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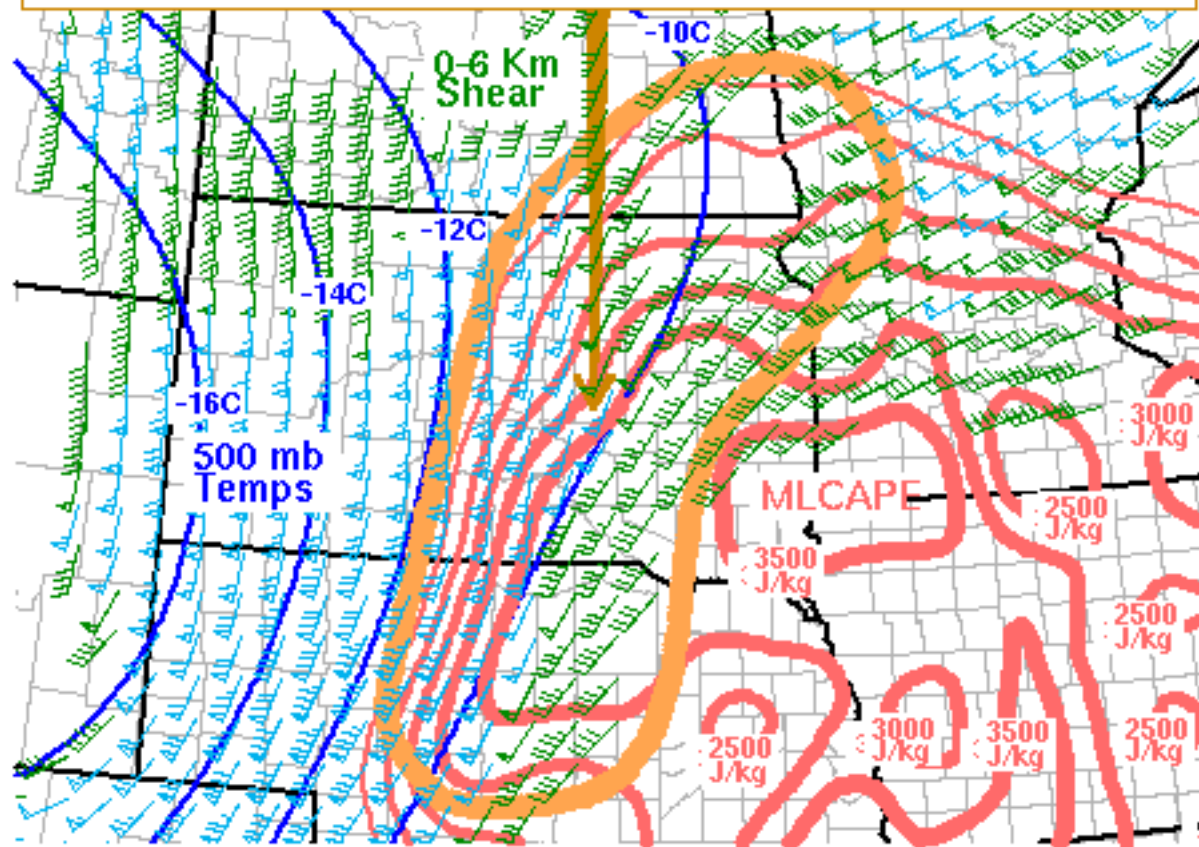
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## Mesoscale Discussion 1013

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SEVERE THREAT EXPECTED TO DEVELOP BY 21Z. LARGE HAIL AND WIND DAMAGE WILL BE THE PRIMARY THREATS INITIALLY BUT A TORNADO THREAT SHOULD DEVELOP AS CELLS MATURE



SPC MCD #1013

Mesoscale Discussion 1013

NWS Storm Prediction Center Norman OK

0232 PM CDT Tue Jun 13 2017

Areas affected...North-central Nebraska...East-central South Dakota...Southeast North Dakota

Concerning...Severe potential...Watch likely

Valid 131932Z - 132030Z

Probability of Watch Issuance...95 percent

SUMMARY...A severe threat is likely to develop this afternoon from central Nebraska north northeastward into southeastern North Dakota and west-central Minnesota. Large hail and wind damage will be possible after cells initiate but a tornado threat should also develop as cells mature. A weather watch will likely be needed across the region by 20Z.

DISCUSSION...The latest surface analysis shows a 999 mb low over

north-central Nebraska with a cold front extending south-southwestward from the low. Surface winds are backed across much of eastern South Dakota where low-level moisture is maximized with surface dewpoints in the lower to mid 70s F. This is contributing to a pocket of strong instability in eastern South Dakota and northeastern Nebraska where the RAP is estimating MLCAPE values in the 3000 to 4000 J/kg range. In addition, water vapor imagery shows a shortwave trough over the central and northern Rockies. A vorticity maxima associated with the shortwave trough is analyzed by the RAP across western Nebraska. As this feature moves across the central and northern Plains this afternoon, large-scale ascent will support the development of numerous thunderstorms along the cold front and to the northeast of the surface low into southeastern North Dakota and west-central Minnesota.

Forecast soundings along this corridor show favorable wind profiles for supercells with strong speed shear in the low to mid-levels with 0-6 km shear forecast to be in the 35 to 45 kt range. This combined with very steep mid-level lapse rates exceeding 8.5 C/km across parts of the MCD area will be favorable for large hail with supercells. Hailstones of greater than 2 inches in diameter will be possible within the strongest cores. Cells that do not form into supercells may still be severe with a threat for hail and wind damage. As the low-level jet increases in strength late this afternoon and as the storms become mature, a tornado threat will also be possible across the MCD area. The most favorable area for tornado development could be across northeastern South Dakota, southeastern North Dakota and west-central Minnesota.

..Broyles/Hart.. 06/13/2017

...Please see [www.spc.noaa.gov](http://www.spc.noaa.gov) for graphic product...

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