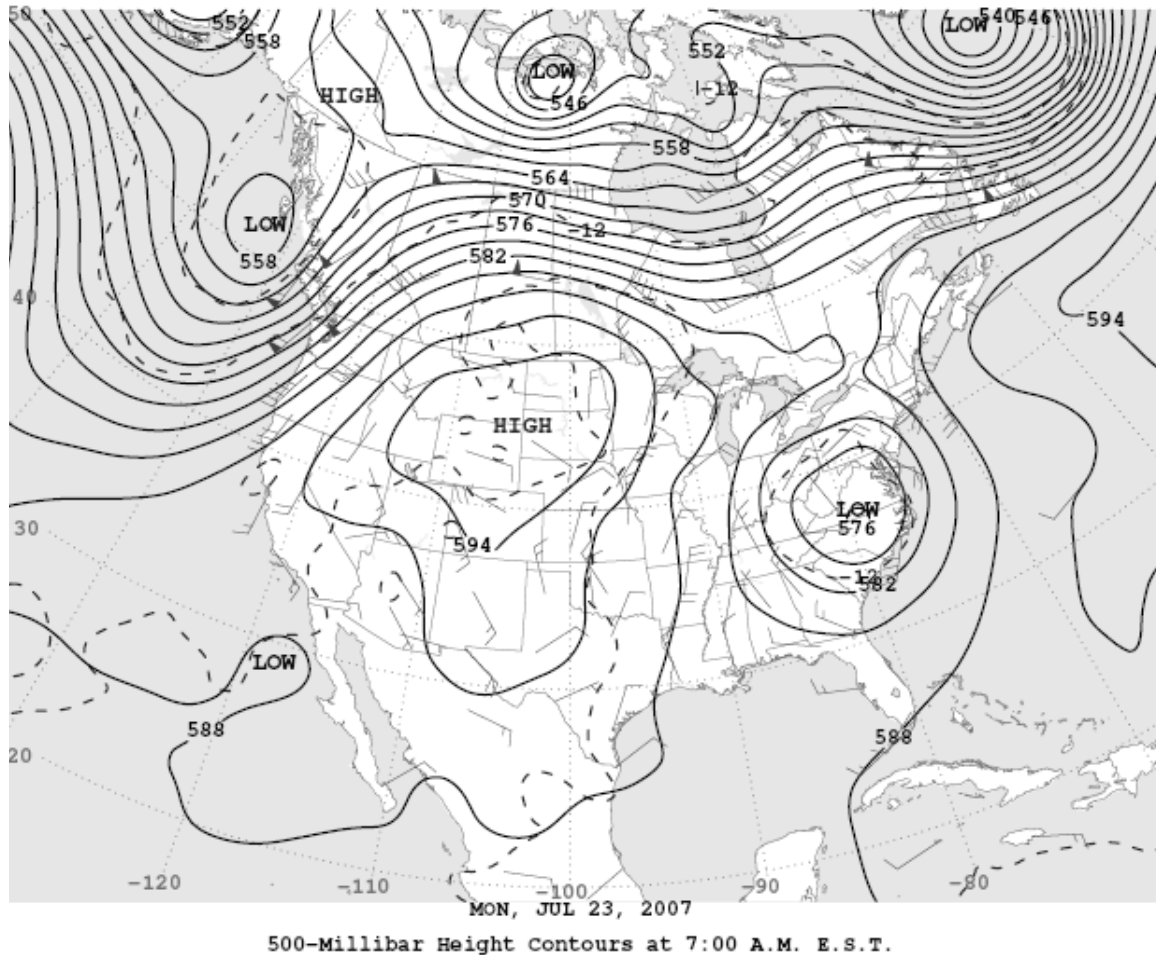


## Record heat and high humidity set all-time records across northeast Montana:

Mid-late July brought a prolonged period of record heat and unusually high humidity to northeast Montana. So what caused this period of unusually hot and humid weather? A large upper level ridge of high pressure (below) built across the area.



The strong upper level ridge caused the main jet stream - or current of wind at 15,000-20,000 ft above the ground to be displaced far to the north in Canada. Underneath the upper level ridge the sinking of air caused subsidence allowed the air mass to get increasingly hot. In addition to the record heat, the dew point - a measure of the amount of moisture is in the air was unusually high. There were a few factors that came together to produce the unusually moist air. There was a significant amount of low level moisture that was trapped underneath the upper ridge that was unable to get displaced for any significant length of time. There was also some monsoonal moisture that lifted north into the area at times. The clock-wise flow of air around the high allowed disturbances to track around the periphery of the high and produce complexes of thunderstorms across southern Saskatchewan into parts of North Dakota. Moist outflows from these

thunderstorm complexes helped to re-enforce the high dew points. Everything came together just right to bring a memorable stretch of hot and humid weather to the area.

One of the most significant records was in Glasgow with 5 consecutive nights with a low temperature at or above 70 degrees from the 20<sup>th</sup> through the 24<sup>th</sup>. Never before had there been so many consecutive nights when the temperature failed to drop below 70 degrees. The old record of 3 days was set in 1900, 1930, and 2003. Four of the 5 nights set records for the warmest low temperature observed on the date. The low temperature of 75 degrees on the 21<sup>st</sup> tied with July 8, 1983, as the warmest low temperature ever observed in Glasgow during the month of July.

The hottest day in most areas occurred on July 24<sup>th</sup> when all of northeast Montana observed high temperatures above 100 degrees, and many areas had highs of 105-110 degrees. The hottest official temperature of 111 degrees was observed in Glendive. This was only 6 degrees shy of the hottest temperature in the U.S. on that date of 117F in Death Valley, California. It was also just shy of the all-time state record for Montana of 117F, which was observed in Medicine Lake on July 5, 1937.

Plentywood observed a high of 107 degrees, which broke the previous record of 105 degrees, which was established on 3 separate days back in June of 1988. Records in Plentywood date back to 1946. Bredette observed a high of 108 degrees which tied the all-time record high last set on August 6, 1983. Scobey 4NW had a high of 110 degrees, which broke the previous all-time high of 106 degrees set on June 5, 1988. Records at the Scobey site only go back to 1987, which from a climatological standpoint makes the record not as significant, but still very noteworthy. Also of note was Wolf Point with a high of 110 degrees. Although not an all-time record high it was just one degree shy of the all-time record of 111F degrees set on June 26, 1988. Temperature records at Wolf Point date back to 1905.

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