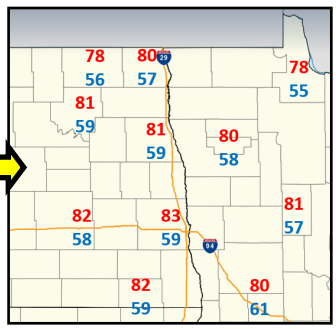


Figure 29 Normal Temps Jul 31

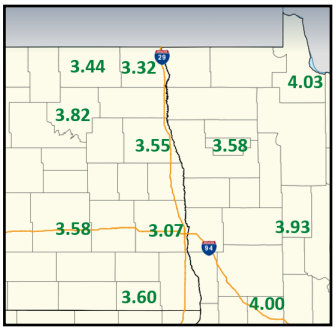


Figure 30 Normal Jul Pcpn

Summer Warnings 2021

Thirty-three Severe Thunderstorm, 2 Tornado, and 1 Flash Flood Warning were issued in July 2021 (Figure 16). Smoke from wildfires covered the area during much of July, resulting in poor air quality.

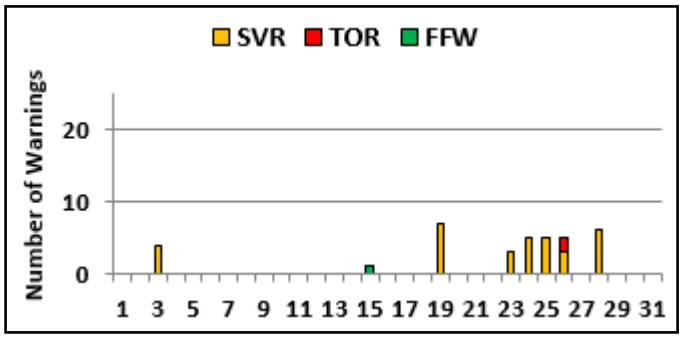


Figure 31 Number of July 2021 Convective Warnings