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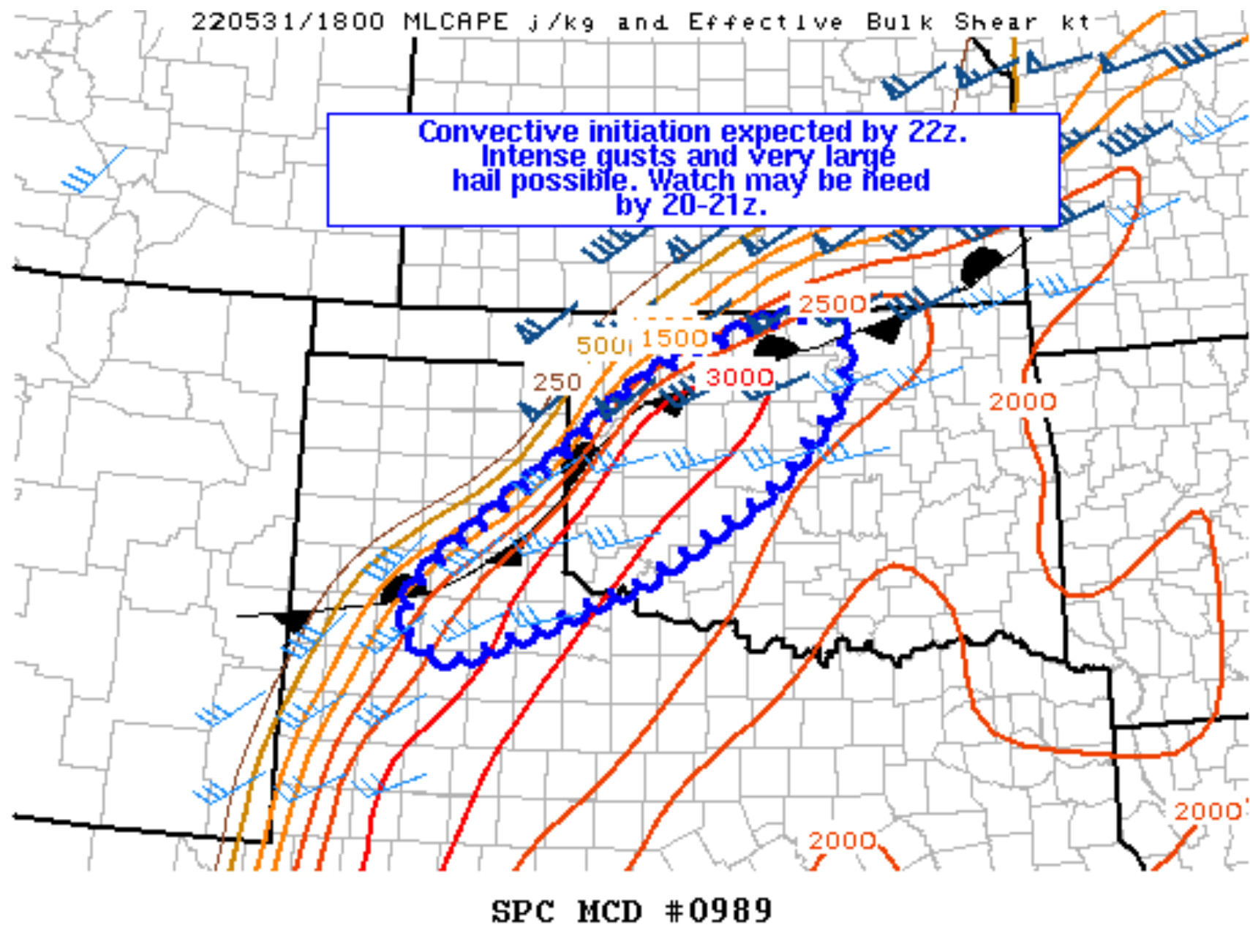
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## Mesoscale Discussion 989

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220531/1800 MLCAPE j/kg and Effective Bulk Shear kt



Mesoscale Discussion 0989  
NWS Storm Prediction Center Norman OK  
0121 PM CDT Tue May 31 2022

Areas affected...portions of northwest Texas into western and north-central OK

Concerning...Severe potential...Watch likely

Valid 311821Z - 312015Z

Probability of Watch Issuance...80 percent

SUMMARY...Scattered severe thunderstorms are expected to develop by 22z/5 pm CDT. Damaging gusts and very large hail will be possible across portions of northwest Texas into western and north-central Oklahoma. A watch will likely be needed by 20-21z.

DISCUSSION...Strong heating across northwest TX and western/central OK has allowed temperatures to climb into the mid 80s to low 90s this afternoon ahead of a quasi-stationary surface boundary. Dewpoints are generally in the upper 60s to near 70 F beneath steep midlevel lapse rates. This is supporting MLCAPE values greater than 2000 J/kg. Visible satellite shows increasing cumulus along and just ahead of the surface boundary. Vertical development within the cumulus field is noted, though weak MLCIN is precluding convective initiation at the moment. However, additional heating/warm advection and continued convergence along the surface boundary should erode capping by 19-20z, with convection developing soon thereafter.

Deep-layer flow is fairly weak through around 500 mb, though vertically veering winds will contribute to greater than 35 kt effective shear magnitudes, supporting cluster and supercell storm modes. Temperature-dewpoint spreads around 20-25 degrees with inverted-v sub-cloud thermodynamic profiles and large DCAPE values suggest convection may quickly become outflow dominant. This may support some upscale development into surging clusters via outflow interactions and a few gusts greater than 70 mph will accompany this activity. Given large instability, steep lapse rates and hodographs suggesting a broad inflow layer, any more discrete cells also may produce very large hail. Clusters/bowing segments should propagate east/northeast with time into portions of southwest and perhaps central OK later this evening before the severe threat diminishes after dark with eastward extent.

..Leitman/Kerr.. 05/31/2022

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

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