

March 2007 Climate Narrative for Southwest Lower Michigan

Overview

March featured extreme weather patterns. The month began with a series of snowstorms and well below normal temperatures. This was followed by warm periods during the middle and latter portions of March. Precipitation remained above normal and was reported every day from the 21st through the 31st. By the end of March, Grand Rapids set a record of 55 consecutive days with measurable precipitation within a calendar year. The previous record was 53 days set in 1916.

Most severe weather in Southwest Lower Michigan occurred from the evening of the 21st into the morning of the 22nd when a strong low pressure system moved through the area. This produced about half a dozen reports of wind damage.

Table 1. Temperature, precipitation, and snowfall amounts for March 2007.

Location		Temperature (degrees F)	Precipitation (inches)	Snowfall (inches)
Grand Rapids	<i>Reported</i>	39.6	3.50	13.6
	<i>Normal</i>	34.6	2.59	9.0
	<i>Departure</i>	+5.0	+0.91	+4.6
Lansing	<i>Reported</i>	39.4	2.66	2.8
	<i>Normal</i>	33.9	2.33	8.7
	<i>Departure</i>	+5.5	+0.33	-5.9
Muskegon	<i>Reported</i>	38.9	3.50	10.6
	<i>Normal</i>	34.0	2.36	11.1
	<i>Departure</i>	+4.9	+1.14	-0.5

Temperatures

March featured some dramatic temperature changes. The 1st and 2nd were slightly warmer than normal, and then there was significant cold spell from the 3rd through the 8th (Figs 1-3). It was during this period that nearly all the March snowfall occurred. The coldest day of the month was the 6th behind an arctic cold front, when the daily mean was more than 20 degrees below normal. Temperatures warmed to above normal from the 9th through the 13th. On the 13th, highs reached near 70F across most of Southwest Lower Michigan. That was followed by a cooler period from the 15th through the 20th were temperatures averaged about 5 degrees below normal. The last 11 days of the month were very warm with temperatures in the mid to upper 70s from the 25th through the 27th, which is more than 20 degrees above normal. The 26th was especially noteworthy at 32 degrees above normal in Grand Rapids with highs in the mid to upper 70s.

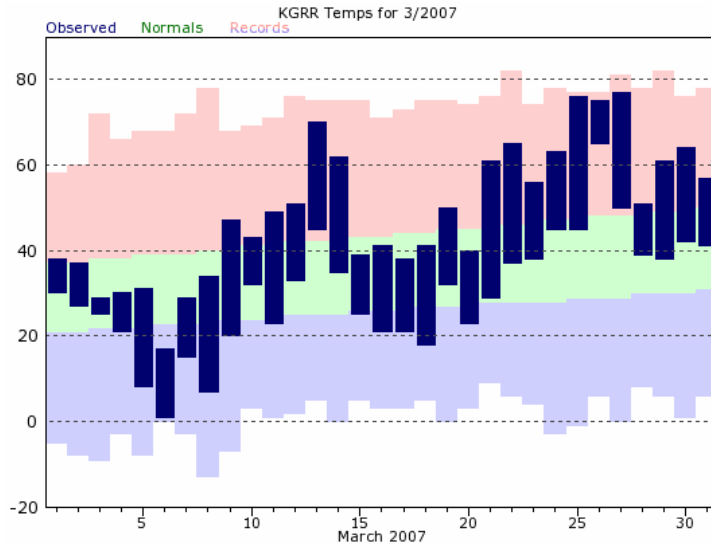


Fig. 1. Grand Rapids daily temperatures for March of 2007. Dark blue bars represent the temperature range recorded for each day. The green area represents the normal range of temperatures. The upper (lower) bound of the pink (blue) shaded area represents the record maximum (minimum) temperature for that day.

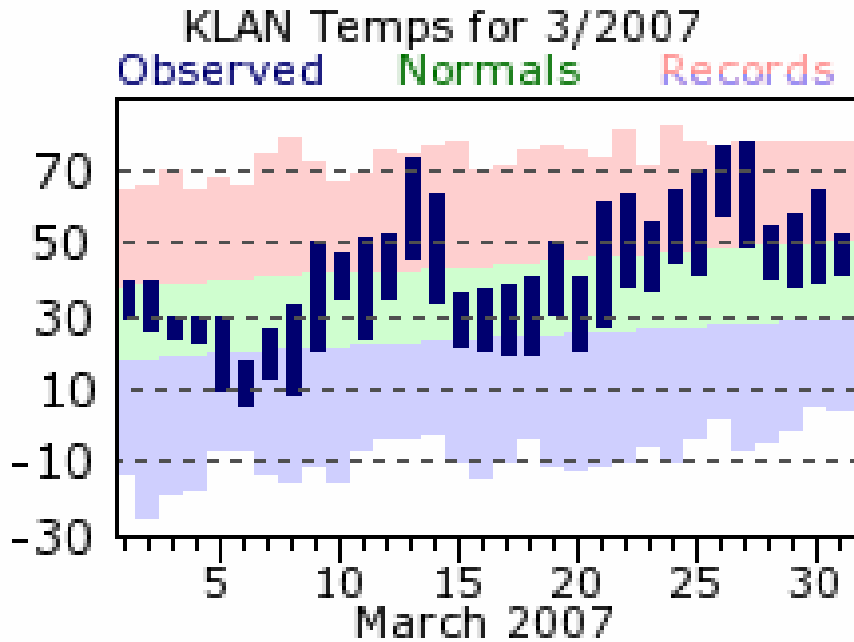


Fig. 2. As in Fig.1, except for Lansing.

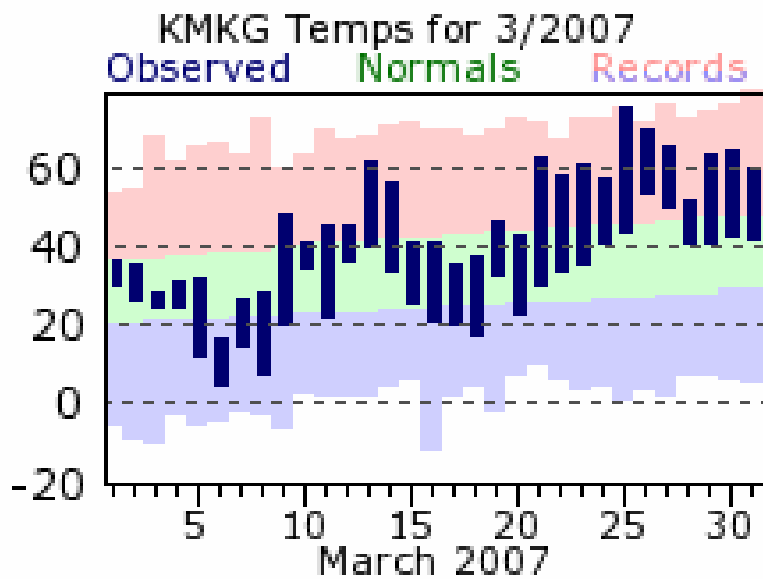
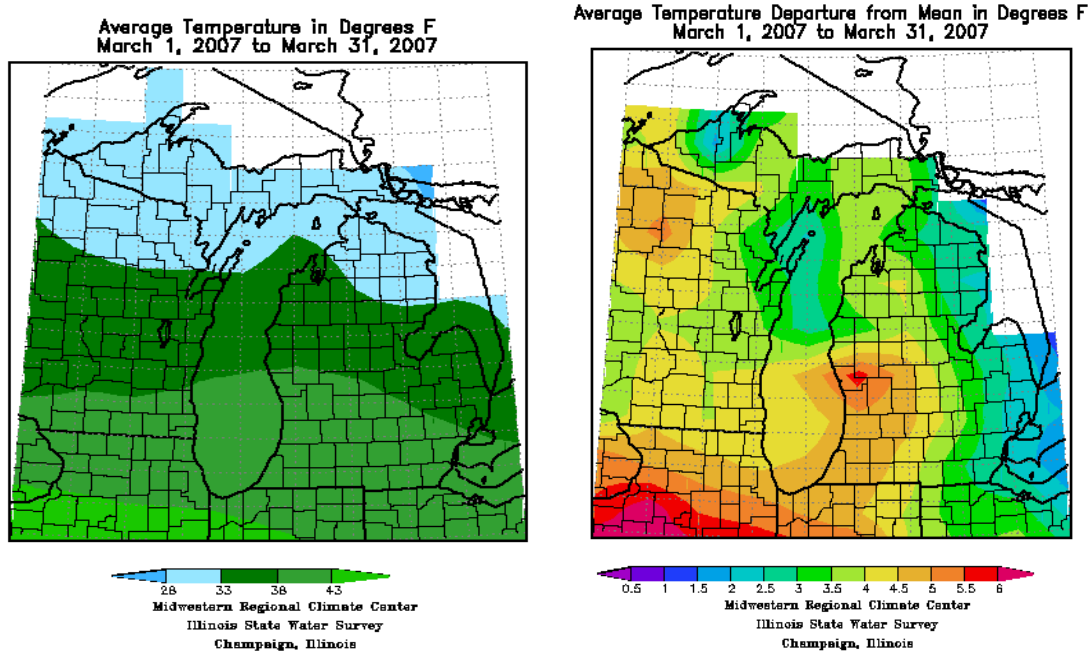


Fig. 3. As in Fig. 1, except for Muskegon.

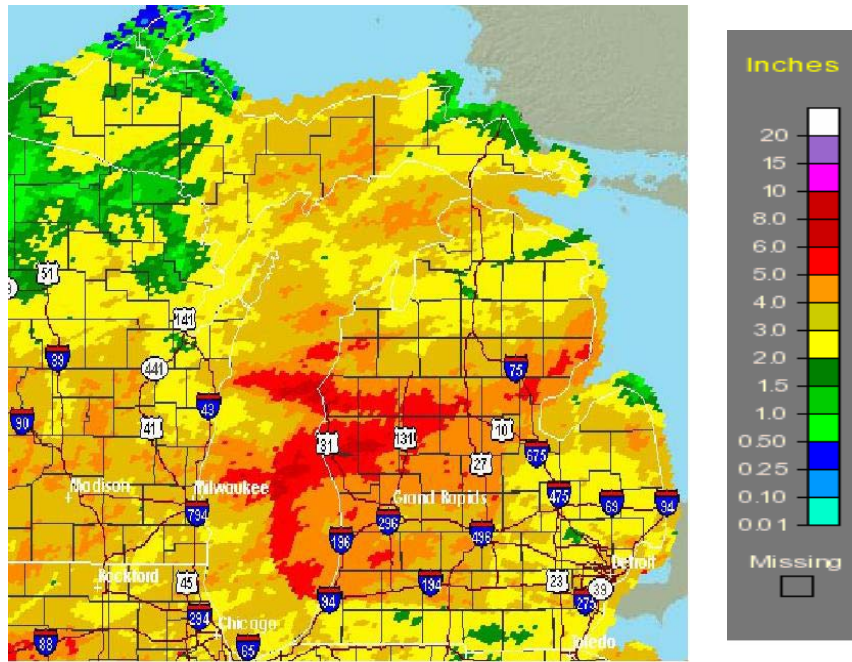
Across the area, temperatures were significantly colder farther north with average temperatures near or below freezing (Fig. 4a). Overall, Southwest Lower Michigan was as much as 6 degrees F above normal (Fig. 4b).



a) b)
Fig. 3. Western Great Lakes average daily temperature (a) and departure from normal (b) for February 2007 (courtesy of the Midwestern Regional Climate Center).

Precipitation

March 2007 over Southwest Lower Michigan was a wet month. Figure 5 shows the wettest part of southwest Lower Michigan was between Lake Michigan and Big Rapids, and also southwest of Big Rapids to near Muskegon. Figure 6 shows precipitation departures from normal for March. All of Southwest Lower Michigan had above normal precipitation, but the same areas west and southwest of Big Rapids showed departures greater than 3 inches above normal in spots.



Total March Precipitation from Michigan 2007

Fig. 4. March precipitation totals in inches.

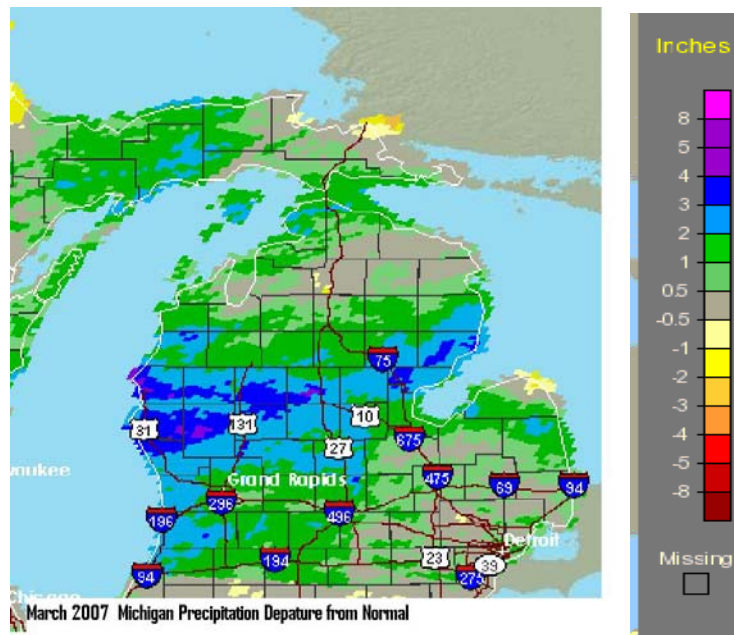


Fig. 5. March precipitation Departure from Normal in inches.

Snowfall

Figure 7 shows the total snowfall over Michigan for March of 2007. As usual, the heaviest snowfall fell over northwest sections of Southwest Lower Michigan. Some areas north of Baldwin received over 20 inches of snow for March. Snowfall totals were for the most part above normal across central and western section of Southwest Lower Michigan (Fig. 8).

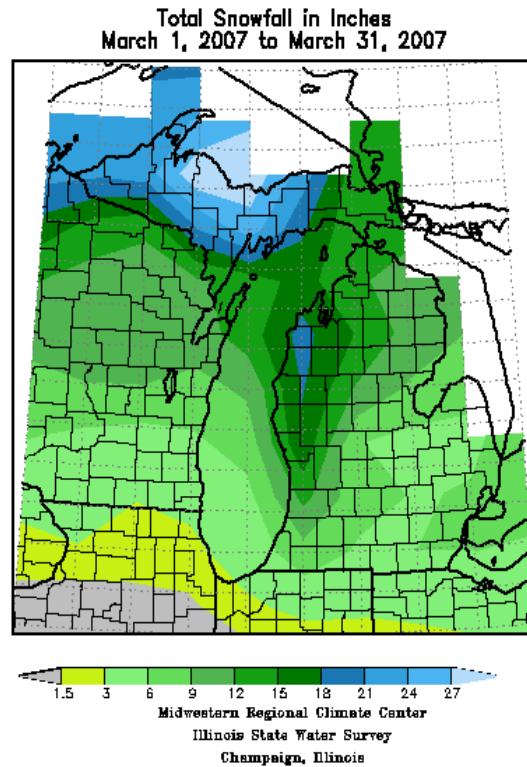


Fig. 6. March Snowfall totals over Southwest Michigan.

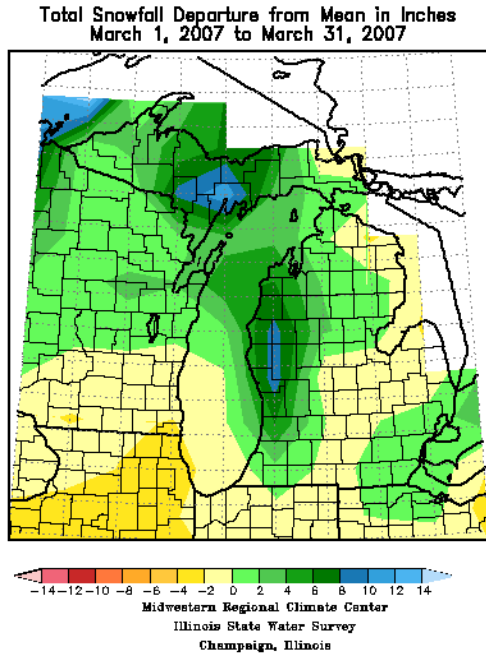


Fig. 7. March Snowfall Departures from Normal.

There were three significant winter storm events in March. The result was above normal snowfall for most of Southwest Lower Michigan. The first storm was a southern plains system that brought up to 9 inches of snow to Mecosta County (Fig. 9). Beside the heavy snowfall over extreme northern sections of Southwest Lower Michigan, there was a quarter to a half inch of ice accumulations over central Southwest Lower Michigan between Interstate 96 and US 10.

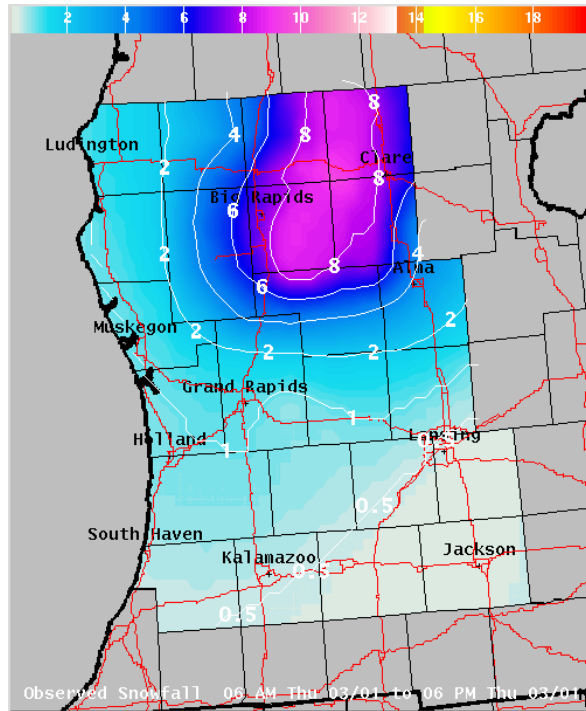


Fig. 8. Snowfall totals for March 1st 2007.

The second winter storm for March was lake effect snow behind the first storm system lasting from the 2nd to the 4th. This storm produced near blizzard conditions and heavy snow for western and northern sections of Southwest Lower Michigan (Fig. 10). Snow totals of 15 inches were reported in parts of Allegan County northwest of the city of Kalamazoo. Over the rest of Southwest Lower Michigan, totals ranged from 8 inches to a foot along a line from Battle Creek to Clare.

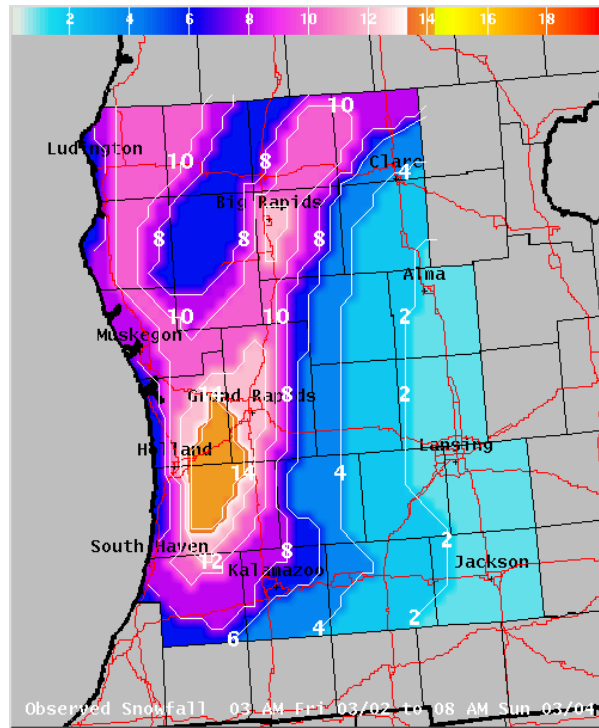


Fig. 9. Snowfall totals from March 2nd to 4th.

The final winter storm event occurred on the 6th with the passage of an arctic cold front. Snowfall amounts of 7 inches were reported in Clare County, with 6 inches in Newaygo County southwest of Big Rapids (Fig. 11). Behind the front, the coldest air of the month flowed into the area, resulting in the cold temperatures seen on the 6th in Figs. 1-3.

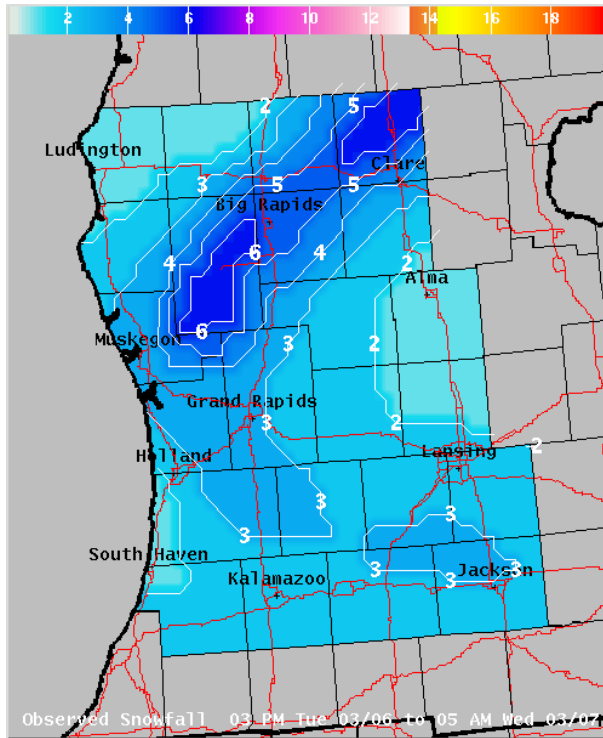


Fig. 10. Snowfall totals for March 6th.

A dramatic warm up followed between the 9th and the 14th. High temperatures reached the lower 70s in numerous locations on the 13th. The warm weather melted most of the 1 to 2 feet of snow that were on the ground over western and northern sections of southwest Lower Michigan. This resulted in minor flooding of rivers and streams. The 16th to the 20th was cooler than normal with little precipitation.

A strong storm on the 21st and 22nd brought a half to one and half inches of rain to the area (Fig. 12). This event produced the warmest weather of the month and a significant severe weather event (Fig. 13). A strong cold front came through the area on the 27th with strong winds and some tree damage.

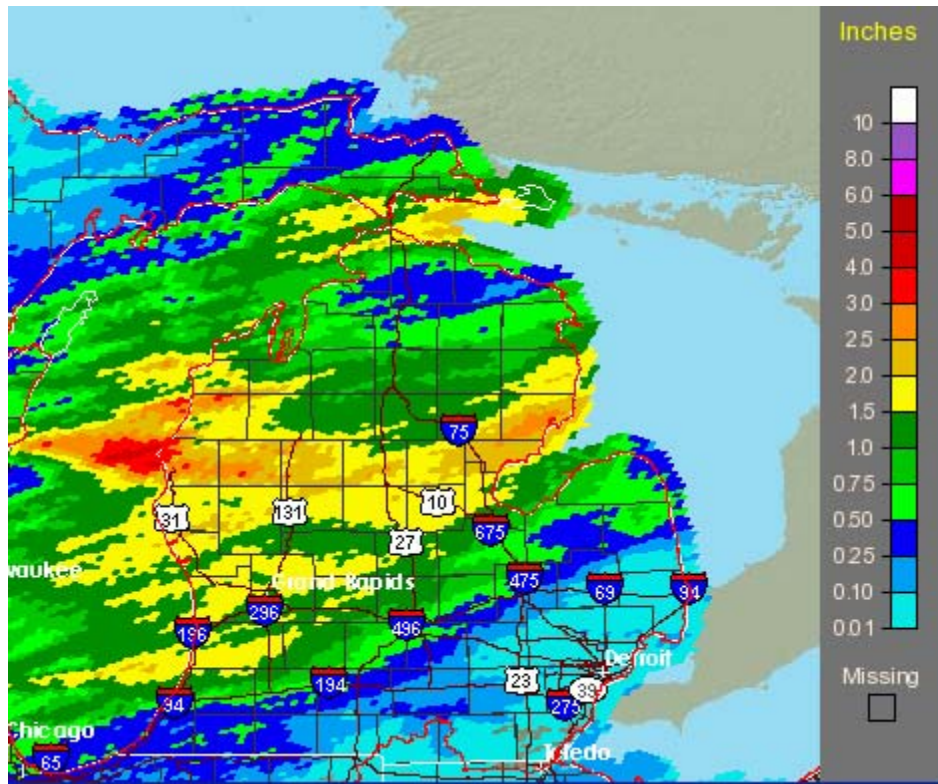


Fig. 11. Heavy Rainfall March 21, 2007.

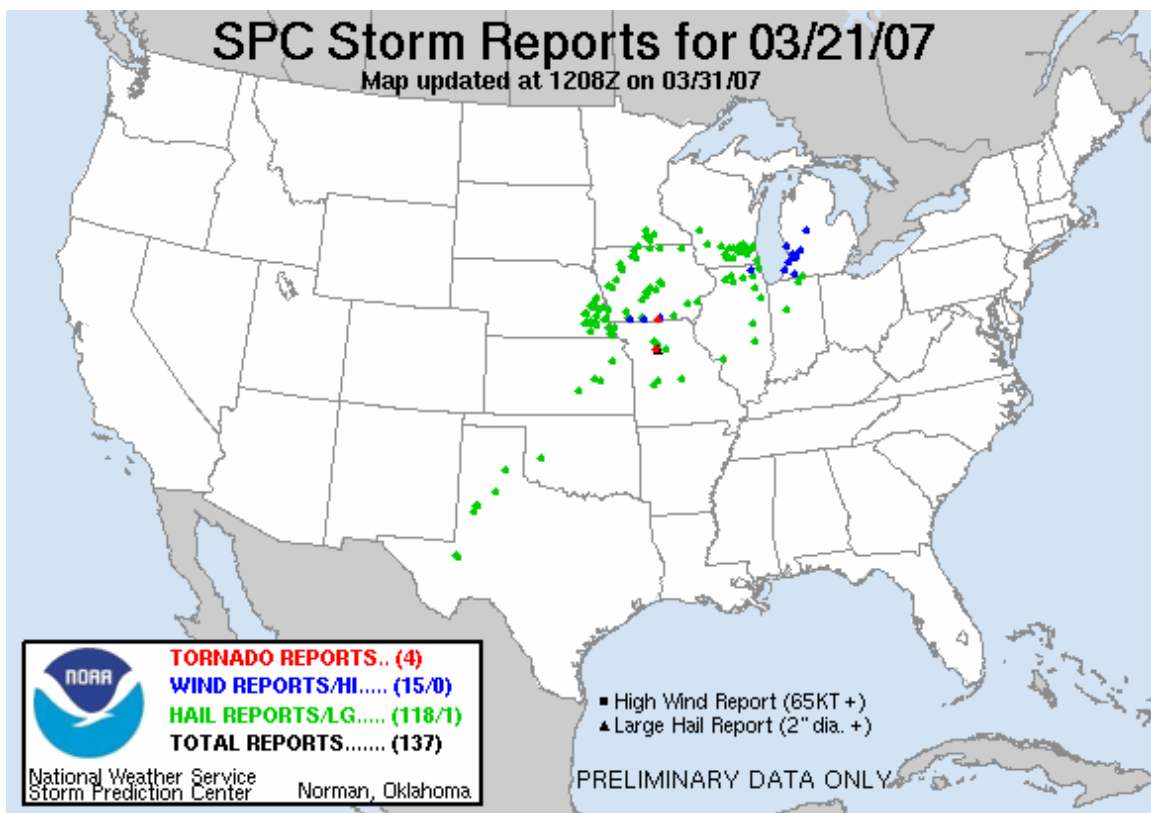


Fig. 12. Severe Weather Events of March 21st.