

Afternoon Update

Submitted by kbowley on Mon, 04/25/2011 - 21:40

- [Central Facility](#)

Strong to severe convection fired along a northwest to southeast oriented boundary situated along and to the east of the I-44 corridor. This remnant boundary served as a focus for the convection as synoptic-scale ascent moved into the region ahead of an upper-level trough and roughly in the poleward-exit region of an upper-level jet streak. The convective band stretched south into northeastern Texas and eventually developed upscale into a relatively large MCS stretching from Arkansas into Missouri. Meanwhile, further to the west more isolated elevated convection formed in the late afternoon in the Texas panhandle immediately ahead of a 500 hPa vorticity maximum. As daytime heating was lost, the cores of these storms weakened leaving behind a region of more stratiform type precipitation that was working its way across southern Oklahoma.

Today should serve as a reasonable preview for tomorrow as a similar situation appears to be in the cards. Two areas of precipitation will impact Oklahoma. One of these areas which will be associated with potentially severe convection will be situated along the Red River valley and should remain clear of the operations area. However, a second region of initially elevated convection, should develop in western Oklahoma ahead of an ejecting shortwave trough. This region is likely to evolve into a stratiform region of precipitation as it eventually moves into the operations region.

Forecasts

Time of Day:

Afternoon

Day 0:

04/24/2011

Forecast for Day 0:

For the rest of tonight, the MCS to the east of the region will be the primary feature with a combination of severe weather including several tornadoes primarily to the south and east of a squall line located in central Arkansas as of 03Z. The evolution of this feature will be important in laying down an outflow boundary that should serve as the focus for convection tomorrow.

Meanwhile, the convection in western Oklahoma associated with the 500 hPa vorticity maximum should continue to weaken as it progresses to the east. The shortwave trough forcing this feature will be immediately replaced by a second more potent feature tomorrow evening/night. The relatively rapid progression of these features will keep moisture in the region as cold air advection/drying will be relatively minimal behind the lead vort max.

Day 1:

04/25/2011

Forecast for Day 1:

As discussed earlier, there will be two primary areas of precipitation tomorrow. A region of strong to severe storms should initiate near the Red River valley in a region of warm frontogenesis that should be focused along the left-over outflow boundary from today's convection. The frontogenesis will be occurring in conjunction with near surface cyclogenesis in the Texas panhandle, which will in turn be forced by a combination of height falls/ascent in association with an eastward moving middle-latitude trough and upper-level divergence associated with the poleward exit region of an upper-level jet streak. This convection could initiate as early as

the 21-00Z time frame, but should remain largely to the south and east of the operations region. However, the strength of the near-surface cyclone should be monitored tomorrow as a stronger than expected cyclone could result in elevated convection approaching the operations area as early as 00Z. While CAPE values will be relatively low (500-1000 J/kg) in the operations area, strong shear profiles could still result in strong convection.

However, there is a much higher probability of precipitation directly impacting the operations area in association with mid to upper-level ascent immediately ahead of a 500 hPa vorticity maximum beginning during the 03-06Z time frame. Elevated and relatively shallow storms should initiate in the region of the Oklahoma and Texas panhandles around 00Z. This area may evolve into a region of broader elevated, stratiform precipitation, particularly if the strength of the near-surface cyclone to the east is sufficient to wrap warm air advection back into the operations area in the north and northwest quadrant of the cyclone. The storms are not likely to become surface based in spite of the "coldness" of the upper-level trough as the boundary layer should be characterized by cold-air advection and descent.

Day 2:

04/26/2011

Forecast for Day 2:

The forecast for the following day will be relatively uneventful as any remaining showers and precipitation will be dwindling as the area becomes dominated by cold-air advection and upper-level anti-cyclonic vorticity advection. The resulting change should indicate a cessation in operations for the near-term.

Extended Outlook:

Focus will shift to the development of a lee cyclone and attendant cold front that will form ahead of a potent upper-level trough ejecting out of the Rockies on Saturday. However, in spite of the strength of the upper-level forcing precipitation/convection may remain scarce as the area will be strongly capped with 850(700) hPa temperatures running about 23(13C) respectively and moisture return from the Gulf of Mexico is questionable. However, there is a small possibility of upslope related precipitation developing along the front range behind the cold front as early as Saturday.