

Weather Synopsis

- Unseasonably warm weather will continue Wednesday and Thursday with highs in the mid 60s to around 70 degrees (Figure 1)
- Fog/low clouds expected tonight into Wednesday and again Wednesday night into Thursday
- Showers with some thunderstorms expected Thursday night into Friday
- Substantial cool down expected Friday into the weekend with more seasonal temperatures

Short Term (Tuesday evening through Thursday)

Main concern is low clouds and fog. Very dense fog was observed over Illinois this morning (Figure 2), and we expect the region of southerly flow currently seen over the Plains (Figure 3) to translate eastward into the mid-Mississippi Valley overnight, which will help advect the higher dewpoint air into the area. Southeast areas including Jackson and Battle Creek could be mostly cloudy all day Wednesday.

With these clouds, high temperatures Wednesday could be tricky. Much of Illinois has experienced low clouds and fog all day and consequently struggled to make it into the 60s. Similarly, it is possible that some areas south of I-96 stay socked in with clouds and light fog, resulting in significantly cooler high temperatures than we are forecasting. Clearly this is something to look at with the evening updates.

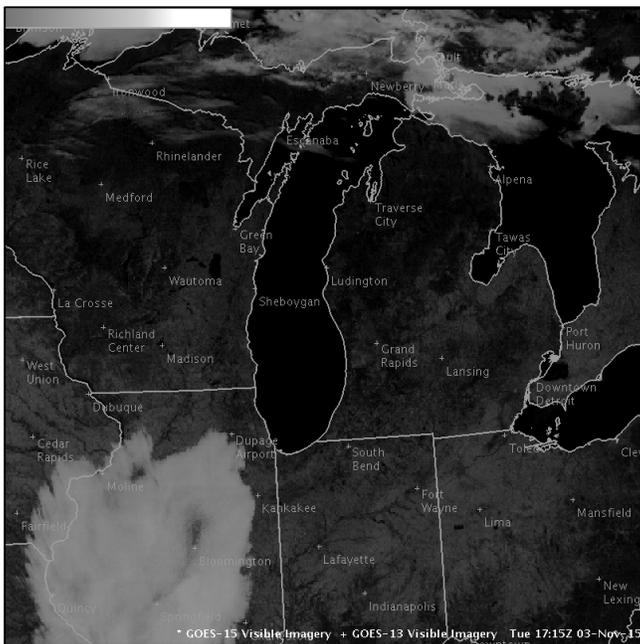


Figure 2: GOES Visible satellite image from 12:15 PM, 11/03/2015, depicting low stratus and fog over Illinois

There is a limited dense fog threat primarily along the I-94 corridor. Offsetting factors are a fairly mixed boundary layer and only marginally favorable vertical moisture profiles depicted by the models. That said, the models often poorly represent moist nocturnal boundary layers especially when winds are light, so we should prepare for the possibility of more significant fog and low clouds in this area.

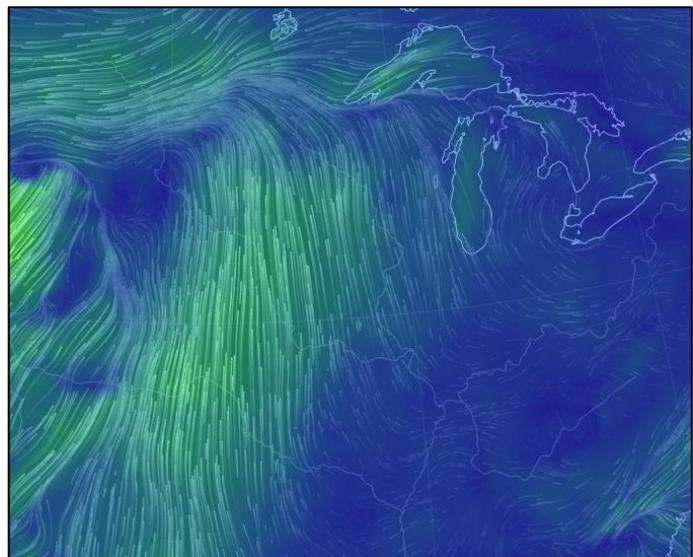


Figure 3: Stronger southerly winds currently over the Plains will translate eastward, helping to advect more moisture into the Great Lakes region.

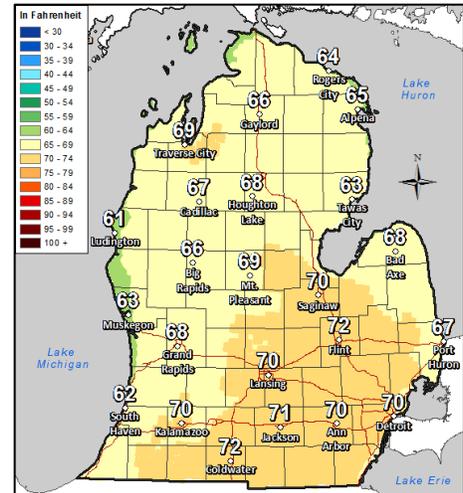


Figure 1: Lower Michigan High Temperature Forecast for Wednesday, November 4, 2015

Long Term (Thursday night through Tuesday)

The weather is set to take a drastic turn to more seasonal high temperatures over the weekend, and the medium range models have been consistent in showing this.

The large ridge over the great lakes will get pushed east by a couple of strong short waves. The first wave will push a cold front through the CWA late Thursday night and Friday morning (Figure 4). Look for showers to develop in advance of

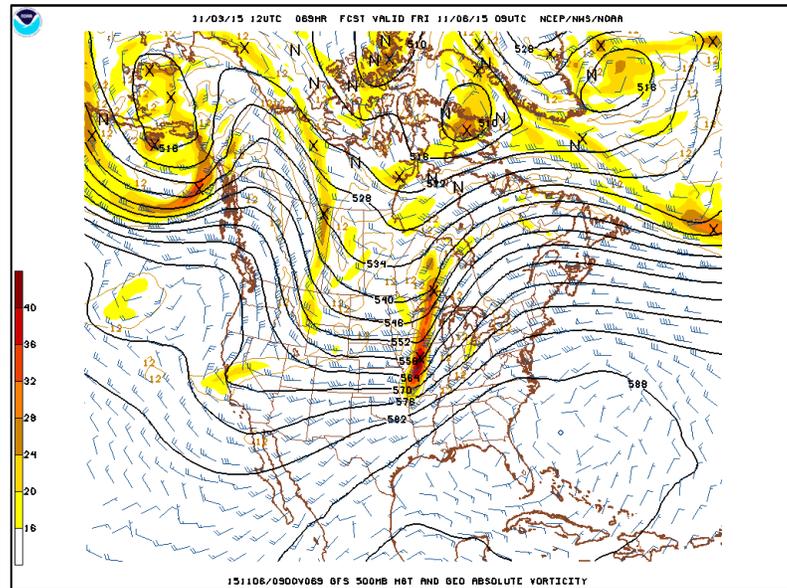
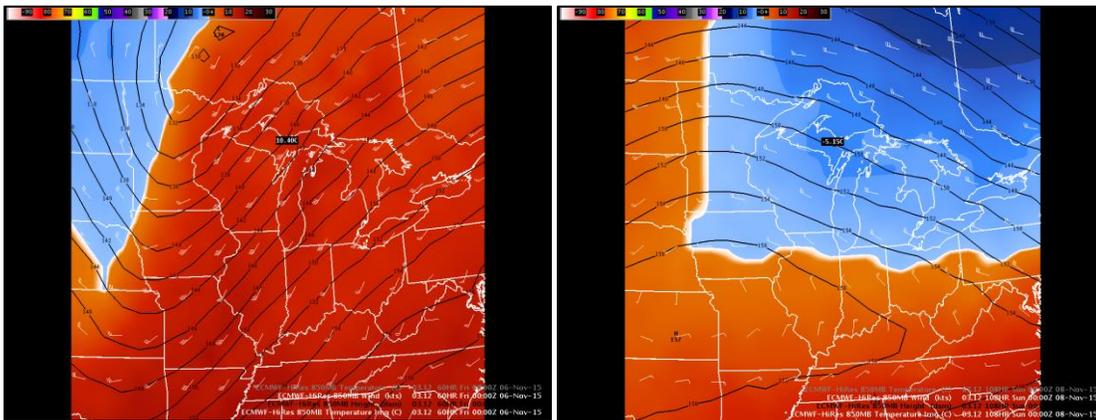


Figure 4: GFS model forecast 500 mb heights and absolute vorticity valid 4 AM Friday, Nov 6. Shown in this graphic is the first shortwave trough forecast to push through Thursday night into Friday morning.

the front. Models show some elevated instability present too and so we kept the mention of isolated thunderstorms during this time frame. We'll see some brief clearing and drying out behind the cold front Friday afternoon. Then, a stronger trough will push through the Great Lakes Saturday. The core of the cold air will move south across Southwest Lower Michigan on Saturday (Figures 5 & 6), and highs both Saturday and Sunday will only reach 50 or so. Isolated showers are possible Saturday, but since this shot of cold air is not as strong as last week, we don't expect snow to mix in.

Warm air advection begins early next week as the high behind the cold front moves east. Isolated to scattered showers are possible as the warmer air moves back into Lower Michigan.



Figures 5 & 6: ECMWF model forecast 850 mb heights, wind, and temperature valid Thursday evening and then Saturday evening. 850 mb temperatures are about 14 degrees colder by Saturday evening.

Marine

Earliest concern is fog potential. We believe the fog threat will gradually increase overnight into Thursday. Dense fog will be possible Wednesday night.

Sea Surface Temperature composite imagery indicates water temperatures in the lower 50s F across much of southern Lake Michigan. We expect that dewpoints will begin to exceed this starting Wednesday afternoon with increasing winds from the south. The strength of the winds makes it questionable how dense the fog will be allowed to get. By Thursday, expect waves north of Muskegon to exceed advisory thresholds given favorable duration and fetch of stronger winds from the south. Expect small craft advisory conditions to persist through Friday and into Friday night with waves reaching 6 feet or more at their peak.