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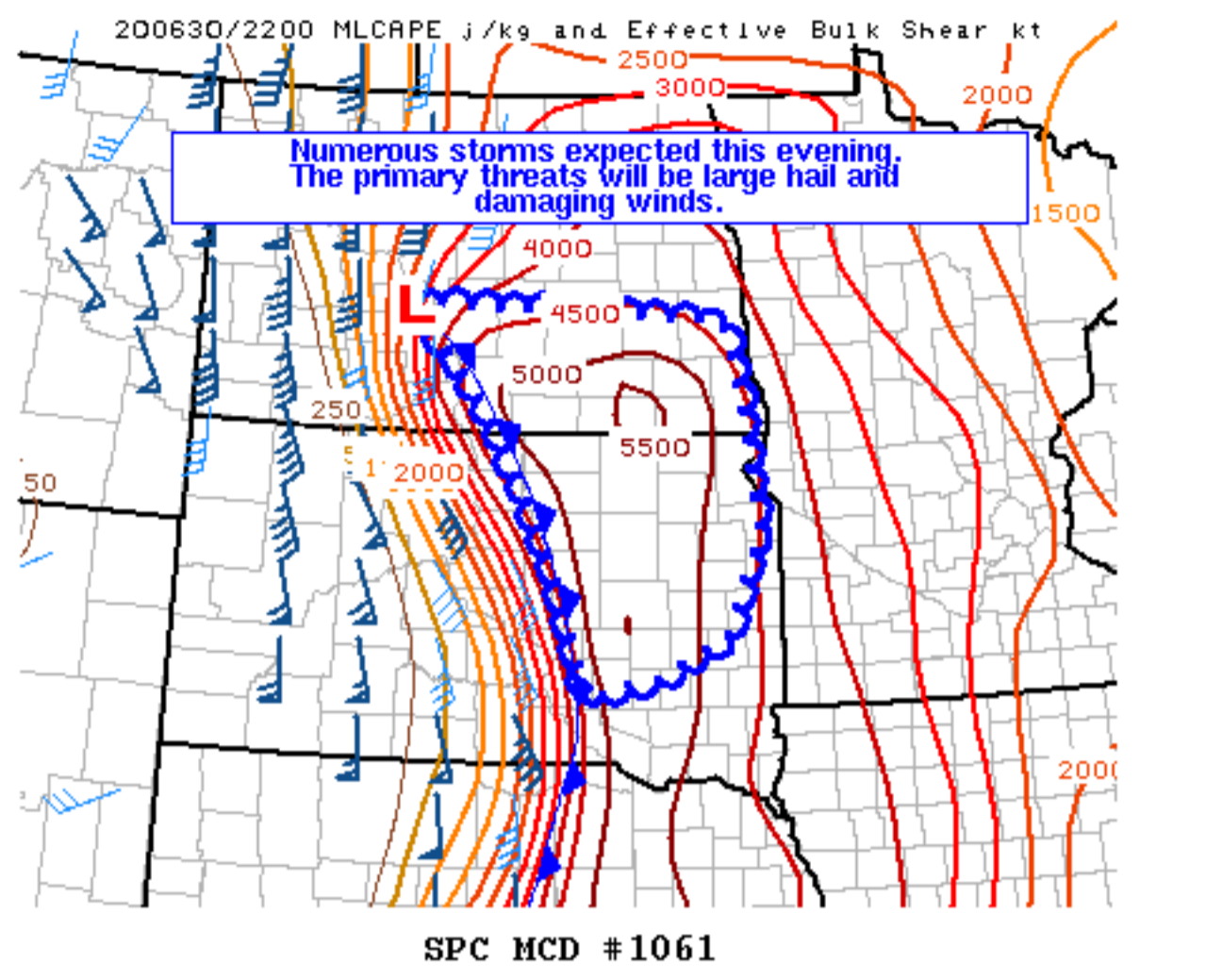
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Mesoscale Discussion 1061

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Mesoscale Discussion 1061

NWS Storm Prediction Center Norman OK

0525 PM CDT Tue Jun 30 2020

Areas affected...Southeast North Dakota and eastern South Dakota

Concerning...Severe potential...Watch likely

Valid 302225Z - 010030Z

Probability of Watch Issuance...80 percent

SUMMARY...Numerous storms are expected along and ahead of a cold front this evening. The primary threats will be large hail and damaging winds.

DISCUSSION...22Z surface analysis shows a strong cold front from southern North Dakota into central and east central South Dakota. The environment ahead of this front is very moist and unstable with dewpoints in the mid 70s and temperature in the upper 80s to near 90. This has yielded MLCAPE in excess of 5000 J/kg with CINH recently eroded. Most of the upper-level forcing is farther west and thus, storm development will likely be confined to low-level boundaries. This includes the cold front which is surging eastward across southern North Dakota and central South Dakota and a confluence zone east of Aberdeen. Despite very strong instability, storms may struggle to organize (similar to the storms in Brown County, SD between 22Z and 2220Z) due to the warm nose around 700mb (per RAP soundings) and relatively weak flow above 1-2 km (per ABR VWP). In addition, storm motions may take some updrafts to the cool side of the cold front rather quickly which may also limit the duration of any severe threat. However, despite these negative factors, storms are expected to be numerous along the front and mid-level lapse rates are very steep (~8.5 C/km per SPC mesoanalysis). Therefore, even if storms remain somewhat loosely organized, there will be a threat for large hail and damaging winds with the stronger updrafts which are able to realize faster mid-level parcel accelerations associated with the steep lapse rates.

..Bentley/Guyer.. 06/30/2020

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

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