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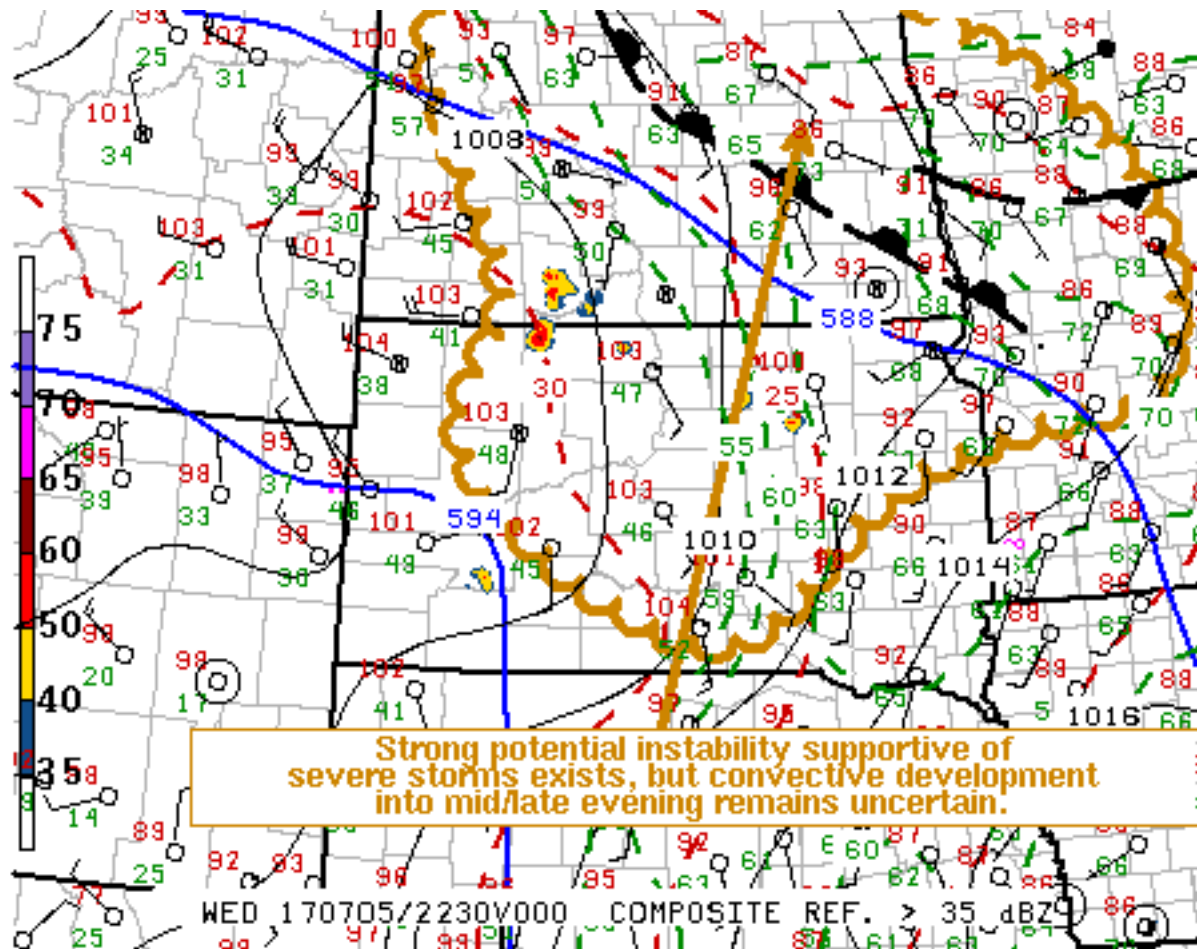
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## Mesoscale Discussion 1238

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### SPC MCD #1238

Mesoscale Discussion 1238

NWS Storm Prediction Center Norman OK

0552 PM CDT Wed Jul 05 2017

Areas affected...The Dakotas and adjacent portions of Minnesota

Concerning...Severe potential...Watch possible

Valid 052252Z - 060115Z

Probability of Watch Issuance...40 percent

SUMMARY...Through 7-9 PM CDT, severe weather potential may remain largely confined to isolated/widely scattered storm development across parts of western North Dakota into western and central South Dakota. The initiation of storms across north central/eastern North Dakota into central Minnesota remains uncertain, but more probable after dark than before.

DISCUSSION...Moderate to strong potential instability appears to have developed across portions of the region, mainly where boundary

layer moisture is seasonably high, generally on the leading edge of a plume of warm elevated mixed layer air advecting eastward across the northern Plains, ahead of a weakening cold front just south of the international border area. Largest CAPE (in excess of 3000 J/kg) appears focused within a narrow corridor east of Minot ND, through areas near/northeast of Fargo ND, Alexandria and St. Cloud MN. This is generally within the overlap of the stronger boundary layer heating, and the higher boundary layer moisture content, where mid-level warming probably is maintaining capping.

Well to the south of a vigorous short wave impulse digging across northern Manitoba into northwestern Ontario, large-scale forcing for ascent appears generally weak. And ongoing thunderstorm development across parts of western North Dakota into north central South Dakota appears largely where convective temperatures have been reached within the drier, hotter and more deeply mixed boundary layer environment. Even though CAPE supporting this activity is considerably more modest than in the more moist boundary layer air, veering wind profiles with height beneath 30-40 kt northwesterly 500 mb flow is contributing to strong shear. This could continue to enhance activity as it propagates southeastward, with a risk for locally strong surface gusts and some hail into the 00-02Z time, before the boundary layer begins to decouple.

Otherwise, the possible initiation of thunderstorms within the more moist and potentially unstable environment remains more unclear. It is possible that any such development may await nocturnal southerly low-level jet strengthening associated with boundary layer decoupling, generally during the 02-05Z time frame.

..Kerr/Thompson.. 07/05/2017

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

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