

Summer 2007 Summary

By William Marino

Our long range forecast, for the summer of 2007, issued in March, 2007, called for equal chances (EC) of above, below, and near normal temperatures and precipitation. The normal values (1971 to 2000 base period) for Grand Rapids, Lansing, and Muskegon are as follows:

NORMALS			
June through August			
	GRAND RAPIDS	MUSKEGON	LANSING
HIGH:	80.2°	77.9°	80.0°
LOW:	58.5°	57.6°	56.6°
MEAN:	69.3°	67.8°	68.3°
Days >= 90F:	9.5	2.2	9.2
PRECIPITATION:	11.01"	8.67"	9.74"

Summer 2007 Data			
June through August			
	GRAND RAPIDS	MUSKEGON	LANSING
AVG HIGH:	82.9°	79.3°	81.4°
Departure from Normal	+2.8°	+1.4°	+1.4°
AVG LOW:	61.2°	59.4°	59.0°
Departure from Normal	+2.8°	+1.8°	+2.4°
AVG MEAN:	72.0°	69.3°	70.2°
Departure from Normal	+2.7°	+1.5°	+1.9°
Days >= 90F:	19	2	12
PRECIPITATION:	10.73"	7.78"	10.22"
Departure from Normal	-0.28"	-0.89"	0.48"

Discussion:

The summer of 2007 was the third summer in a row with above normal temperatures across southwest Lower Michigan. The area average for all 23 counties of the Grand Rapids County Warning Area (GRR CWA) was 69.6 degrees, which is 1.5 degrees above the normal summer mean temperature of 68.1F (**figure 1**). That makes this the third summer in a row with above normal temperatures. Also of note is the warming trend since 1997, shown by the trend line. The summer mean temperature for all 23 counties of the GRR CWA, using the trend line, increased from 68.3 degrees in 1996 to 69.7 degrees by 2007. The 1.4 degree increase in 11 years is the sharpest increase in so short a time period for the entire period of record, which starts in 1890 (data not shown). The current 69.7° mean of the trend line is warmer than any other part of the curve, even for the dust bowl years of the 1930s. The past 3 summers have driven most of the sharp increase in the trend curve.

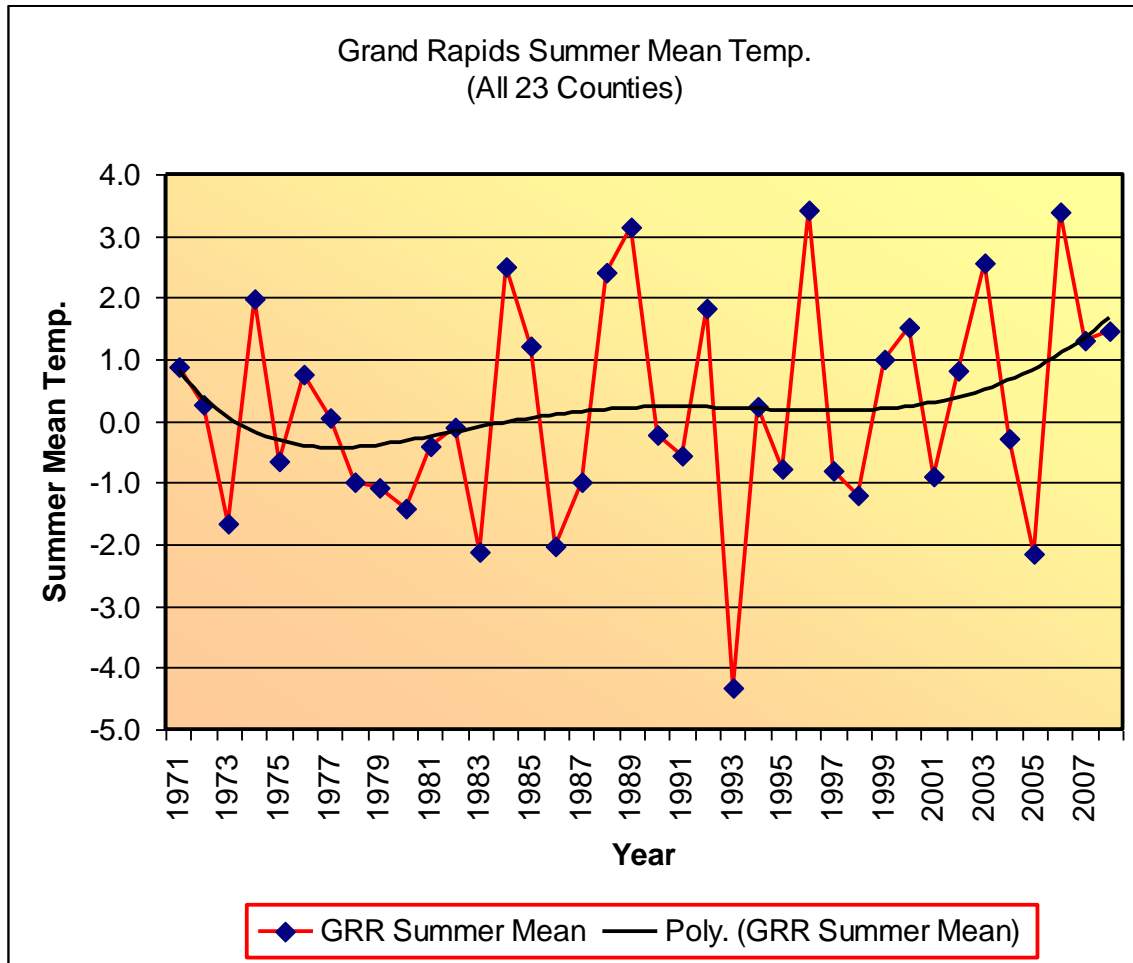
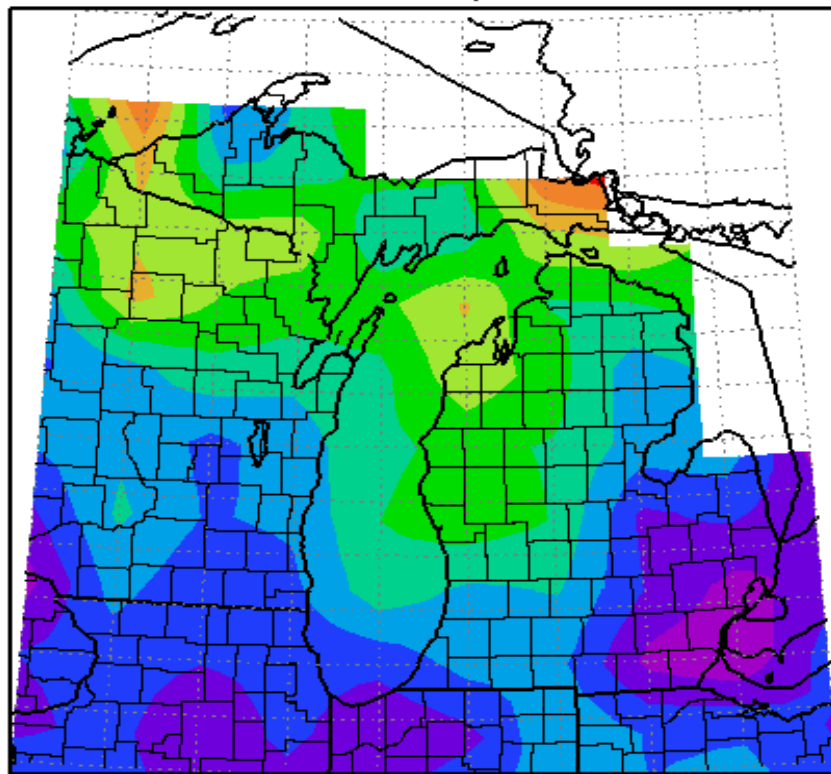


Figure 1 Departure from Normal since 1971

The farther north you were in the Grand Rapids County warning area, the more positive the departure from normal was (**figure 2**). Northern sections of the CWA were nearly 2 degrees above normal while southern sections were closer to 1 degree above normal. While it is true that the more northern locations had a large departure from normal, that did not mean they were warmer than the southern areas. The north sections of southwest Lower Michigan, locations near and north of route 10, averaged between 68 degrees and 69 degrees, while sections near and south of Grand Rapids were between 71 degrees and 72 degrees (**figure 3**).

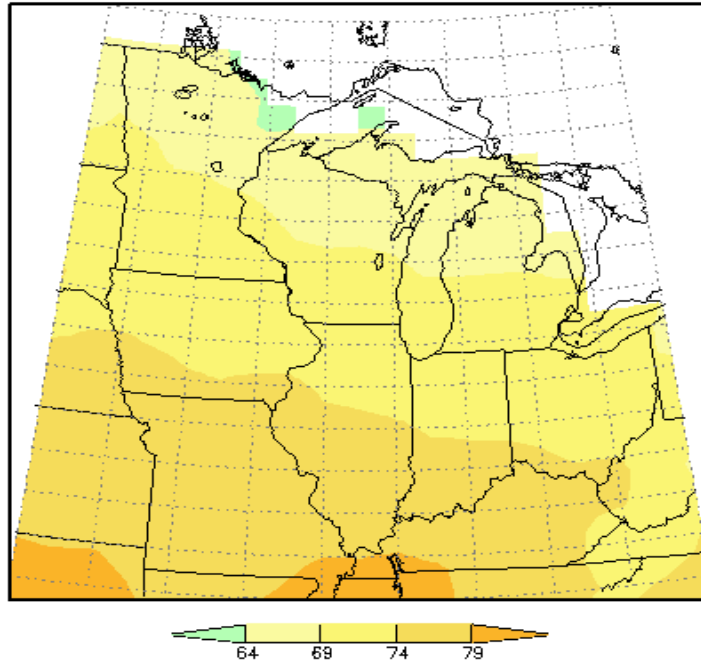
Average Temperature Departure from Mean in Degrees F
June 1, 2007 to August 31, 2007



0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3
Midwestern Regional Climate Center
Illinois State Water Survey
Champaign, Illinois

Figure 2 Departure from normal for the summer of 2007

Average Temperature in Degrees F
June 1, 2007 to August 31, 2007



Midwestern Regional Climate Center
Illinois State Water Survey
Champaign, Illinois

Figure 3 Mean Summer Temperature for 2007

As seen in **figures 4 through 6**, most of the summer was warmer than normal. There were three cool periods, the beginning of June, the middle of July and third week in August. Grand Rapids had 19 days this summer with highs of 90 degrees or more, that is double the normal count of 9.5 days. Most other reporting stations also had an above normal number of 90 degrees or higher days.

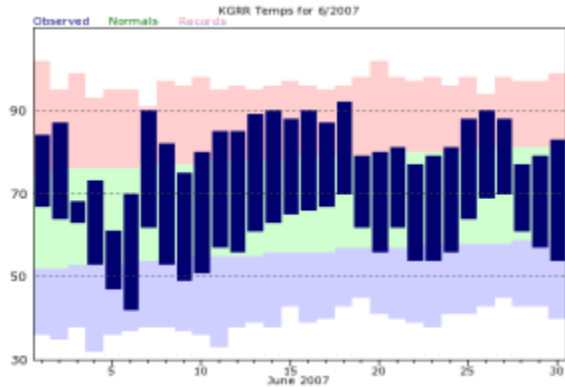


Figure 4 Grand Rapids Daily Temp. June 2007

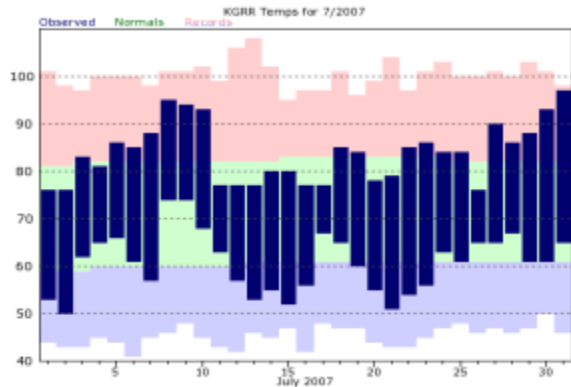


Figure 5 Grand Rapids Daily Temp. July 2007

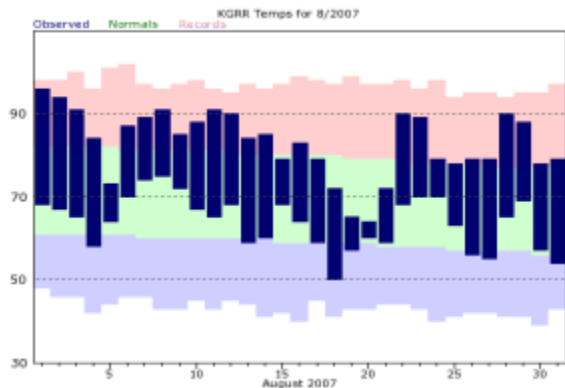


Figure 6 Grand Rapids Daily Temp. Aug 2007

Precipitation:

The precipitation for the summer of 2007 was for the most part below normal. **Figure 7** shows below normal precipitation across all but the I-94 area of Southwest Michigan.

Locations in southern Van Buren County had precipitation departures over 2 inches above normal. Meanwhile, locations near and north of route 10 showed total summer precipitation deficits of over 2 inches. Most of the rainfall over the southern sections fell during the one-week period of August 18 through the 25th. For example, at Grand Rapids, prior to that week, only 5.7 inches of rain had fallen for the entire summer, a good part of the GRR CWA was in a moderate drought. In that one week, Grand Rapids had 5.05 inches of rain, which brought the season total to 10.75 inches. Thus, half the rain of the entire summer fell in one week. Since it was so dry, there was no significant flooding in the GRR CWA from this heavy rainfall.

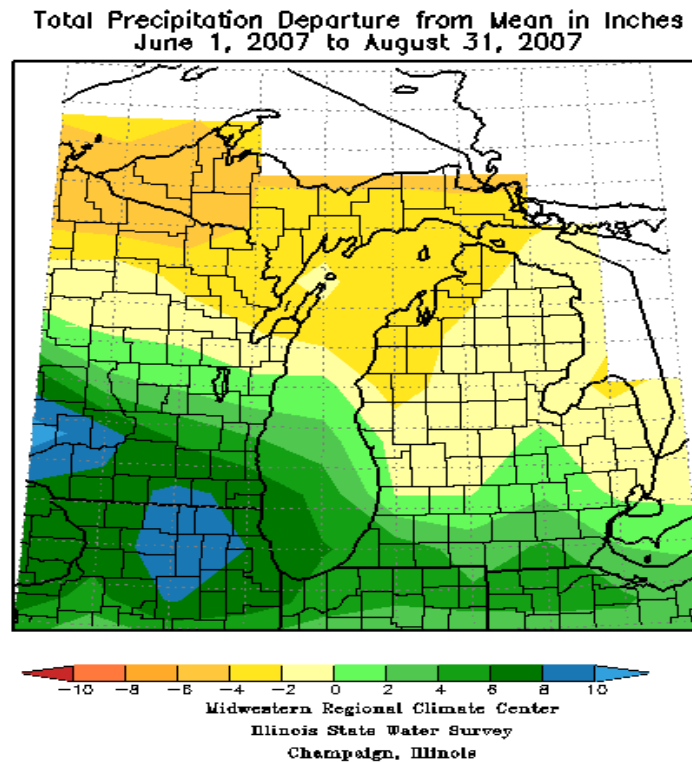


Figure 7 Departure from Normal of the Total Summer of 2007 Precipitation

As for the total rainfall for the summer of 2007, figure 8 below shows heavy rainfall over areas near and south of I-94. Precipitation amounts near and west of Chicago were over 18 inches. Locations in southwest Van Buren County have as much as 16 inches of rain. Meanwhile locations north of I-96 had less than 10 inches of rain. Locations near and north of route 10 had less than 6 inches of rain for the entire summer.

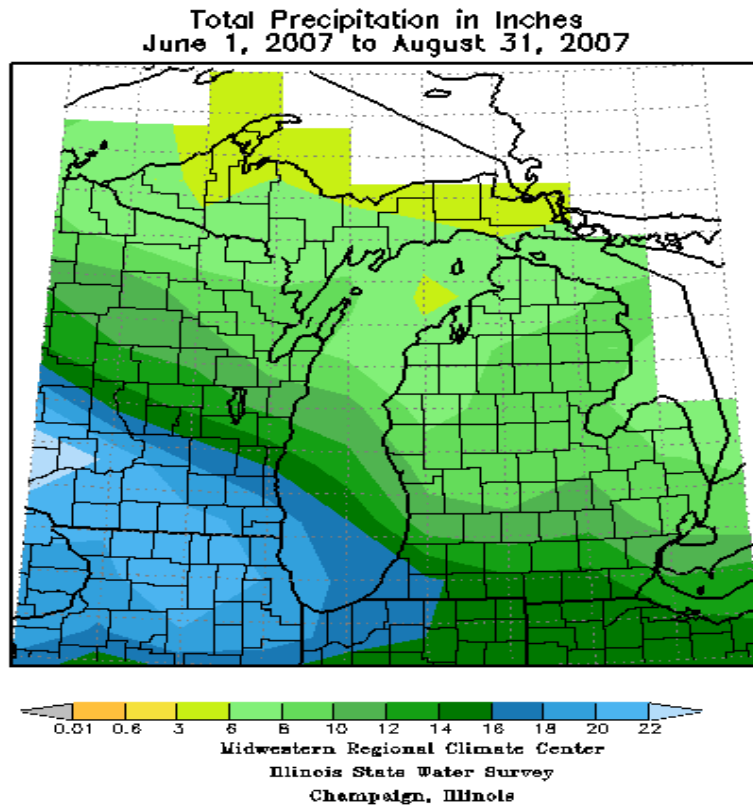


Figure 8 Precipitation Totals for the summer of 2007

Severe Weather:

The overall dry pattern during the summer resulted in fewer than normal severe weather events. However, the period of stormy weather that brought the drought-relieving heavy rains in the third week of August also brought widespread severe weather. During the three-day period of August 22nd, 23rd and 24th severe thunderstorms struck the region. A weak tornado hit Montcalm County on August 23rd, and a squall line moved from Kalamazoo to Lansing that same day, producing a large swath of wind damage. Thousands of people lost power, some for more than two days. Then next day, August 24th, part of this same area was hit again by a supercell thunderstorm that produced two tornadoes. The first tornado struck along a ten mile path from northwest of Charlotte to just north of Potterville in Eaton County, destroying several homes and injuring five people. It was strongest tornado in the GRR CWA since 1991 and the strongest in the state of Michigan since 1997. The thunderstorm then crossed into Ingham County and produced another tornado, which produced a six-mile long damage path across the southern part of Lansing. Fortunately, damage was minor and there were no injuries.

June-August 2007 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

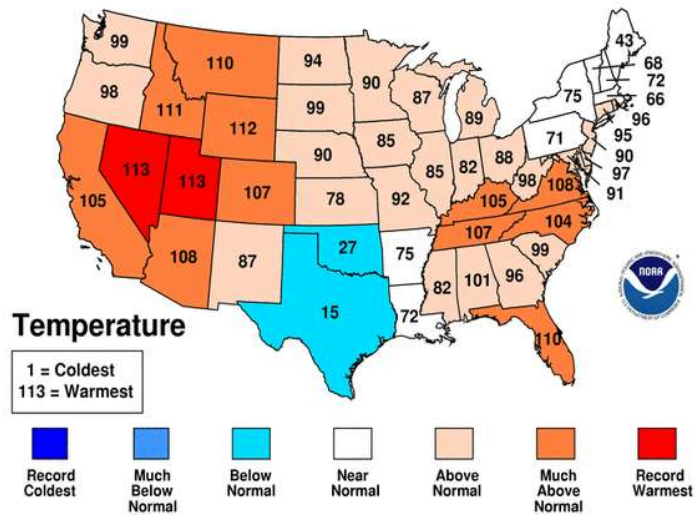


Figure 9: The above image indicates the vast area of above normal temperatures for this past summer season. Michigan was 24th warmest or 89th, out of 113 years of data.

June-August 2007 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

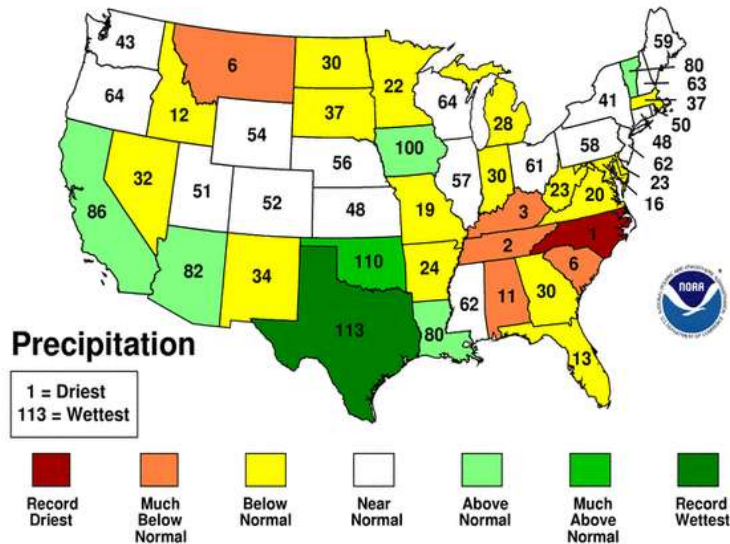


Figure 10: The above image indicates the precipitation rankings for 2007 across the United States. This image is also out of 113 years, where Michigan was 28th driest. Figure 7, from earlier, indicated the sharp decline in precipitation from I-94 north across Southern Lower Michigan.

Conclusion:

The summer of 2007 in southwest Michigan will be remembered for the continued warmth of the two previous summers and the overall dry nature of the summer. Even though it was warmer than normal, there were no extreme heat waves, so the summer of 2007 was an unusually pleasant summer for most residents. The Grand Rapids Press noted that the only bright spot in the Michigan economy in the summer of 2007 was the pleasant weather that encouraged tourism to be very profitable.