

National Weather Service Weather Forecast Office  
**Twin Cities, MN**

## Record Breaking Cold for this Past Weekend

A number of records have been broken this past weekend with the arrival of Autumn-like weather. Temperatures averaged 15 to 20 degrees below normal, which is more indicative of early October.

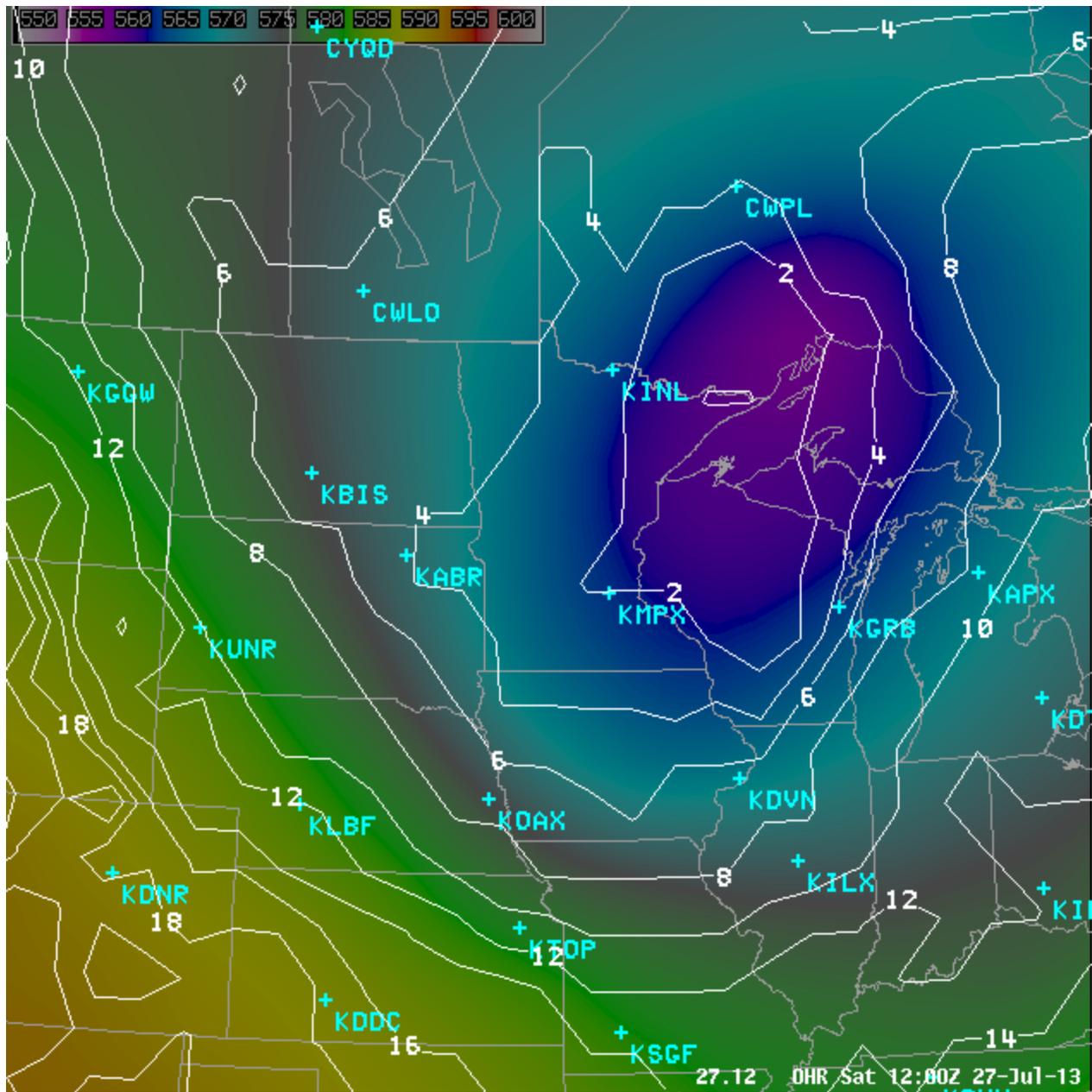
Here is a list of records tied or broken:

| Record Cold High Temperatures |              |             |                        |                               |
|-------------------------------|--------------|-------------|------------------------|-------------------------------|
| <i>Location</i>               | <i>Date</i>  | <i>High</i> | <i>Previous Record</i> | <i>Departure from Average</i> |
| Twin Cities, MN               | Sat, July 27 | 64°         | 65° in 1991            | -19°                          |
| Eau Claire, WI                | Sat, July 27 | 60°         | 65° in 1981            | -23°                          |

| Record Low Temperatures |              |            |                        |                               |
|-------------------------|--------------|------------|------------------------|-------------------------------|
| <i>Location</i>         | <i>Date</i>  | <i>Low</i> | <i>Previous Record</i> | <i>Departure from Average</i> |
| Eau Claire, WI          | Sat, July 27 | 46°        | 46° in 1981 (tied)     | -14°                          |
| St. Cloud, MN           | Sun, July 28 | 43°        | 44° in 1981            | -14°                          |

The unseasonably cool weather was caused by a deep upper low and cold pocket of air aloft parked over the Great Lakes. Below is a map showing 500 mb heights in decameters (image) and 850 mb temperatures (°C) (contours) at 7 am Saturday, July 27.

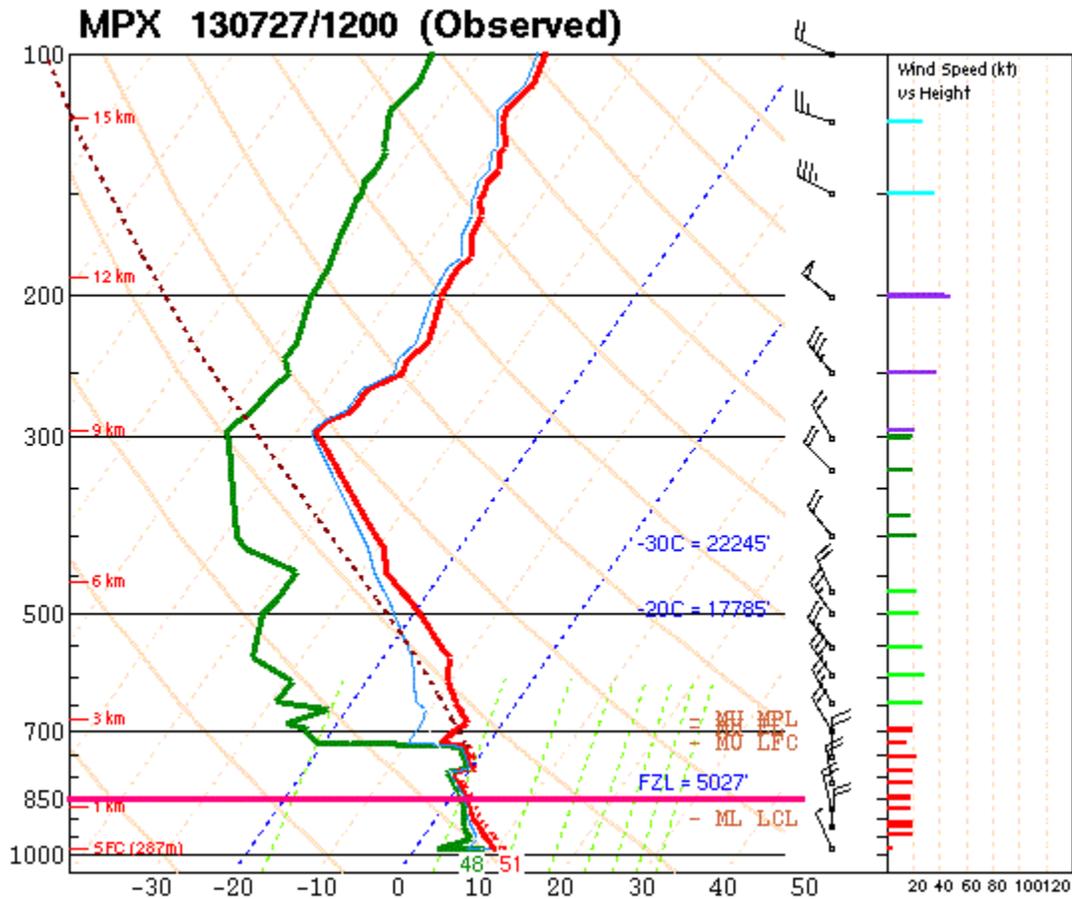


## Record Cold 850 mb Temperature

The 12Z MPX sounding launched on the morning of Saturday July 27th revealed the coldest temperature ever measured in southern Minnesota at 850 mb (or about 4,100 feet AGL) for the month of July. At only 2.2°C (36°F), it was about 13°C cooler than the usual values seen at that level for this time of year. Believe it or not, it is not unusual to get these temperatures at 850 mb periodically during the winter. Heat waves typically consist of 850 mb temperatures in excess of 20°C. Saturday was a far cry from those

values. The 850 mb level is meteorologically significant for a number of reasons, hence the record keeping.

Here is what the anomalously cool sounding looked like. The 850 mb level is highlighted with the horizontal magenta line. The surface is toward the bottom of the map near 1000 mb. The red line is air temperature and green line is dew point throughout the entire atmosphere. Isotherms (lines of equal temperature) are the dashed, light brown lines from lower left to upper right with their values in Celsius on the bottom of the image. To learn more about skew-t maps, [click here](#).



Here are the top 5 coldest temperatures recorded at 850 mb during the month of July at MPX/STC.

| <b>Rank</b> | <b>850 mb Temp</b> | <b>Date</b>                     | <b>Hour</b> |
|-------------|--------------------|---------------------------------|-------------|
| <b>1</b>    | <b>2.2°C</b>       | <b>7/27/2013</b>                | <b>12Z</b>  |
| <b>2</b>    | <b>2.3°C</b>       | <b>7/4/1967</b>                 | <b>12Z</b>  |
| <b>3</b>    | <b>2.7°C</b>       | <b>7/3/1967 &amp; 7/16/1976</b> | <b>12Z</b>  |
| <b>4</b>    | <b>2.8°C</b>       | <b>7/2/1968 &amp; 7/5/1983</b>  | <b>12Z</b>  |
| <b>5</b>    | <b>2.9°C</b>       | <b>7/1/1959</b>                 | <b>12Z</b>  |

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