Fall 2008 Climate Summary For Southwest Michigan

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The fall of 2008 experienced near normal temperatures and was the 12th wettest fall on record. This was in sharp contrast to the fall of 2007, which was the 10th warmest and 10th driest on record for Southwest Lower Michigan.

A highlight for this season was the passage of the remnants of Hurricane Gustav, which came ashore on the Louisiana coast on the morning of the September 1st. The remnants of Gustav moved north along a stalled frontal system and brought heavy rains to the area from the morning of the 4th through the pre-dawn hours of the 5th. Rainfall amounts of 2 to 4 inches fell over a large part of Southwest Lower Michigan. On September 13th, four tornadoes touched down during the late afternoon and early evening hours. For more details see the "September Weather Summary". There was a prolonged warm spell from November 3rd through the 6th. High temperatures were in the 70s each day. This was followed by a quick start to winter with four winter storms during the second half of November. Snow covered the ground across Southwest Lower Michigan by the last day of the month, for more details on this event see the "November Weather Summary".

TABLE 1. Reported temperature, precipitation and snowfall amounts for the Fall of 2008 at selected climate stations in Southwest Lower Michigan. Normals are computed from 30-year averages from 1971-2000.

Location		**Temperature (degrees F)**	**Precipitation (inches)**	**Snowfall (inches)**
Grand Rapids	*Reported*	51.2°	14.32	10.0
	Normal	49.9°	11.64	8.3
	Departure	+1.3°	+2.68	+1.7
Lansing	*Reported*	49.8°	12.03	7.5
	Normal	49.2°	8.43	5.5
	Departure	+0.6°	+3.60	+2.0
Muskegon	*Reported*	50.7°	13.05	14.8
	Normal	49.6°	9.55	9.3
	Departure	+1.1°	+3.50	+5.5

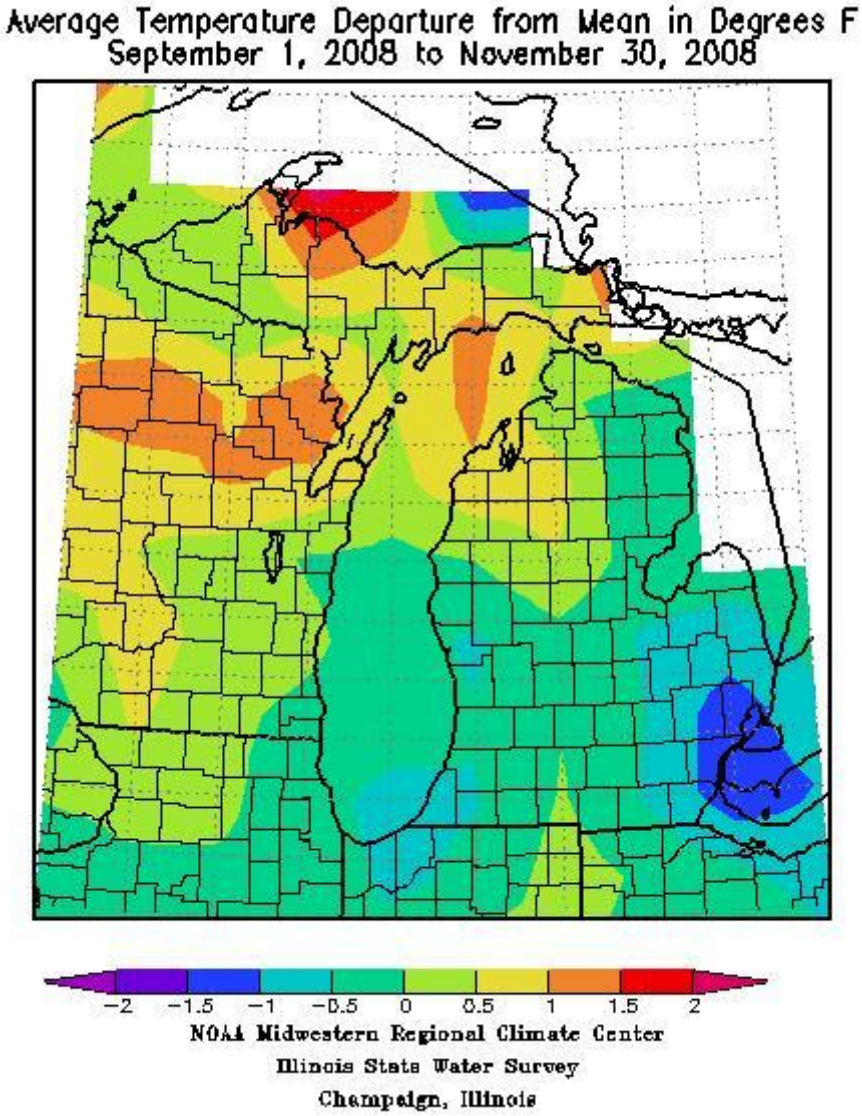

Figure 1. The Fall 2008 daily mean temperature departure from normal for Michigan.

Temperatures averaged near normal. Using the 29 long term climate stations that had 90 percent of more of the data available, temperatures were only 0.2 degrees below normal. Most of Southwest Lower Michigan fell within one degree of normal (Figure 1). Note that Table 1 shows a mean departure from normal of +1.0 degrees for the three primary climate stations, while Figure 1 shows slightly cooler than mean temperatures. This is because most of the cooperative stations were colder than normal, which brought the overall average down in spite of the warm readings at Grand Rapids, Muskegon, and Lansing.

The Fall of 2008 was much cooler than the Fall of 2007, which was the 10th warmest on record and averaged 3.5 degrees above normal for our 36 long term climate stations.

Using all official National Weather Service climate stations in Southwest Lower Michigan, records indicate there were only three Falls since 1998 that were not in the top third warmest (Figure2). No Falls since 1998 ranked in the coldest one third.

In 2008, Michigan experienced its 50th warmest fall out of 114 years of data (Figure 3), which is near the median. Although September was warmer than normal, October and November each were near normal, which can be seen on the daily temperature charts (Figure 4-6).

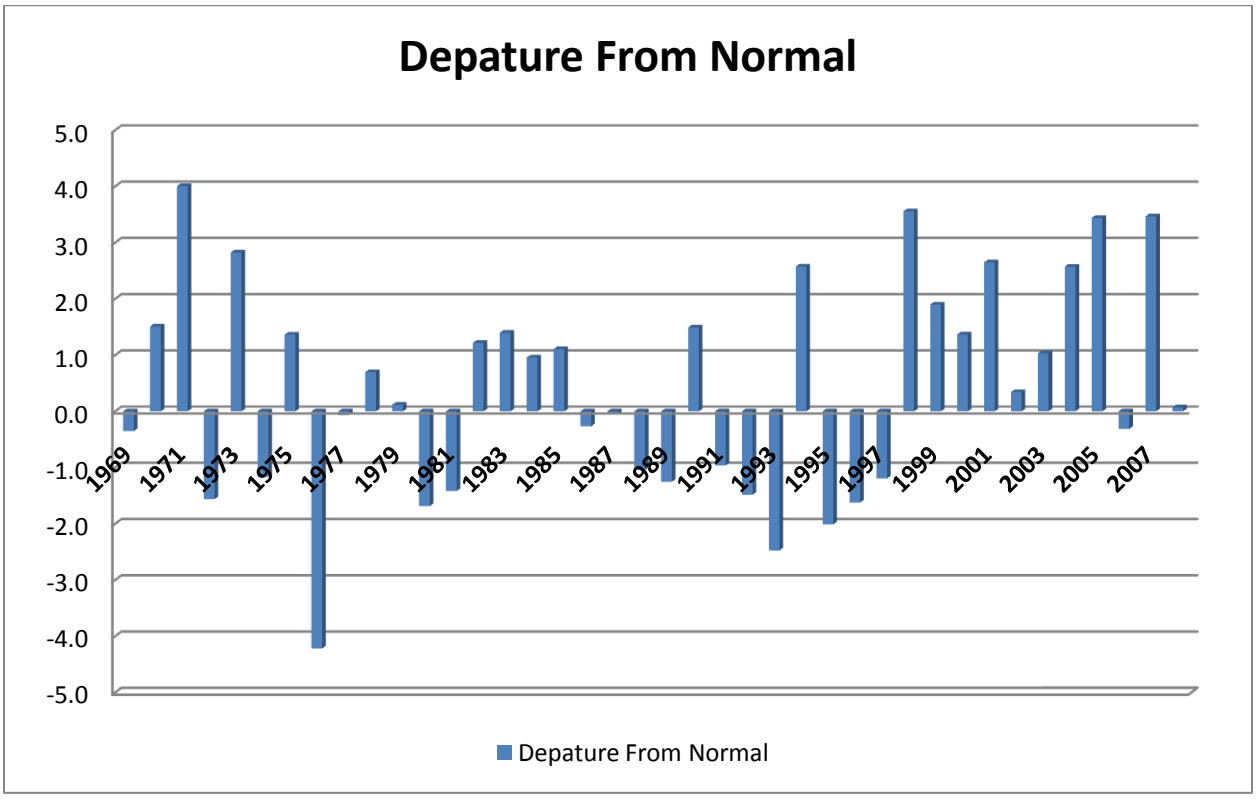

Figure 2. Mean areal temperature departure from normal for all of Southwest Lower Michigan, from 1969 through 2008.

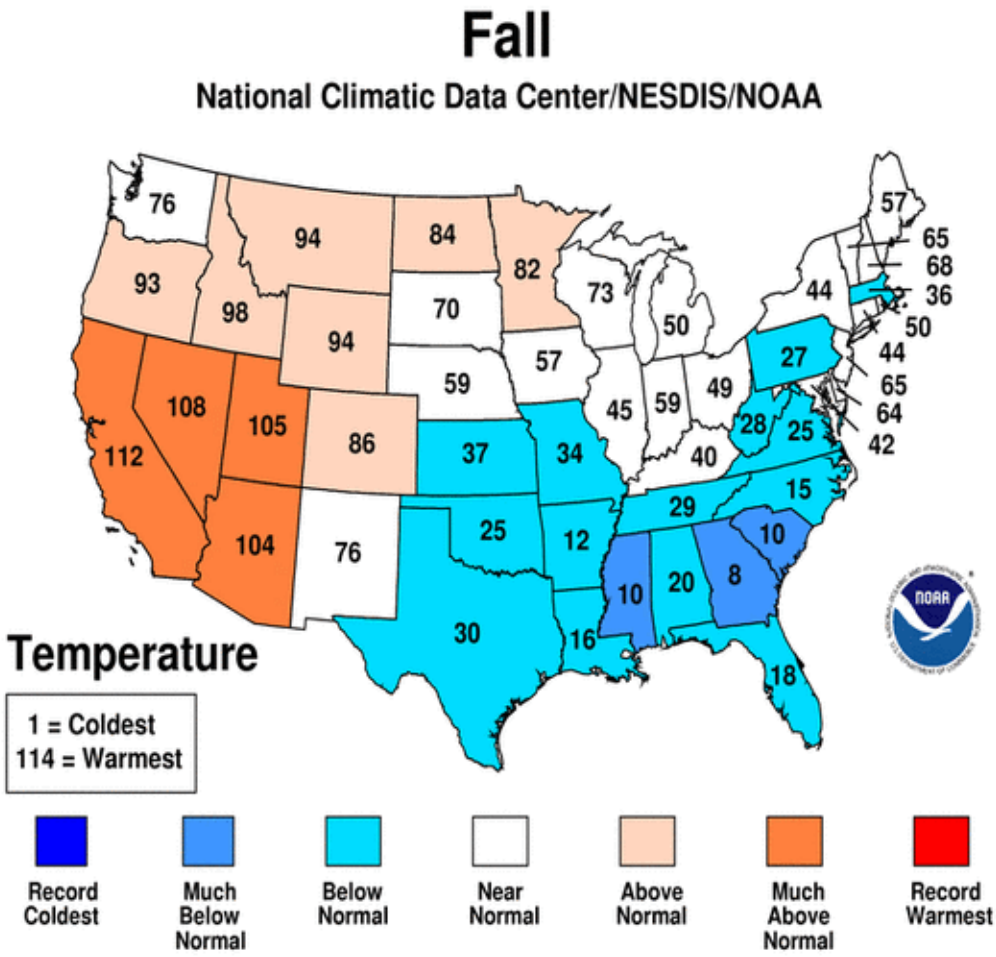

Figure 3. NCDC state mean temperature ranking for the Fall of 2008 out of 114 years of data.

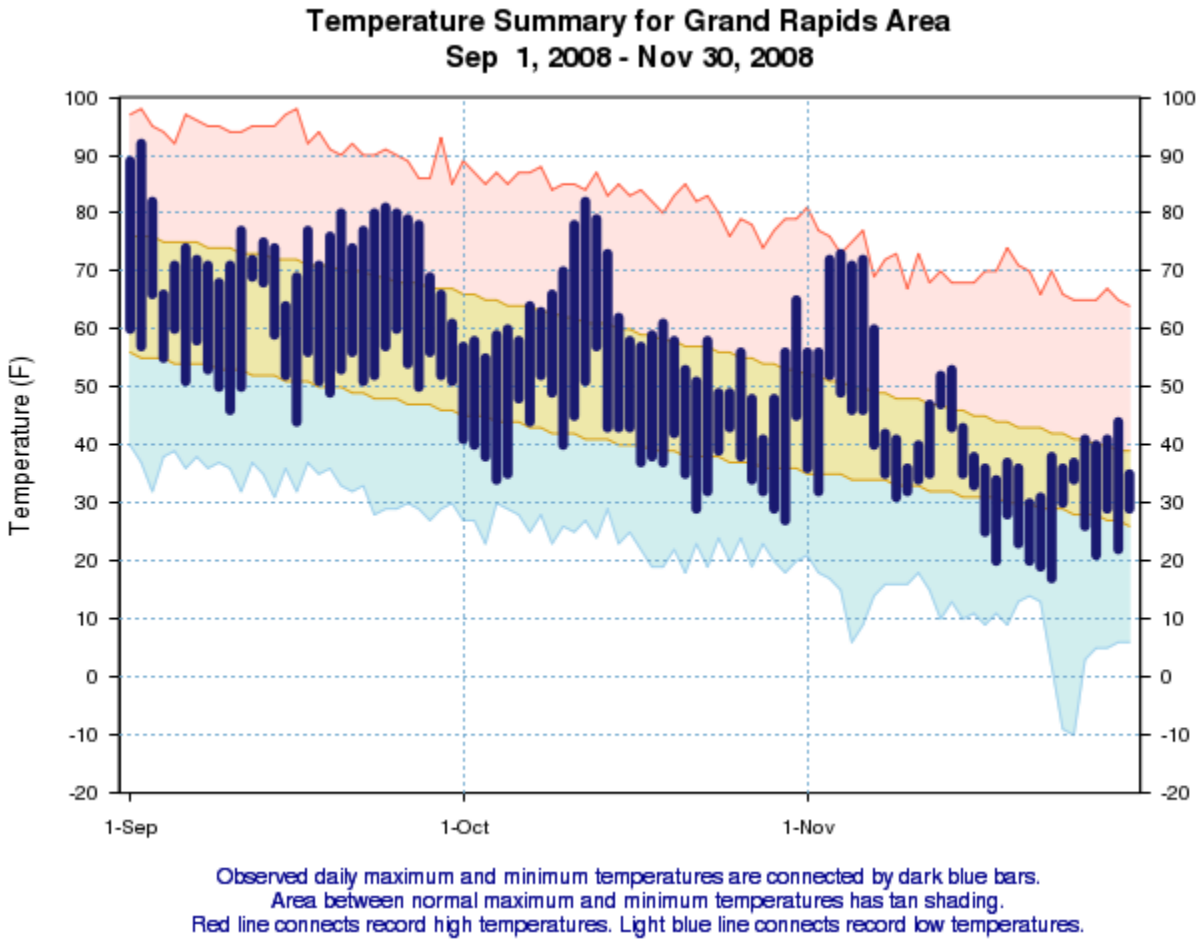

Figure 4. The Fall 2008 daily temperatures for Grand Rapids.

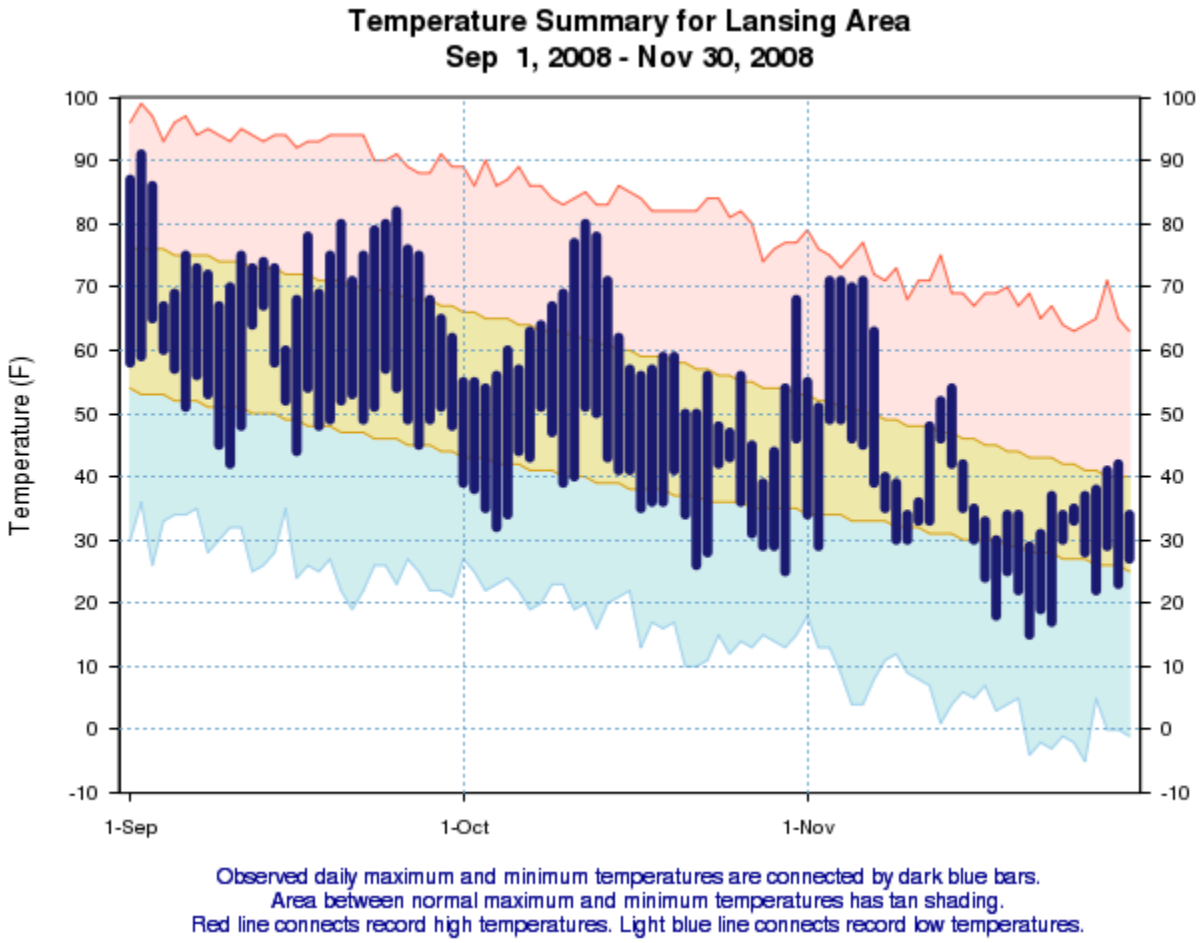

Figure 5. As in Figure 4, except for Lansing.

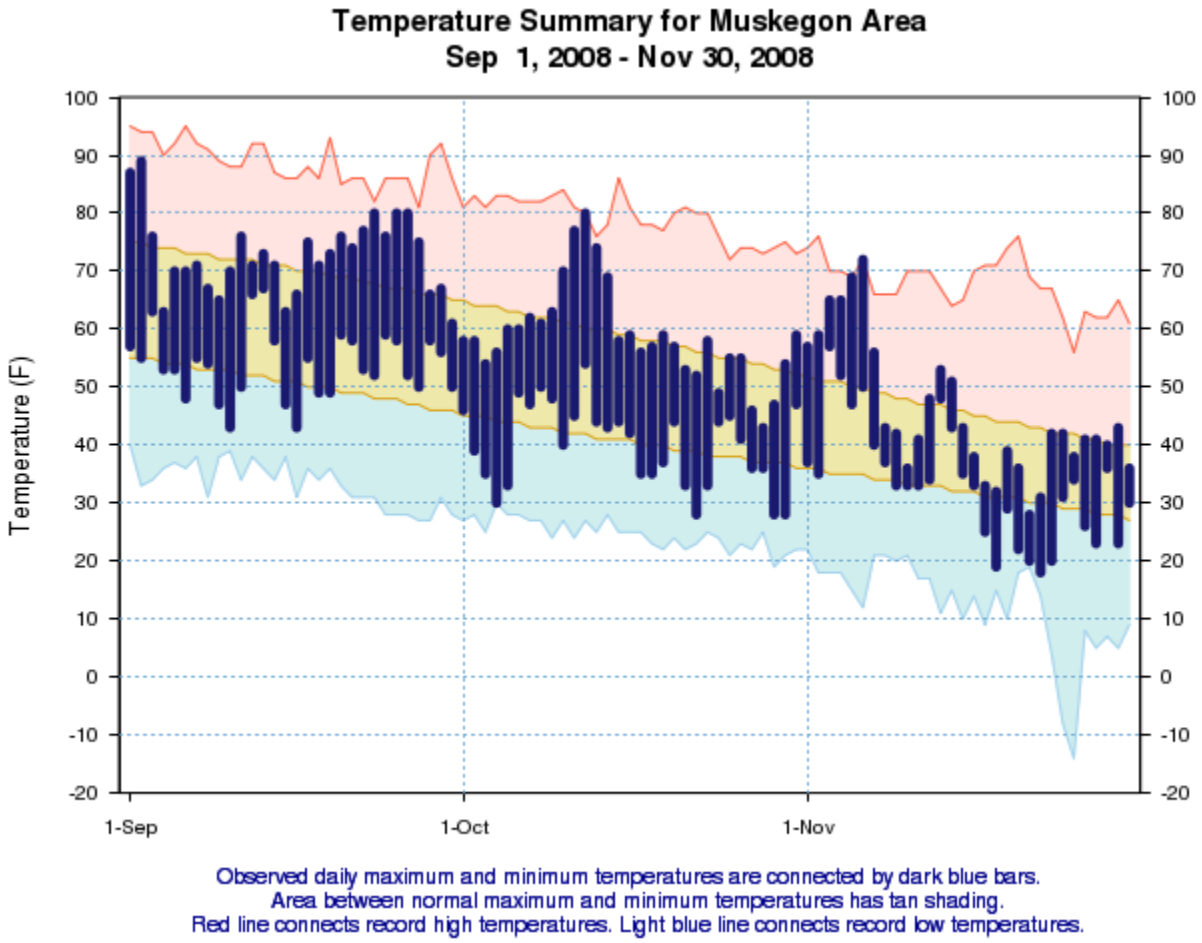

Figure 6. As in Figure 4, except for Muskegon.

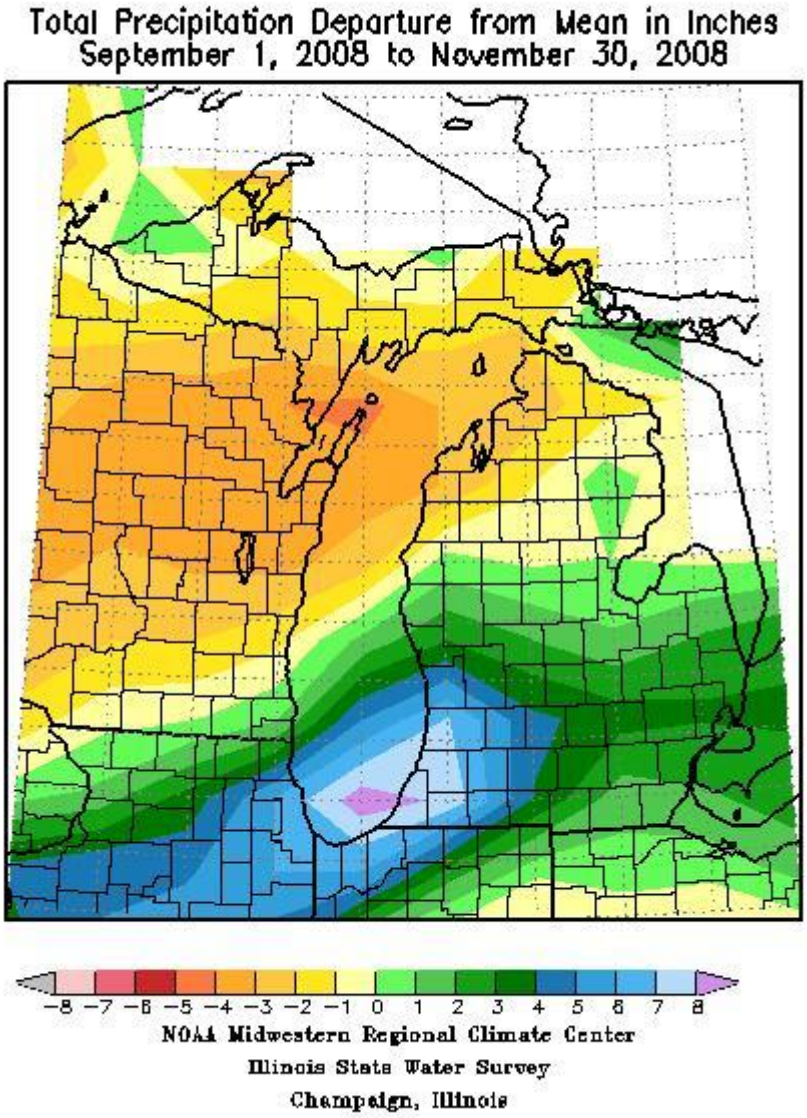

Figure 7. Fall 2008 total precipitation departure from normal.

The Fall of 2008 was unusually wet, with the southwest section of Southwest Lower Michigan receiving the heaviest precipitation relative to normal (Figure 7). Parts of the extreme southwest saw monthly departures of over 7 inches above normal, which is close to twice of normal values for the season. The fall of 2008 was much wetter than the fall of 2007 (Figure 8). Most falls since 1993 have been drier than normal, but since the year 2000, there has been a trend toward wetter falls. For all of Michigan, the fall of 2008 was the 25th wettest since records have been kept in 1895 (Figure 9). The wet fall was mostly the result of heavy precipitation in September (Figs 10-12). October had near normal precipitation while November was slightly drier than normal.

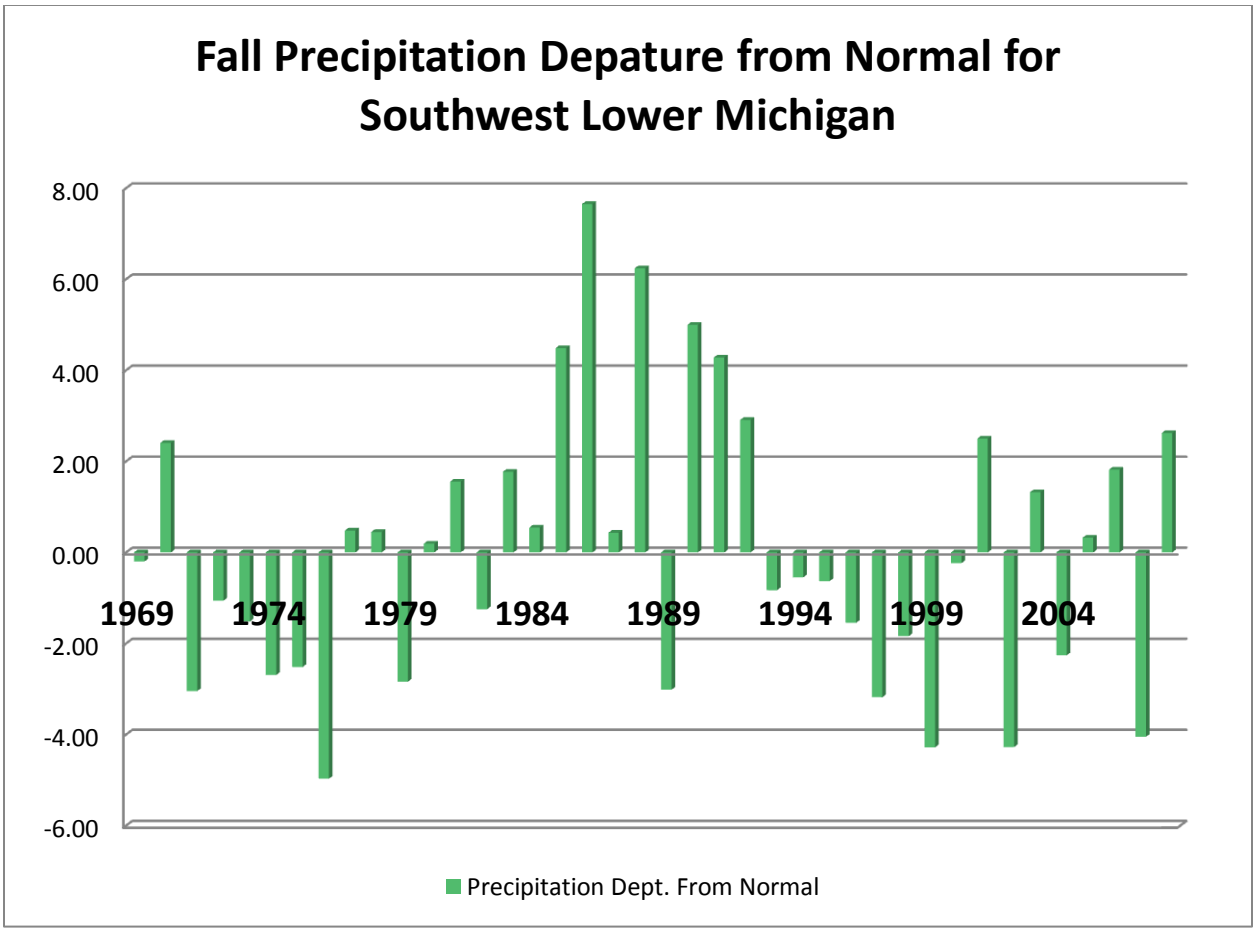

Figure 8. Fall precipitation departure from normal for all of Southwest Lower Michigan.

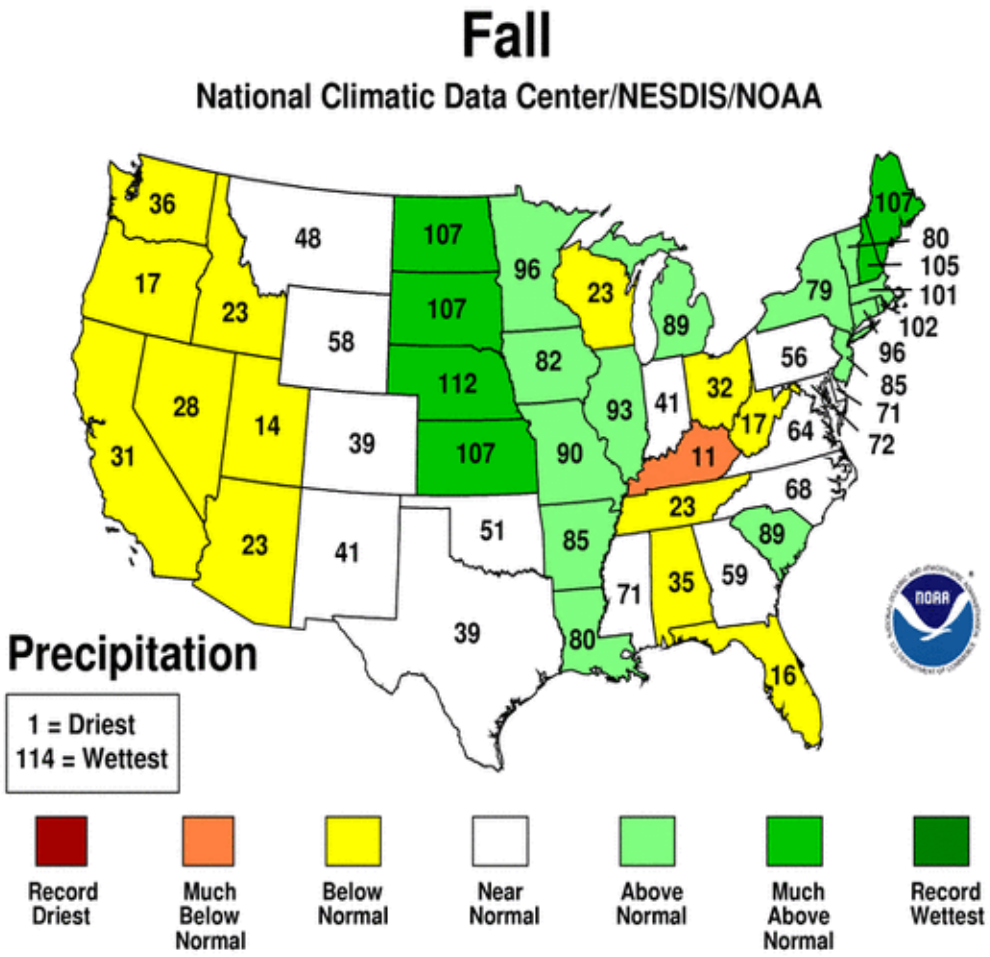

Figure 9 NCDC fall precipitation ranking

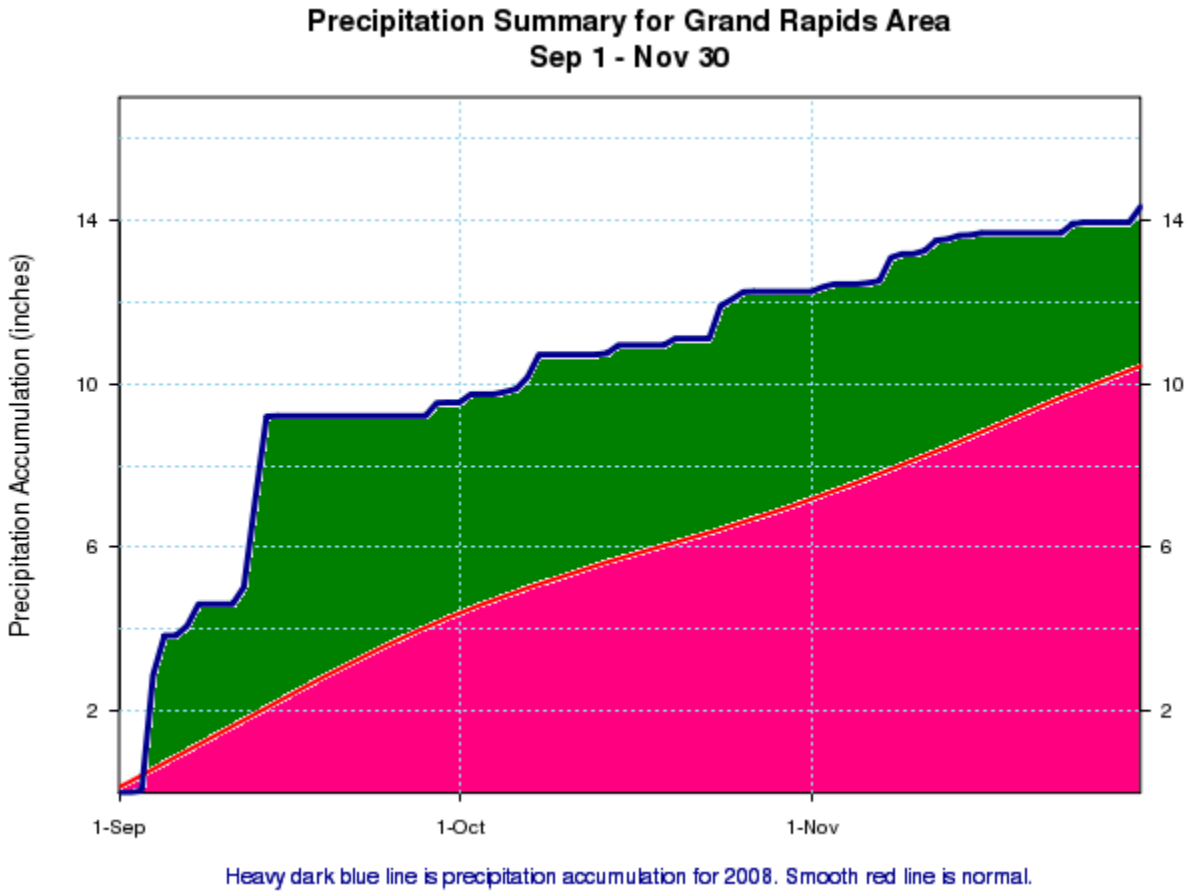

Figure 10. Grand Rapids Fall 2008 accumulated precipitation.

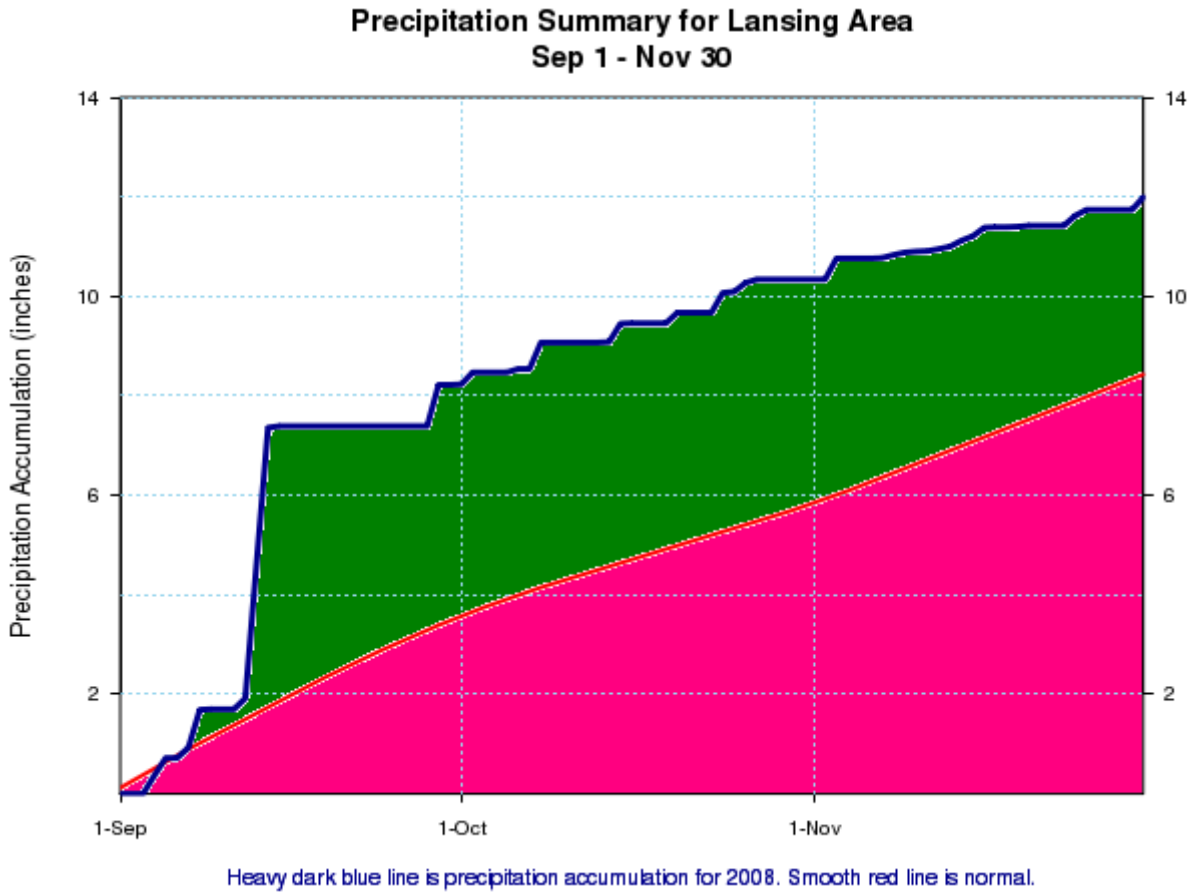

Figure 11. As in Figure 10, except for Lansing.

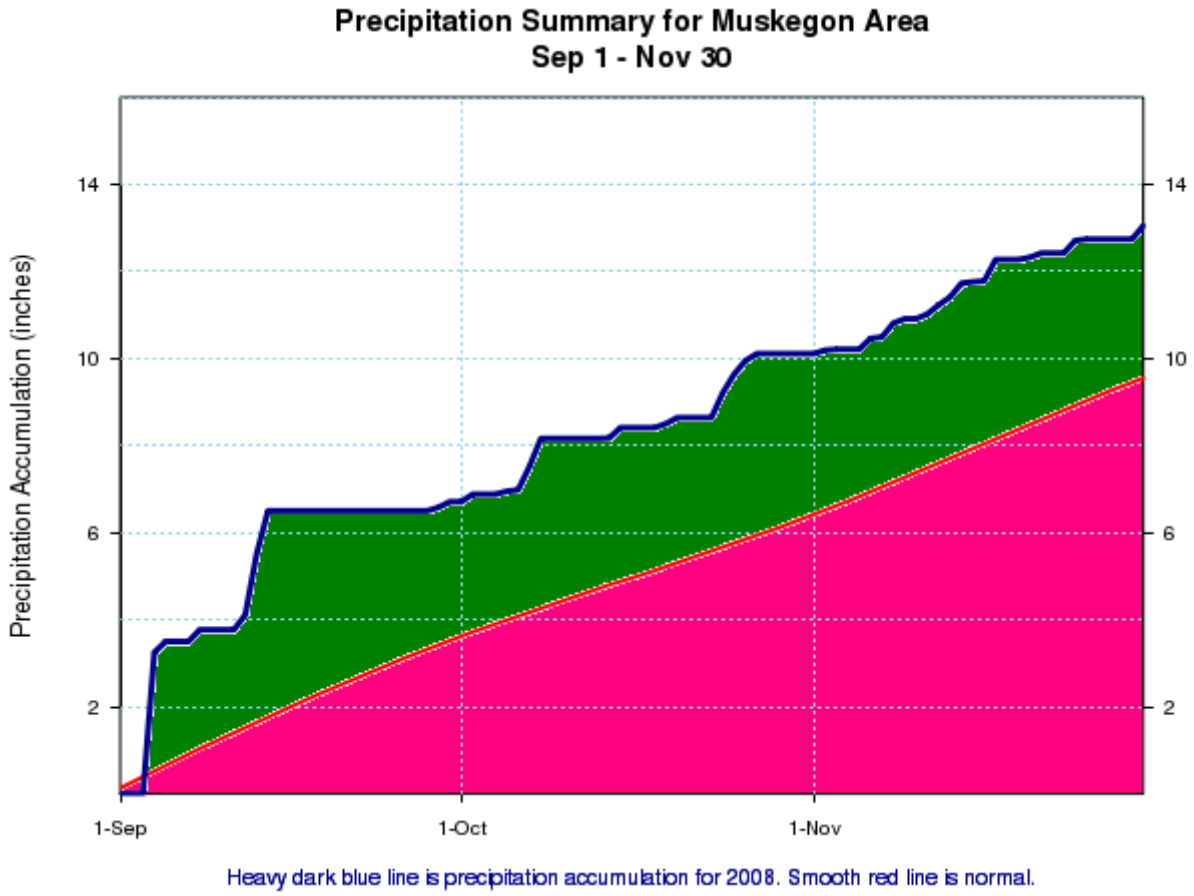

Figure 12. As in Figure 10, except for Muskegon.

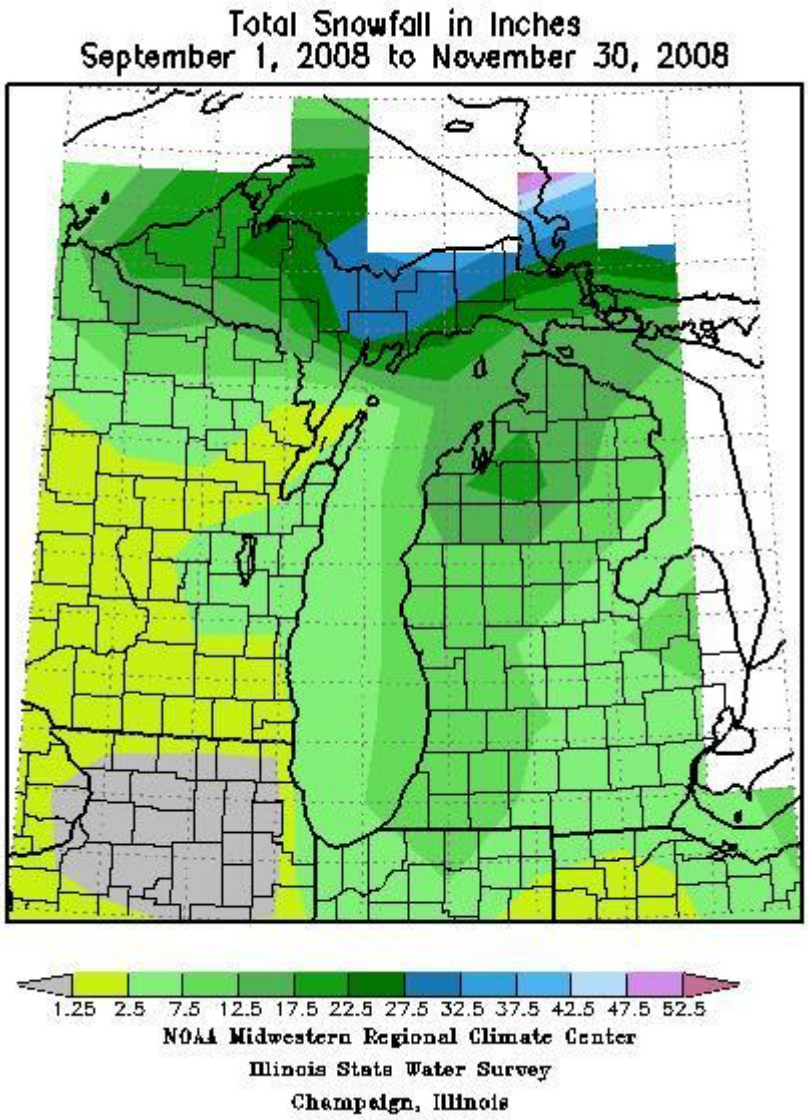

Figure 13. Fall 2008 total snowfall.

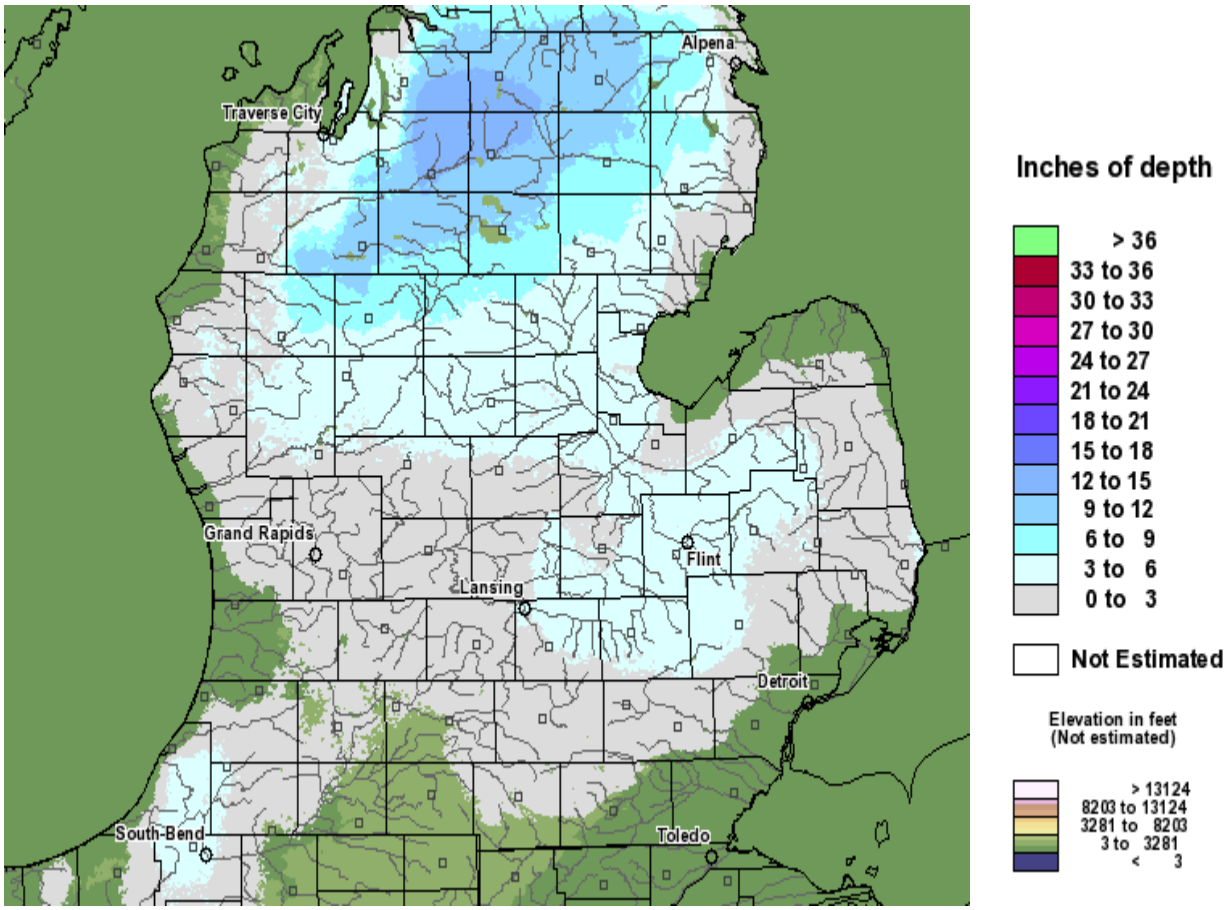

Figure 14. Snow depth at 7 AM on November 30th, 2008.

The 2008/2009 snowfall season got off to an early start. A strong cold front brought 6 to 10 inches of lake effect snowfall to the area west of US-131 and south of Muskegon from the mid morning hours of November 17th to the mid morning hours of the 18th. The mean date for the earliest snowfalls over 3 inches near the Lake Michigan shore, south of Muskegon is around Dec 4th. All of Southwest Lower Michigan had at least an inch of snow from the event due to the strong winds. Areas south and west of Holland had 6 to 10 inches from the event. There was another lake effect event shortly after that, and then there were two synoptic events toward the end of the month. The end result ranged from 5 inches of snow over Jackson to 21 inches at Ludington and 20 inches at Bloomingdale (Figure 13). Snow covered the ground over most of Southwest Lower Michigan on the last day of November (Figure 14). Snowfall was above normal across Southwest Lower Michigan in November (Figure 15.)

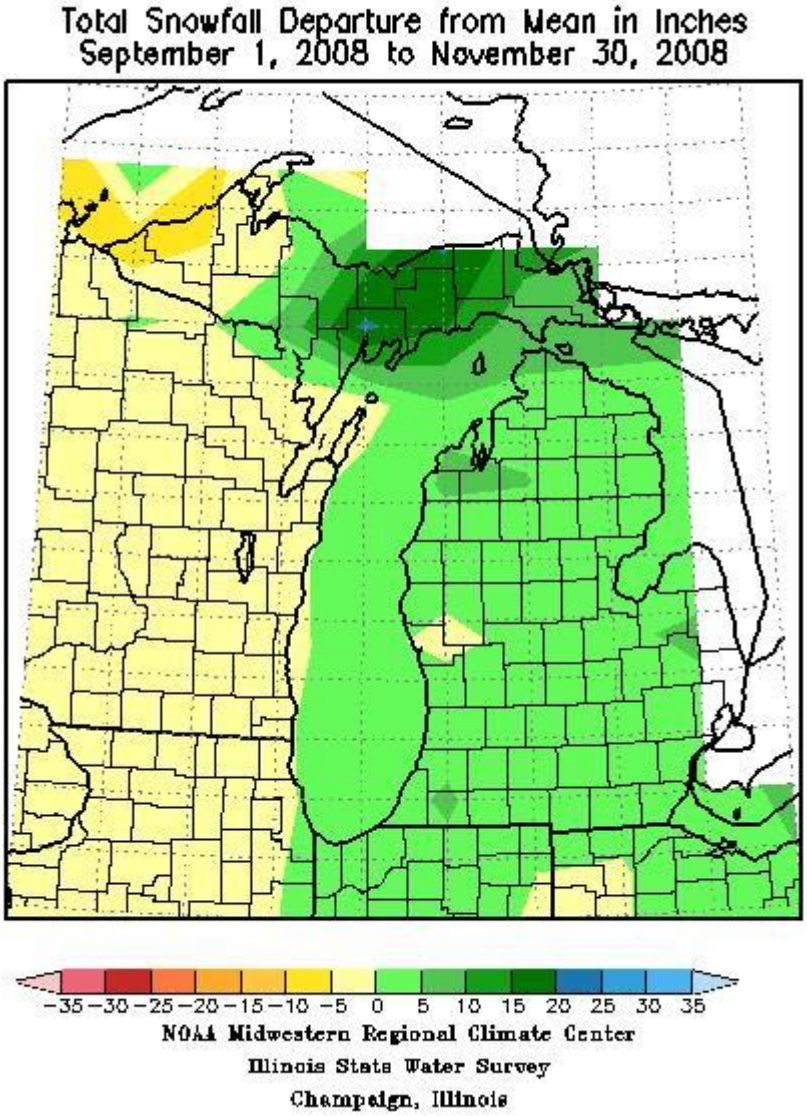

Figure 15. Fall 2008 snowfall departure from the mean.