National Weather Service Grand Forks

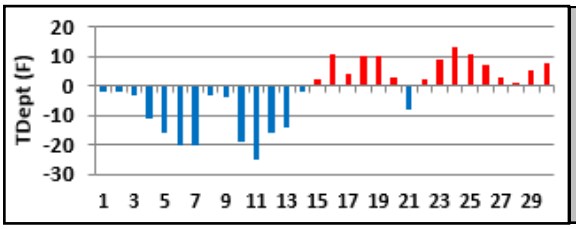
Weather & Climate Review

November-December 2019

November

	AveT	TDept	Pcpn	PDept	Snow
DVL	24.1	-2.4	M	M	M
NWS GF	25.8	-1.2	1.29	0.39	10.2
FAR	27.6	-1.2	1.02	0.02	9.2
BDE	22.9	-3.0	M	M	M
PKD	24.9	-1.4	M	M	M

Table 1 November Temperature and Precipitation Statistics



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

Figure 1

November Daily Departure from Normal Temperatures at Devils Lake, ND

Table 1 shows the November average temperature (AveT), departure from normal temperature (TDept), precipitation (Pcpn), departure from normal precipitation (PDept), and snowfall (Snow) for our 5 main climate sites (Devils Lake (DVL), NWS Grand Forks (NWS GF), Fargo (FAR), Baudette (BDE), and Park Rapids (PKD)). Every site ended with below normal temperatures, and both Fargo and NWS Grand Forks had above normal precipitation. Snowfall amounts at the NWS in Grand Forks and Fargo were both close to 10 inches. Figure 1 plots the daily departure from normal temperatures in November 2019 at Devils Lake, ND. The first half of the month had cooler than normal days (blue bars), while most of the last half of the month had warmer than normal days (red bars).

Records

At Fargo on November 30th, the precipitation total of 0.68 inches and snowfall total of 7.4 inches set new daily records. See Figure 11 on page 2 for the snowfall map from this event (which also included snowfall from December 1st).

Temperature

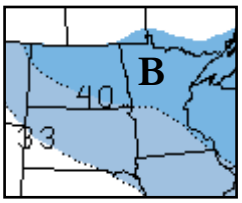


Figure 2 CPC Temp Outlook

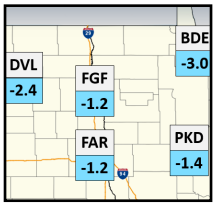


Figure 3 Observed Temp

Precipitation

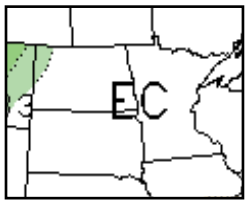


Figure 4 CPC Pcpn Outlook

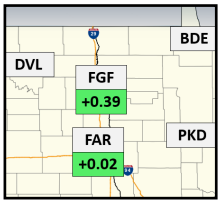


Figure 5 Observed Pcpn

The November temperature (Figure 2) and precipitation (Figure 4) outlooks issued by the Climate Prediction Center (CPC) in late October are shown above. Compare these with the observed November departures from normal temperatures (Figure 3) and precipitation (Figure 5). The below normal temperature outlook turned out well, and the precipitation outlook was pretty close too.

6 Month Trend

Overall, November 2019 was cooler and a little wetter than normal. Looking at just the Fargo climate site (FAR), Figures 6 and 7 show how November 2019 fits into the previous 5 months. Figure 6 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 7 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.

As an example, Figure 6 shows that in the past 6 months, 3 months have been above normal and 3 months have been below normal (for temperatures) at Fargo. Figure 7 shows that precipitation amounts at Fargo during July, August, September, October, and November were all above normal. However, for precipitation, November 2019 was actually pretty close to normal.

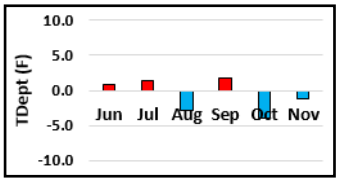


Figure 6 Monthly Departures from Normal Temps at Fargo, ND

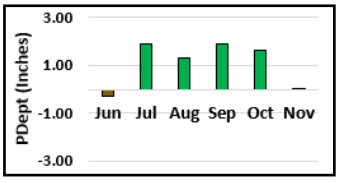


Figure 7 Monthly Departures from Normal Pcpn at Fargo, ND

Warnings

As far as high impact weather goes, there were two Winter Storm Warnings issued in November 2019, one on November 20th (Figure 8) and a second on November 30th-December 1st (Figure 9).

Figure 8 November 20, 2019

Figure 9 Nov 30-Dec 1, 2019

Only a small portion of the area was impacted by the heavy snow from the first Winter Storm. The second Winter Storm occurred on the busy Thanksgiving holiday weekend, and affected most of eastern ND and the northwest quarter of MN. This second storm also started out with mixed precipitation, then changed to snow with some blowing snow. Although travel was not recommended in some areas during the second storm, roads were never closed.

Results

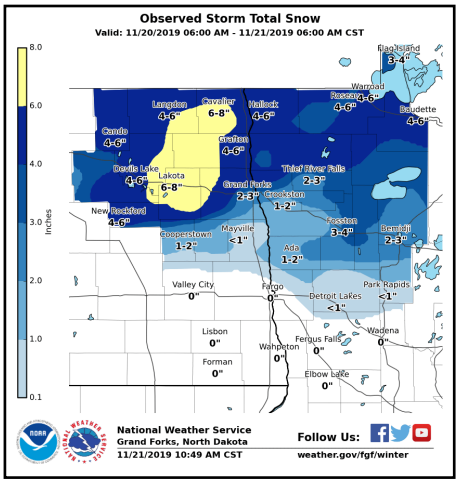


Figure 10 November 20, 2019 Snowfall

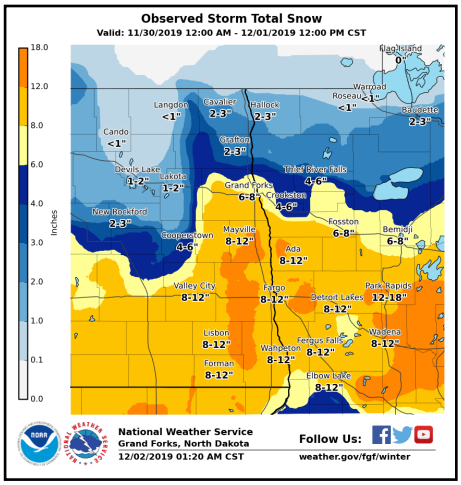


Figure 11 Nov 30-Dec 1, 2019 Snowfall

Figure 12 New Rockford Snow (ND DOT)

Figure 13 Fargo Interchange

Figure 14 Semi Truck in the Ditch (MNSP)

Figure 10 shows a rough snowfall map from the event in Figure 8, while Figure 11 shows a rough snowfall map from the event in Figure 9. Figure 12 shows a ND DOT webcam at New Rockford after the November 20th snow. Figure 13 shows the Interstate 29 and 94 interchange at Fargo during the early morning hours of December 1st. Although no roads were closed during the November 30th-December 1st event, travel was difficult. Figure 14 shows a semi truck in the ditch during the event, courtesy of the MN State Patrol.

December

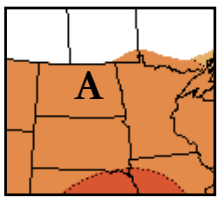


Figure 15 Temperature

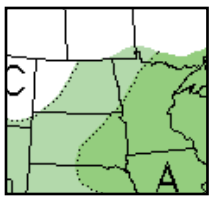


Figure 16 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 15) and precipitation (Figure 16) outlooks for December 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 above normal precipitation.

Last Year & Normals

Most of December 2018 was fairly quiet, but the last week of the month turned more active. A Winter Storm Warning was issued for the entire area December 27th-28th (Figure 17), then portions of the area transitioned to a Blizzard Warning (Figure 18). Another Blizzard Warning was issued on December 31st (Figure 19), followed by a Wind Chill Warning December 31st-January 1st (Figure 20).

Figure 17 Dec 27-28

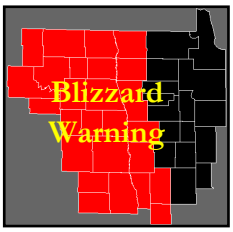


Figure 18 Dec 27-28

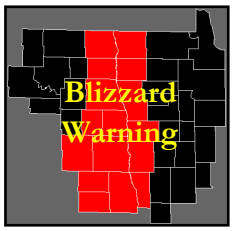


Figure 19 Dec 31

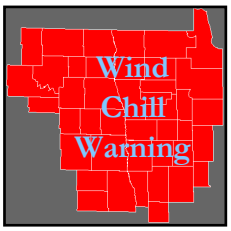


Figure 20 Dec 31-Jan 1

So what are normal temperatures in December? Figure 21 shows December normals for selected cities across eastern North Dakota and northwest Minnesota. As an example, at Langdon on December 1st, the normal high is 23 and the normal low is 6. By December 31st at Langdon, the normal high falls to 13 and the normal low is –5. The normal precipitation at Langdon in December is 0.52 inches.

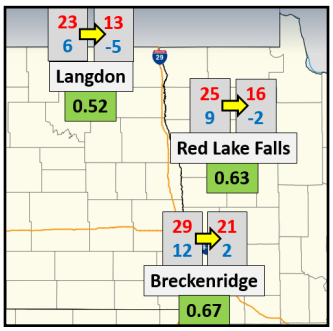


Figure 21 Normals for Selected Cities

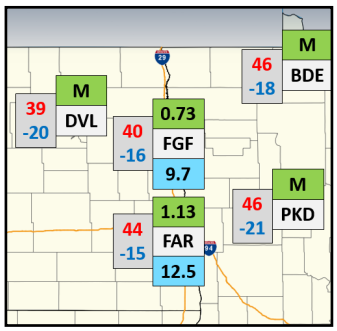


Figure 22 December 2018 Data

As a comparison to normal values, Figure 22 shows various observed data from last year (2018). As an example, in Fargo (FAR), 1.13 inches of precipitation (green box) and 12.5 inches of snow (blue box) fell. The highest temperature was 44 degrees (red number), while the lowest temperature was –15 degrees (blue number).

Miscellaneous

The wet fall also created another interesting, somewhat rare feature. Along the flooded Red River, the flooded fields between Oslo and Drayton froze in place in November. On visible satellite imagery (Figure 23), the flooded Red River appeared black (as it was still open and flowing), yet there were red areas surrounding the black areas (shown by the white arrow in Figure 23). What exactly were the red areas? Interestingly enough, these red areas were frozen flooded fields. Large sections of cropland along the Red River from Oslo to Drayton to Pembina had frozen in place. This water will only be released once it warms up and melts in the spring. Figure 24 shows a closed road near the Red River west of Stephen, MN. The flooded fields are evident on both sides of the road. Figure 25 shows the texture of the flooded fields. The ice had a rough, bright white appearance, which gives the "red" appearance on visible satellite imagery.

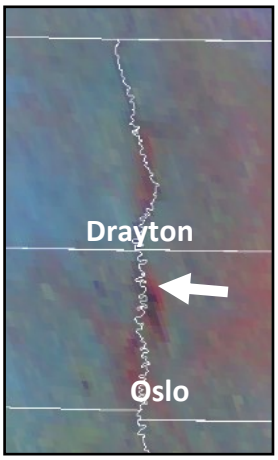


Figure 23 Satellite Image

Figure 24 Closed Road west of Stephen, MN


Figure 25 Texture of the Frozen Fields

Photographs

Figure 26 Harvesting Soybeans after the Ground Froze

Figure 27 Ruts in a Sugar Beet field

Figure 28 Drying Corn near Stephen, MN

The winner of our November photo contest was Desiree Siegel, who submitted a photograph of pieces of ice, tipped in various angles (Page 1, top right). This was a tough fall for farmers, with the wet conditions followed by the early freeze. Figure 26 shows a farmer harvesting soybeans after the freeze near Oslo, MN. Notice the huge ruts (bottom center) where the farmer had tried to harvest these soybeans before the freeze. Figure 27 shows deep ruts in a sugar beet field south of Grand Forks, ND. Figure 28 shows a corn dryer in operation near Stephen, MN.

Shown below are a few more pictures from our November photo contest.