

National Weather Service Grand Forks



Weather & Climate Review

September-October 2022



September

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	60.3	2.8	91	32	0.44	-1.52	0.0	39
NWS GF	60.9	2.4	89	36	0.43	-1.99	0.0	M
GFK	60.2	2.3	90	31	0.53	-1.73	0.0	41
RDR	59.3	1.4	90	29	0.15	-2.11	0.0	35
FAR	61.0	1.0	87	35	0.50	-2.18	0.0	46
BDE	58.8	3.0	88	31	1.11	-2.02	0.0	43
PKD	59.7	1.9	86	28	1.06	-1.64	0.0	44
BJI	57.4	1.2	85	25	1.29	-1.79	0.0	43
TVF	59.4	1.5	86	32	1.24	-1.57	0.0	39
Y63	62.0	2.2	88	36	M	M	M	M
AGA	55.3	-3.9	86	24	4.12	1.42	0.0	M

Table 1 September 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.

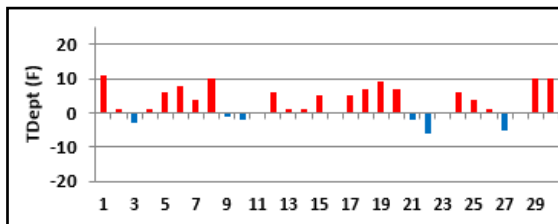


Figure 1
September Daily Departure from Normal Temperatures at the NWS Grand Forks ND

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

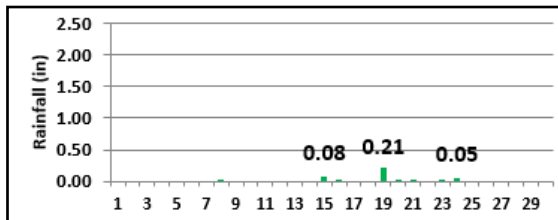


Figure 2
September Daily Precipitation Totals NWS Grand Forks ND

Table 1 shows the September 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 September average temperature was slightly above normal at all sites (except the Agassiz Refuge, which is a cold spot). Precipitation amounts were below normal at all sites, except the Agassiz Refuge. Figure 1 plots the daily departure from normal temperatures in September 2022 at the NWS Grand Forks. Most days during the month were pretty close to normal, although more days were above normal than below. Figure 2 shows the September daily precipitation totals at NWS Grand Forks. Only three days during the month had more than 0.03 inches of rain.

Records At Fargo-Moorhead, our longest running climate site, there were no daily or monthly records set.

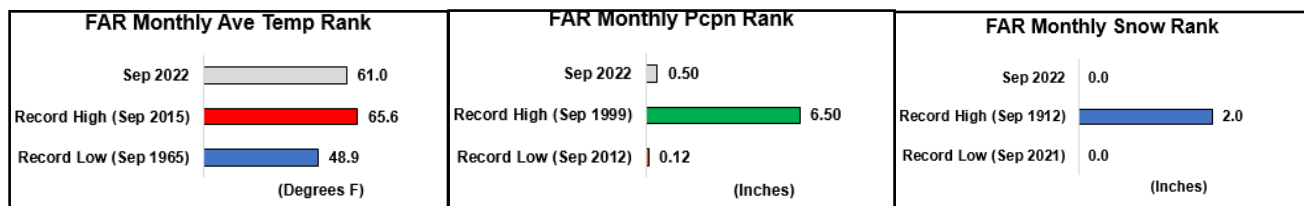


Figure 3 September 2022 Fargo Temperature and Precipitation Statistics Compared to Records

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

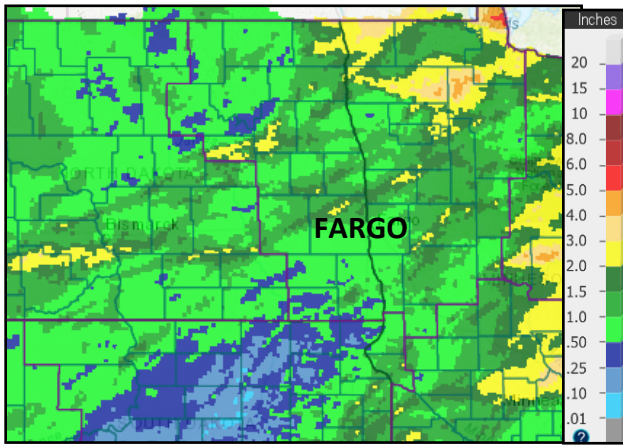


Figure 4 September Observed Precipitation

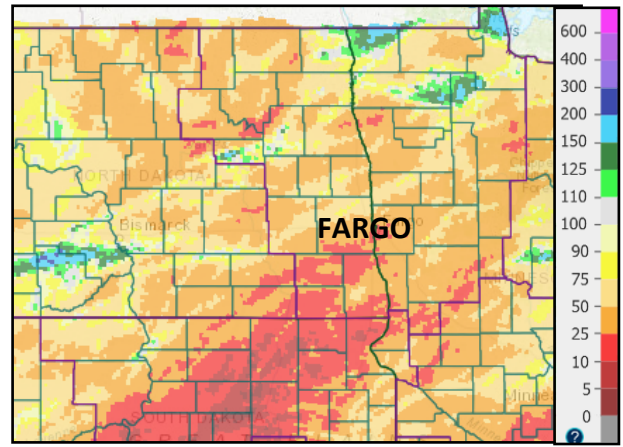


Figure 5 September Percent of Normal Precipitation

Figure 4 gives a September precipitation estimate for all of eastern North Dakota and the northwest quarter of Minnesota. As is typical in the summer into early fall, there was a high degree of variability in the monthly totals. Amounts ranged from less than half an inch (the blue colors), to 2 to 5 inches (yellow to orange colors). Figure 5 shows the September percent of normal precipitation. The blue areas in Figure 4 received less than 25 percent of normal (red colors in Figure 5), while the yellow to orange colors in Figure 4 received from 50 to 200 percent of normal precipitation (orange to blue colors in Figure 5).

Temperature

Figure 6 CPC Temp Outlook

Precipitation

Figure 8 CPC Pcpn Outlook

Figure 7 Obs Temp Dept

Figure 9 Obs Pcpn Dept

The September temperature (Figure 6) and precipitation (Figure 8) outlooks issued by the Climate Prediction Center (CPC) in late August are shown above. Compare these with the observed September 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 September 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 cold April, the monthly average temperatures from May through September have been pretty close to normal (Figure 10). The months of June, July, August, and September have all had below normal precipitation totals (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.

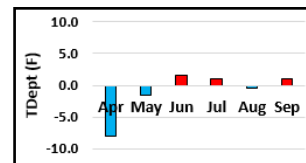


Figure 10 Monthly Departures from Normal Temps at Fargo, ND

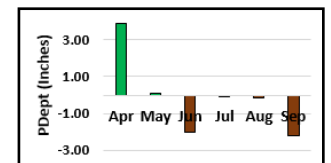


Figure 11 Monthly Departures from Normal Pcpn at Fargo, ND

	Observed Value	Normal	Departure from Normal	Last Year
Pcpn Since Jan 1	18.55	19.92	-1.37	13.19
Snow Since Jul 1	0.0	0.0	0.0	0.0

Figure 12 Yearly Precipitation & Seasonal Snowfall Trends at Fargo

U. S. Drought Monitor

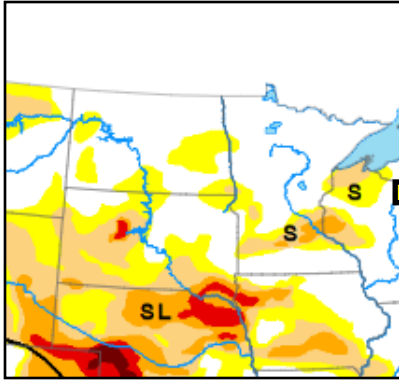


Figure 13 U. S. Drought Monitor, August 25

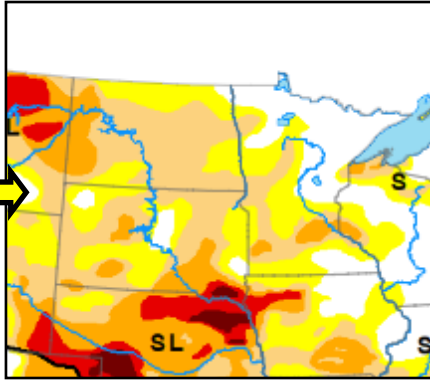
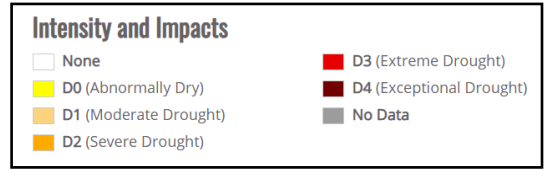


Figure 14 U. S. Drought Monitor, September 29

The dry summer months in some areas has led to expanded areas of D0 and D1 drought across eastern ND and west central MN (Figures 13 & 14). The key for both figures is shown below.



Summer Warnings

Figure 15 shows the number of convective warnings issued in September. Three Severe Thunderstorm Warnings were issued on September 17th and three on September 19th. The preliminary severe weather reports from September 17th are shown in Figure 16 (green H = large hail report and blue W = strong wind report).

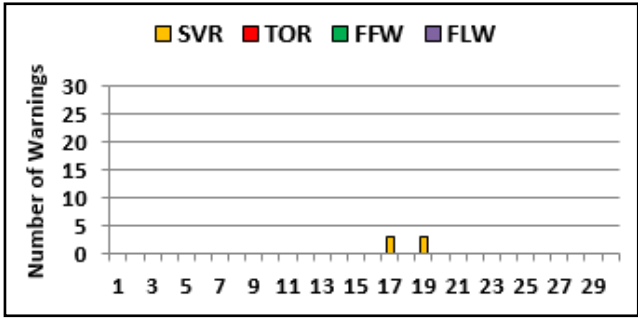


Figure 15 Number of September 2022 Warnings



Figure 16 Severe Weather Reports from September 17th

October

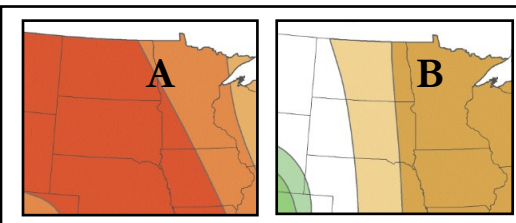


Figure 17 Temperature

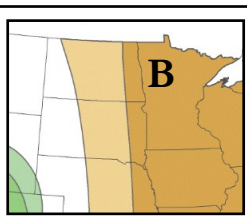


Figure 18 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 17) and precipitation (Figure 18) outlooks for October 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 below normal precipitation.

Sunrise/Sunset

Location	Date	Sunrise	Sunset
Fargo, ND	Oct 1	Sunrise: 7:25 am	Sunset: 7:09 pm
	Oct 31	Sunrise: 8:08 am	Sunset: 6:14 pm



**Last Year
&
Normals**

Per Table 2, in October 2021, the monthly average temperature (TDept) was well above normal at nearly all sites. Precipitation amounts were above normal at all sites except Bemidji.

	AveT	TDept	THigh	TLow	Pcpn	PDept	Snow	PWnd
DVL	48.0	5.7	83	24	4.12	2.61	M	40
NWS GF	50.2	6.4	83	23	3.38	1.38	0.0	M
GFK	49.4	6.2	84	21	3.48	1.60	0.0	45
RDR	49.7	6.5	84	20	4.11	2.23	M	39
FAR	51.0	5.5	82	23	2.96	0.79	T	50
BDE	48.7	6.4	77	22	3.07	0.81	M	37
PKD	50.0	6.4	79	22	2.50	0.10	M	45
BJI	47.9	5.6	77	19	1.35	-1.50	M	35
TVF	49.9	6.4	82	24	2.92	0.83	M	38
Y63	51.0	5.6	80	28	M	M	M	M
AGA	47.9	3.6	81	17	3.49	1.33	M	M

Table 2 October 2021 Temperature and Precipitation Statistics

Figure 19 shows normal highs and lows on October 1st for selected cities across eastern North Dakota and northwest Minnesota. Figure 20 shows how normal highs and lows change by October 31st. As an example, at NWS Grand Forks on October 1st, the normal high is 62 and the normal low is 41. By October 31st, the normal high falls to 44 and the normal low falls to 27. Figure 21 shows the normal precipitation and snowfall for a few selected sites. As an example, the normal precipitation at NWS Grand Forks in October is 2.00 inches and the normal snowfall is 1.5 inches.

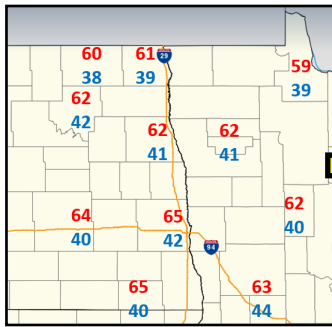


Figure 19 Normal Temps Oct 1

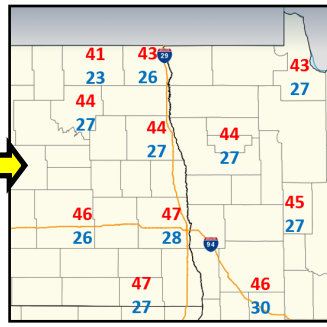


Figure 20 Normal Temps Oct 31

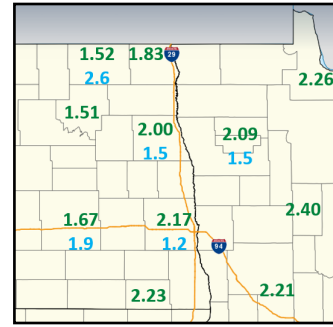


Figure 21 Normal Oct Pcpn/Snow

Convective Warnings 2021

Eleven Severe Thunderstorm and two Tornado Warnings were issued in October 2021 (Figure 22). Two tornadoes were reported on the 9th, as a stacked low pressure system moved through the Northern Plains. One occurred 7 miles south-southeast of Lidgerwood, while the other occurred 1 mile south of Park Rapids.

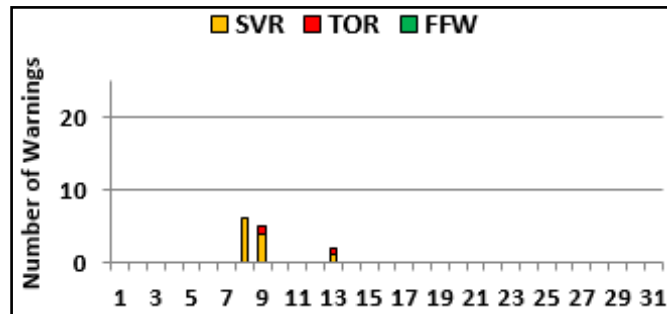


Figure 22 Number of October 2021 Convective Warnings