

National Weather Service Grand Forks



Weather & Climate Review

June-July 2019



July - Did You Know?

- ★ Normal high and low temperatures hold pretty steady throughout July (see Figure 1), while normal precipitation amounts actually drop a little from those of June.
- ★ July of last year (2018) was the second busiest severe weather month of the summer (to June). There were 50 Severe Thunderstorm Warnings and 8 Tornado Warnings issued in July 2018.
- ★ The winner of our June "Photo of the Month" contest was Leah Dufault, who submitted a photo of a rainbow near Crookston, Minnesota (top right). Figure 2 shows the NWS in Grand Forks after a June rain and Figure 3 shows the sun shining through cumulus clouds.
- ★ The NWS relies on your reports of severe weather. For a refresher on how to report severe weather to the NWS in Grand Forks, check out the following web link: www.weather.gov/crh/stormreports?sid=fgf

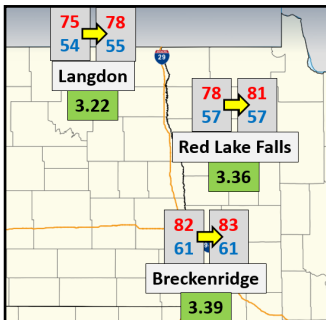


Figure 1 Normals for Selected Cities



Figure 2 NWS Grand Forks

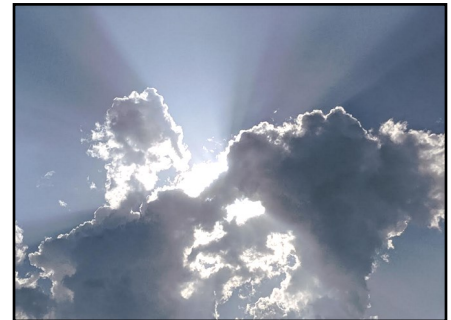


Figure 3 Sunshine Through Clouds

July Outlooks

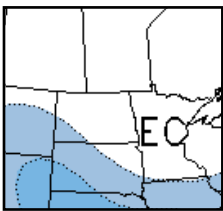


Figure 4 Temperature

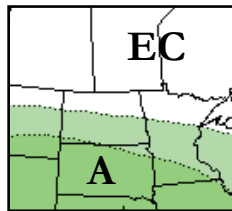


Figure 5 Precipitation

The latest Climate Prediction Center (CPC) temperature (Figure 4) and precipitation (Figure 5) outlooks for July are shown to the left. For eastern North Dakota and the northwest quarter of Minnesota, the CPC is forecasting equal chances for above, normal, or below normal temperatures. As for precipitation, half of the area shows equal chances for above, normal, or below normal precipitation, and half the area shows higher probabilities for above normal precipitation.

A Look Back at June 2019

	AveT	TDept	Pcpn	PDept	Snow
DVL	63.9	-0.9	4.71	0.70	M
NWS GF	66.6	1.3	2.94	-0.80	0.0
FAR	67.1	0.9	3.61	-0.29	0.0
BDE	62.8	1.0	2.92	-1.14	M
PKD	63.8	1.2	4.04	-0.16	M

Table 1 June Temperature and Precipitation Statistics

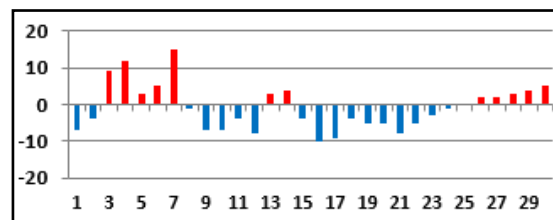


Figure 6
June Daily
Departure from
Normal
Temperatures at
Devils Lake, ND

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

Per Table 1, on the previous page, June 2019 average temperatures were slightly warmer than normal at NWS Grand Forks (NWS GF), Fargo (FAR), Baudette (BDE), and Park Rapids (PKD), and were slightly cooler than normal at Devils Lake (DVL). Monthly precipitation amounts were below normal at every site but Devils Lake. Figure 6 plots the June 2019 daily departure from normal temperatures at Devils Lake, ND. This graphic shows the typical swings in temperatures throughout the month. The Fargo Airport set a record high of 93 degrees on June 8th and a record daily precipitation of 1.40 inches on June 29th.

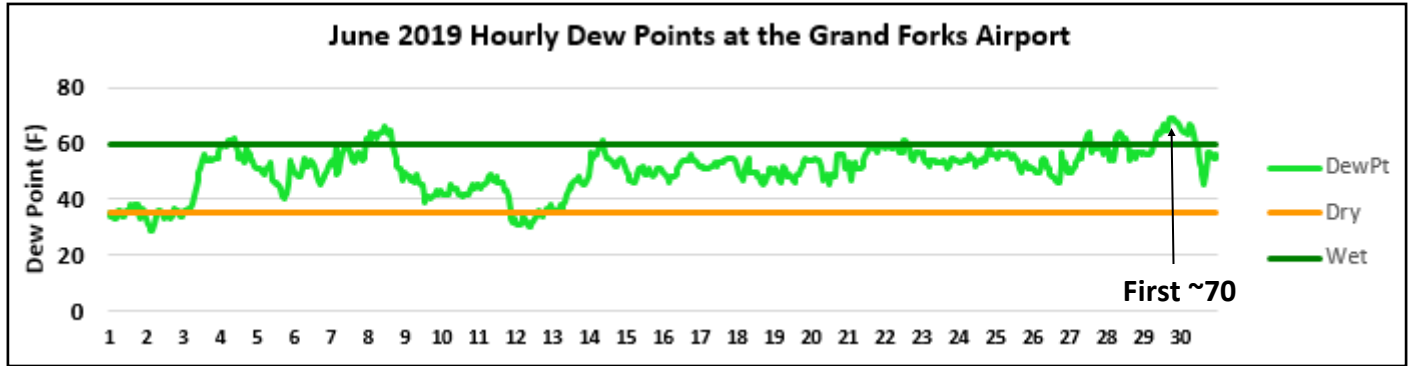


Figure 7 June 2019 Hourly Dew Point Values at Grand Forks Airport, ND

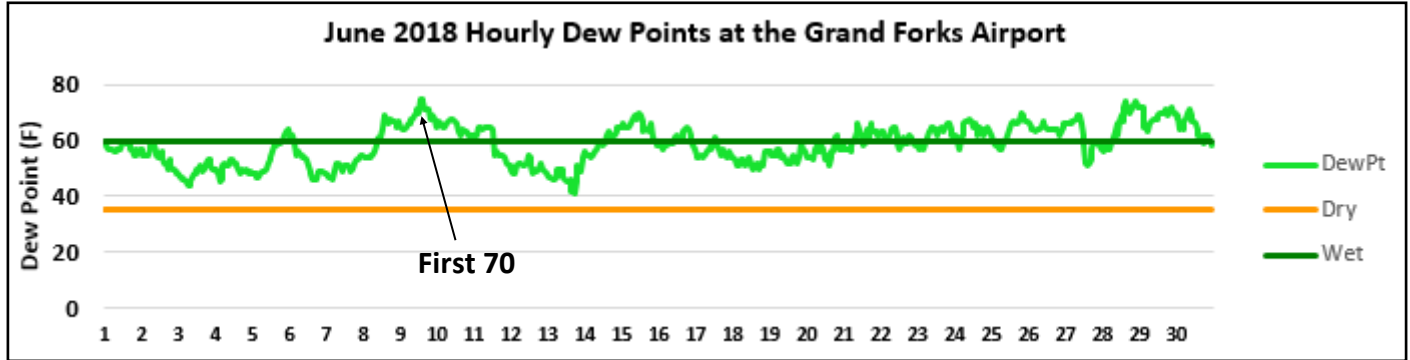


Figure 8 June 2018 Hourly Dew Point Values at Grand Forks Airport, ND

In the May-June newsletter, it was shown how this spring has been cooler and wetter than normal. How has that translated into June 2019? Both Figures 7 and 8, shown above, plot hourly dew point values (light green) at the Grand Forks Airport. Figure 7 is for June 2019, and Figure 8 is for June 2018. The dark green horizontal line marks the 60 degree dew point line, or a day with a lot of moisture. The tan horizontal line marks the 35 degree dew point line, or a day that is very dry. In Figure 7, look how few times the light green dew point line goes above 60 degrees. Since this spring was cool and wet, it kept farmers from planting as soon as they normally would. Therefore, many of the crops across the area were not as far along as they might have been. Figures 9 to 11, shown below, are photographs of some crops in late June 2019.



Figure 9 Corn



Figure 10 Soybeans



Figure 11 Sugar Beets

Remember the old adage, corn should be “knee-high by the Fourth of July?” The corn in Figure 9 was pretty small yet. June 2018 was included in Figure 8 because it was the busiest severe weather month for the NWS Grand Forks last summer. Early June 2018 had some dew point variability, but after about June 15th, dew points generally held above 60 degrees. The first near 70 degree dew point in June 2019 occurred on June 29th. Last year, the first 70 degree June dew point occurred on June 9th. In June 2018, the dew point held above 35 degrees all month. Meanwhile this year, the dew point at the Grand Forks Airport dipped below 35 degrees in early and mid June. When the air is this dry, and skies are clear with light winds, morning temperatures can get pretty

chilly yet. The NWS in Grand Forks issued two frost advisories in early June, but frost is pretty tricky to forecast. Towns and cities can stay much warmer than their surrounding rural areas. Low elevations can be much cooler than surrounding higher elevations. Looking at our five climate sites, Devils Lake dipped to 36 degrees on June 1st, the Grand Forks Airport dipped to 38 degrees on the 1st and 36 degrees on the 2nd, Fargo never dropped into the 30s, Baudette dipped to 38 degrees on the 1st and 30 degrees on the 2nd, and Park Rapids dipped to 38 degrees on the 2nd and 38 degrees on the 13th. This was another setback for gardens and growers in the area (Figure 12).



Figure 12 Frosty Strawberry Leaves

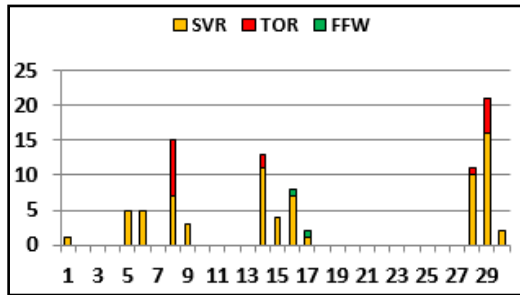


Figure 13 June 2018 Severe Weather

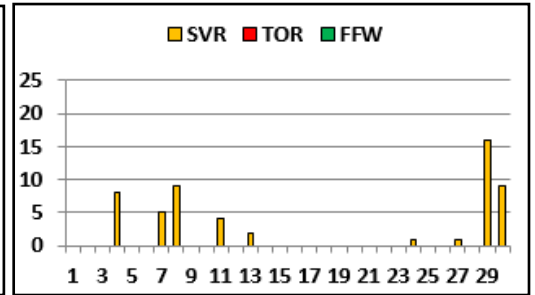


Figure 14 June 2019 Severe Weather

As stated before, June 2018 was the busiest severe weather month for the NWS in Grand Forks. Figure 13 shows the number of Severe Thunderstorm (orange), Tornado (red), and Flash Flood (green) warnings issued by day in June 2018. Meanwhile, Figure 14 shows the June 2019 severe weather statistics. There were no Tornado or Flash Flood warnings issued in June 2019, however, there were four days during the month (June 14th, 15th, 16th, and 24th) when the NWS in Grand Forks issued Special Weather Statements for potential funnel clouds. These funnel clouds are usually short lived, but they can and occasionally do touch the ground and cause minor damage. What clues do meteorologists use to predict days that may produce funnels? Funnel clouds result from spinning motion in the lower atmosphere. The 700 mb and 500 mb charts can give meteorologists a clue to spin. Shown below in Figures 15 to 18 are the 700 mb charts for the four days in June when Special Weather Statements were issued for funnel clouds. The yellow stars show areas of low pressure at 700 mb or “waves” in the flow. Satellite imagery can also help show areas of “spin” in the atmosphere, as Figure 19 shows over northeast Montana. This feature looks similar to what the flow around a hurricane looks like, although on a smaller scale. Figure 20 is a graphical depiction of the flow around an area of low pressure. Finally, Figure 21 shows a funnel cloud south of Grand Forks (not from this year).

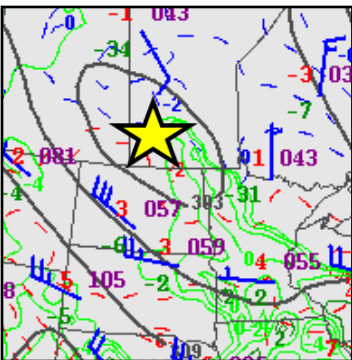


Figure 15 June 14th 7 pm

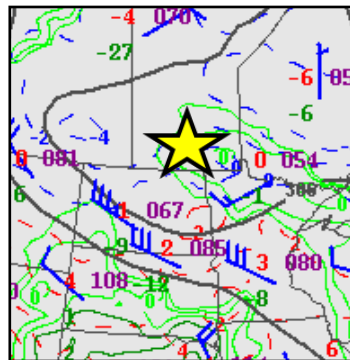


Figure 16 June 15th 7 pm

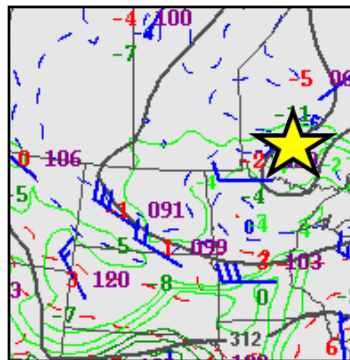


Figure 17 June 16th 7 pm

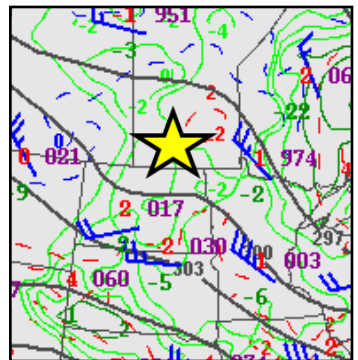


Figure 18 June 24th 7 pm

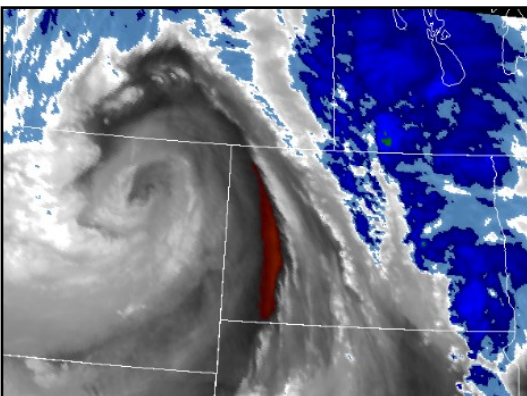


Figure 19 June 21st Water Vapor Imagery



Figure 20 Spin Around Areas of Low Pressure



Figure 21 Funnel Cloud south of Grand Forks