A Preliminary Analysis of the 22 September 2001 Clay County, NE Tornadoes

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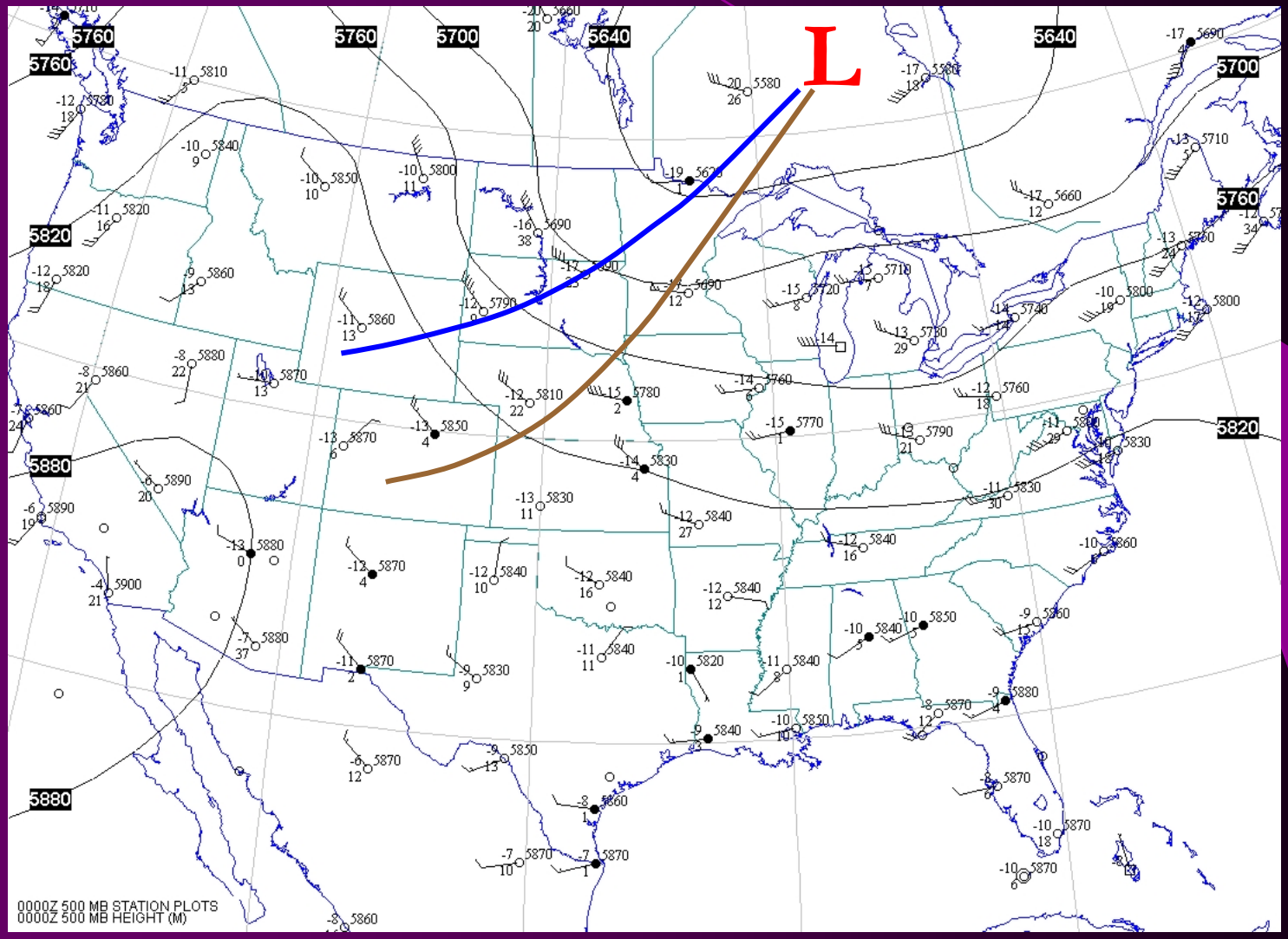
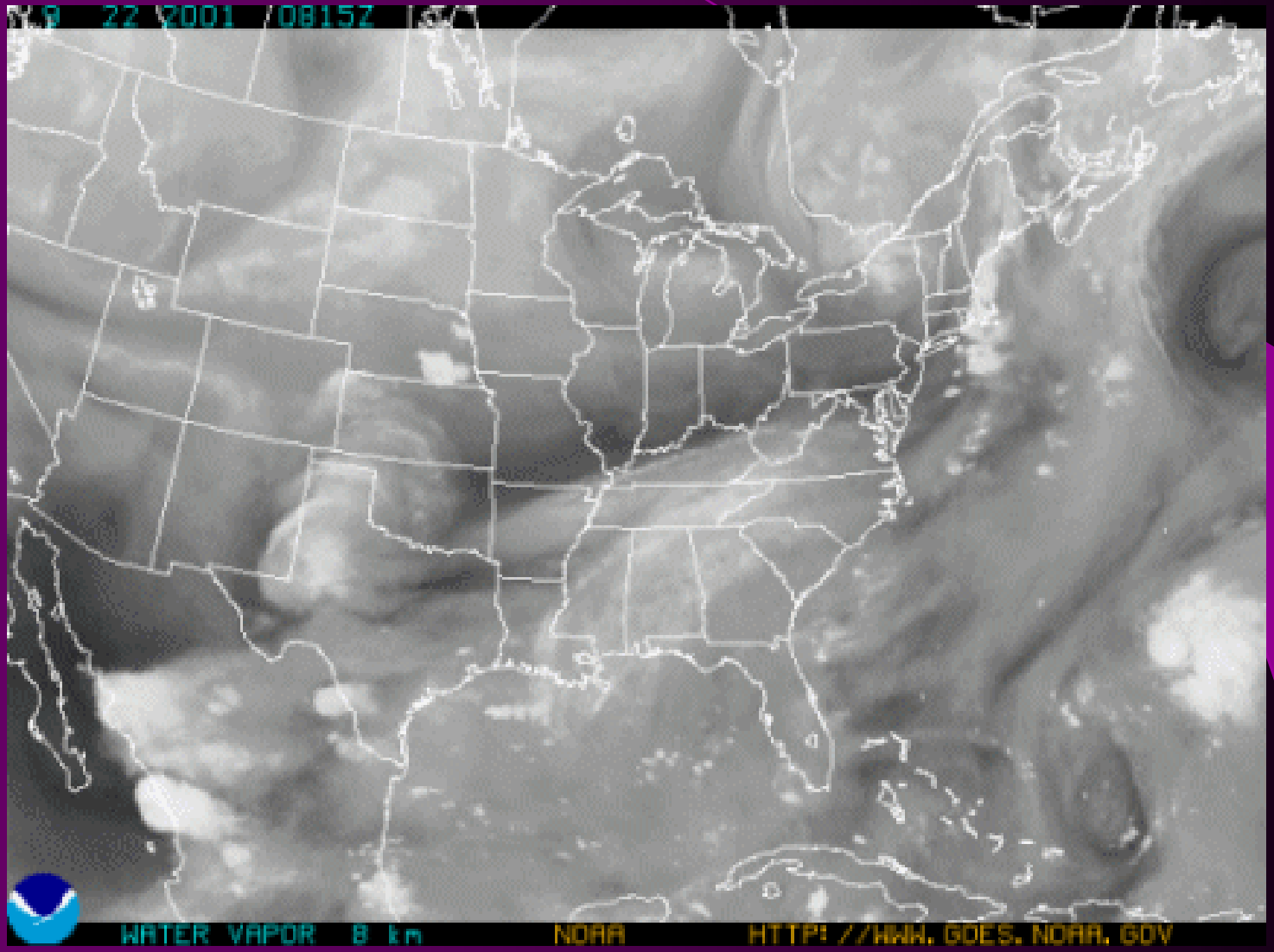
Introduction

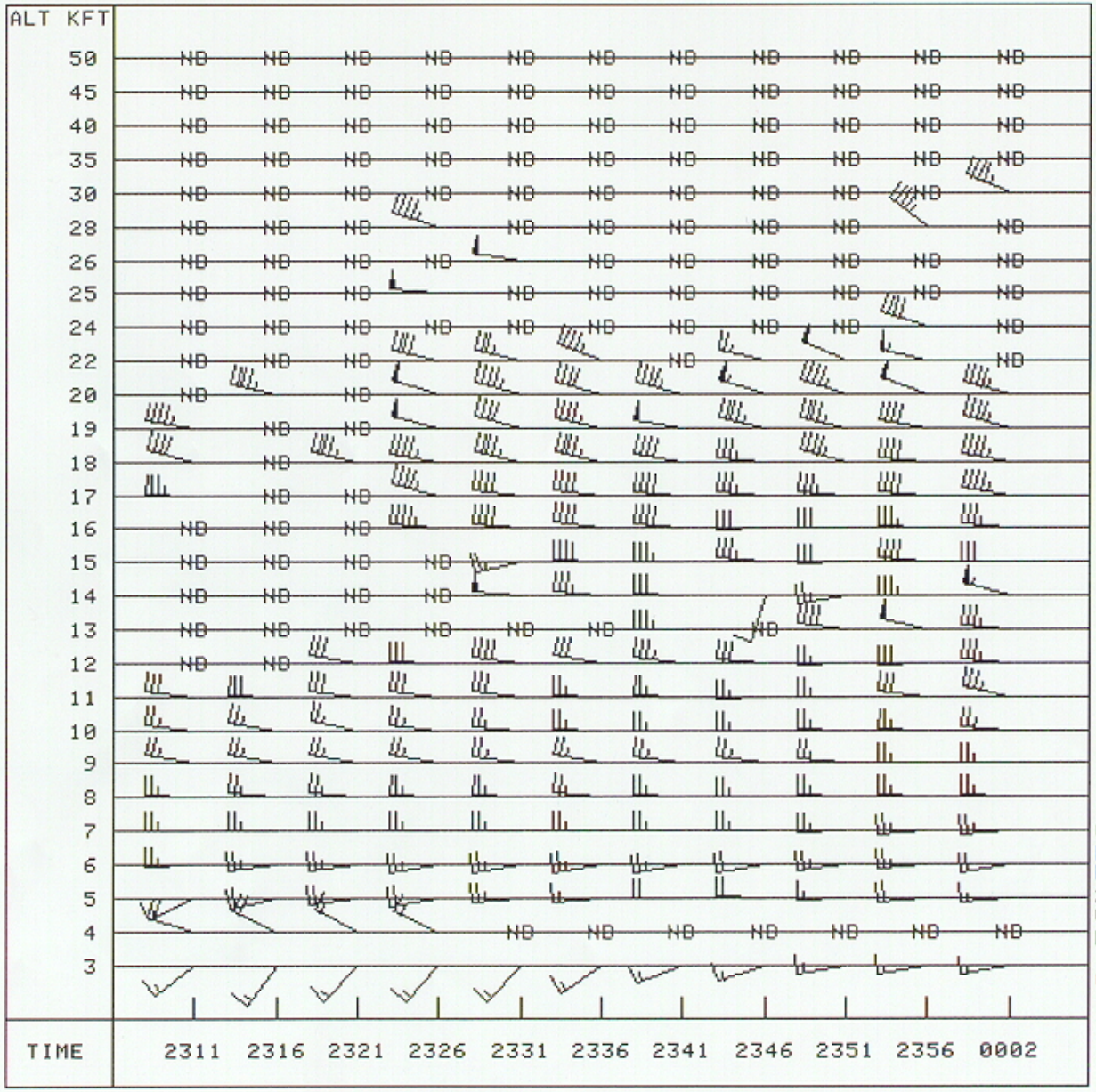
- Slow moving supercell produced two tornadoes in Clay County, Nebraska
- “Main” tornado was responsible for F3 damage
  - 8 mile path length
  - 0.5 to 0.8 path width
- Three farmsteads received significant damage, but fortunately there were no injuries
- Entire lifecycle of this supercell was less than 30 miles from the KUEX radar!

500 MB Analysis at 00 UTC



Water Vapor





09/27/01 09:34
VAD WIND PROFILE
48 VWP
09/23/01 00:02
RDA:KUEX 40/19/15N
2057 FT 98/26/31W

MODE A / 11

MAX=284 DEG 56 KT
ALT: 14000 FT

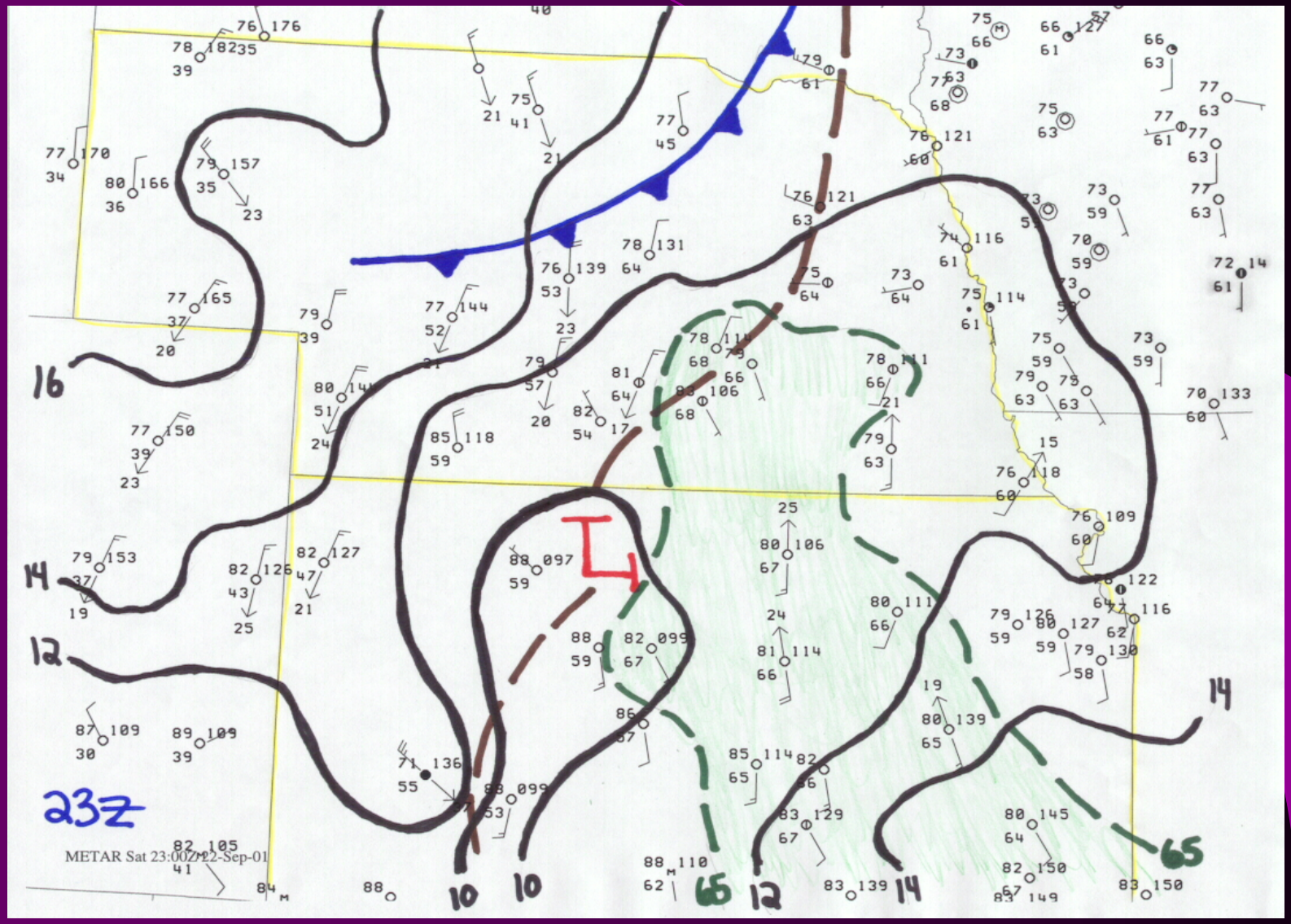
0 KT RMS
4
8
12
16

FL= 1 COM=1

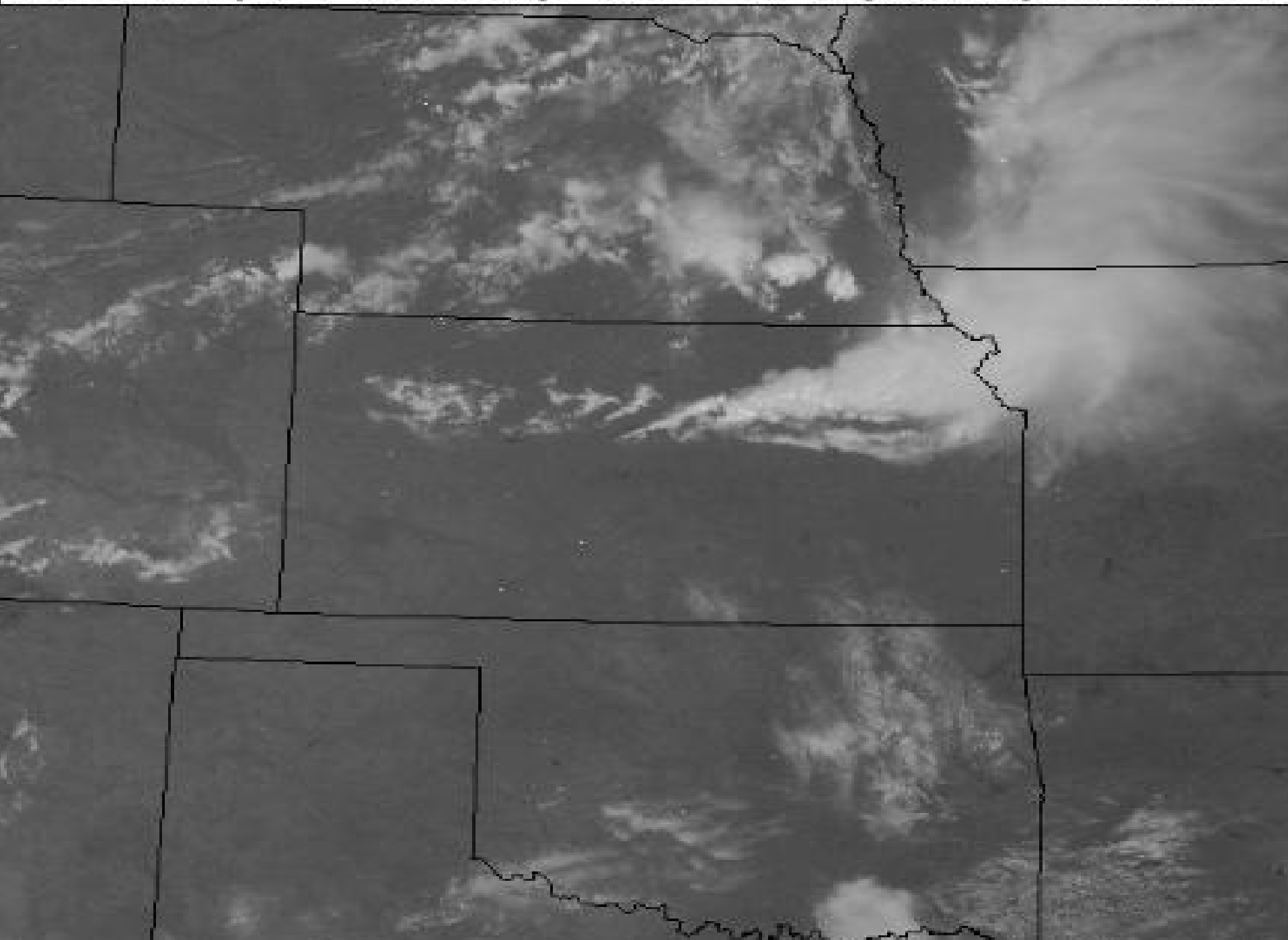
Q15 R 0923 R
PROD RCVD: STP RPS
KUEX 0923
27/0925 DELTA SYS
CAL = 0.75 DBZ
HARDCOPY

GRAY SCALE

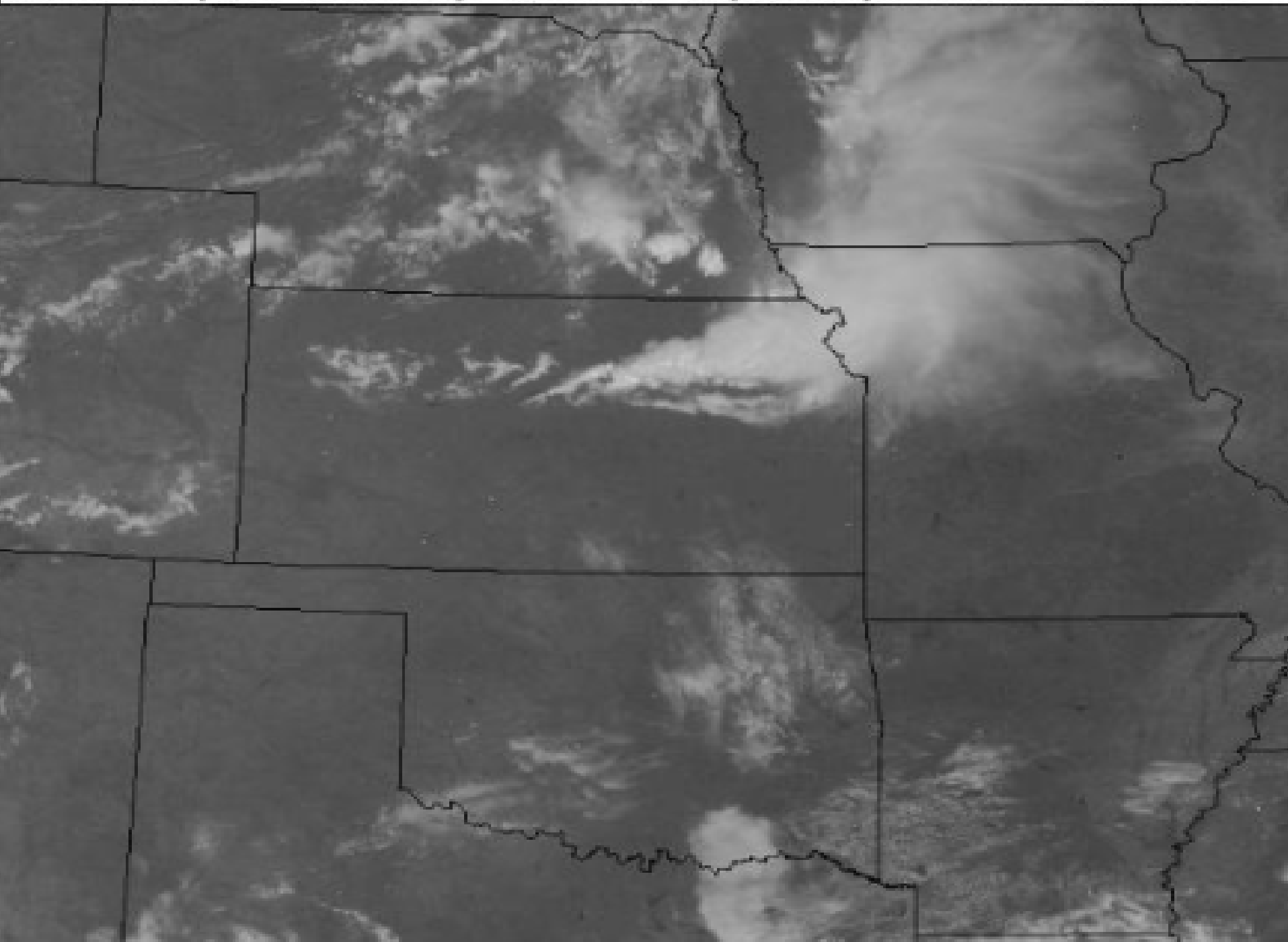
Surface Map at 23 UTC



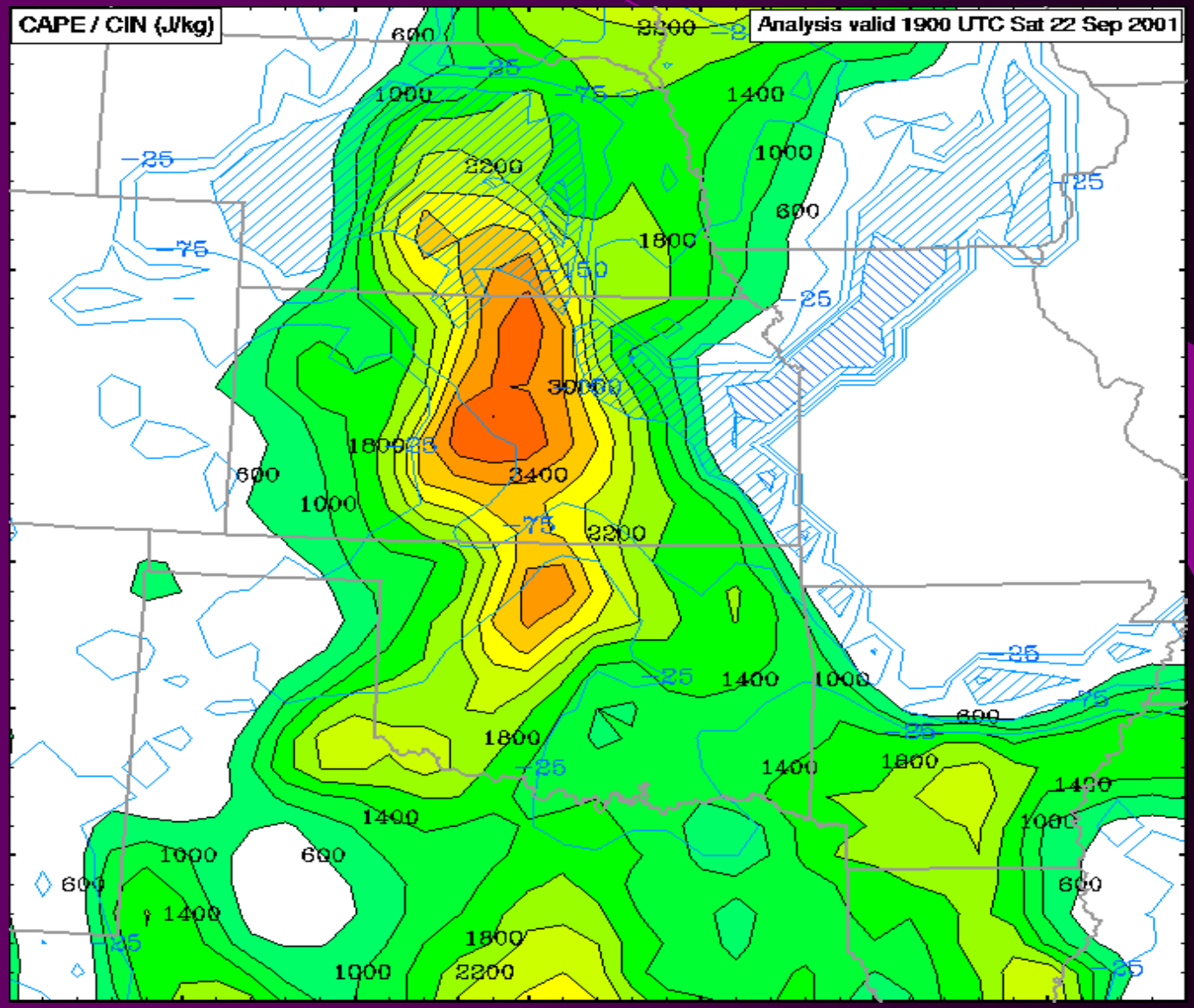
1645 UTC 22 Sep 2001 Visible Image (c)2001 UCAR http://www.rap.ucar.edu/weathe



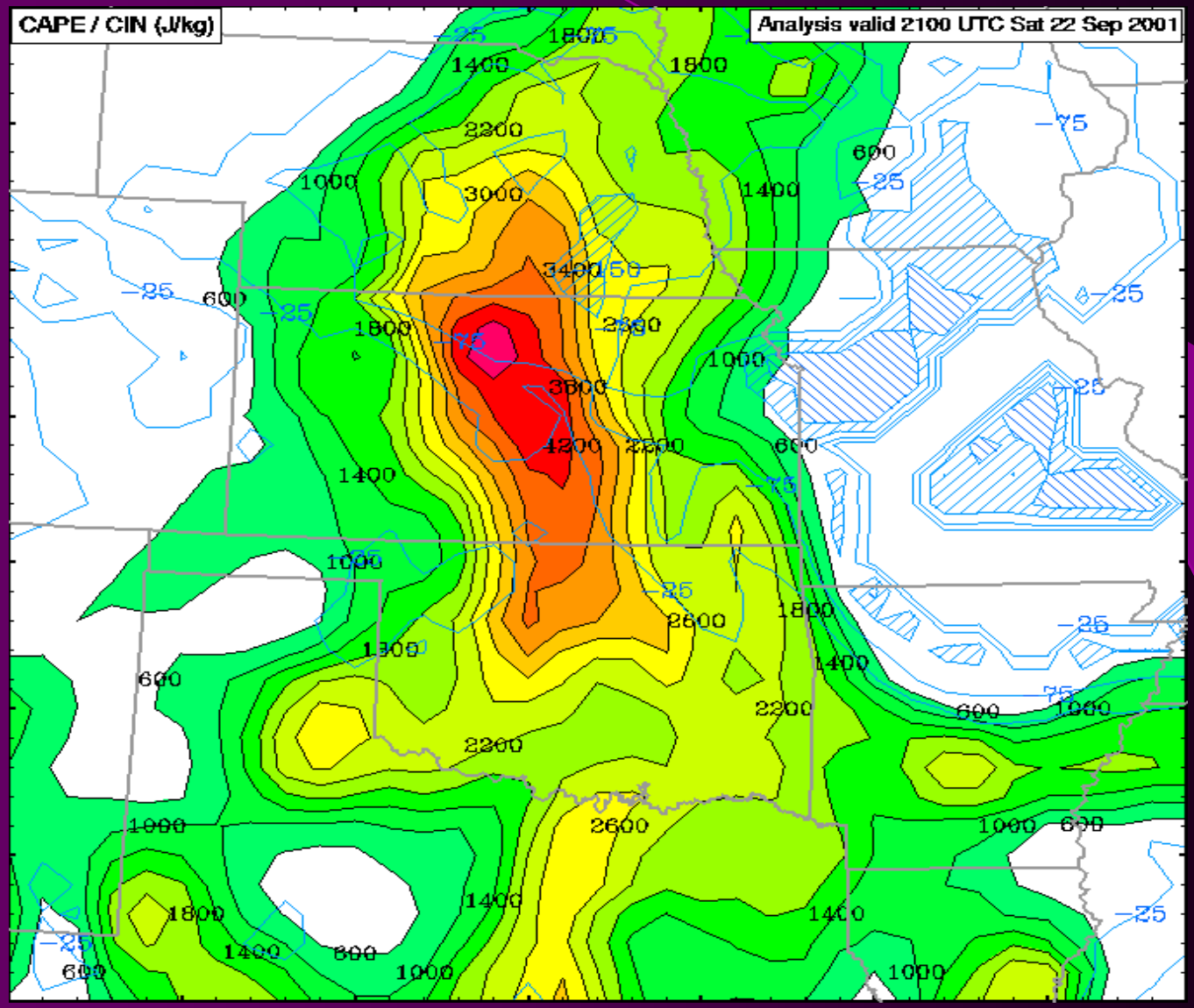
1645 UTC 22 Sep 2001 Visible Image (c)2001 UCAR http://www.rap.ucar.edu/weather/satellite



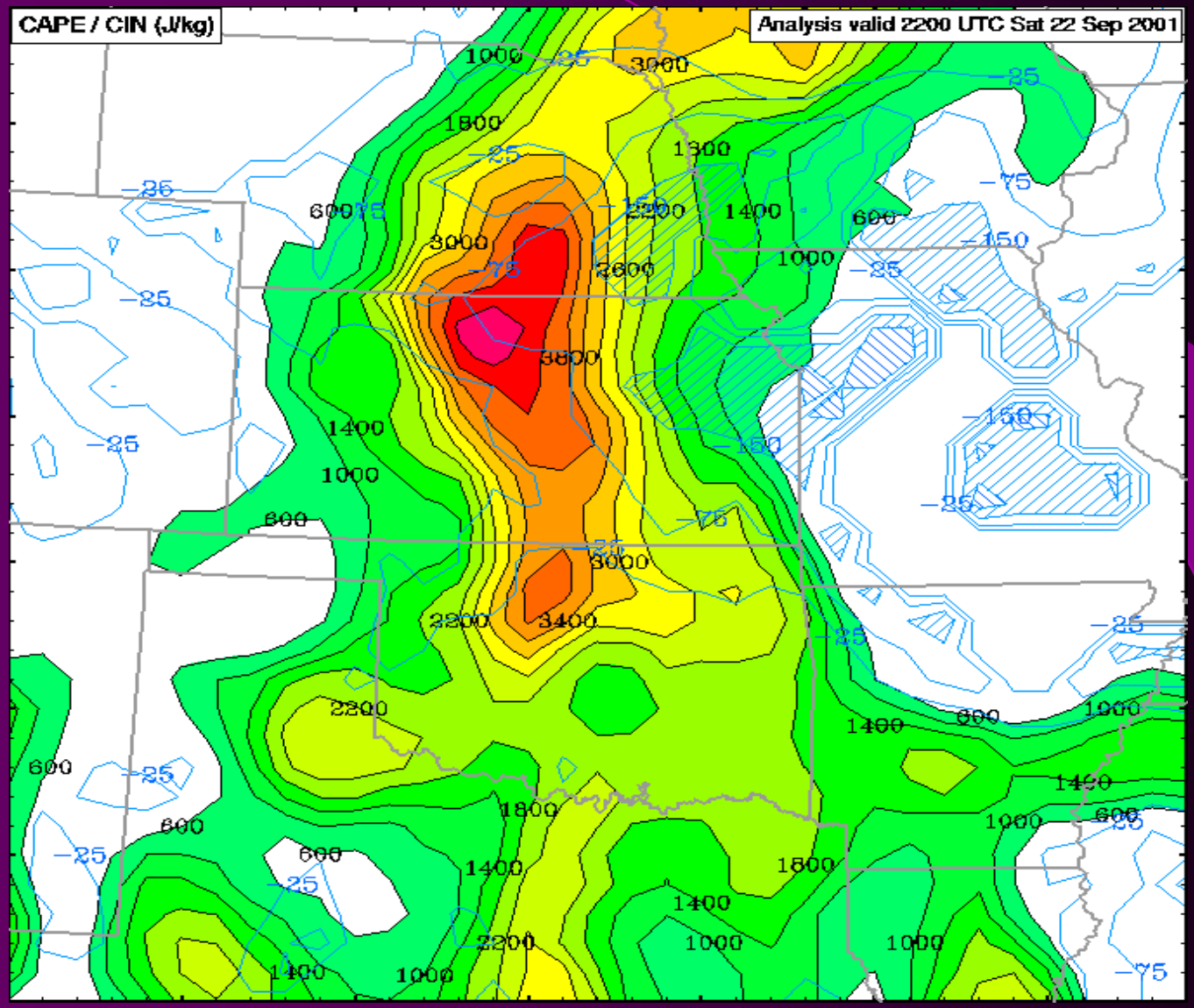
CAPE/CIN at 19 UTC



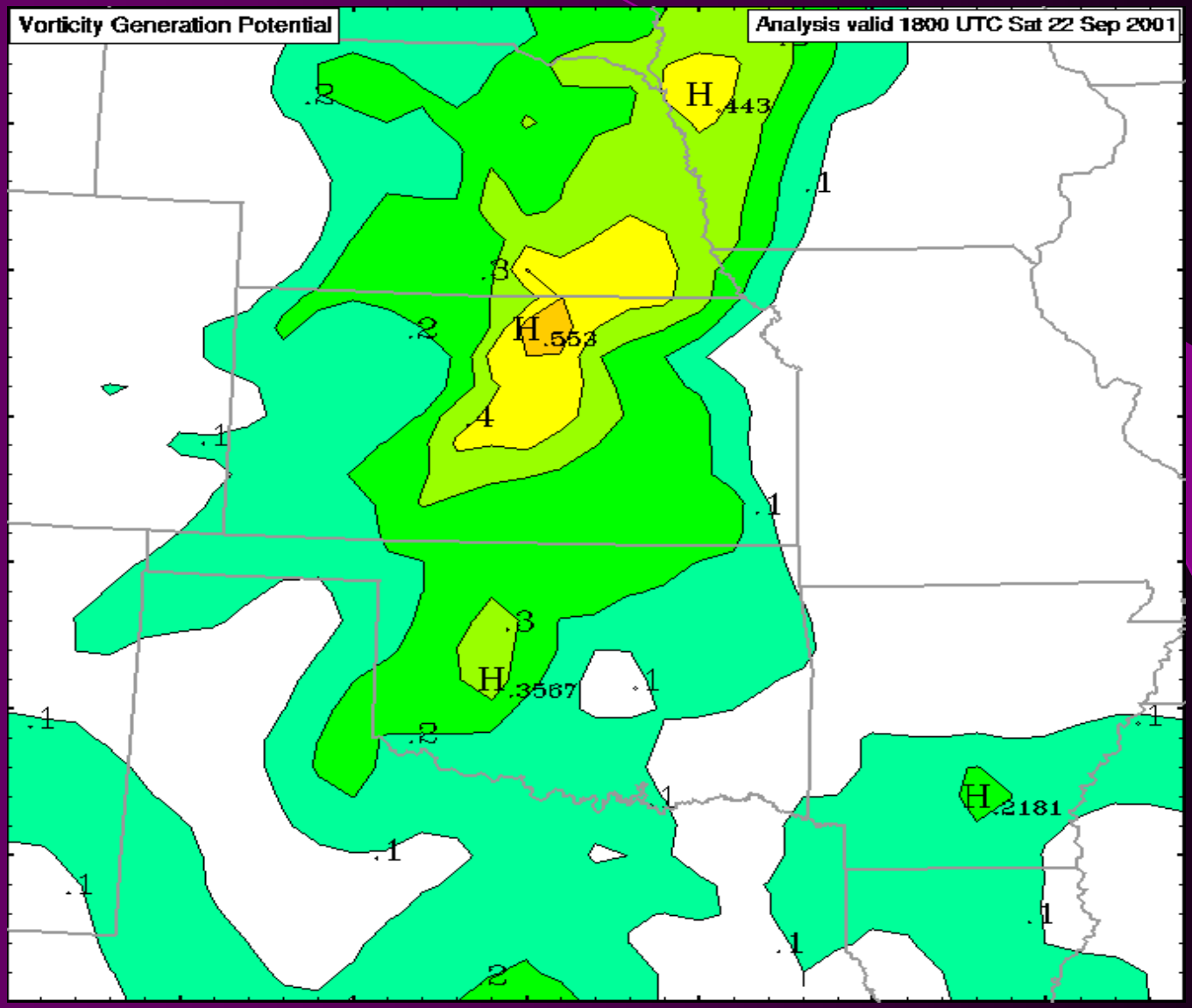
CAPE/CIN at 21 UTC



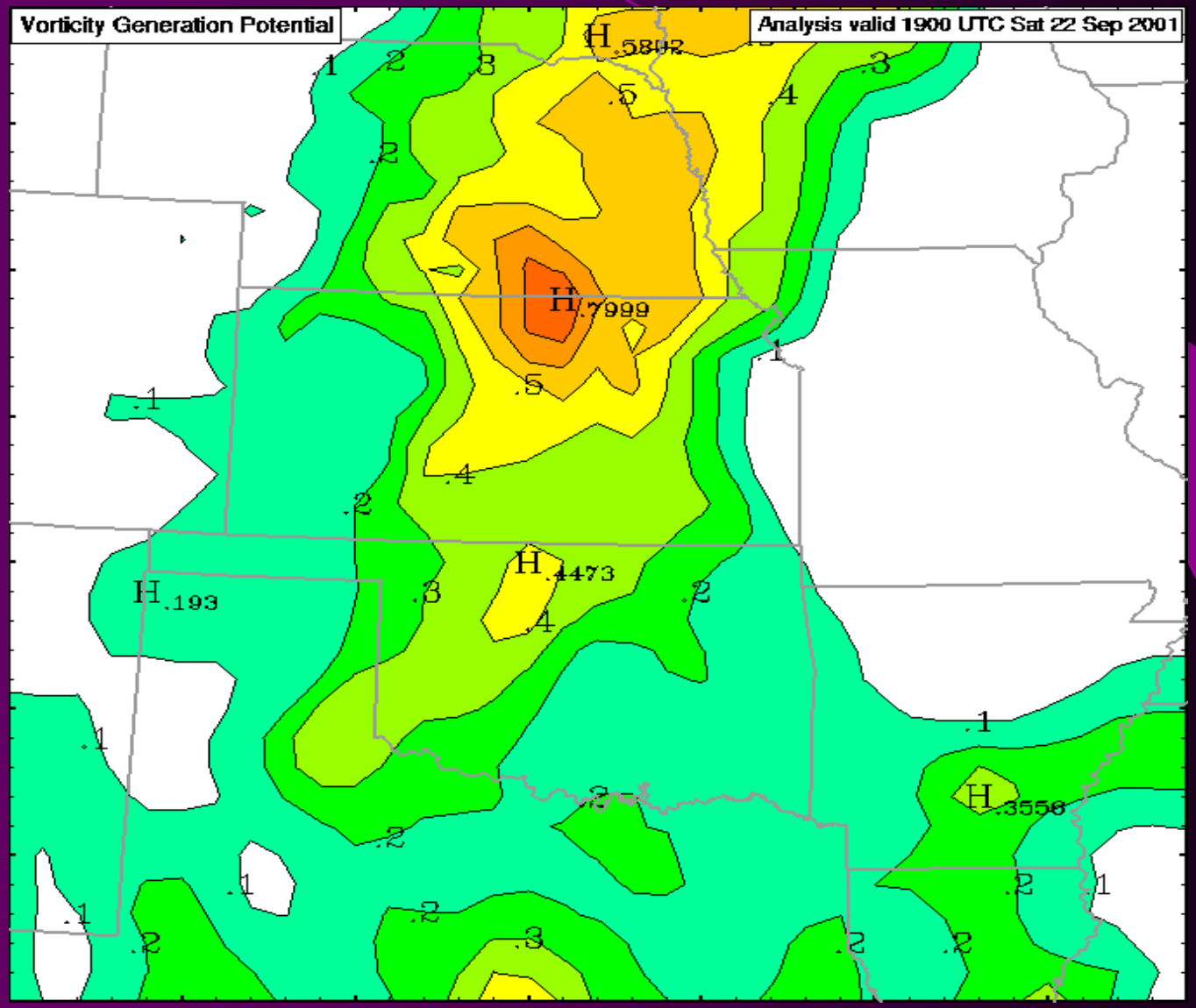
CAPE/CIN at 22 UTC



Vorticity Generation Parameter



Vorticity Generation Parameter



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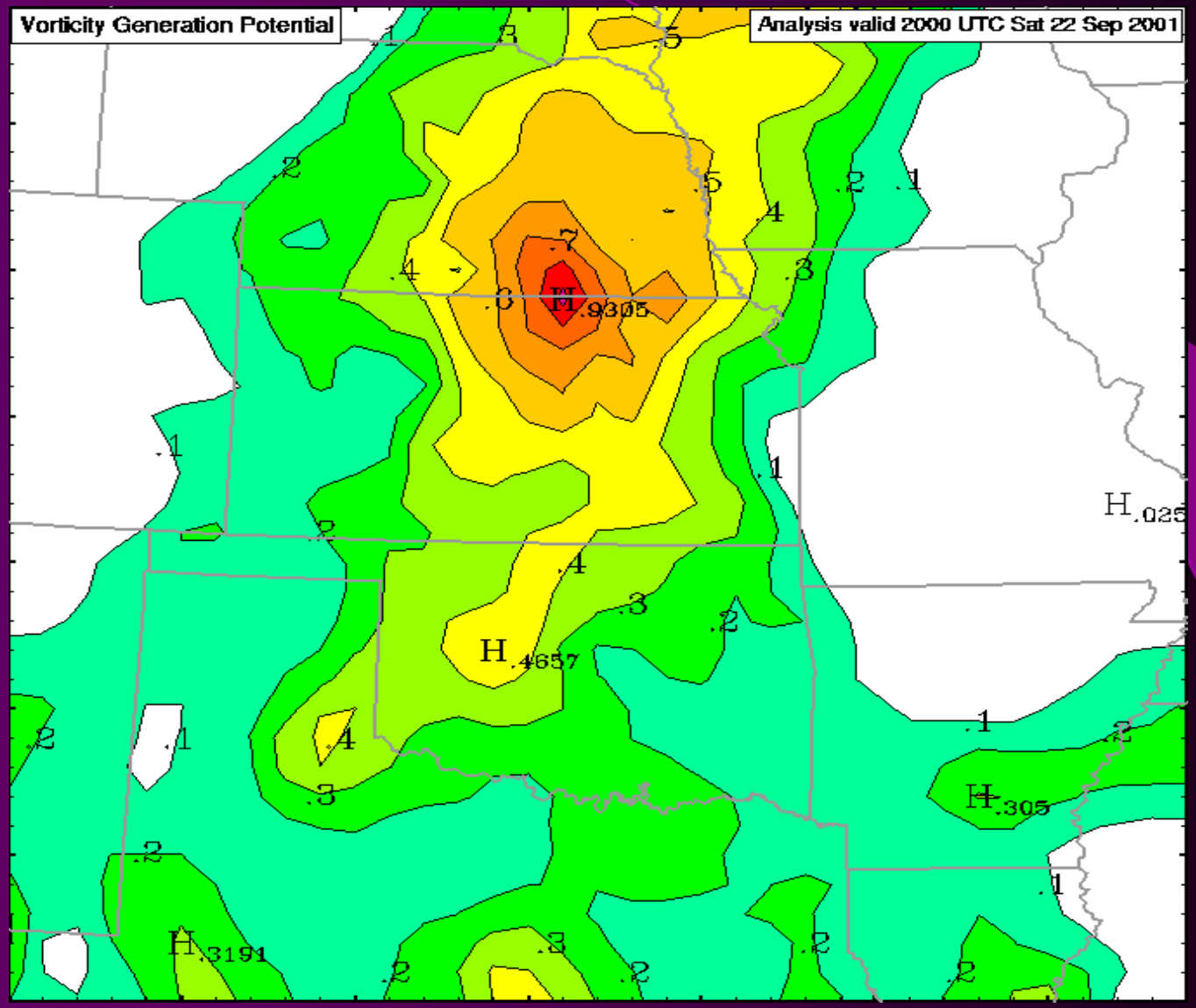

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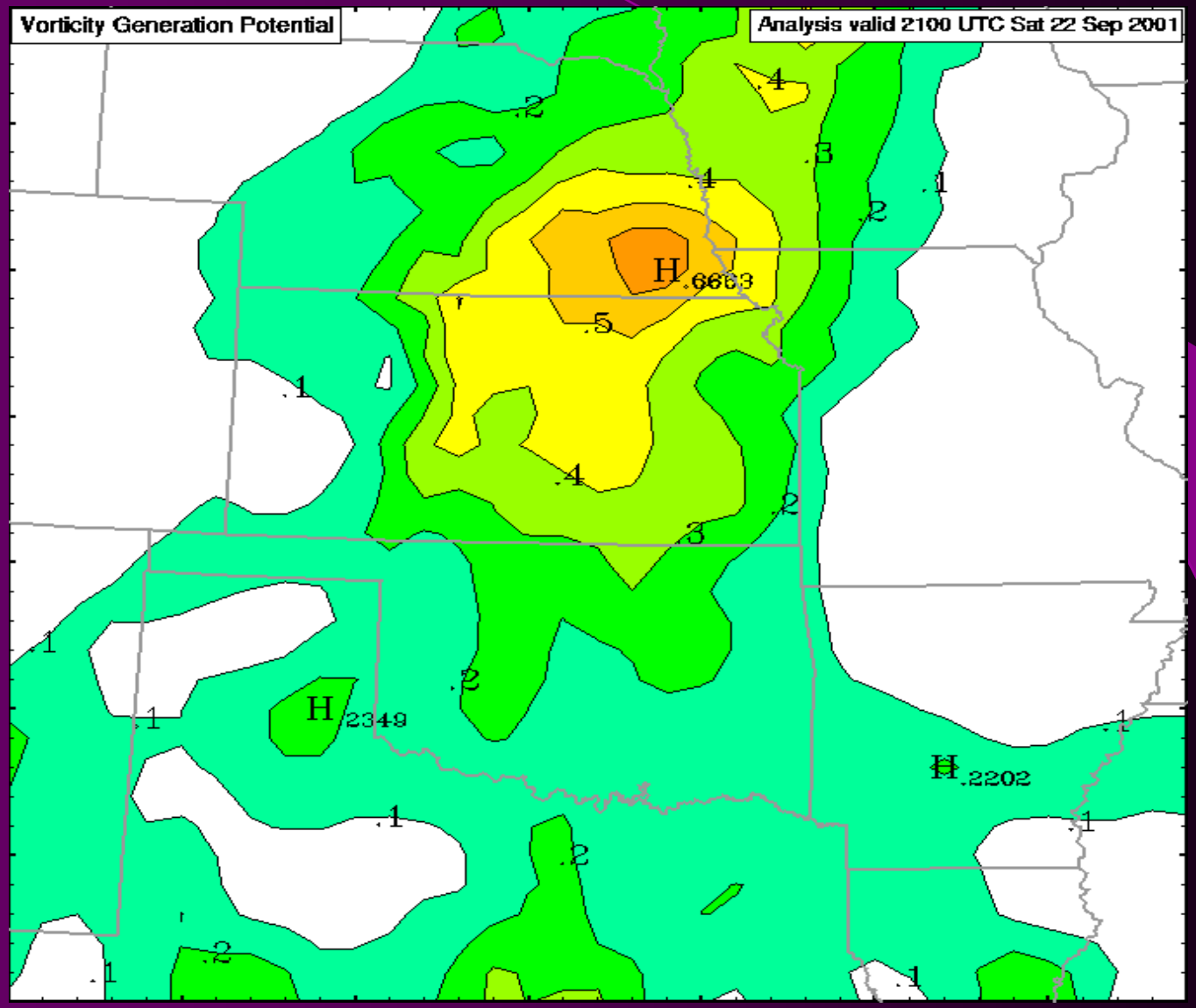

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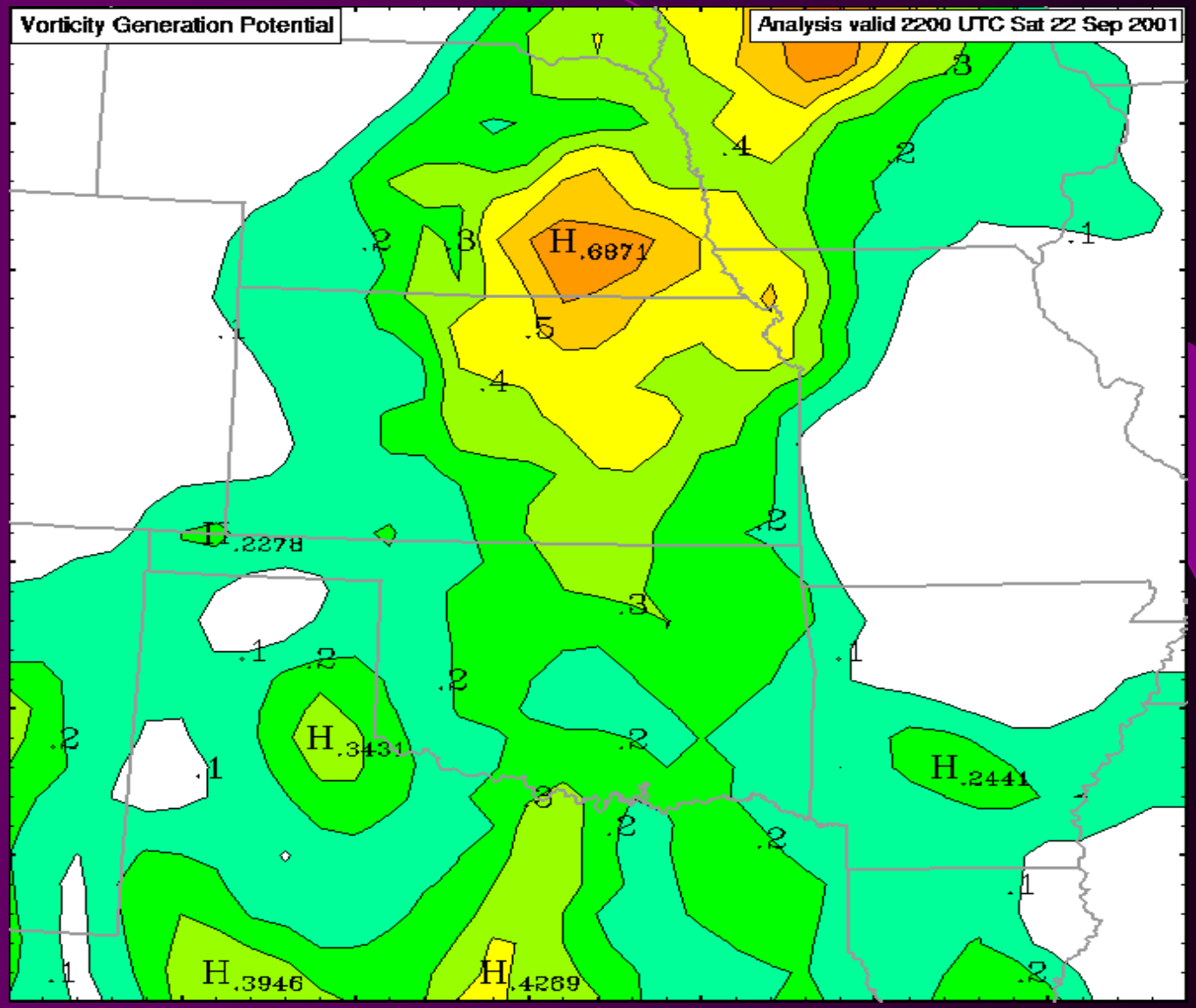
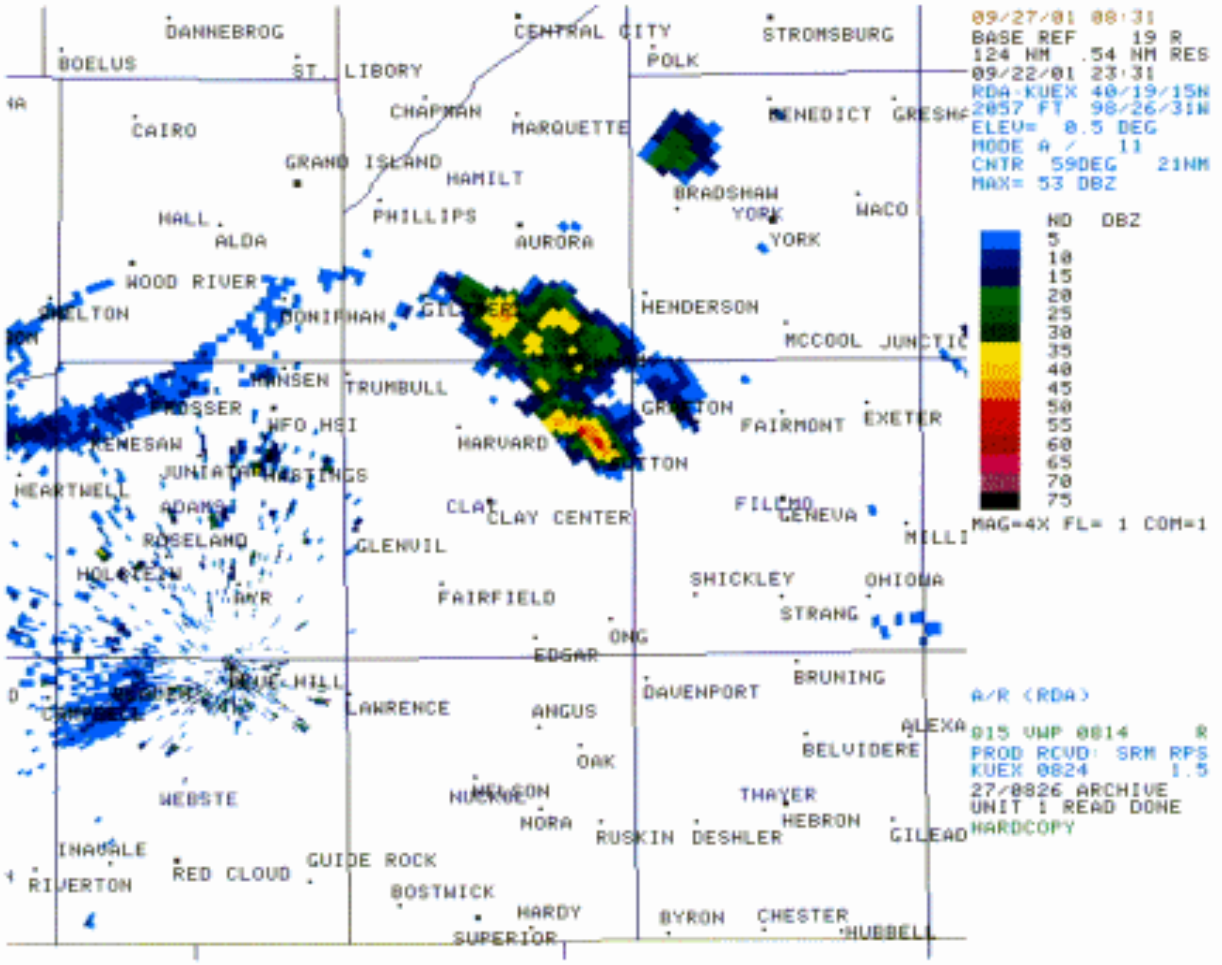


0.5 degree Reflectivity



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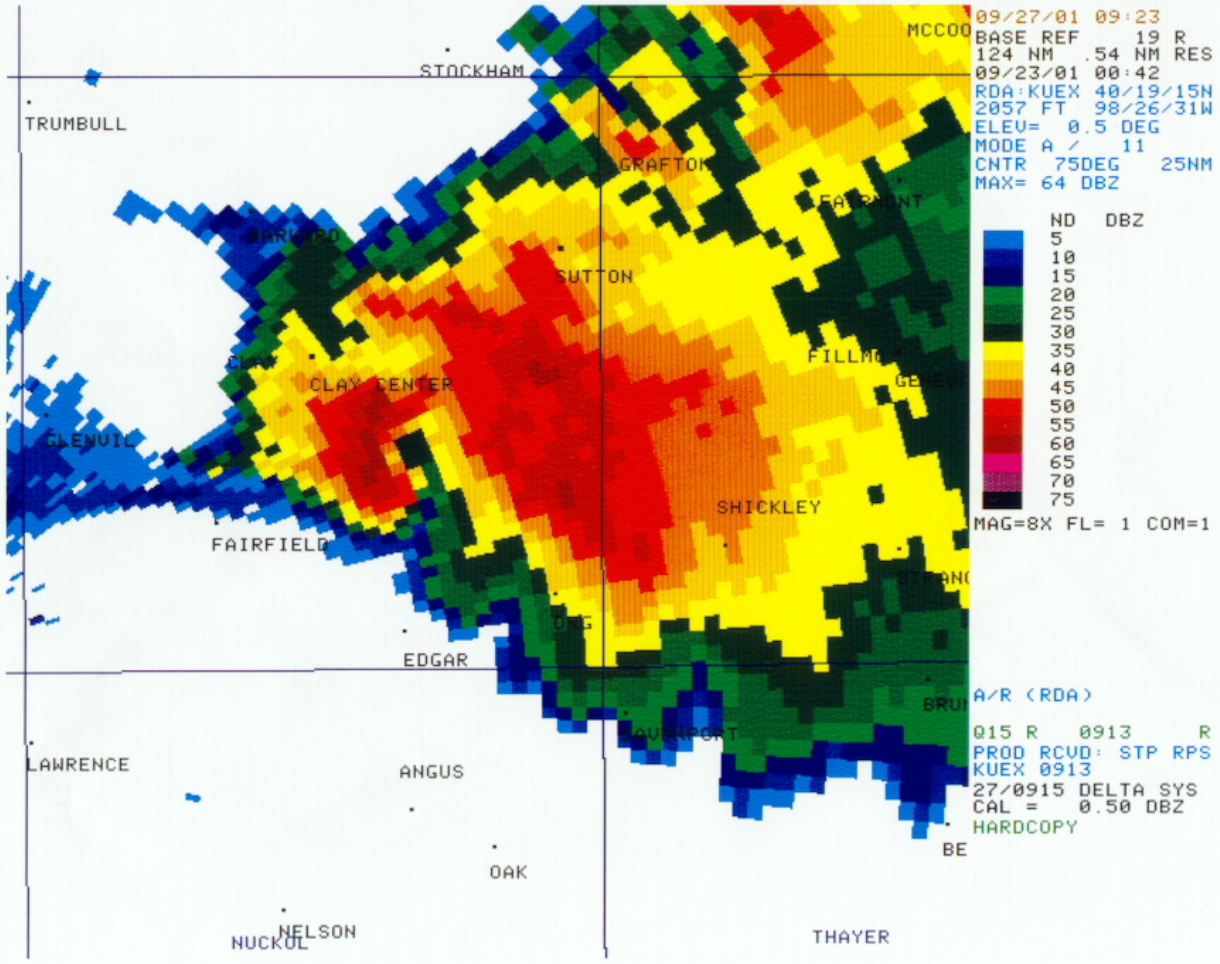

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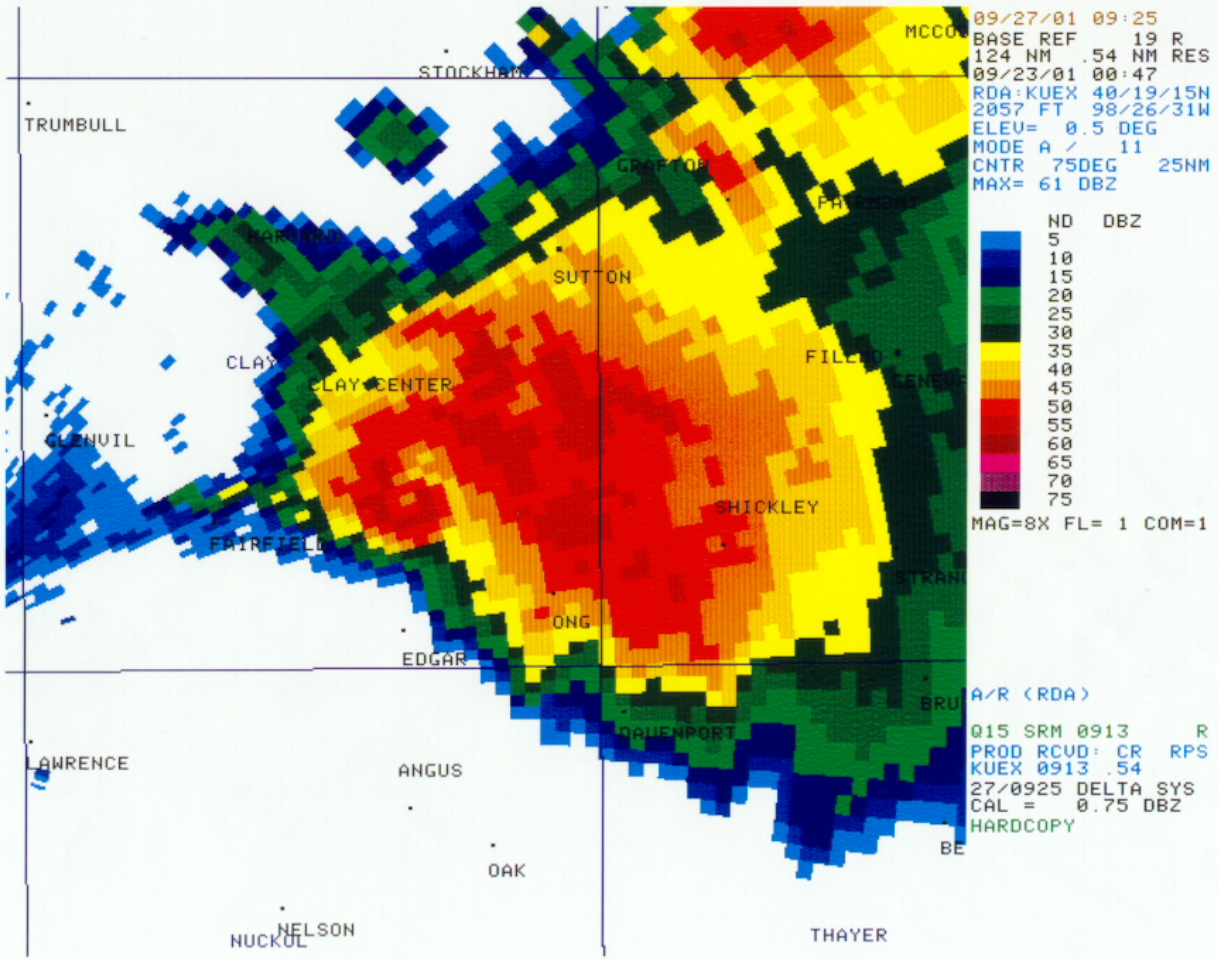

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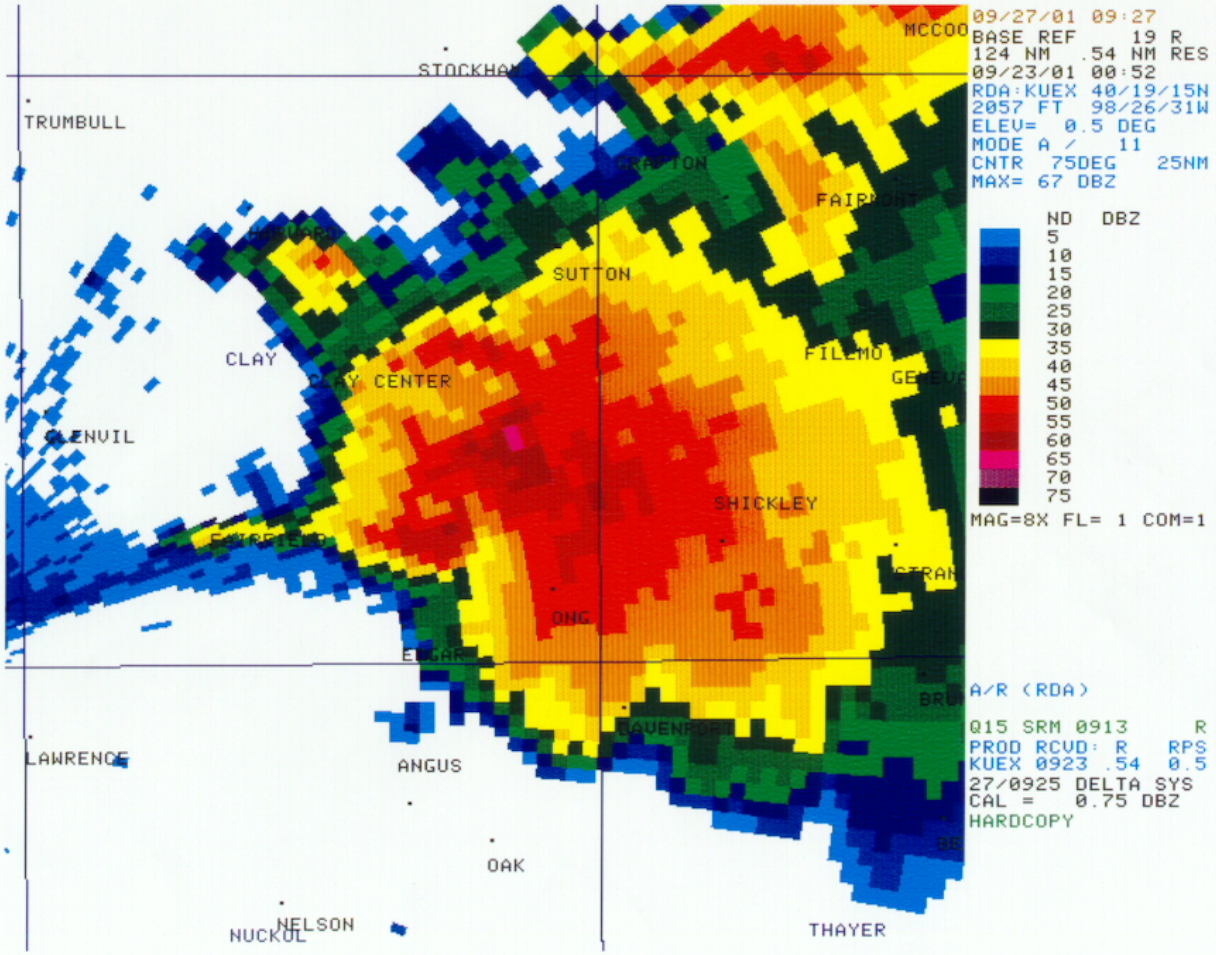
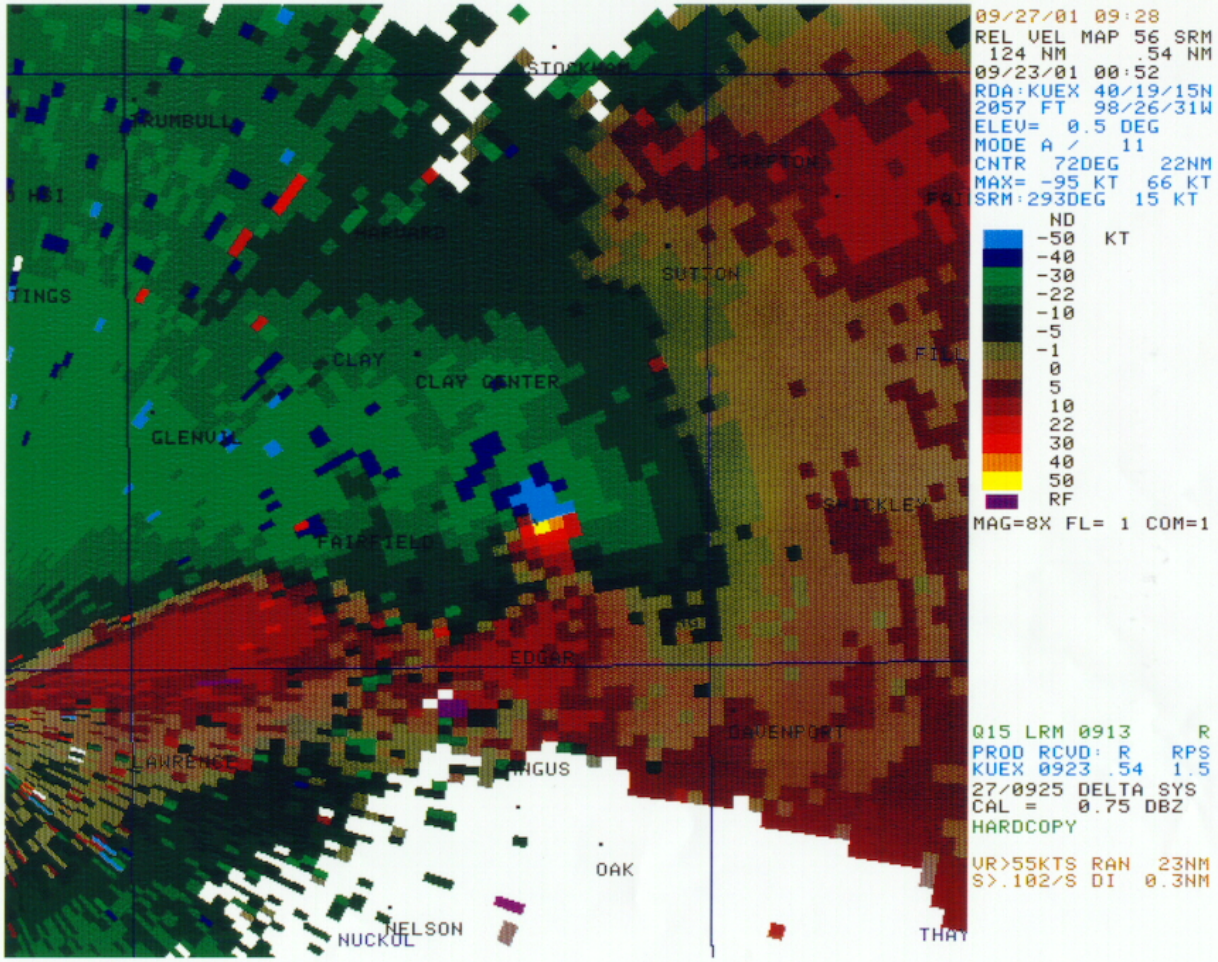
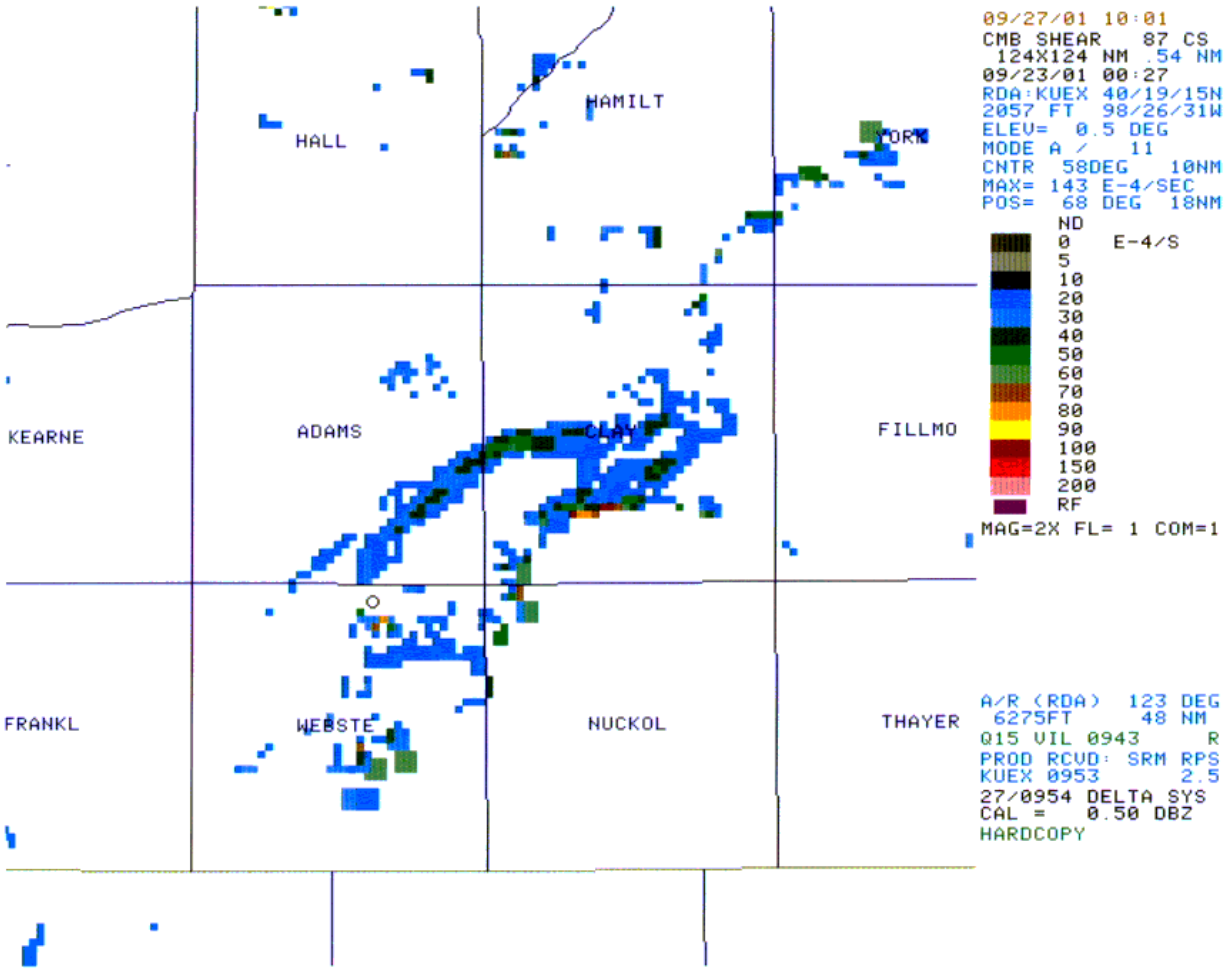


0.5 degree SRM



Combined Shear



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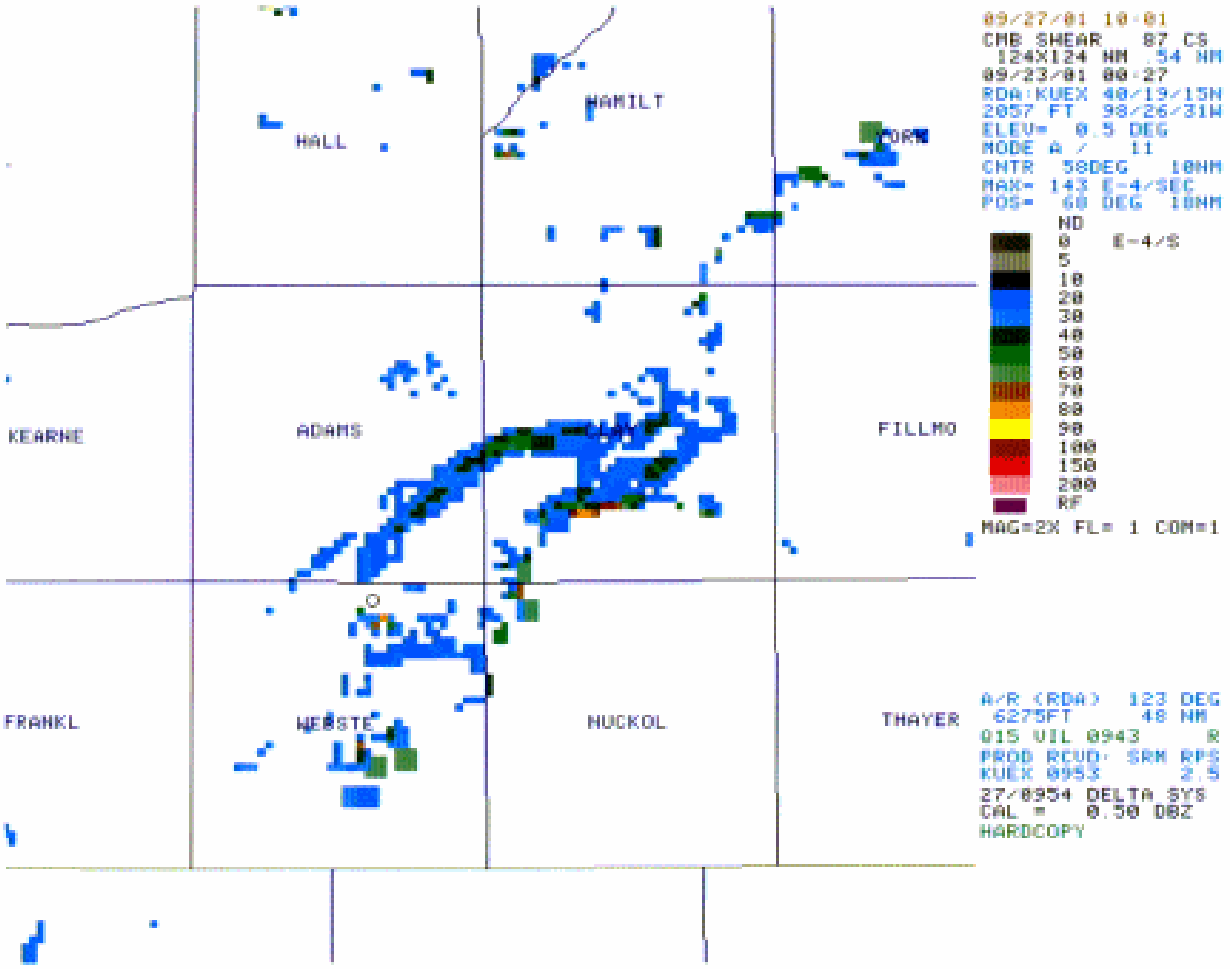
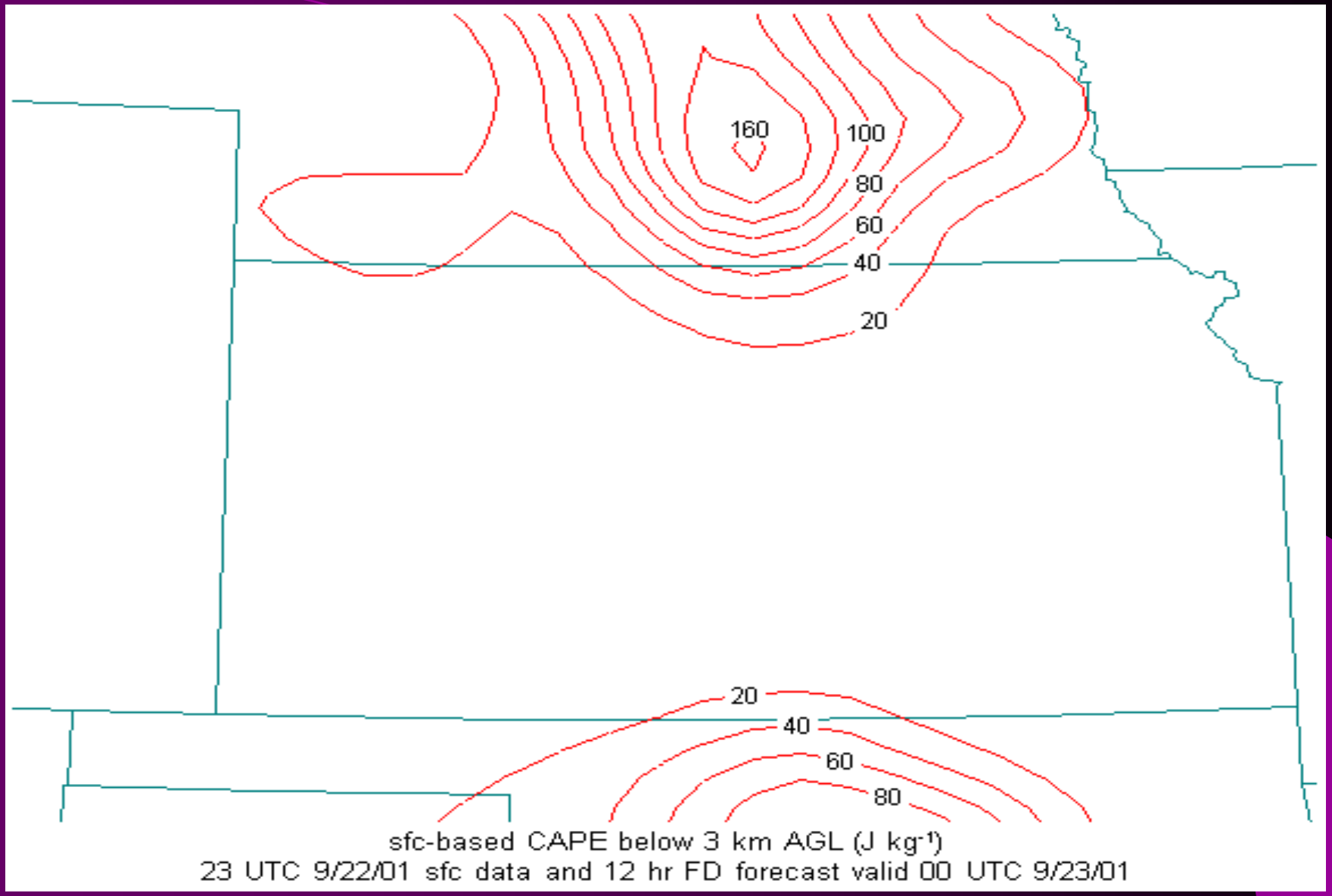
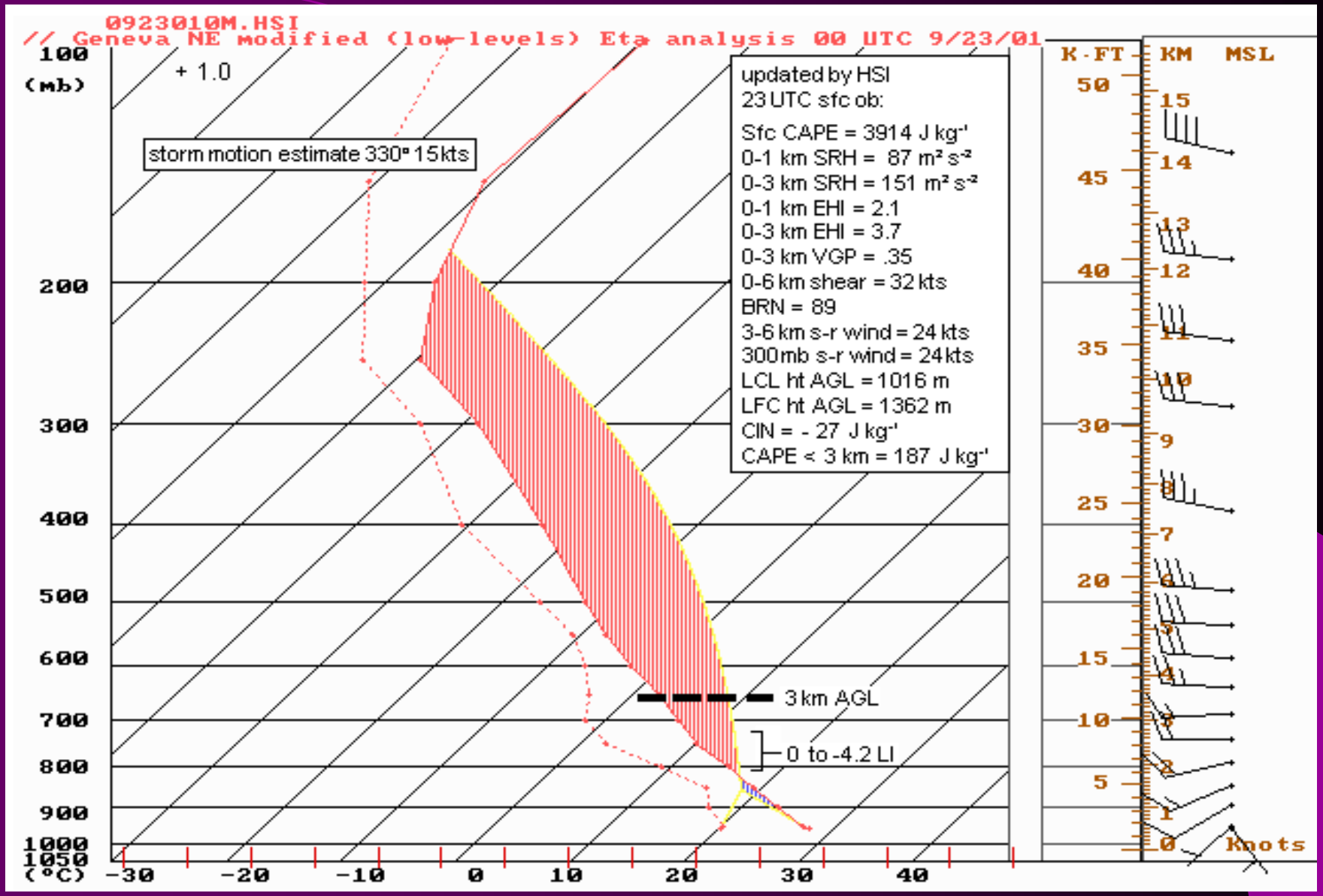




Courtesy Jon Davies



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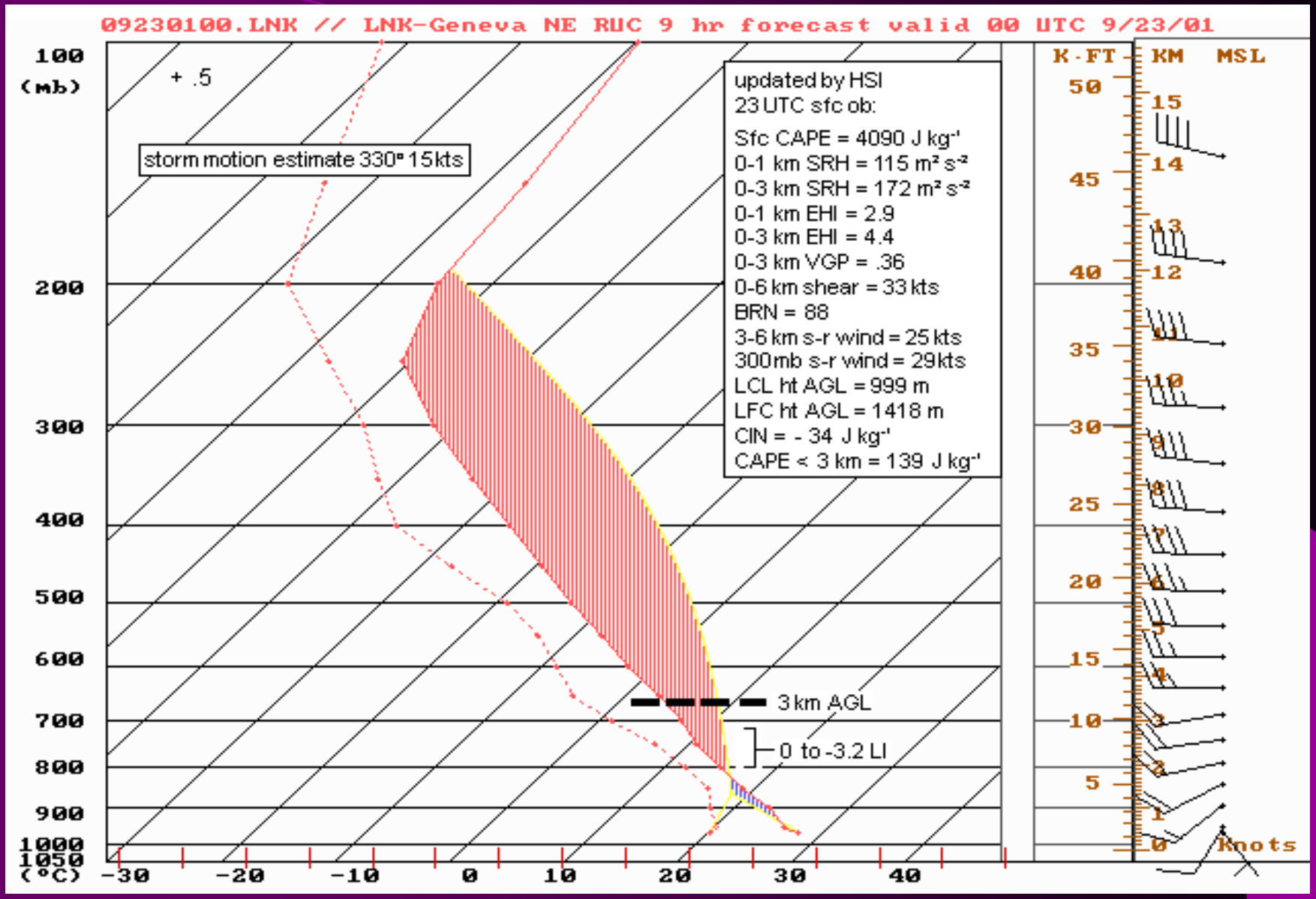

Courtesy Jon Davies

Concluding Remarks

- Appears remnant boundaries may have played a vital role in storm development, and possibly even in tornadogenesis
- Furthermore, storm scale interactions might have been key in tornado development/ enhancement

Future Research

- Further calculations of storm relative helicity and inflow parameters as supercell was moving to the south
- Closer look at the boundaries and what effects they might or might not have played
- In general, take advantage of the entire lifecycle of this supercell being relatively close to KUEX radar

"Barbeque Anyone?"

A Shameless Plug…

Sixth High Plains Conference

October 9 – 11, 2002

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www.crh.noaa.gov/lbf/hpams/main.htm

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