

## 2007 Growing Season Weather Summary for North Dakota

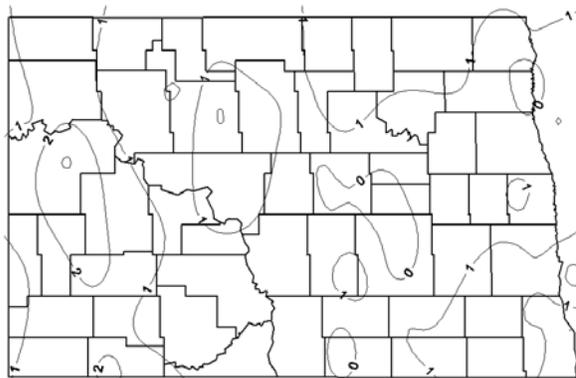
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### Introduction

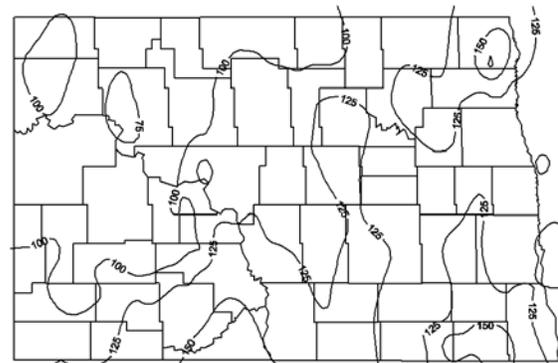
The 2007 growing season (the period from April through September) for North Dakota can simply be characterized as warmer than and wetter than normal compared to the 30-year average from 1971 to 2000. The state average temperature during the growing season was 59.6° which was the 25<sup>th</sup> warmest growing season among the past 113 years. On the other hand, the state average precipitation during the 2007 growing season was 15.3” which was the 31<sup>st</sup> wettest growing season among the past 114 years. Precipitation-wise, there was an apparent gradient from northwest to southeast with southeast of the state being wetter than normal and northeast 1/3 of the state being drier than normal. Figures 1 and 2 depict spatial distribution of temperature and precipitation pattern respectively. Table 1 shows the ranking of temperature and precipitation for the 6 select cities in North Dakota.

**Table 1. April-September 2007 average temperature and precipitation rankings for select North Dakota locations.**

City	Temperature Ranking	Precipitation Ranking
Bowman	11 <sup>th</sup> Warmest	19 <sup>th</sup> Wettest
Bismarck	10 <sup>th</sup> Warmest	7 <sup>th</sup> Wettest
Fargo	6 <sup>th</sup> Warmest	14 <sup>th</sup> Wettest
Minot Exp. Station	13 <sup>th</sup> Warmest	15 <sup>th</sup> Wettest
Pembina	22 <sup>nd</sup> Warmest	7 <sup>th</sup> Wettest
Williston Exp. Station	5 <sup>th</sup> Warmest	25 <sup>th</sup> Driest
<b>North Dakota Average</b>	<b>25<sup>th</sup> Warmest (113 years)</b>	<b>31<sup>st</sup> Wettest (114 years)</b>



**Figure 1. April through September Temperature Departure from Normal (°F) in North Dakota.**



**Figure 2. April through September Precipitation Percent of Normal (%) in North Dakota.**

Individual months during the 2007 growing season are discussed in detailed below:

### April 2007

The temperatures on April 1<sup>st</sup> hovered near normal across the state. However, temperatures quickly plummeted to extremes of 20 to near 30 degrees below normal from April 2<sup>nd</sup> to about the 10<sup>th</sup>. The cold spell broke around April 10<sup>th</sup> and the average temperatures for the rest of the month stayed around 55 ° F. The departures from normal air temperature ranged from a degree above normal in the north to 2.5 to 3.5 degrees below normal in the southern part of the state (Figure 3). The month summed up with a state average temperature of 41.2 ° F, which is near the normal temperature of 41.7 ° F. April 2007 ranked 54<sup>th</sup> warmest of the past 113 years.

April started with the wet weather pattern that ended March. The April 1<sup>st</sup> showers quickly turned to freezing rain and snow. The southern two-thirds of the state had 6 to 9 inches of snow. The cold weather continued for the first ten days. Rain fell during the last half of the month but still the month ended dry. The north and central parts of the state had below normal rainfall. The south west and east corners of the state had above normal April precipitation (Figure 4). The state average April precipitation was 0.86", which is below the normal 1971-2000 amount of 1.40". The month ended being the 28<sup>th</sup> driest April of the past 113 years.

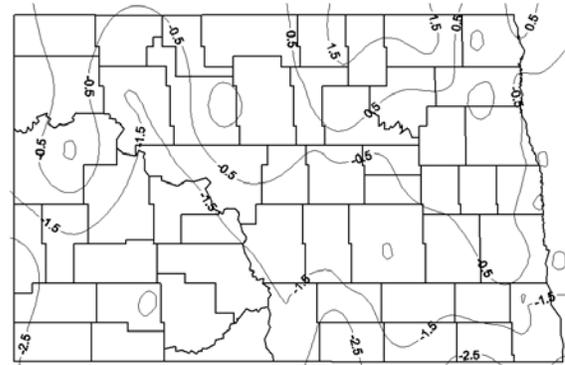


Figure 3. April 2007 Temperature Departure from Normal (°F).

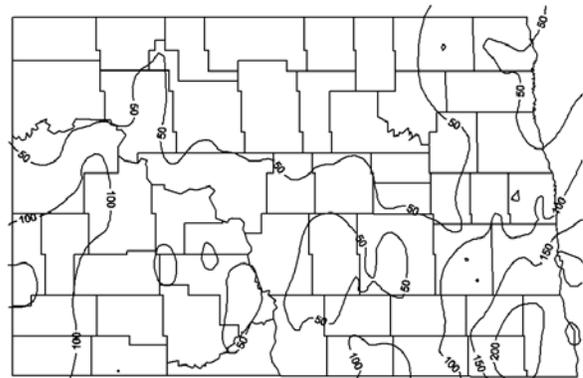


Figure 4. April 2007 Precipitation Percent of Normal (%).

### May 2007

Air temperatures for the first two-thirds of the month were above to slightly below average across the state. For the most part, the last one third of the month had below average air temperatures but rebounded to above or slightly below during the last four days of May. The average May air temperature for the state was 55.9 ° F, making it the 28<sup>th</sup> warmest month in the past 113 years. The 1971-2000 normal May air temperature was 54.8 ° F. (Figure 5).

The wet cycle that ended April, started May. The scattered showers fell mostly in the eastern part of the state at the beginning of May. As May continued, more showers and thunderstorms were scattered across the state. Most of the high winds, hail and tornadoes fell on

the 13<sup>th</sup>, 18<sup>th</sup>, and 21<sup>st</sup> of May. The month ended with nearly all areas receiving above average rainfall. The state average rainfall for May was 4.78", which was above the normal 1971-2000 amount of 2.31". May 2007 was ranked the 6<sup>th</sup> wettest month in the past 113 years (Figure 6).

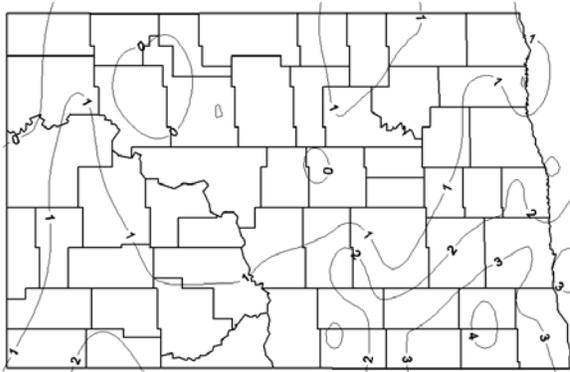


Figure 5. May 2007 Temperature Departure from Normal (°F).

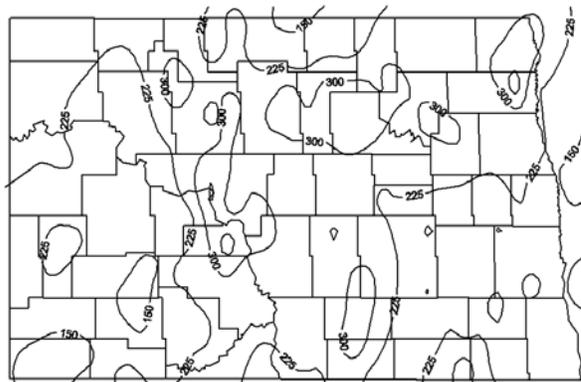


Figure 6. May 2007 Precipitation Percent of Normal (%).

### June 2007

Daily air temperatures varied throughout the month with a range of 15 ° F above to 15 ° F below normal. The actual average daily air temperatures ranged from around 50 ° to 80 ° F (Figure 7). The state average air temperature was 65.0 ° F which is above the 1971-2000 normal state average of 63.7 ° F. The month ended ranking the 29<sup>th</sup> warmest in the past 113 years. The maximum June state average air temperature was 74.2 °

F in 1988 and the minimum was 56.2 ° F in 1915.

Most June rainfall happened from June 1<sup>st</sup> through the 18<sup>th</sup>. Because of the severe storms and flooding, parts of North Dakota were officially declared a disaster. Areas covered by the declaration included Barnes, Bowman, Dickey, Grant, LaMoure, Logan, McHenry, Ransom, Richland, Sargent, and Stutsman counties. Other than a few spotty showers and a more wide spread rainfall around the 25<sup>th</sup>, the rains began to subside during the last one third of the month. The state average rainfall was 3.41" which is only slightly above the 1971-2000 normal of 3.19". Much of the central and west central areas ended the month with below average to slightly above average rainfall. Far northeastern, southeastern, south central and far south western areas had above normal rainfall (Figure 8). June 2007 ranked 52<sup>nd</sup> wettest in the last 113 years. The maximum June state average rainfall was 7.21" in 2005 and the minimum was 1.14" in 1974.

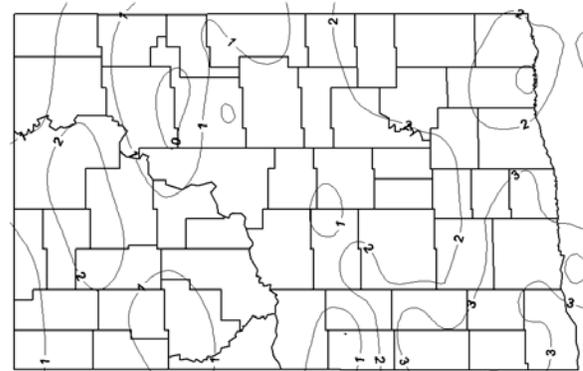


Figure 7. June 2007 Temperature Departure from Normal (°F).

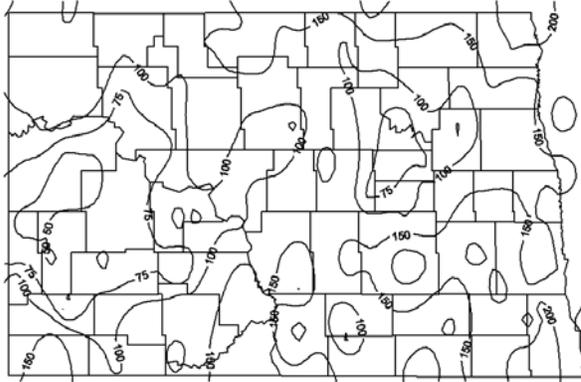


Figure 8. June 2007 Precipitation Percent of Normal (%).

### July 2007

The actual daily average air temperatures across July ranged from around 57 ° F to 90 ° F with departures from normal ranging from -11° to 22°. The monthly departures from normal were above normal all across the state (Figure 9). The July state average air temperature was 72.7 ° F which is above the 1971-2000 normal state average of 68.7 ° F. July ended as being ranked 6<sup>th</sup> warmest in the past 113 years. The state average maximum air temperature was 79.7 ° F in 1936 and the minimum was 61.8 in 1992.

The July state average precipitation was 2.18” which is below the 1971-2000 normal state average of 2.75”. July precipitation was below normal for most of the state (Figure 10). Less than half of normal rainfall fell in a large strip in the western region. A few places had isolated large rain events that brought the rainfall to over 200% of normal. One such isolated rainfall was at Dickinson airport, which recorded 3.19” of rainfall on July 18<sup>th</sup>. The upper northeast corner, the Dickinson area, and a few places in the southeastern part of the state had normal to above normal rainfall. July was ranked 45<sup>th</sup> driest (or 69<sup>th</sup> wettest) in the past 113 years. The maximum state

average precipitation was 7.88” in 1993 and the minimum was 0.62” in 1936.

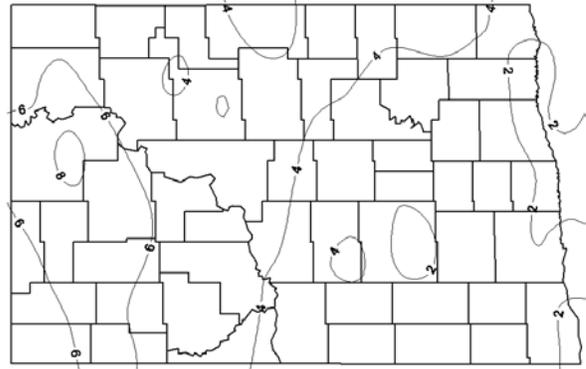


Figure 9. July 2007 Temperature Departure from Normal (°F).

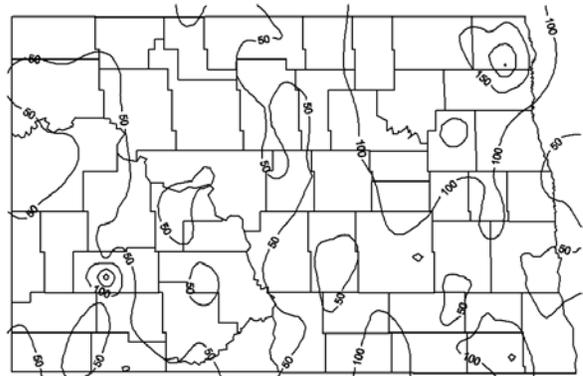


Figure 10. July 2007 Precipitation Percent of Normal (%).

### August 2007

The average August air temperatures were near normal along the western regions and below normal for the rest of the state (Figure 11). The August state average air temperature was 66.0°F which is slightly below the 1971-2000 normal of 67.2° F. The month ended as being the 50<sup>th</sup> coolest August in the past 113 years. The state average maximum air temperature was 73.6° F in 1983 and the minimum was 60.9 in 1977.

Rainfall events were scattered across the state throughout the month of August. The northwestern, western, and eastern parts of the state had below normal precipitation (Figure 12). The rest of the state was near to or below normal. Parts

of the south central, southwestern, and central regions had 200 to 400% of normal rainfall. Sykeston reported 6.38” of rain and Shields reported 6.78”. The August state average precipitation was 1.50” which is below the 1971-2000 normal state average of 2.10”. The month ended as the 30th driest August in the past 113 years. The August state average maximum precipitation was 5.02” in 1900 and the minimum was 0.72” in 1961.

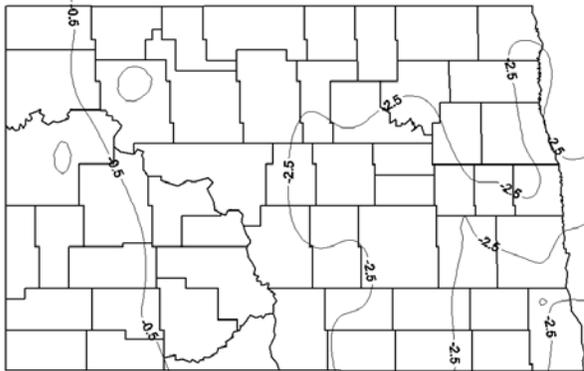


Figure 11. August 2007 Temperature Departure from Normal (°F).

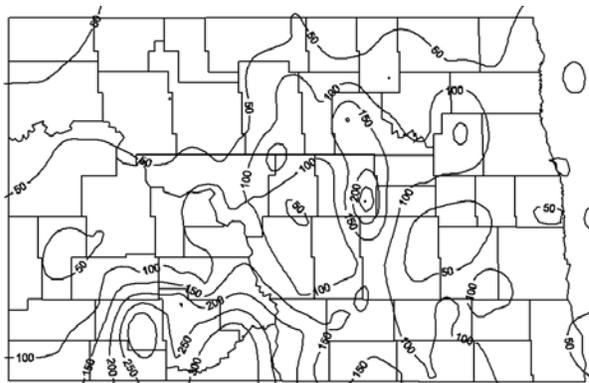


Figure 12. August 2007 Precipitation Percent of Normal (%).

### September 2007

Nearly the entire state ended with an average air temperature between 1 and 4 degrees above normal (Figure 13). The state average air temperature was 57.7 ° F which is slightly above the 1971-2000 normal state average of 56.14 ° F. The month ended ranking the 37th warmest in the past 113 years. The maximum

September state average air temperature was 63.4 ° F in 1897 and the minimum was 45.2 ° F in 1965.

The state average rainfall was 1.32” which is below the 1971-2000 normal of 1.74”. Most rainfall events happened from the 5th through the 8th, and from the 20th through the 24th. The greatest majority of the state had below normal precipitation. The North half of the state had less than 50% of normal precipitation. Only the southeastern and south central regions had somewhat above normal precipitation (Figure 14). September 2007 ranked 49th driest in the last 113 years. The maximum state average rainfall was 5.00” in 1900 and the minimum was 0.28” in 1897.

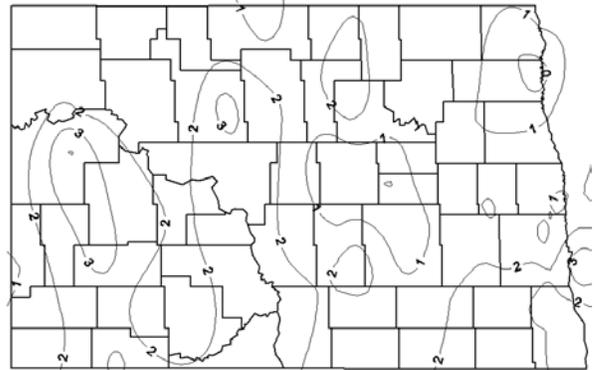


Figure 13. September 2007 Temperature Departure from Normal (°F).

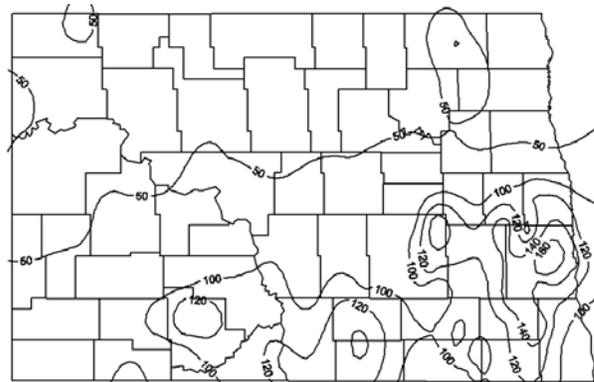


Figure 14. September 2007 Precipitation Percent of Normal (%).