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Mesoscale Discussion 914

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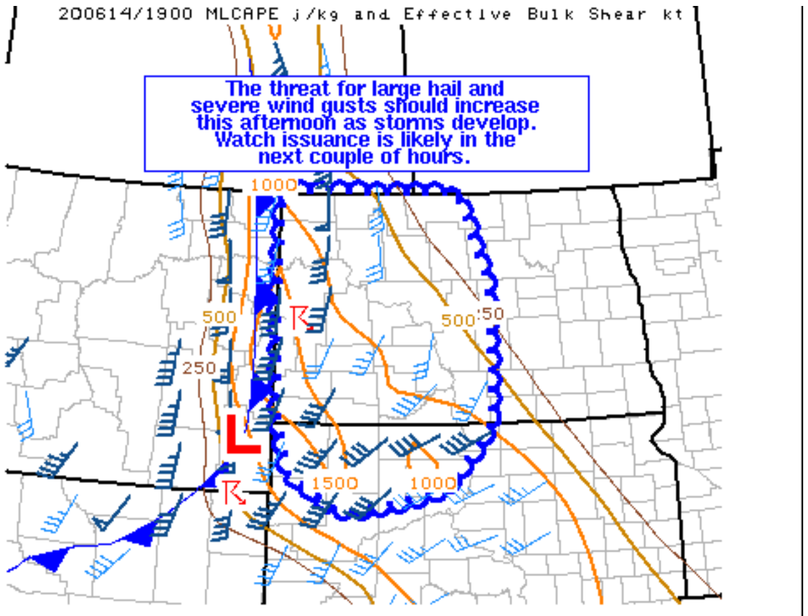

SPC MCD #0914

Mesoscale Discussion 0914
NWS Storm Prediction Center Norman OK
0220 PM CDT Sun Jun 14 2020

Areas affected...Portions of western/central ND and northwestern/north-central SD

Concerning...Severe potential...Severe Thunderstorm Watch likely

Valid 141920Z - 142115Z

Probability of Watch Issuance...80 percent

SUMMARY...The threat for large hail and severe wind gusts should increase this afternoon as storms develop. Watch issuance is likely in the next couple of hours.

DISCUSSION...19Z surface analysis shows a 1000 mb low over far southeastern MT near the ND/SD border, with a front extending northward from this low across far eastern MT. Morning clouds and precipitation associated with a lead shortwave trough have delayed surface heating a bit, but clearing skies and low-level airmass recovery are occurring across northwestern SD and southwestern ND in the wake of this activity. Large-scale ascent attendant to another small-scale perturbation embedded within broad south-southwesterly mid-level flow is supporting agitated cumulus across the Black Hills vicinity of western SD and far northeastern WY. As this ascent begins to overspread the destabilizing airmass across western ND/SD, convection should increase in both coverage and intensity this afternoon.

Current expectations are that surface temperatures in the mid to upper 80s across the warm sector will generally be needed to overcome a low-level inversion and support surface-based convection, which appears increasingly likely by 20-21Z (3-4 PM CDT). Steep mid-level lapse rates of 7.5-8.5 C/km which overlie a modestly moist low-level airmass to the east of the cold front will support peak afternoon MLCAPE of 1500-2500 J/kg. Modest low-level veering/strengthening of the wind field quickly transitions to mainly speed shear at mid/upper levels, which is supporting 40-50 kt of effective bulk shear. This deep-layer shear with a large meridional component should prove more than sufficient for supercells with at least an isolated large hail threat initially, mainly across western ND and northwestern SD. A tornado cannot be ruled out early in the convective life cycle while storms remain semi-discrete, although the low-level flow is not forecast to be overly strong.

As the front develops slowly eastward this afternoon and evening, some upscale growth and clustering of storms may occur into central ND and north-central SD as they move east-northeastward. Isolated severe and potentially damaging winds appear possible if this scenario occurs. Observational trends will be closely monitored for signs of robust convective initiation, with Severe Thunderstorm Watch issuance likely in the next couple of hours.

..Gleason/Guyer.. 06/14/2020

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

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