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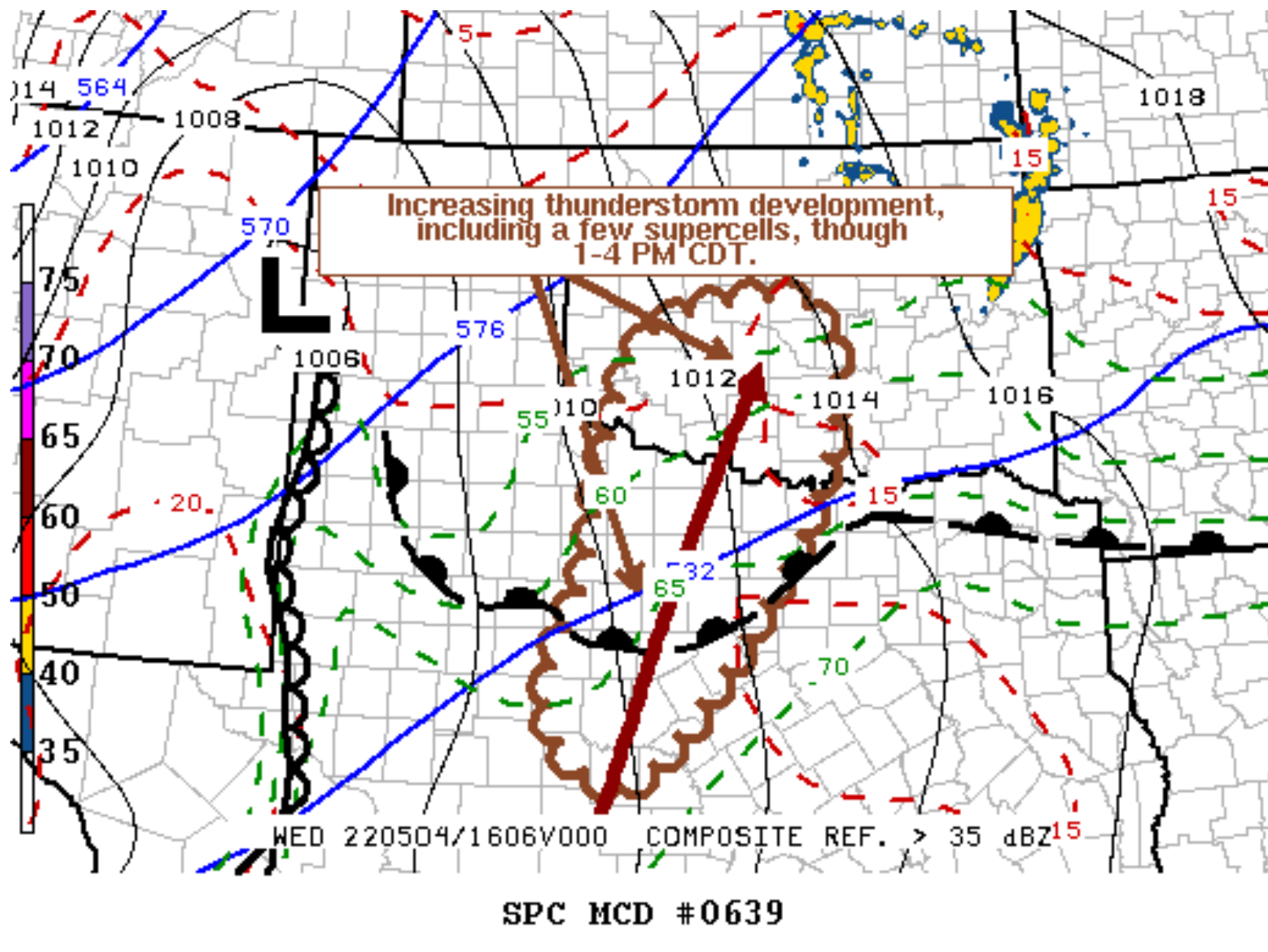
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Mesoscale Discussion 639

< Previous MD Next MD >



Mesoscale Discussion 0639
 NWS Storm Prediction Center Norman OK
 1128 AM CDT Wed May 04 2022

Areas affected...Parts of southwestern/central Oklahoma into the Texas Big Country

Concerning...Severe potential...Watch likely

Valid 041628Z - 041900Z

Probability of Watch Issuance...80 percent

SUMMARY...Increasing thunderstorm development, including a few supercells, appears possible as early as 1-4 PM CDT. These will pose a risk for large hail, and perhaps a couple of tornadoes.

DISCUSSION...Preceding the large-scale mid-level troughing within the mid-latitude westerlies across the Rockies, a much more subtle short wave impulse of subtropical eastern Pacific origin is evident satellite imagery progressing across the Texas South Plains into Big Country vicinity. It appears that increasingly divergent upper flow to the north and east of this feature will contribute to strengthening large-scale ascent, aided by lower/mid tropospheric warm advection. This may generally focus along a 30 kt southerly 850 mb jet, along which substantive low-level moistening is underway, beneath steep mid-level lapse rates associated with elevated mixed-layer air.

The northern edge of the plume of warmer air aloft is currently near the Red River, but latest Rapid Refresh suggest that large-scale ascent and boundary-layer warming will erode inhibition across the Texas Big Country, as far south as the Brownwood vicinity. Across northwest Texas into the Interstate 44 through I-35 corridors of southwestern Oklahoma, the boundary-layer remains potentially cool and stable, with low cloud cover slowing insolation to the north of the Red River.

The extent of boundary-layer destabilization possible across southwest Oklahoma prior to the onset of thunderstorm initiation remains unclear. However, moisture return above the surface-based layer appears sufficient for most unstable CAPE in excess of 2000 J/kg. Given at least elevated destabilization, it seems probable that the large-scale forcing for ascent will contribute to increasing thunderstorm development as early as the 18-21Z time frame. As this occurs, low-level and deep-layer shear are expected to become increasingly conducive to supercells conducive to large hail. Where the boundary-layer is able to destabilize (most likely across parts of northwest Texas into south central Oklahoma) a couple of tornadoes are possible.

..Kerr/Smith.. 05/04/2022

...Please see www.spc.noaa.gov for graphic product...

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