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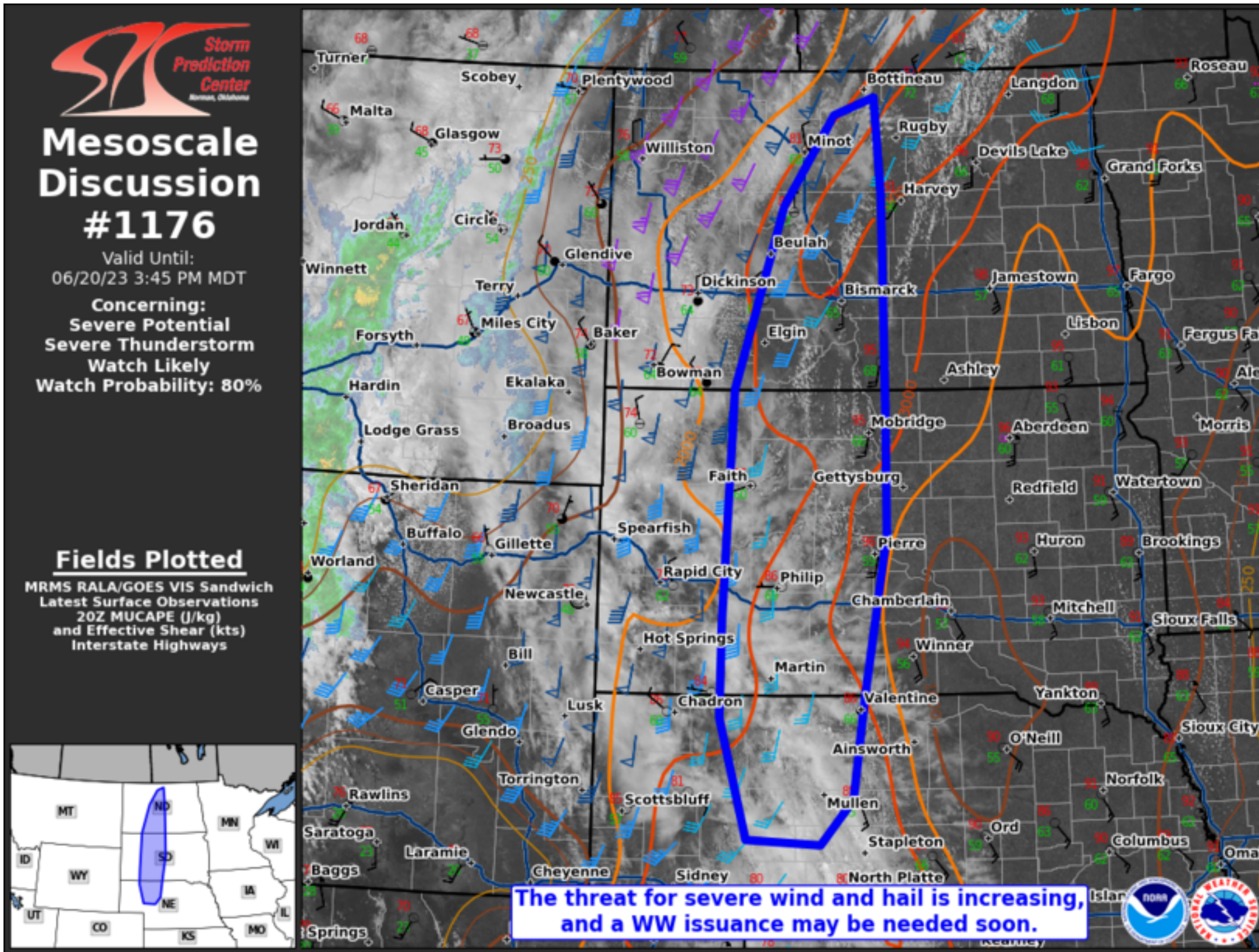
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Mesoscale Discussion 1176

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Mesoscale Discussion #1176
 Valid Until: 06/20/23 3:45 PM MDT
Concerning:
 Severe Potential
 Severe Thunderstorm
 Watch Likely
 Watch Probability: 80%

Fields Plotted
 MRMS RALA/GOES VIS Sandwich
 Latest Surface Observations
 20Z MUCAPE (J/kg)
 and Effective Shear (kts)
 Interstate Highways



Mesoscale Discussion 1176
 NWS Storm Prediction Center Norman OK
 0314 PM CDT Tue Jun 20 2023

Areas affected...portions of the western into central Dakotas

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

Valid 202014Z - 202145Z

Probability of Watch Issuance...80 percent

SUMMARY...The severe threat is increasing across western and central parts of both North Dakota and South Dakota, with large hail and severe gusts the primary hazards. A Severe Thunderstorm Watch issuance will likely be needed.

DISCUSSION...Convective initiation is underway ahead of an approaching surface cold front, driven by low-level deep-moisture convergence, and gradually increasing upper-level divergence associated with the approaching mid-level trough. Mostly clear skies ahead of the cold front has allowed for ample destabilization of the boundary layer. Surface temperatures have warmed to over 90 F, amid mid 60s F dewpoints, yielding over 3000 J/kg MLCAP (given 7.5+ C/km mid-level lapse rates overspreading the Dakotas), with CINH erosion noted in the 20Z mesoanalysis. Mid-level flow is roughly parallel with the surface cold front, with the stronger speed shear (i.e. 40+ kts of effective bulk shear) lagging the front to the west. Nonetheless, ample buoyancy and modest deep-layer shear attempting to precede the cold front will support the development of several multicell clusters, short line segments, and perhaps a transient supercell, all of which will be capable of producing severe hail/winds. Given the number of storms expected ahead of the surface cold front, a WW issuance will likely be needed.

..Squitieri/Hart.. 06/20/2023

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

ATTN...WFO...ABR...BIS...LBF...UNR...

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