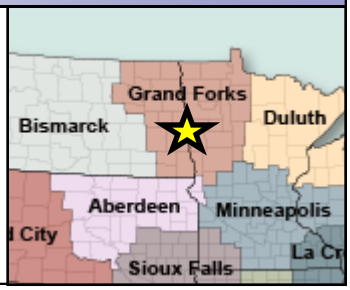
National Weather Service Grand Forks

Weather & Climate Review

February-March 2021



February

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	2.2	-10.8	42	-35	M	M	M	M
NWS GF	5.3	-8.2	46	-26	0.18	-0.41	2.9	M
GFK	5.3	-6.7	47	-27	0.16	-0.36	2.3	45
RDR	5.2	-6.8	46	-27	M	M	M	M
FAR	6.8	-7.8	44	-25	0.29	-0.32	3.1	40
BDE	1.7	-9.0	44	-39	M	M	M	40
PKD	3.1	-9.3	40	-38	M	M	M	36
BJI	2.8	-8.4	40	-37	M	M	M	M
TVF	2.9	-7.9	41	-30	M	M	M	M
Y63	5.4	-10.2	39	-27	M	M	M	M

Table 1 February 2021 Temperature and Precipitation Statistics

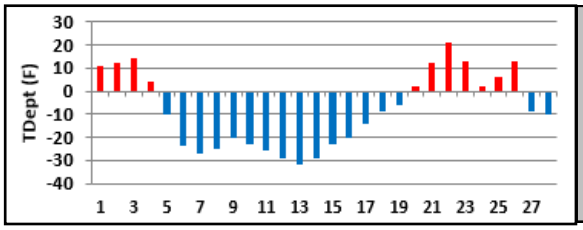


Figure 1 February Daily Departure from Normal Temperatures at NWS Grand Forks, ND

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

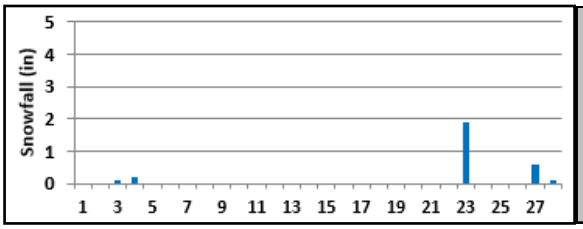


Figure 2 February Daily Snowfall Totals at NWS Grand Forks, ND

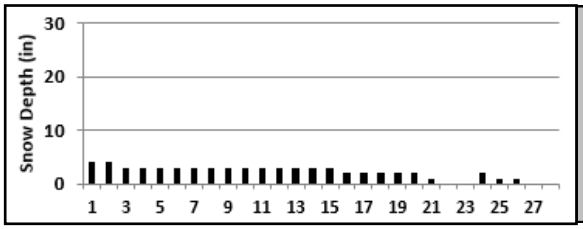


Figure 3 February Daily Snow Depth at NWS Grand Forks, ND

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.

Table 1 shows the February 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 (mph)) for 10 climate stations. The February average temperature was well below normal at all sites. Precipitation amounts were also below normal. Figure 1 plots the daily departure from normal temperatures in February 2021 at NWS Grand Forks, ND. The coldest stretch of winter temperatures occurred from the 5th to 19th. Figures 2 and 3 show the February daily snowfall totals and daily snow depth at the NWS in Grand Forks. The highest daily snowfall total was only 1.9 inches (23rd) and the greatest snow depth was 4 inches (1st and 2nd).

Records

At Fargo-Moorhead (our longest running climate site), the high temperature of –12 degrees on February 13th set a new record low maximum.

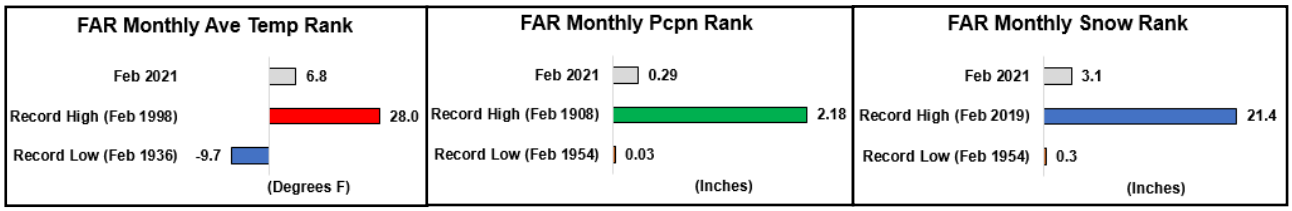


Figure 4 February 2021 Fargo Temperature and Precipitation Statistics Compared to Records

Figure 4 compares the February 2021 average temperature (AveT), precipitation (Pcpn), and snowfall (Snow) at Fargo to the established records.

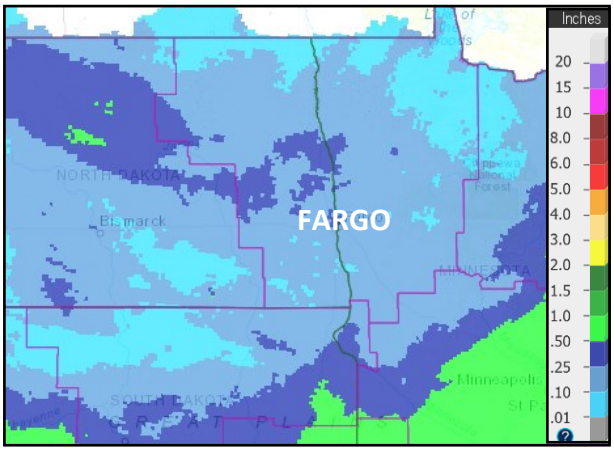


Figure 5 February Observed Precipitation

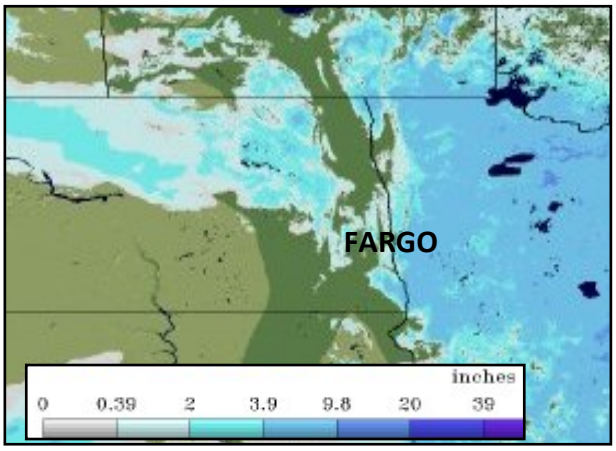


Figure 6 February 28th Snow Depth (NOHRSC)

Figure 5 gives a February precipitation estimate for all of eastern North Dakota and the northwest quarter of Minnesota. The most precipitation (0.25 to 0.50 inches) fell from western Benson County (ND) into portions of east central North Dakota (dark blue color). Figure 6 shows the snow depth on February 28th. According to the scale across the bottom of the image, 2 to 9.8 inches of snow were still common across the Devils Lake region and east of the Red River Valley in Minnesota.

Temperature

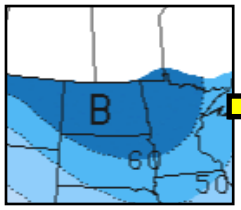


Figure 7 CPC Temp Outlook

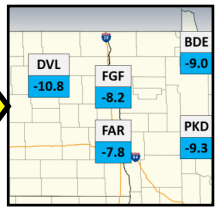


Figure 8 Observed Temp

Precipitation

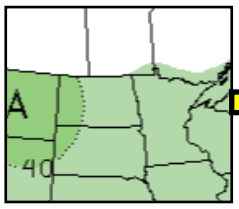


Figure 9 CPC Pcpn Outlook

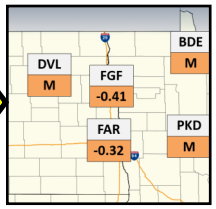


Figure 10 Observed Pcpn

The February temperature (Figure 7) and precipitation (Figure 9) outlooks issued by the Climate Prediction Center (CPC) in late January are shown above. Compare these with the observed February departures from normal temperatures (Figure 8) and precipitation (Figure 10).

Longer Term Trends

Looking at just the Fargo climate site (FAR), Figures 11 and 12 show how February 2021 fits into the previous 5 months. Figure 11 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 12 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 warmer than normal November-December-January, the average temperature in February was colder than normal again (Figure 11). After a wetter than normal August 2020, September through February have all had below normal precipitation totals (Figure 12). Interestingly, the September 2019 to February 2020 period was the 6th wettest ever at Fargo (11.70 inches), while the September 2020 to February 2021 period becomes the 15th driest (3.79 inches).

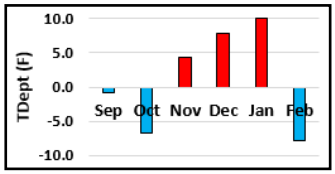


Figure 11 Monthly Departures from Normal Temps at Fargo, ND

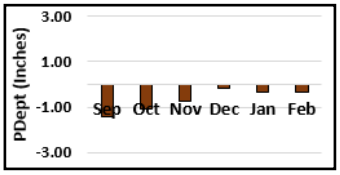


Figure 12 Monthly Departures from Normal Pcpn at Fargo, ND

Figure 13 tracks how much precipitation has fallen since January 1, 2021, and how it compares to normal and last year. Snowfall is also tracked for the snow season, which began on July 1, 2020.

	Observed Value	Normal	Departure from Normal	Last Year
Pcpn Since Jan 1	0.66	1.31	-0.65	0.71
Snow Since Jul 1	24.0	38.0	-14.0	44.0

Figure 13 Yearly Precipitation & Seasonal Snowfall Trends at Fargo

U. S. Drought Monitor

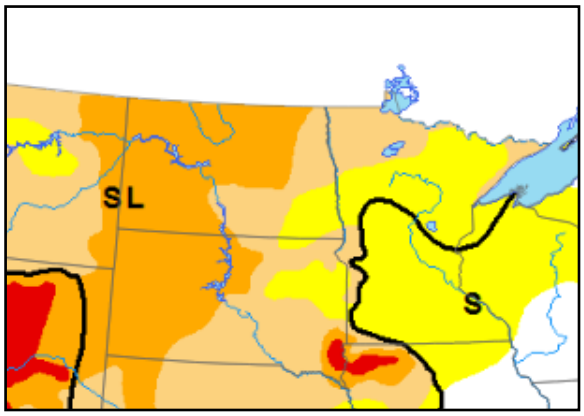
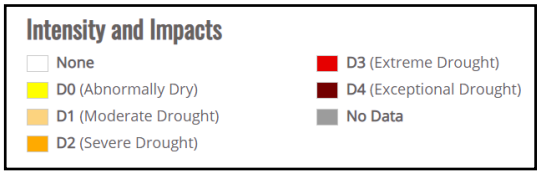


Figure 14 U. S. Drought Monitor, February 25

As shown in Figure 12 on Page 2, the last six months at Fargo have ended with below normal precipitation amounts. Other areas across the region (central North Dakota into the Devils Lake region) have been even drier, per the U. S. Drought Monitor (Figure 14). The key for Figure 14 is shown below.



Winter Warnings

A Wind Chill Warning was issued for the entire area covered in Figure 15, however, the Warning for the area north of the black line covered the longest period of time (6 pm Friday, February 5th, to noon Monday, February 15th). This was 234 total hours, or just short of 10 days (240 hours). Although no records are kept for the duration of Wind Chill Warnings (extreme cold), this was much longer than a typical warning. One of the coldest wind chill readings during this period was 60 below zero at Langdon on the morning of the 12th. One of the coldest actual temperatures was 48 below zero at Norris Camp DNR station near Baudette, on the morning of the 13th. At Fargo-Moorhead, high temperatures remained less than or equal to 0F from February 6th to 15th, a period of 10 consecutive days (tied the 4th longest stretch ever). The longest period ever was January 15th to February 20th of 1936 (37 consecutive days).

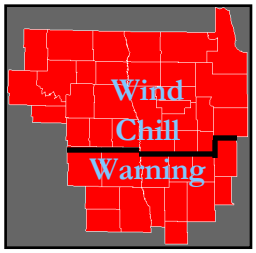


Figure 15 Feb. 5-15

March

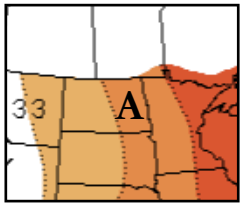


Figure 16 Temperature

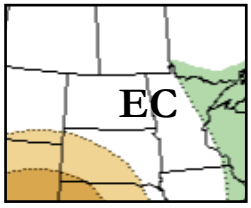


Figure 17 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 16) and precipitation (Figure 17) outlooks for March 2021 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.

Sunrise/Sunset

Spring Forward on Sunday, March 14th!

Fargo, ND	Mar 1	Sunrise: 7:07 am	Sunset: 6:12 pm
	Mar 31	Sunrise: 7:09 am	Sunset: 7:54 pm

Last Year & Normals

Per Table 2, in March 2020, the average temperature was fairly close to normal at all sites, and exactly normal at Fargo. Precipitation amounts were well below normal at both NWS Grand Forks and Fargo. At Fargo, the monthly precipitation amount of 0.14 inches was a tie for the 7th driest March on record (with 1886). The monthly snowfall total of 0.6 inches was the 10th least snowfall on record.

	AveT	TDept	Pcpn	PDept	Snow
DVL	25.8	0.2	M	M	M
NWS GF	25.5	-0.6	0.38	-0.64	7.0
FAR	27.8	0.0	0.14	-1.16	0.6
BDE	24.7	1.0	M	M	M
PKD	27.7	2.0	M	M	M

Table 2 March 2020 Temperature and Precipitation Statistics

Figure 18 shows normal highs and lows on March 1st for selected cities across eastern North Dakota and northwest Minnesota. Figure 19 shows how normal highs and lows change by March 31st. As an example, at NWS Grand Forks on March 1st, the normal high is 27 and the normal low is 11. By March 31st at NWS Grand Forks, the normal high rises to 44 and the normal low rises to 25. Figure 20 shows the normal precipitation and snow amounts at the same sites as Figures 18 and 19. As an example, the normal precipitation at NWS Grand Forks in March is 1.02 inches and the normal snowfall is 6.4 inches.

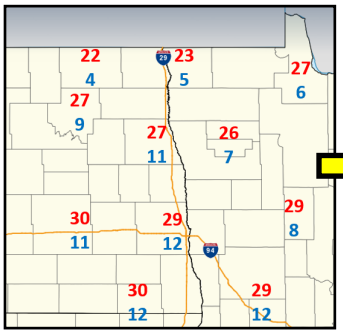


Figure 18 Normal Temps March 1

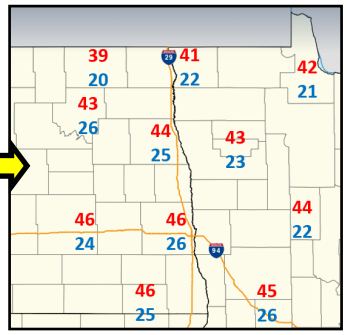


Figure 19 Normal Temps March 31

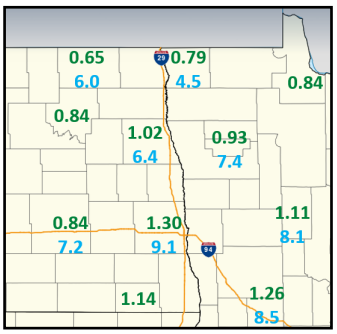


Figure 20 Normal March Pcpn/Snow

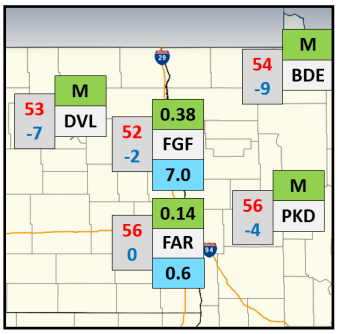


Figure 21 March 2020 Data

As a comparison to normal values, Figure 21 shows various observed data from last March (2020). As an example, in Fargo (FAR), 0.14 inches of precipitation (green box) and 0.6 inches of snow (blue box) fell. The highest temperature was 56 degrees (red number), while the lowest temperature was 0 degrees (blue number).

Winter Warnings

There were no winter weather warnings issued in March 2020.

Miscellaneous

The Mayville WSR-88D radar was down from February 16th to 24th, as technicians replaced the pedestal (the yellow arrow points to this vertical white component above) with a refurbished pedestal. The pedestal is one of the most critical components of the radar, which is necessary for antenna rotation and elevation positioning. To accomplish this task, the radome had to be removed by a crane. This replacement and refurbishment is part of the Service Life Extension Program (SLEP) of the WSR-88D program.

Spring Flood Outlook

The latest Spring Flood Outlook was released on February 25, 2021, and can be found at:

https://www.weather.gov/fgf/CurrentFloodOutlook