

# Morning Weather Forecast: Sunday, May 8 2011

Submitted by kbowley on Sun, 05/08/2011 - 12:53

- [Central Facility](#)

Isolated convection probabilities remain slight for the next two days prior to the passage of our long-range trough Wednesday into Thursday. Though large amounts of CAPE remain in place for the next few days with lapse rates of up to 8-8.5 C/km, strong CIN will likely prevent any convective storms from forming today or tomorrow, though the likelihood tomorrow looks greater than today due to slightly reduced but still strong CIN. Three potential triggering mechanisms remain in place: weak 500 hPa cyclonic vorticity advection, dry line motion, or reaching/exceeding the convective high temperature. For both days, it appears that the most likely case for getting initiation is exceeding the convective temperature as high temperatures on both days will increase to the mid 90s, with temperatures of closer to 100 F required for initiation. In addition, the dry line will be slowly meandering through western and central Oklahoma over the next 48 hours, which may provide a kick if there is enough of a surge. However, model guidance suggests slow motion of the dry line. Finally, two weak surges of 500 hPa vorticity may provide for weak localized cyclonic vorticity advection over the region, though it is marginal at best.

Looking further into the extended range, model guidance tends to agree on our best synoptic forcing for precipitating weather late Wednesday into Thursday. A pulse of vorticity is being resolved in the 00Z GFS which may also result in weak convection overnight Tuesday into Wednesday. This initial pulse, along with the larger motion of the vorticity maxima, will become better resolved as the system works into the sounding network; however, most models seem to agree on the main vorticity maxima splitting into two lobes, with the southern lobe providing good vorticity advection to the south-central plains, while the northern lobe will have greater impacts on the northern plains. It appears at the moment that a convective line will form in the afternoon to early evening on Wednesday and should push through the SGP instrument array by the early hours of Thursday.

## Forecasts

Time of Day:

Morning

Day 0:

05/07/2011

Forecast for Day 0:

Convective conditions appear marginal at best today with convective temperatures of nearly 100 F and weak forcing otherwise. Dewpoints having risen into the 60s east of the dryline, providing ample surface moisture for storms if they can initiate. However, dewpoint depressions this afternoon will approach and exceed 30 F, and with lapse rates of 8-8.5 C/km, a substantial amount of CIN remains in place likely preventing the formation of storms. A weak pulse of 500 hPa vorticity will propagate through around 18 UTC this afternoon, making it poorly timed to interact with the best daytime heating. Furthermore, the dryline appears likely to stay nearly stationary today. Two regional WRF models are making attempts for form storms today along the dryline in western Oklahoma; however, both of these models are also resolving near-surface temperatures of up to and over 100 F. That said, 17UTC temperatures are running warmer than most models in western Oklahoma, so there is some potential, though if they form, propagation into the SGP domain remains questionable.

Day 1:

05/08/2011

Forecast for Day 1:

Conditions Monday remain similar to those of Sunday, though model guidance suggests a

reduction in CIN from forecasted values Sunday. Convective temperatures will remain near 100 F, while the dry line appears to again hold stationary. However, another weak pulse of vorticity may provide some cyclonic vorticity advection over north-central Oklahoma. The difference between day 0 and day 1 is that this pulse of vorticity appears to push through the region closer to 20-22 UTC, providing better timing with regard to the best daytime surface heating. CAPE values of up to and over 4000 J/Kg will be in place, but once again CIN values will be difficult to work against, with CIN of 50-100 J/Kg in our region providing a likely cap on the convection. Still, the overall situation seems to provide a better chance for convective initiation than that of day 0.

Meanwhile, our broad synoptic flow will continue moving into the Pacific northwest and down the west coast, with the upper-level trough continuing to strengthen.

Day 2:

05/09/2011

Forecast for Day 2:

Tuesday looks to have the least-likely chance of weather during the day, with the broad-scale synoptic flow organizing off to our west. Though there will still be CAPE in place, enough CIN should be available to hinder any convective development as our dryline drifts westward and no general energy in the upper levels is ejected into our region. To the west, model guidance is suggesting the vorticity field splitting into two general lobes, one further north while the other remains further south over Arizona. Meanwhile, our upper level wind structure will be somewhat disorganized with some interaction from the weak southerly branch of the jet. By late in the day these two pulses of energy should be evident as they begin to shift eastward into the high plains. The 00Z GFS also resolved a leading pulse of energy pushing through the south-central plains in the overnight hours Tuesday night into Wednesday morning. This could provide for weak convection over the SGP region, though exact details remain to be resolved.

Extended Outlook:

The main upper-level energy associated with this cyclone is anticipated to push through the plains Wednesday into Thursday, which could result in a strong convective line given the ample available energy in the lower troposphere. Timing will be key on this event, though at the moment it appears that precipitation will likely be occurring in the region in the 18Z Wednesday - 06Z Thursday range. Following this systems passage, there seems to be evidence of a relatively quick return of low-level moisture, providing the chance for further operations by late in the week.

Attached files:

1. [MC3E Weather Briefing 20110508.pdf](#)