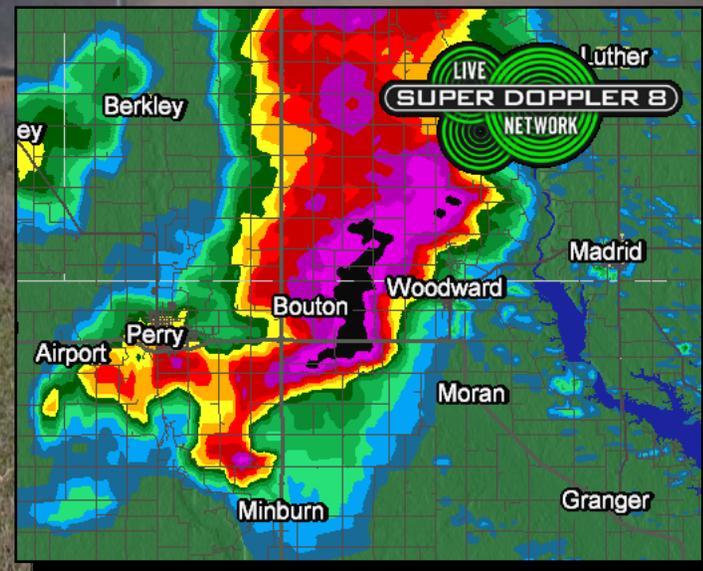


Cyclone Saturday, An Examination of the Teamwork and Technology used on 12 November 2005

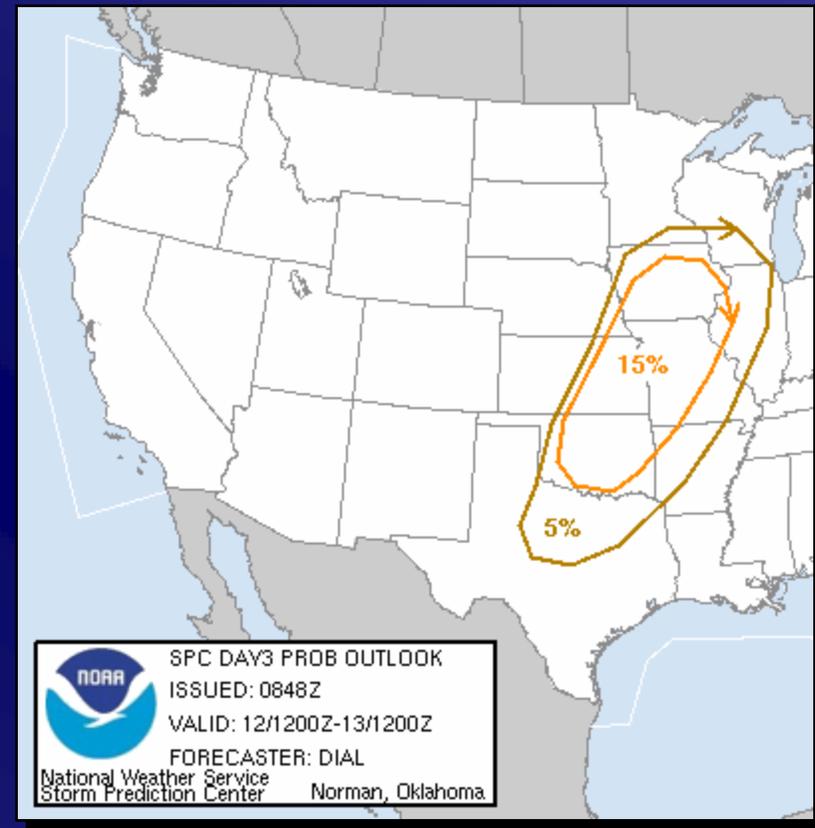
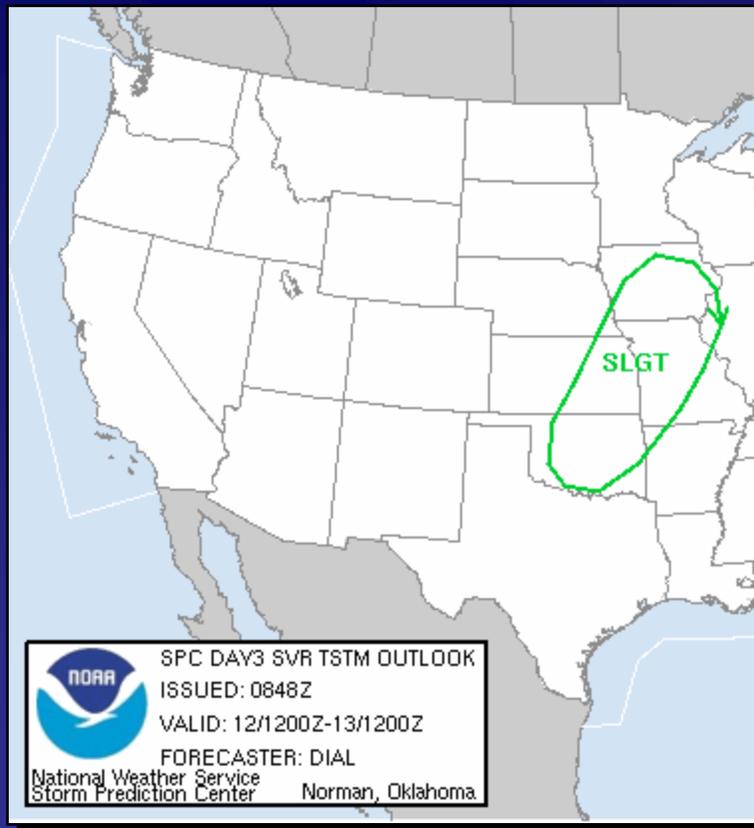
John McLaughlin, KCCI-TV Des Moines

Kurtis Goertz, KCCI-TV Des Moines

Daryl Herzmann, Iowa Environmental Mesonet

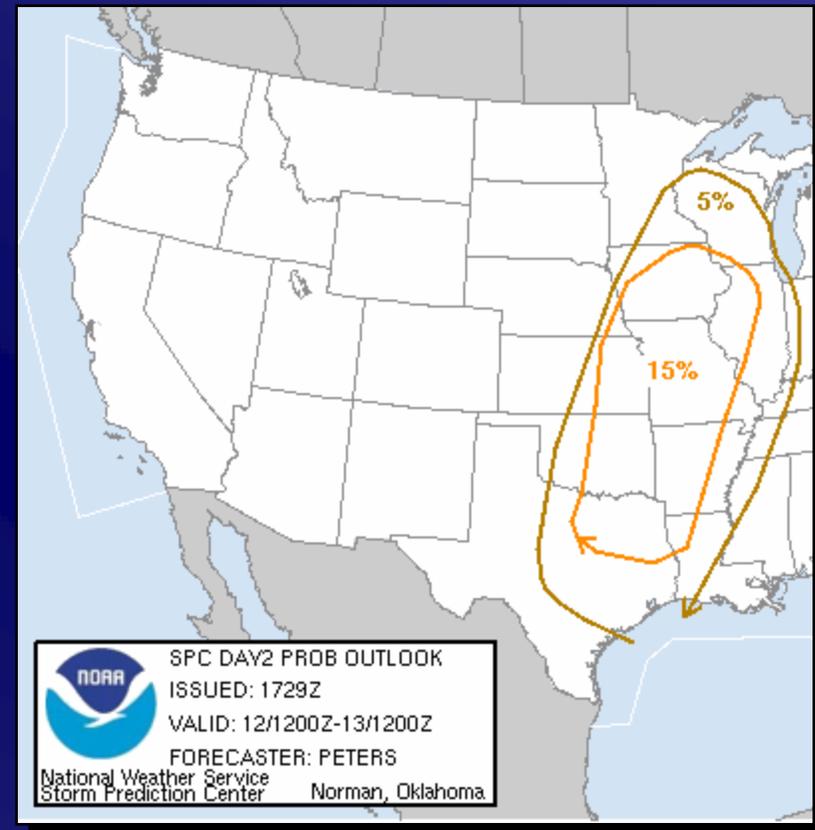
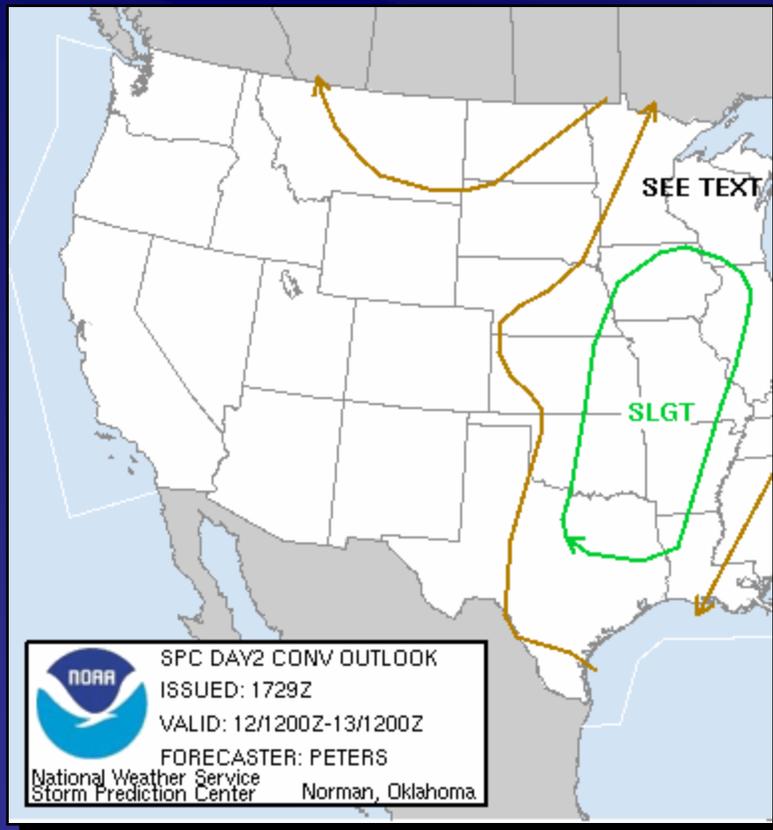


Pre-Event Awareness



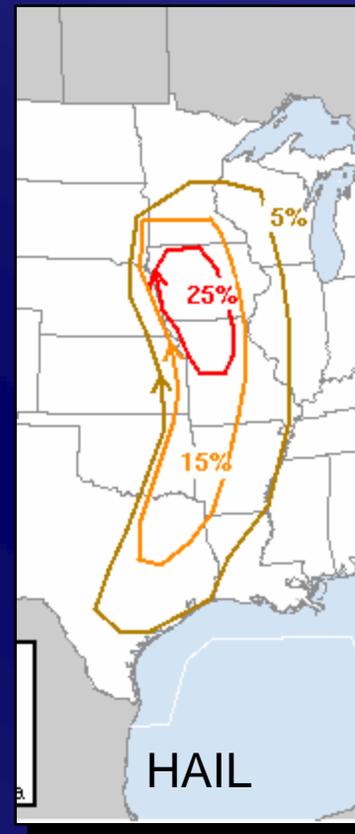
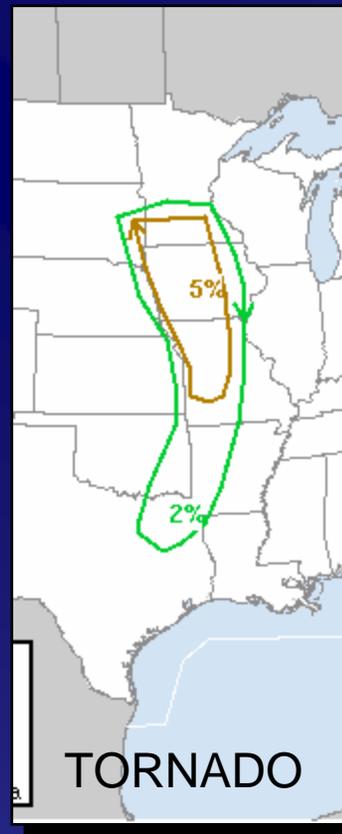
Nov 10, 2005 1100 UTC Day 3 Severe Thunderstorm Outlook
Updated: Thu Nov 10 08:49:39 UTC 2005

Pre-Event Awareness



Nov 11, 2005 1730 UTC Day 2 Convective Outlook
Updated: Fri Nov 11 17:31:38 UTC 2005

Pre-Event Awareness



Nov 12, 2005 2000 UTC Day 1 Convective Outlook
Updated: Sat Nov 12 20:18:13 UTC 2005

Day 1 Convective Outlook

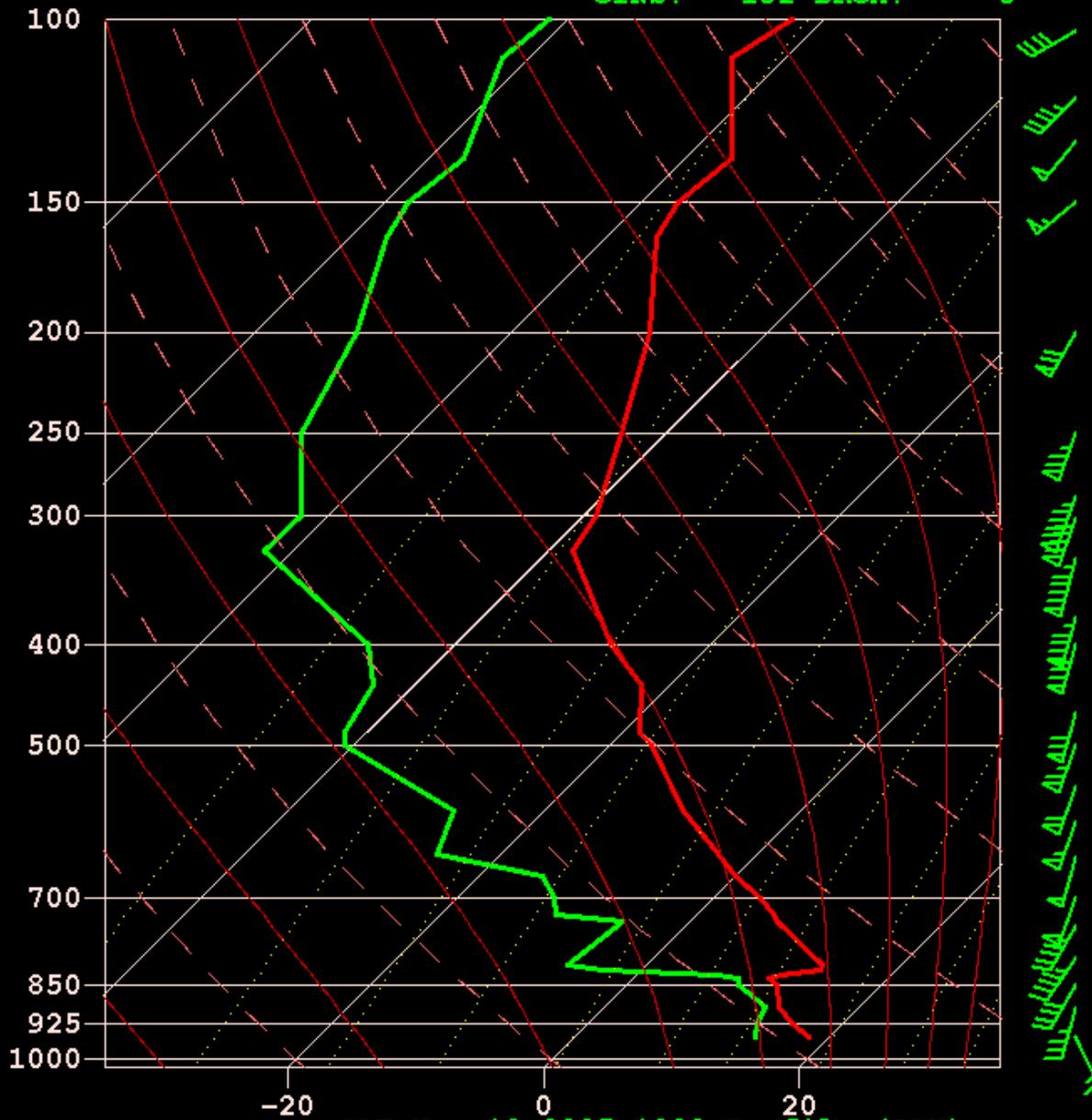
0216 PM CST SAT NOV 12 2005

...STRONG SLY LOW LEVEL FLOW AHEAD OF THESE BOUNDARIES HAD CONTINUED TO ADVECT A NARROW PLUME OF MOISTURE NWD WITH SURFACE DEWPOINTS INTO THE MID 50S FROM SERN SD TO CENTRAL IA...AND LOWER 60S ALONG THE KS/MO BORDER REGION. GIVEN TRACK OF SURFACE LOW...WARM SECTOR IS EXPECTED TO DEVELOP NWD INTO SRN MN AIDING IN THE THREAT FOR SURFACE BASED STORMS. STRONG SURFACE HEATING WITHIN THE MID LEVEL DRY SLOT AND ALONG WRN EDGE OF LOW LEVEL MOISTURE PLUME ACROSS ERN NEB/KS WILL CONTINUE TO RESULT IN MLCAPE VALUES AROUND 1000 J/KG... AND UP TO 1500 J/KG OVER NRN TX. 18Z SOUNDINGS AT TOP/OMA BOTH INDICATED A LOW LEVEL CAP. 19Z OBJECTIVE ANALYSIS SHOWED THE CAP IS CONTINUING TO WEAKEN AS STRONG LARGE SCALE FORCING/PV ADVECTION SPREADS RAPIDLY ENEWD AHEAD OF THE CENTRAL PLAINS TROUGH AND WITHIN THE EXIT REGION OF A 70-90 KT WNWLY MID LEVEL JET NOSING INTO THE CENTRAL PLAINS. FURTHER WEAKENING OF THIS CAP COMBINED WITH THE NARROW AXIS OF MODERATE INSTABILITY AND STRONG DEEP LAYER SHEAR SUGGEST THUNDERSTORM INITIATION WILL BE ALONG THE DRY LINE IN FAR ERN NEB/WRN IA/SERN SD AND THEN SWD INTO ERN KS BY 20-21Z. **STORM MODE IS EXPECTED TO BE LINEAR GIVEN DEEP UNI-DIRECTIONAL WIND PROFILES AND SHEAR VECTORS ORIENTED NEARLY PARALLEL TO THE DRY LINE/COLD FRONT. HOWEVER...EMBEDDED SUPERCELLS WITH AN ATTENDANT TORNADO THREAT WILL ALSO BE LIKELY GIVEN LOW LEVEL HODOGRAPH CURVATURE AS INDICATED ON THE 18Z TOP/OMA SOUNDINGS.**

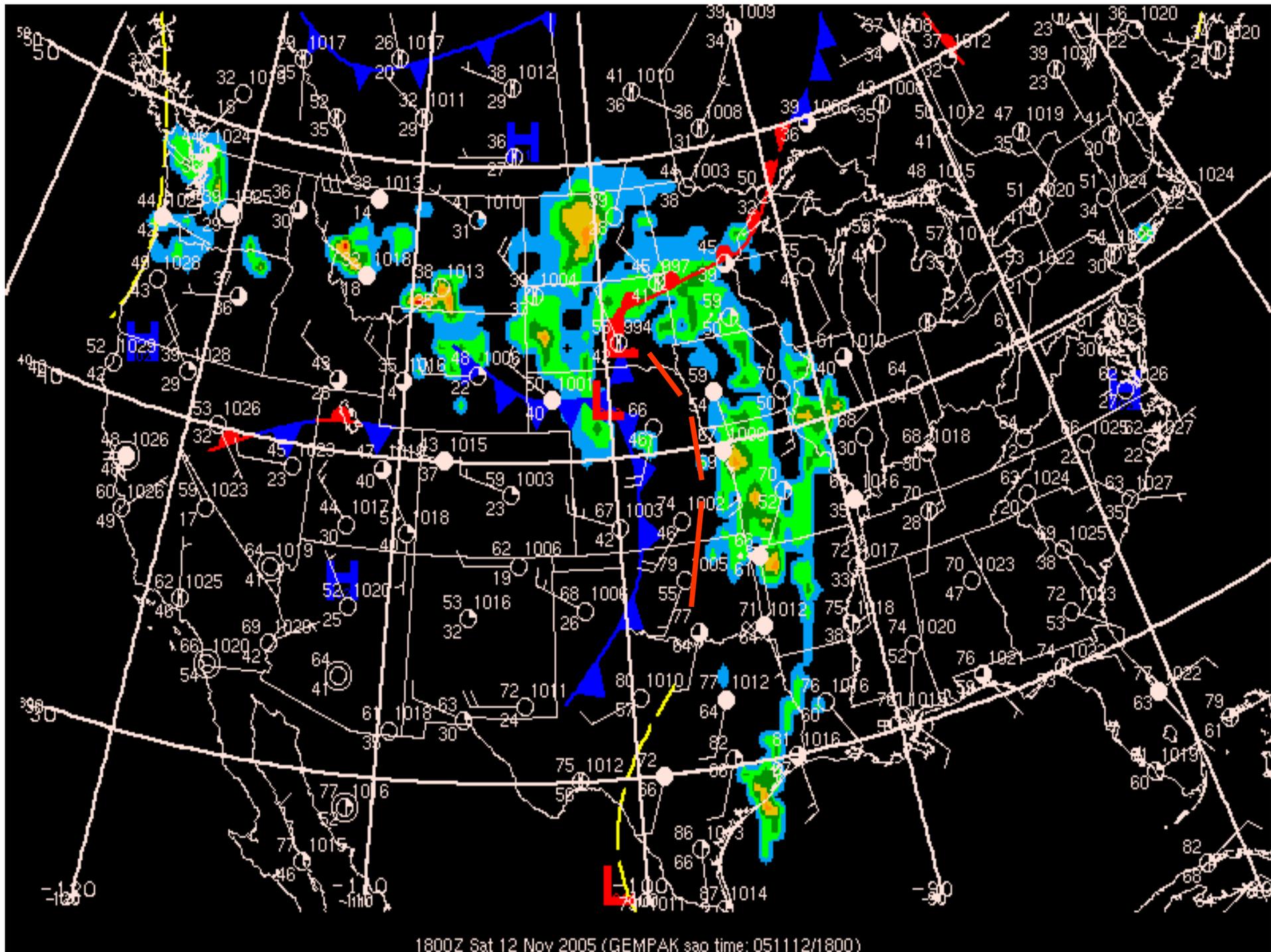
20051112/18 72558 OAX

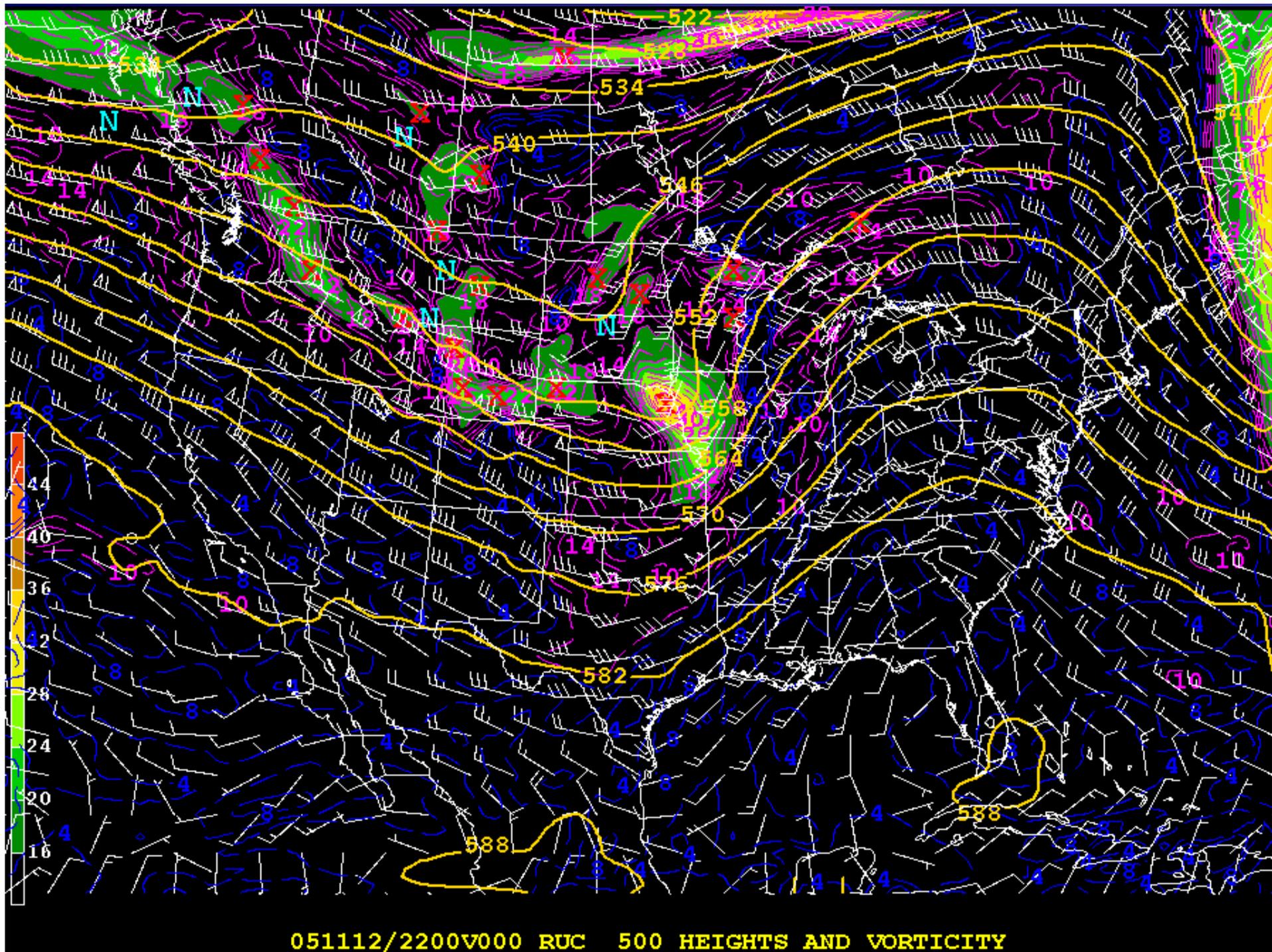
SELV:	350	LIFT:	-3	KINX:	21
TOTL:	54	SWET:	351	LCLP:	896
LFCV:	699	EQLV:	323	CAPE:	465
CINS:	-152	BRCH:	5		

OMAHA, NE 1800Z SOUNDING

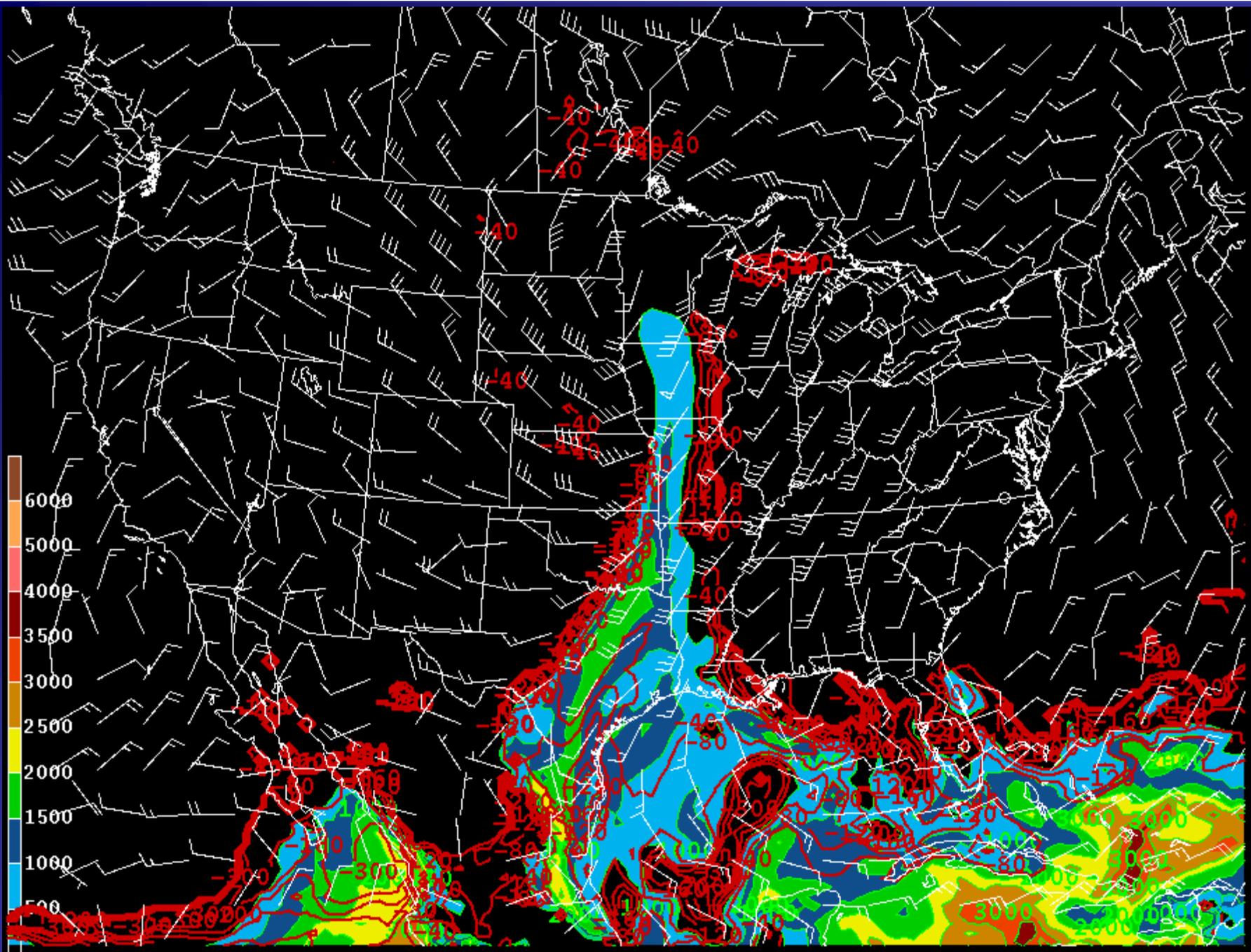


SAT Nov 12 2005 1800 Profile (OAX)





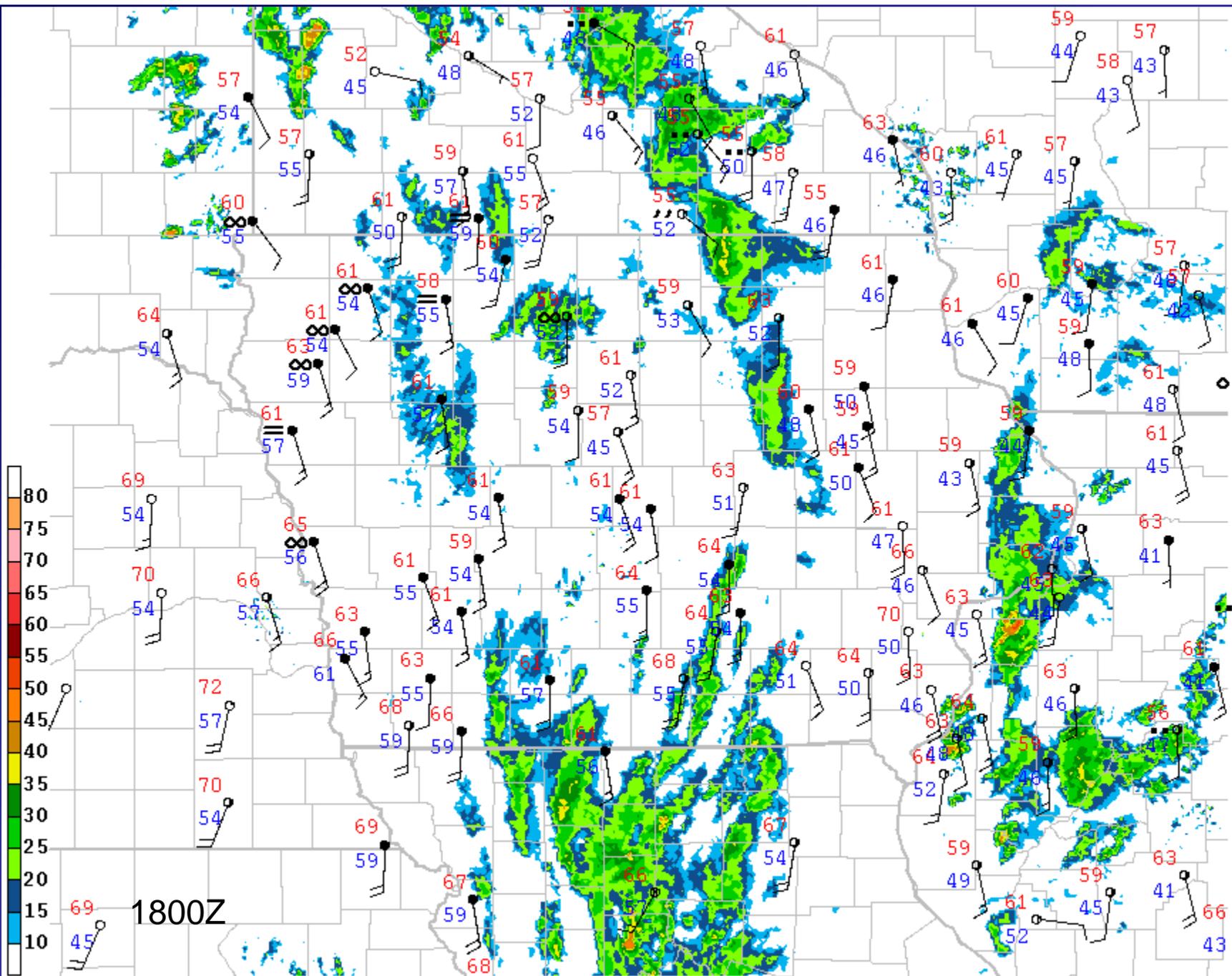
051112/2200V000 RUC 500 HEIGHTS AND VORTICITY



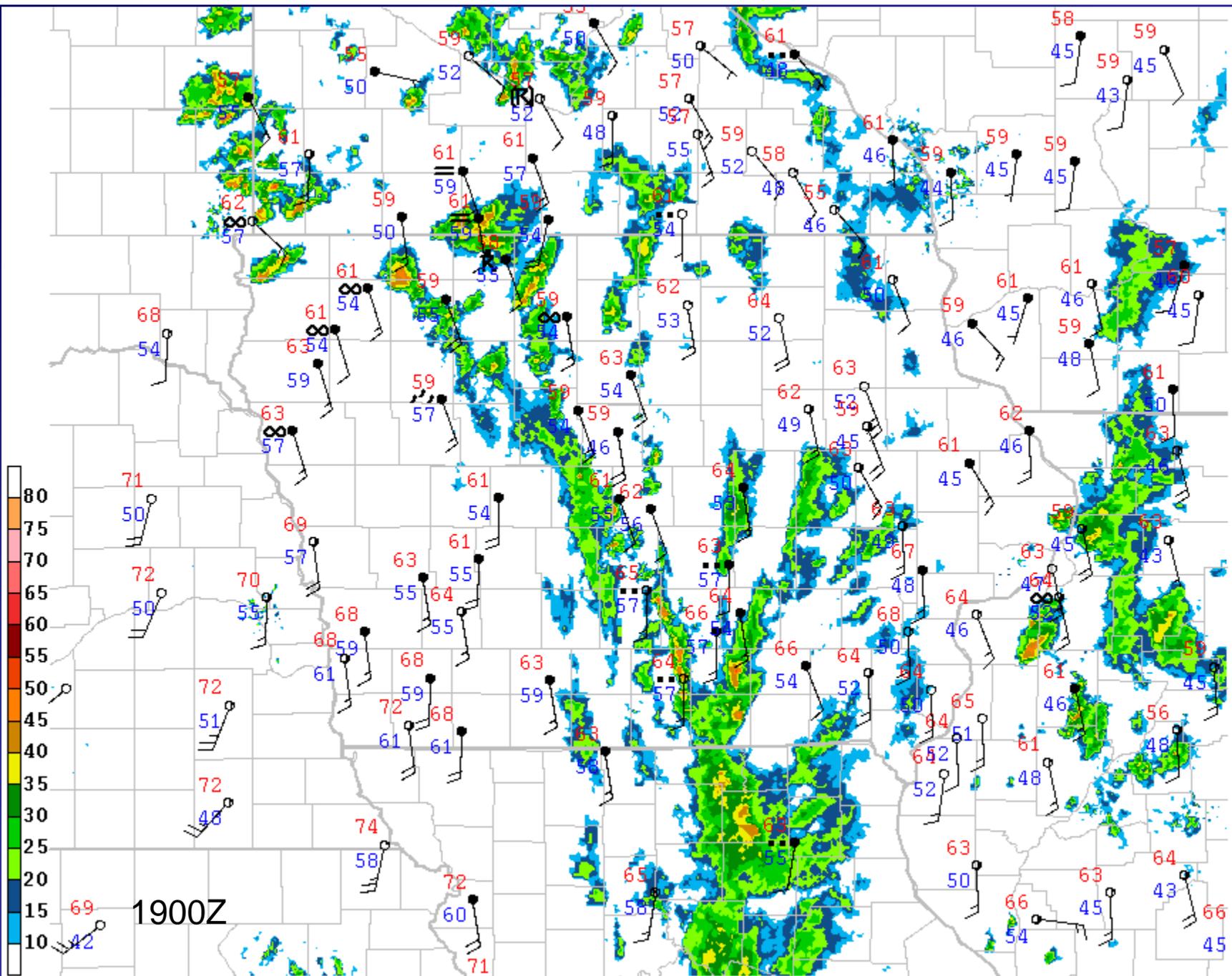
051113/0000V012 ETA CAPE,CIN AND 850 WIND

DMX AFD 4:00 A.M. 12 Nov.

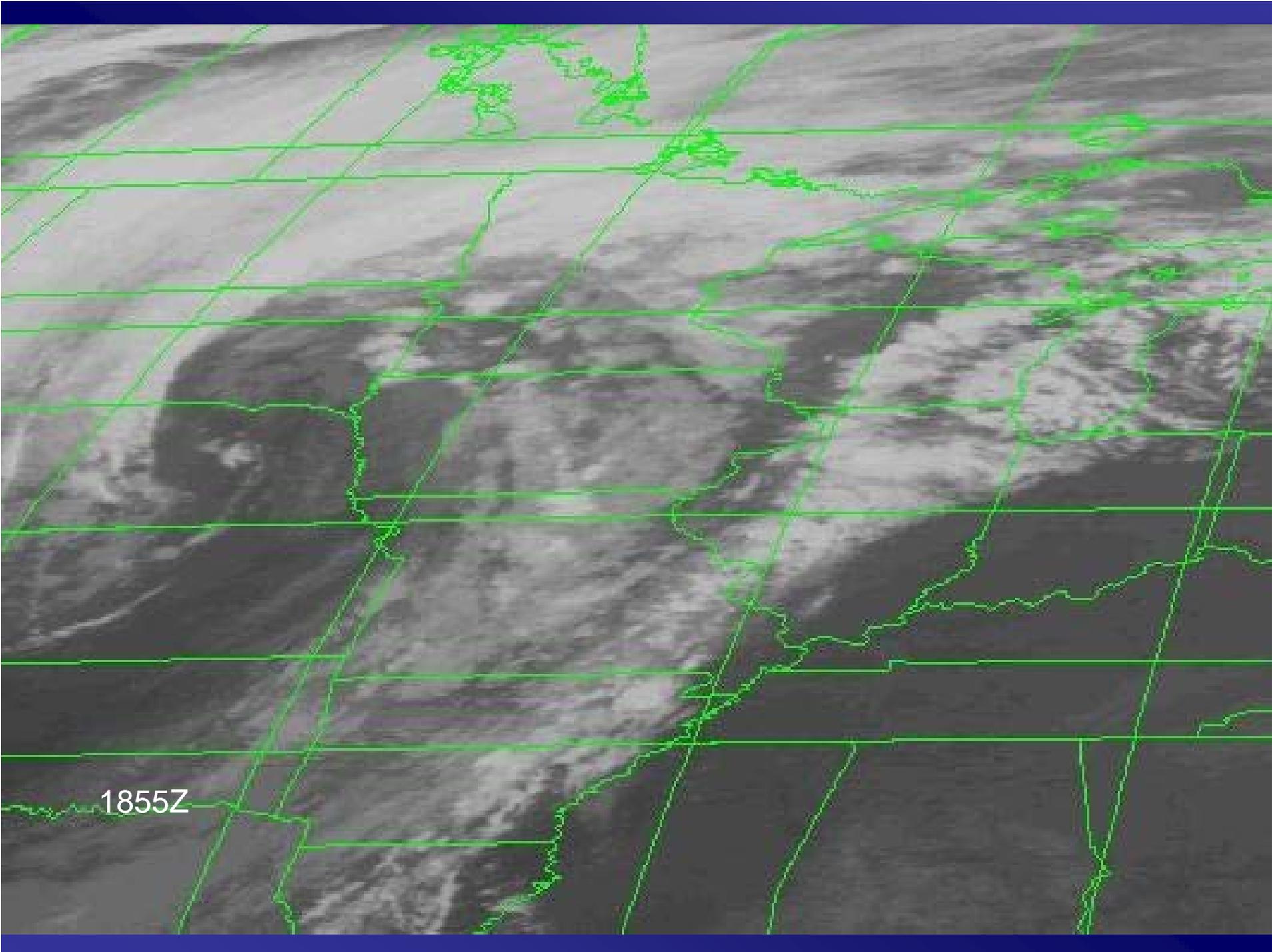
HAVE MENTIONED SVR WORDING FA WIDE DUE TO DAMAGING WND THREAT. MEAN STORM MOTION SW-NE AT 45-55KTS WITH SOME DRIER AIR ALF. STG SHEAR AVBL AT ALL LVS SO COULD SEE A FEW FAST MOVING SUPERCELLS. **WOULD NOT BE SURPRISED TO HAVE A TORNADO RPT OR TWO...BUT CONFIDENCE NOT HIGH ENOUGH TO MENTION.** 0-3KM CAPE AXIS DOES NOT QUITE WRAP FAR ENOUGH AHD OF SFC LOW TO REALIZE FAVORABLE LOW LVL SHEAR.



RADTIME: 051112/1800 SFCTIME: 051112/1800

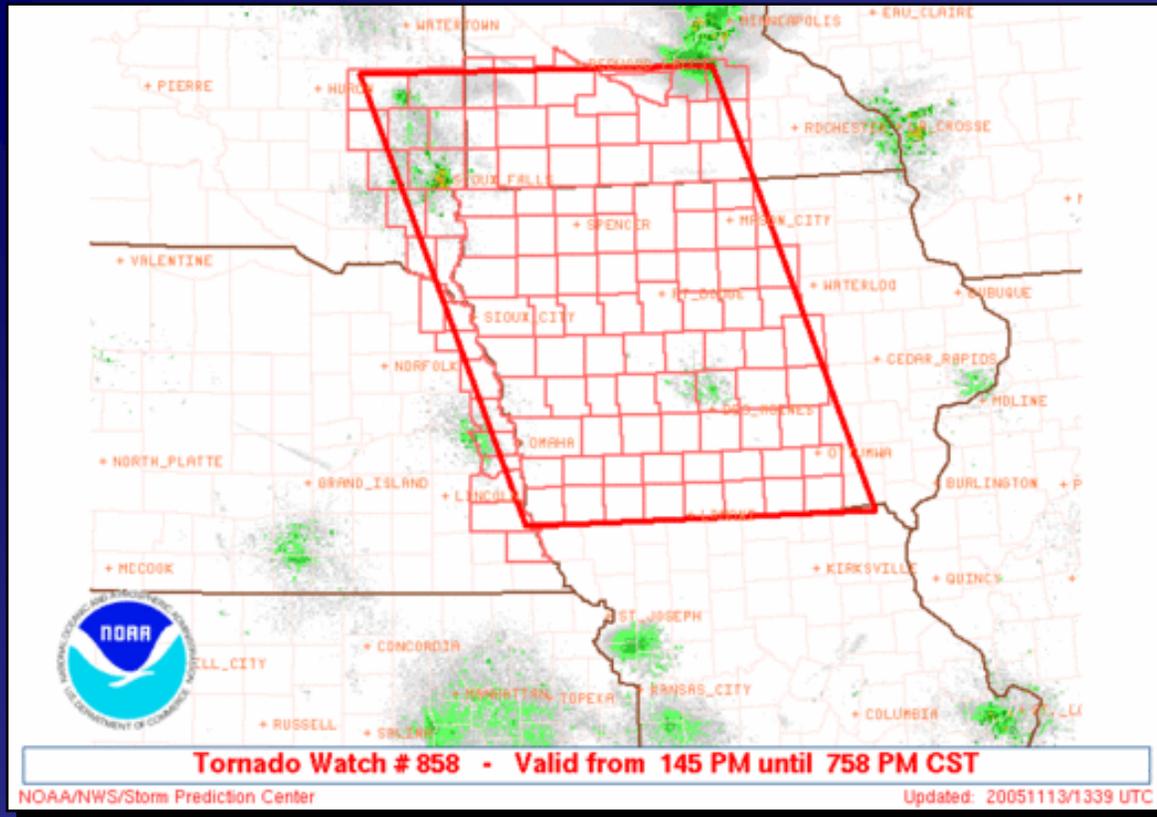


RADTIME: 051112/1900 SFCTIME: 051112/1900

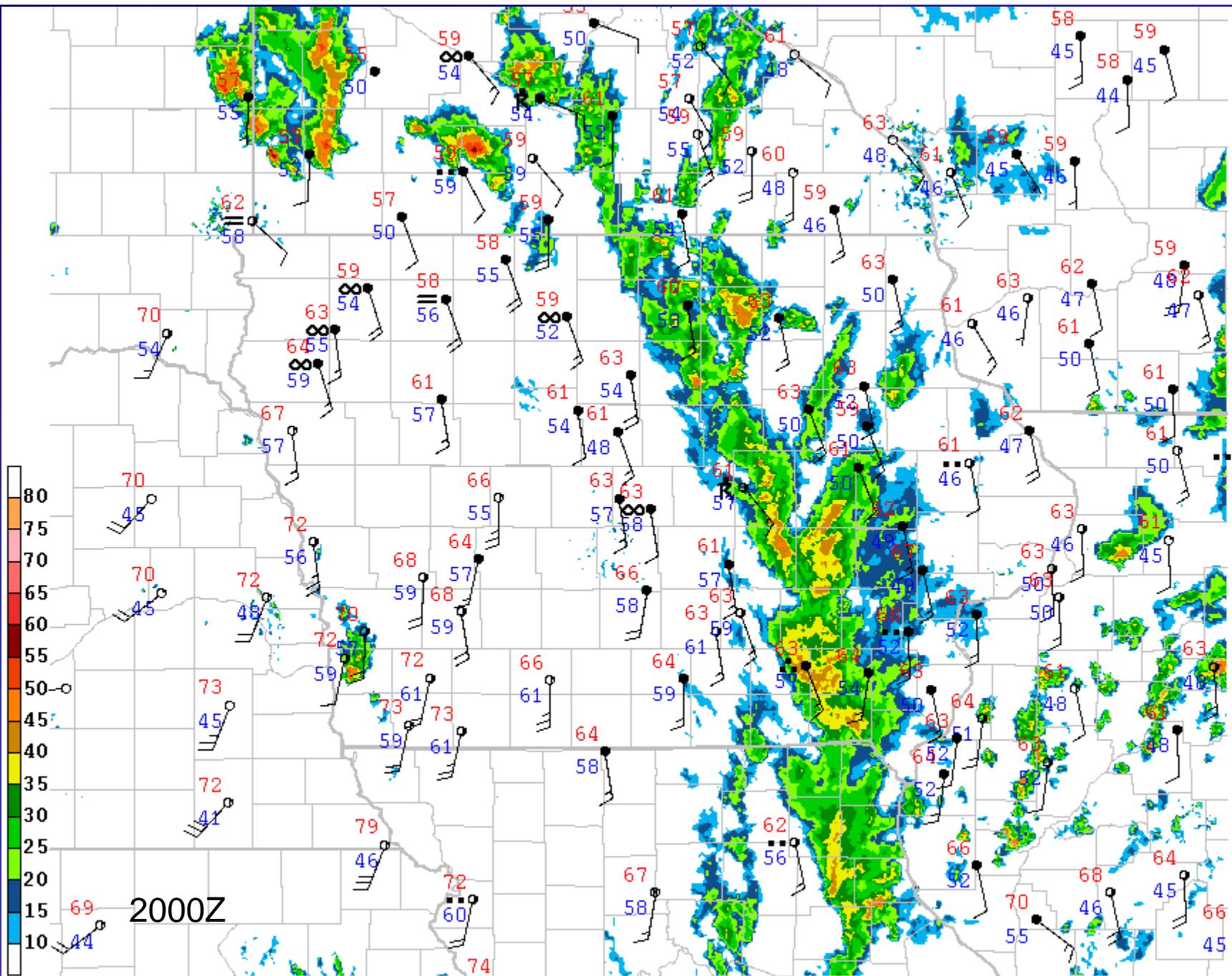


1855Z

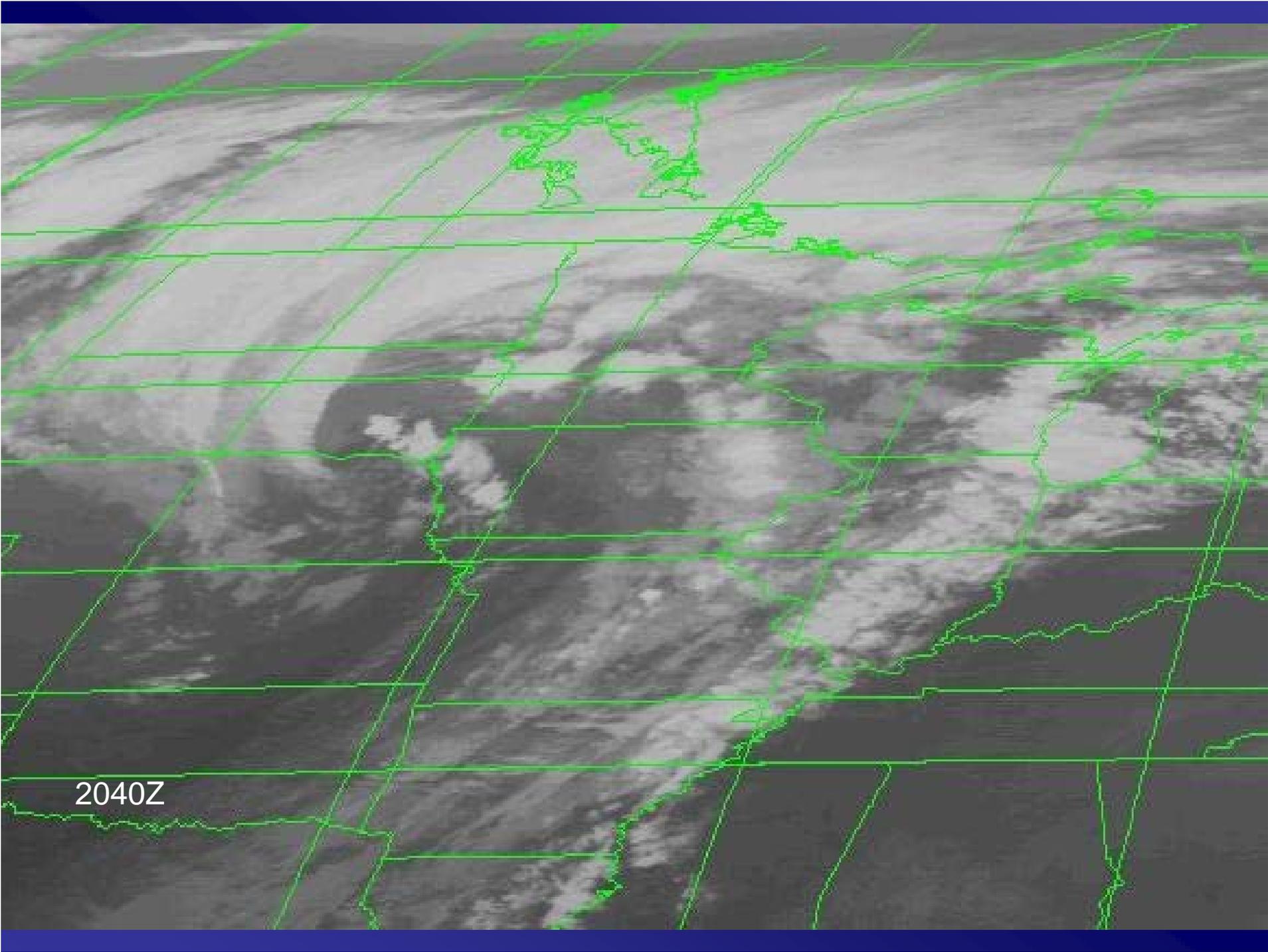
TORNADO WATCH NUMBER 858 145 PM CST SAT NOV 12 2005



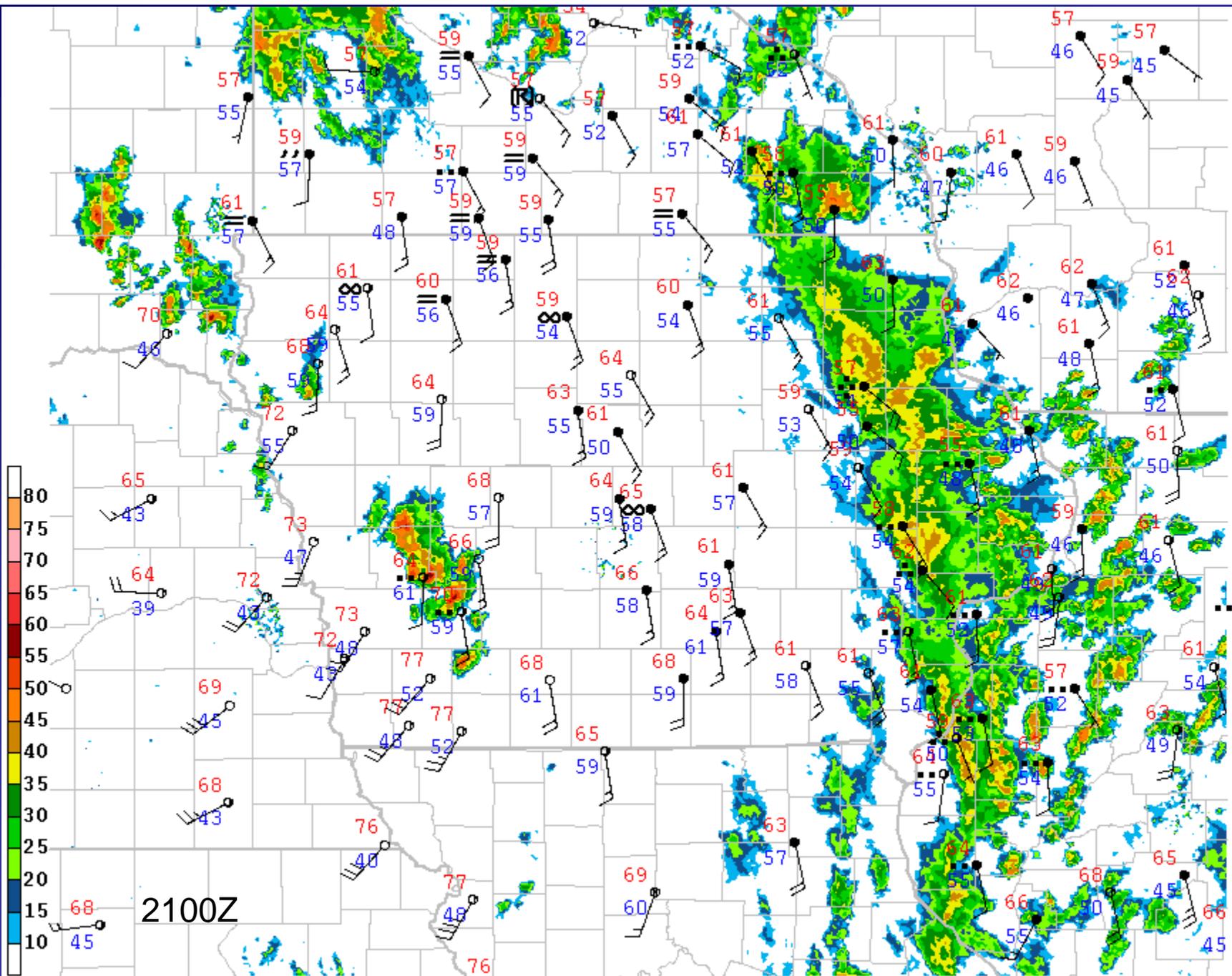
FOCUSED SURFACE PRESSURE FALLS AHEAD OF DEEPENING SURFACE LOW OVER ERN SD EXTEND SSEWD ALONG THE MO RIVER...COUPLED WITH STRONG LOW LEVEL AND DEEP LAYER SHEAR WILL AID POTENTIAL FOR SEVERE STORMS...WITH THREAT FOR A FEW TORNADIC SUPERCELLS.



RADTIME: 051112/2000 SFCTIME: 051112/2000

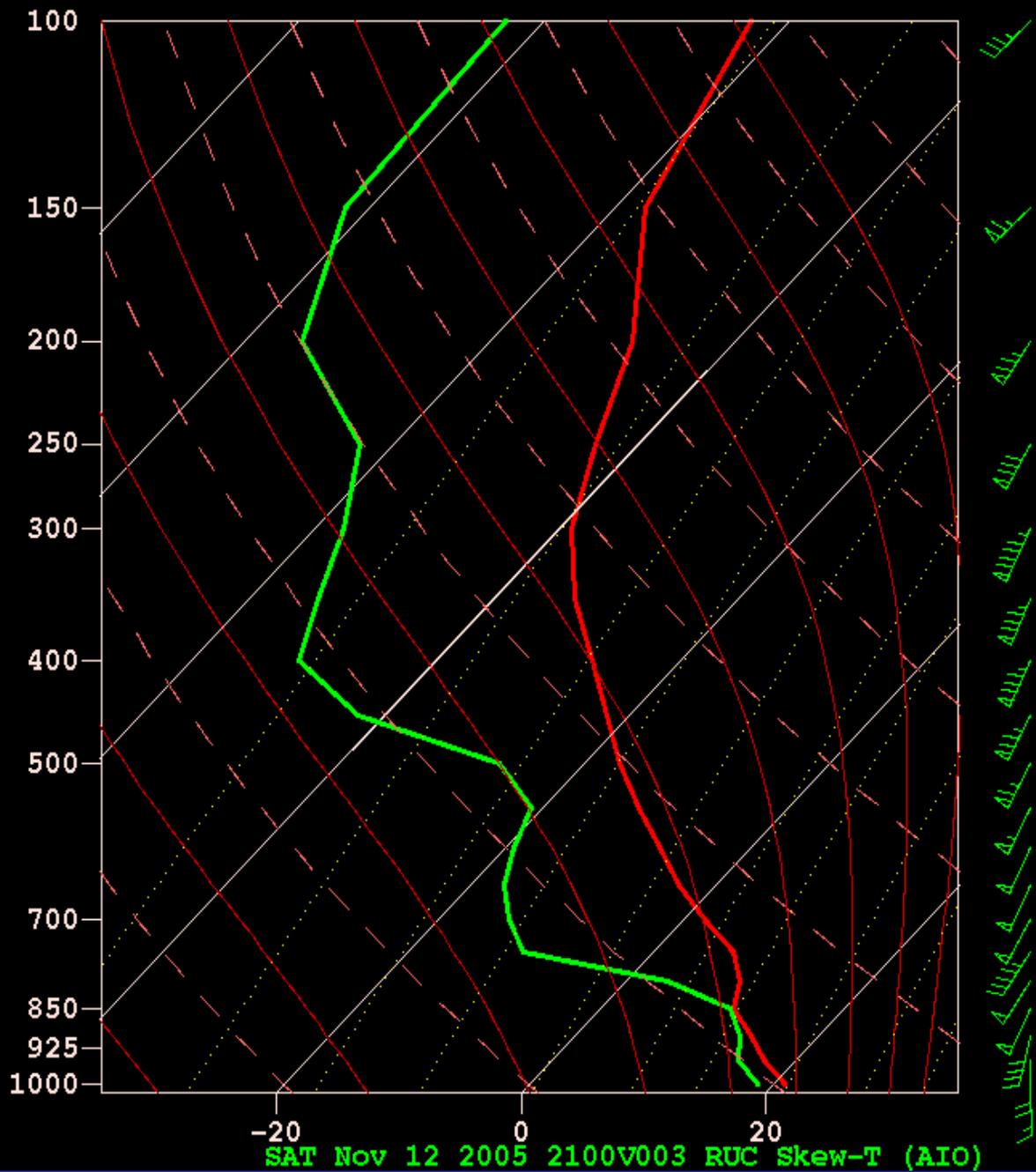


2040Z

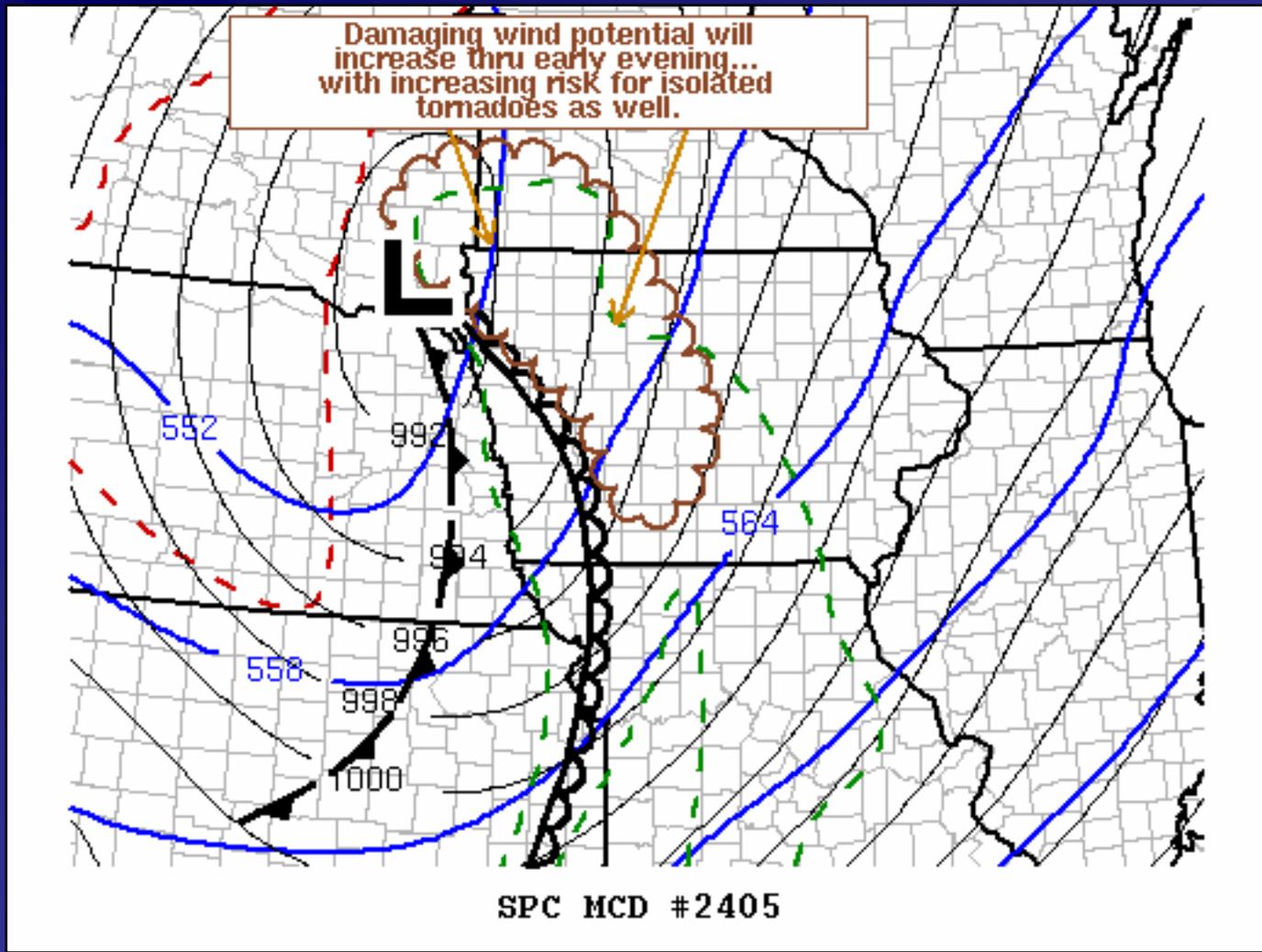


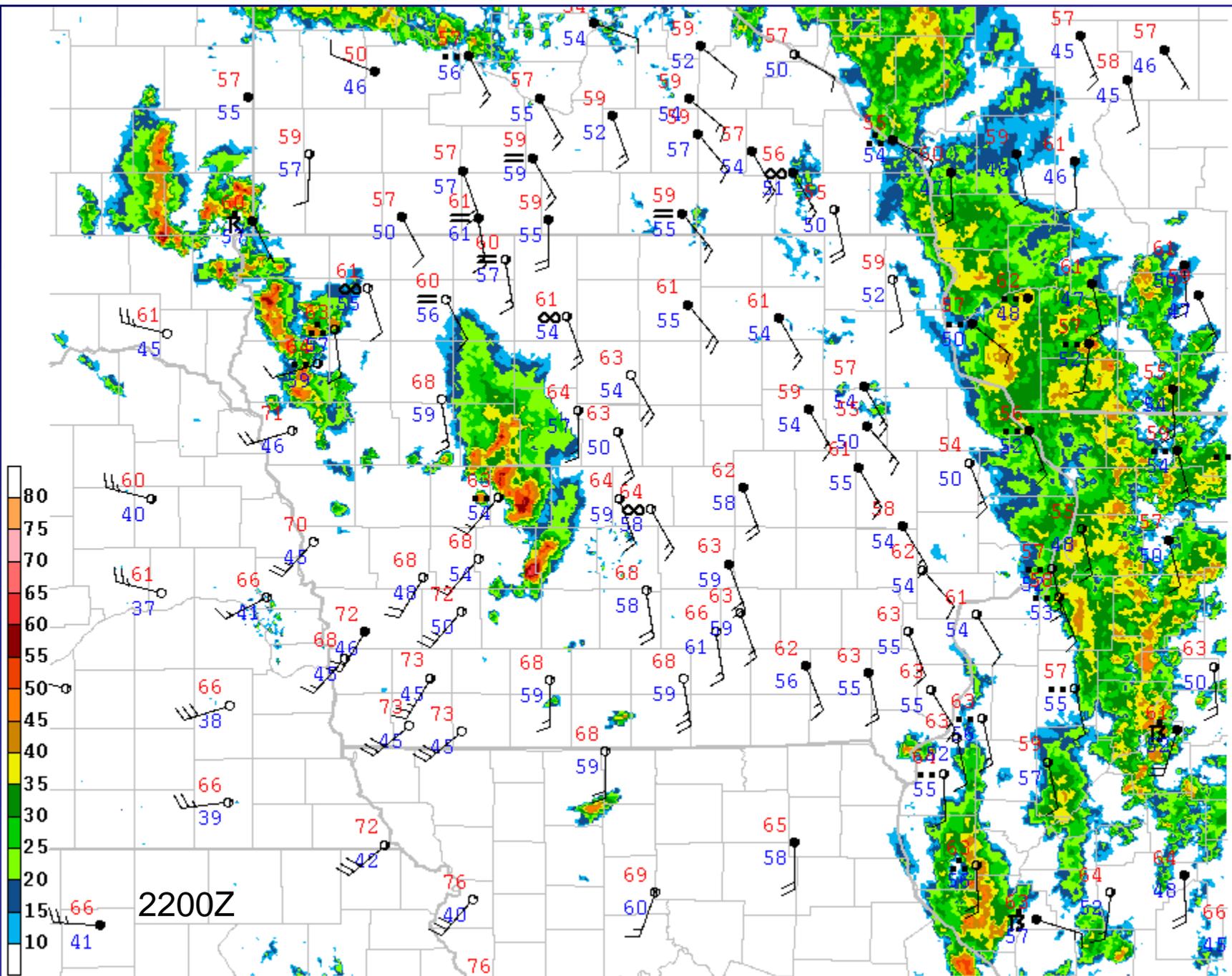
RADTIME: 051112/2100 SFCTIME: 051112/2100

ATLANTIC, IA 21z RUC SOUNDING

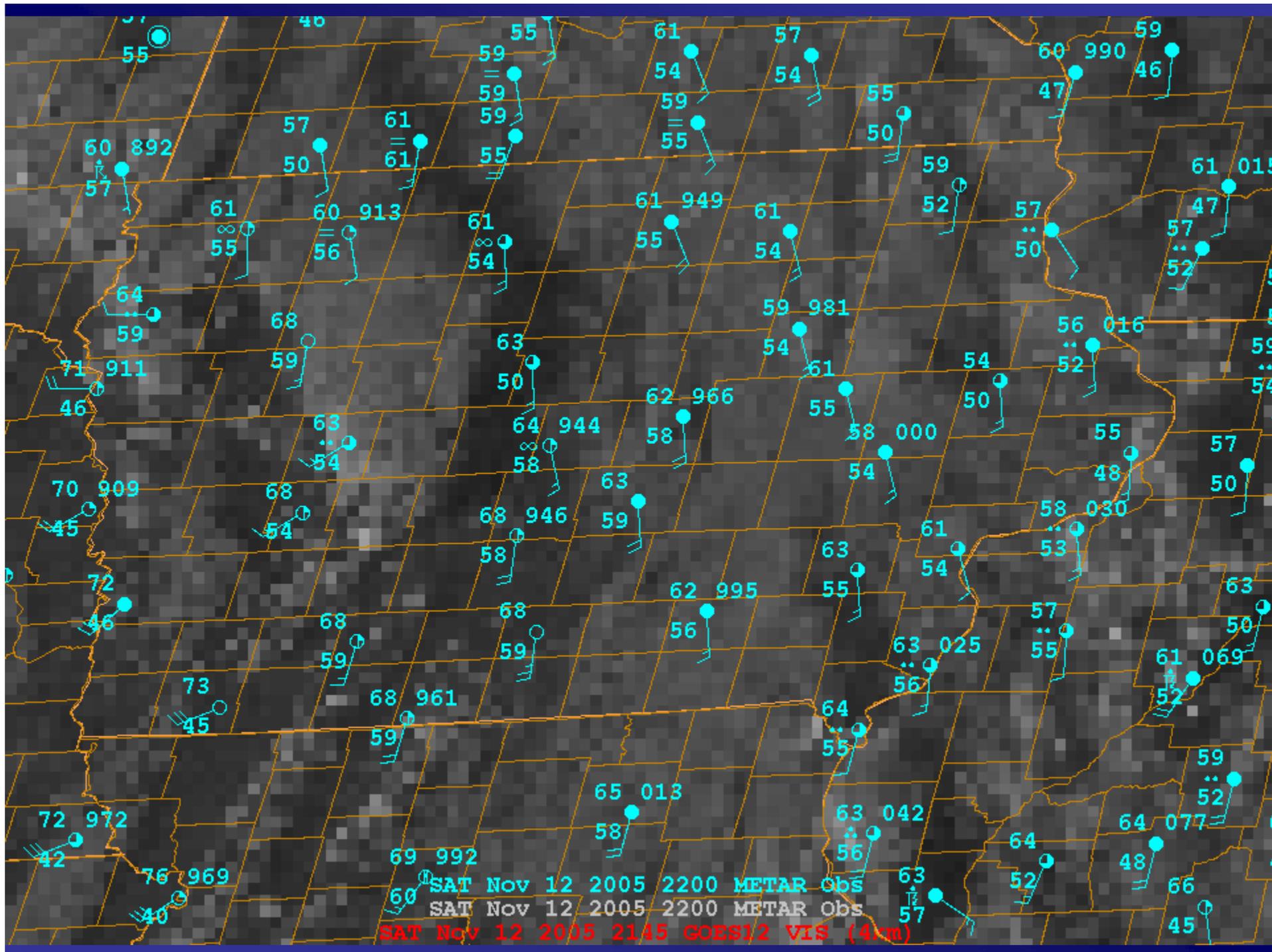


MESOSCALE DISCUSSION 2405 0335 PM CST SAT NOV 12 2005

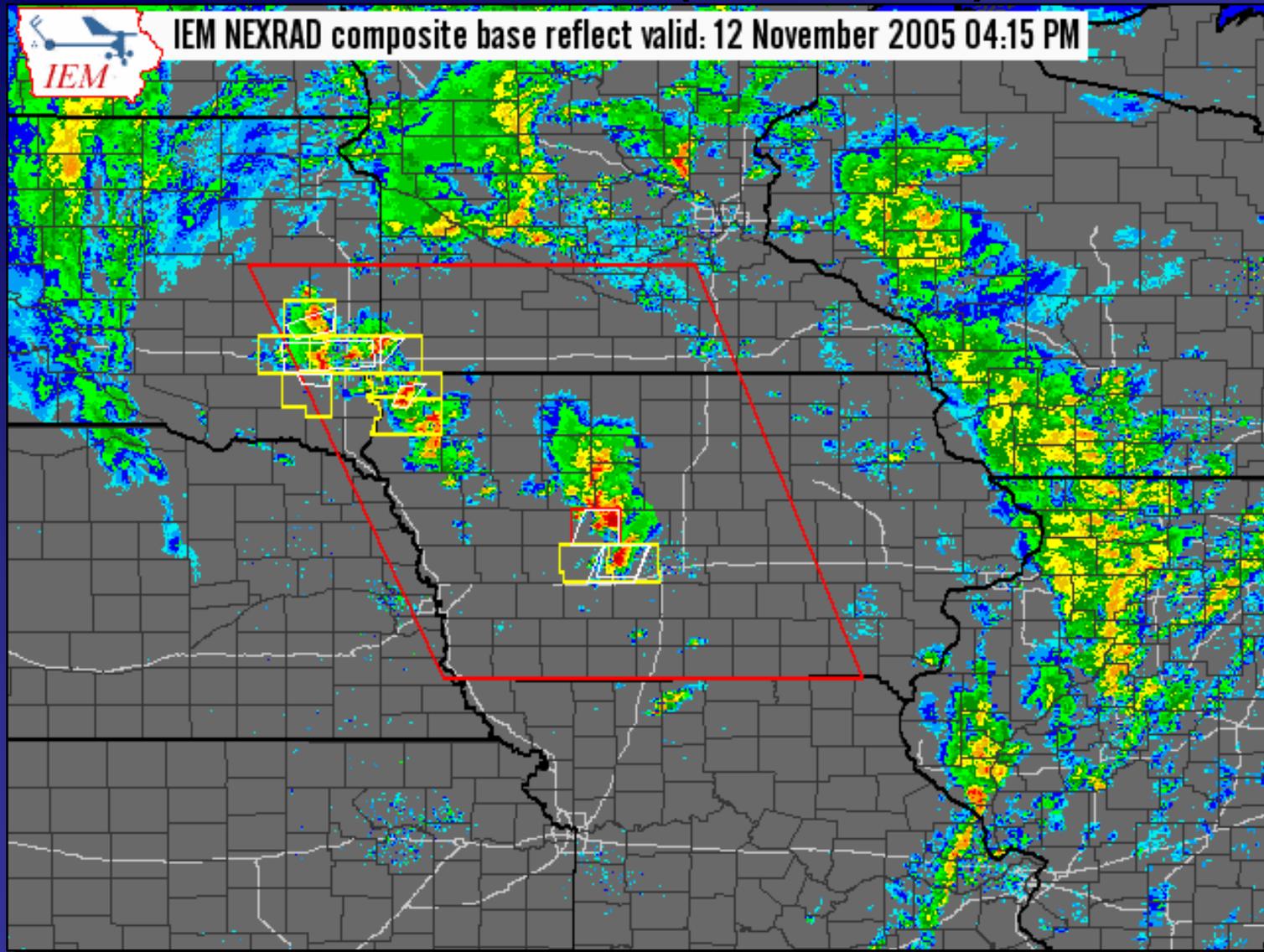




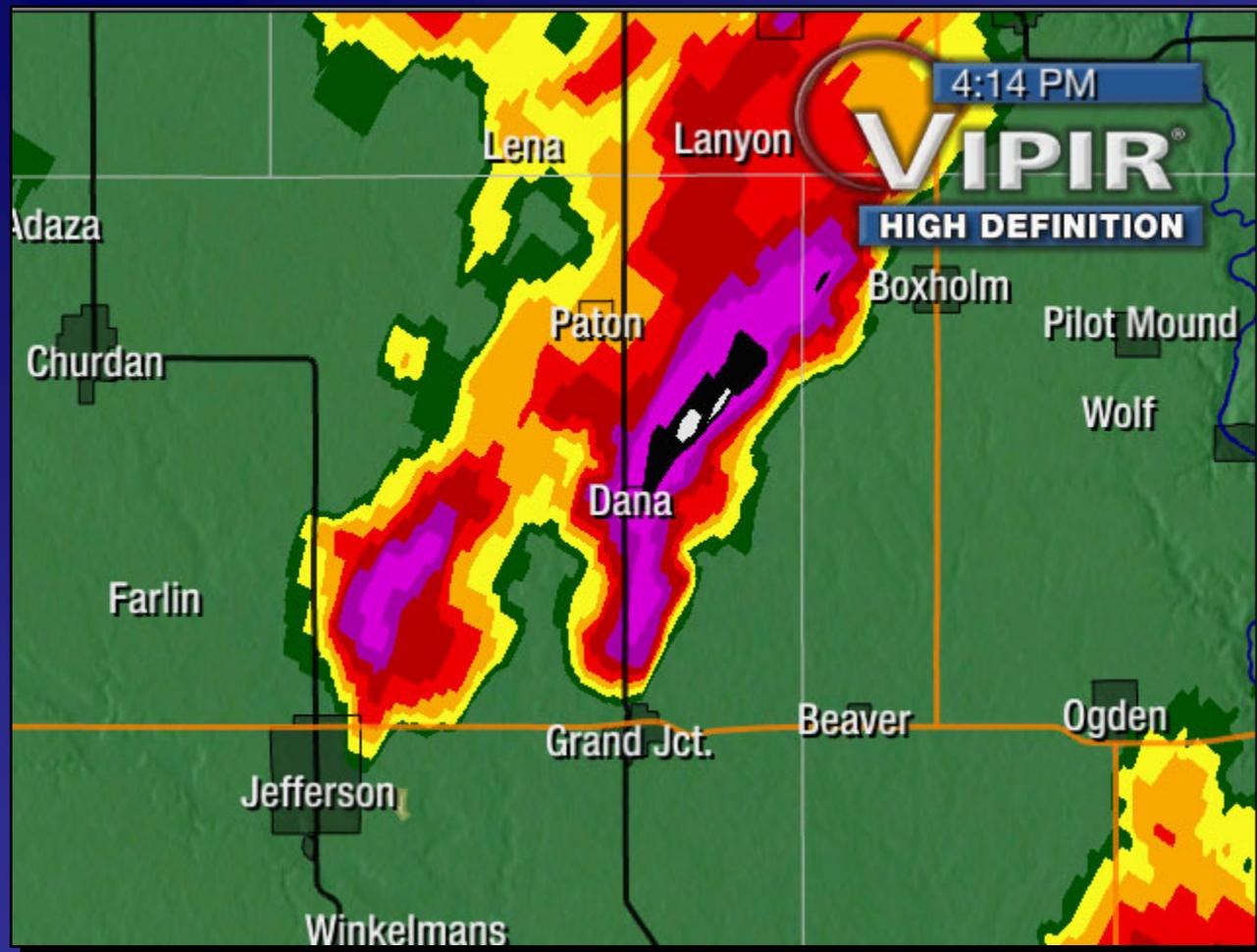
RADTIME: 051112/2200 SFCTIME: 051112/2200



4:15 PM (2215Z)



Greene Co. 2214 UTC

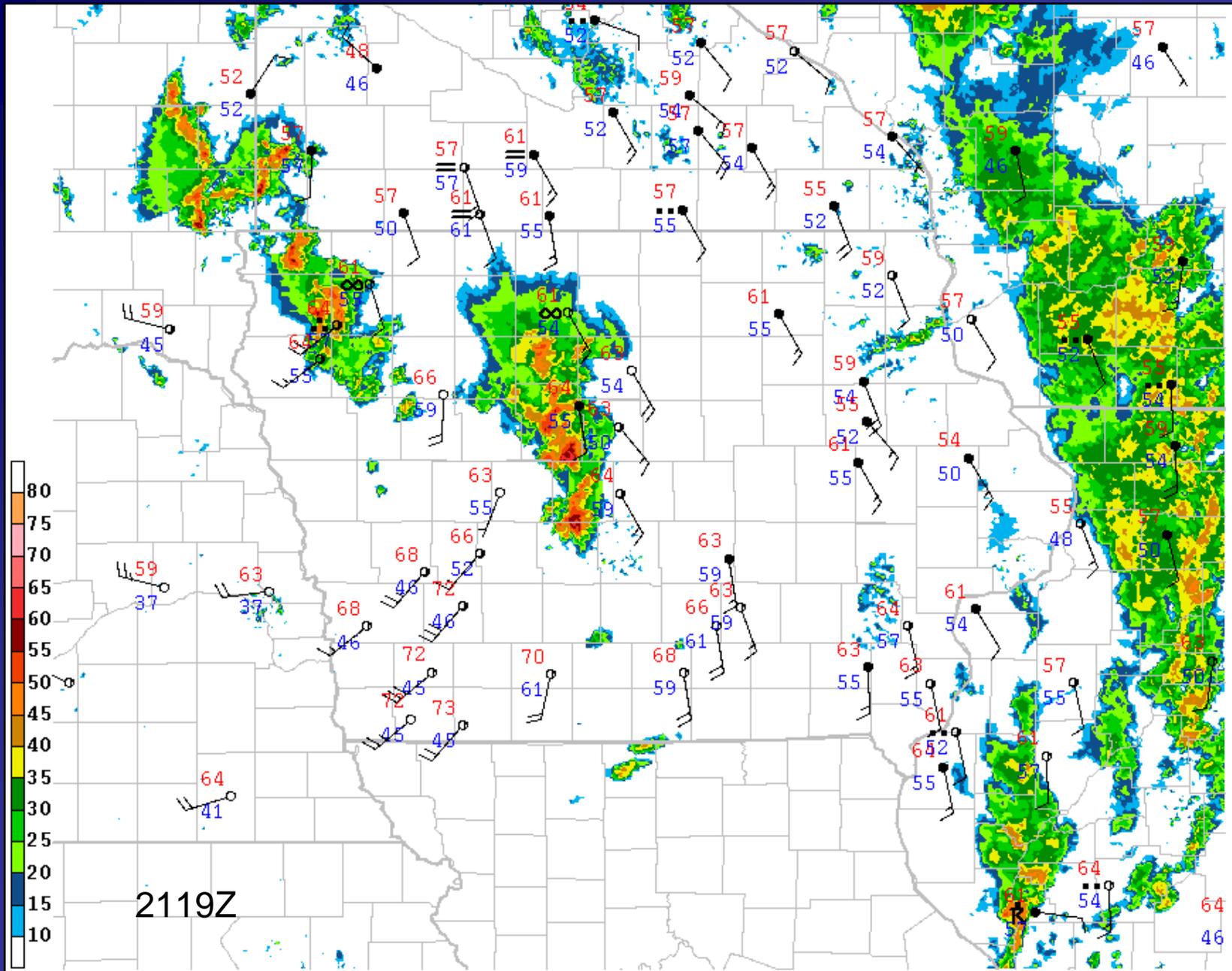


[4:14:38] kcciwx jefferson circulation now less defined on webcam

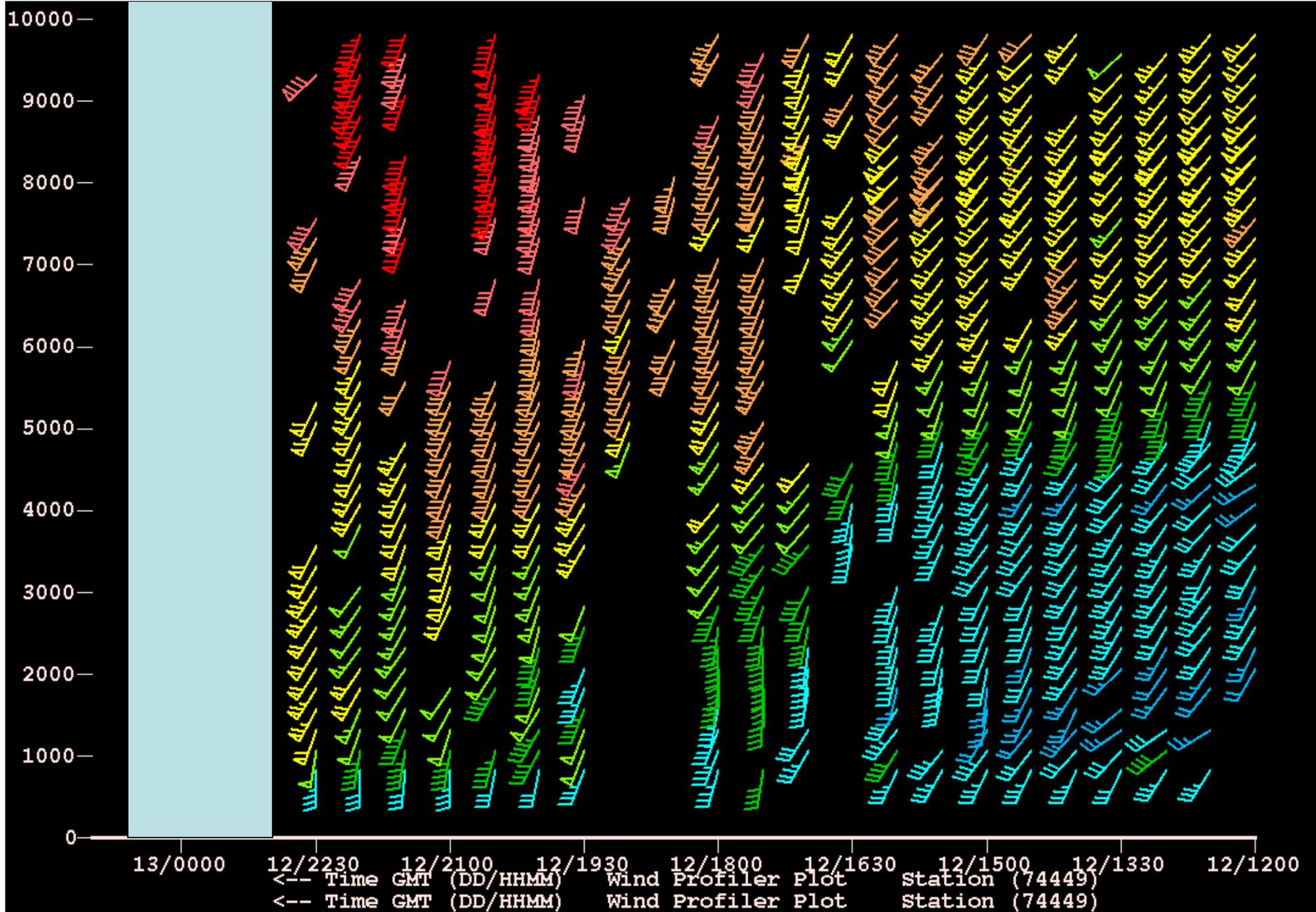


DMX AFD 4:18 PM 12 Nov.

...SFC LOW PASSING THRU SE SOUTH DAKOTAS WITH DRY LINE PUNCHING INTO WESTERN IA. INSTABILITY HAVING A HARD TIME INCREASING WITH LOW LEVEL CLDS INHIBITING HEATING...HOWEVER MOST RECENTLY SOME SUNSHINE HAS POKED THROUGH ACRS THE WESTERN THIRD OF THE STATE...SO THINGS MAY HEAT A BIT MORE. WNDS STILL APPEAR TO REMAIN PRIMARY THREAT BUT **ENOUGH ENHANCED SHEAR AND INSTABILITY JUST ALONG DRY LINE AXIS MAY PROVIDE THE NECESSARY INGREDIENTS FOR A BRIEF TORNADO OR TWO.**



RADTIME: 051112/2220 SFCTIME: 051112/2220



4:24 PM (2224Z)

[4:23:56] kcciwhite daryl are you able to move madrid

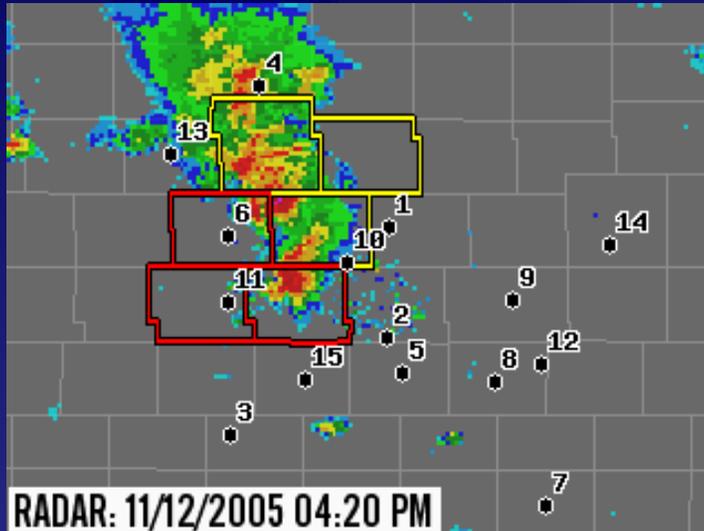
[4:24:13] iowamesonet I have been, nothing much to be seen at this point



(WSW) Madrid Sat Nov 12 16:24:03 CST 2005

[4:25:51] iembot 1 S Linden [Dallas Co, IA] storm chaser reports HAIL of 2.50 INCH at 04:14 PM CST --

[4:27:35] iembot DMX expires Tornado Warning for Greene [IA]

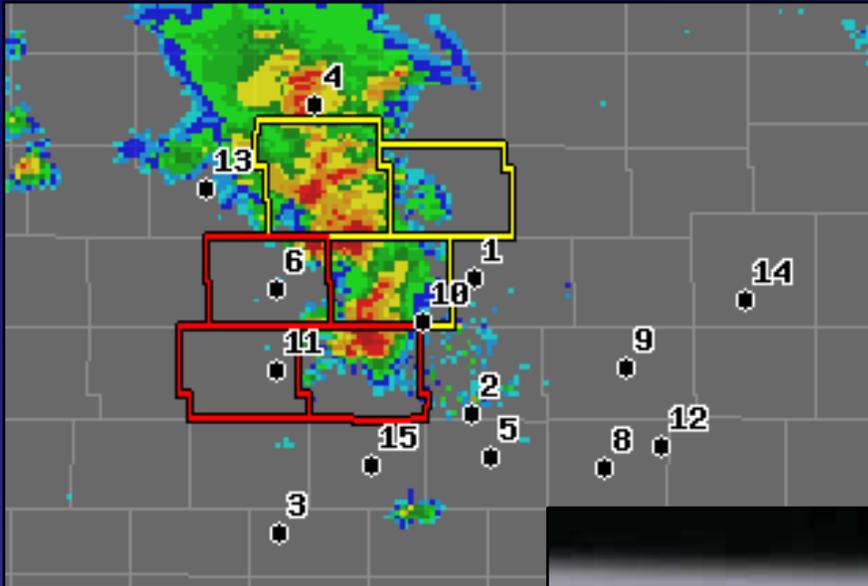


#6



#11

4:28 PM (2228Z)



RADAR: 11/12/2005 04:25 PM



(WSW) Madrid Sat Nov 12 16:28:03 CST 2005

#10

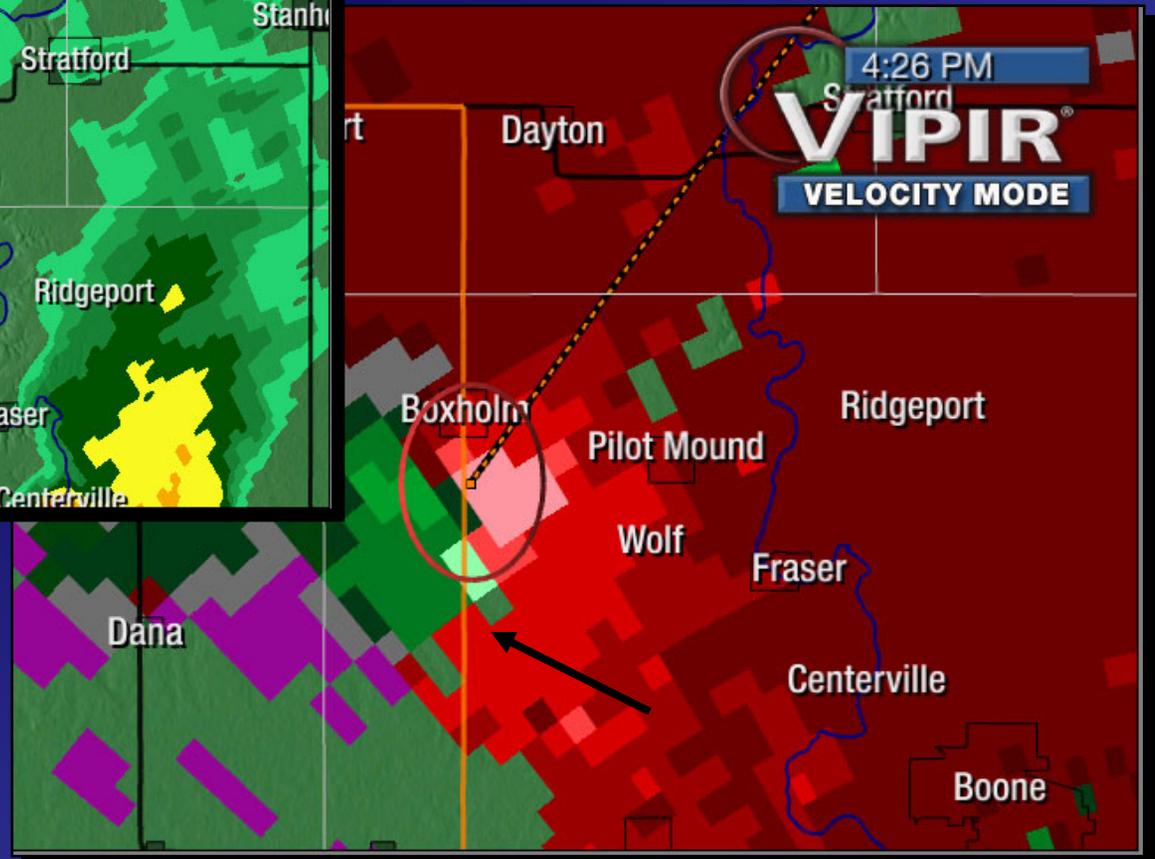
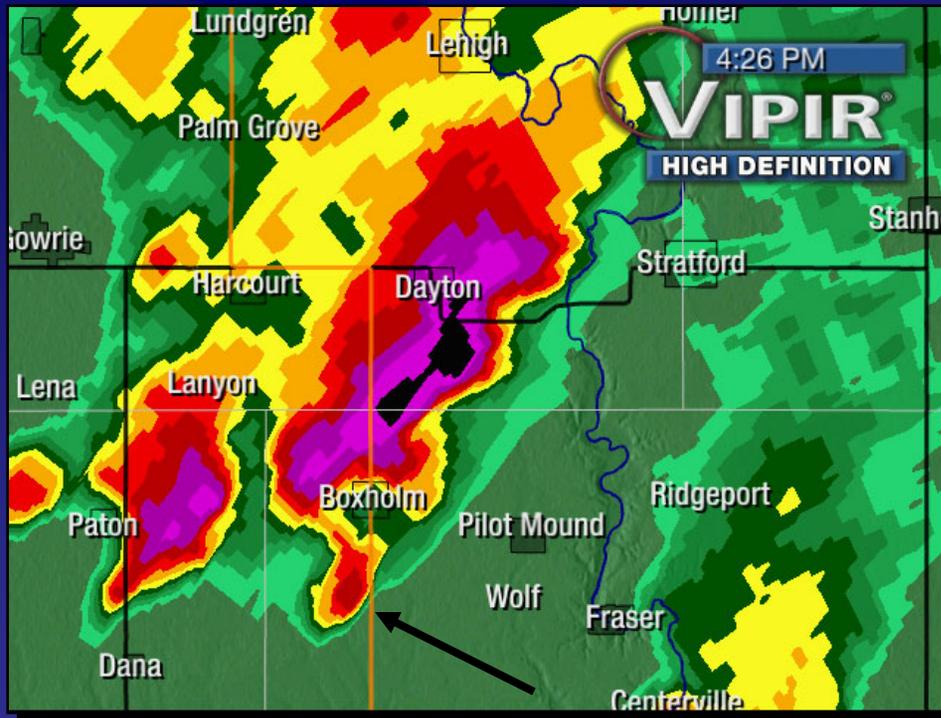


(NW) Indianola Sat Nov 12 16:28:02 CST 2005

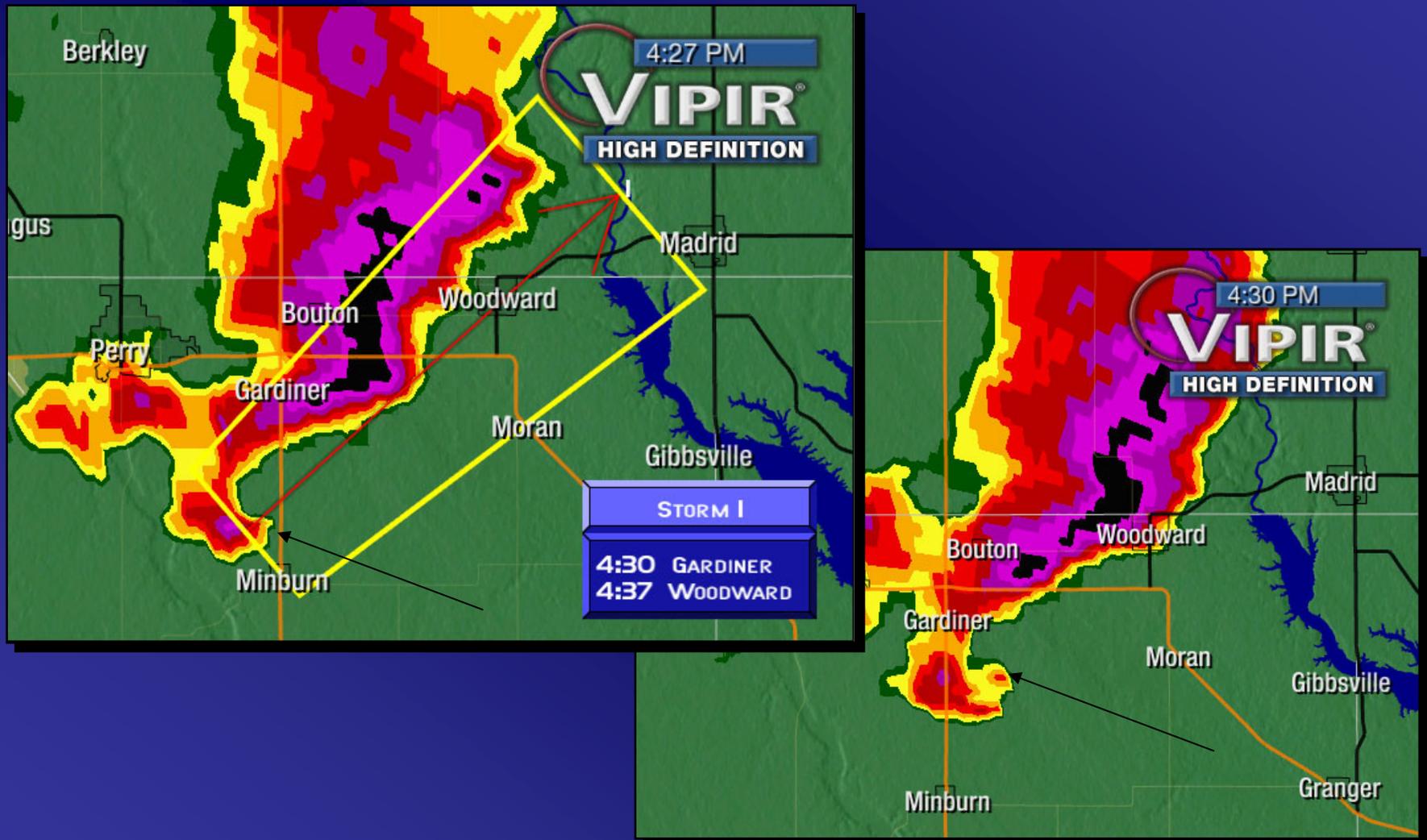
#5

IS THE SEVERE
THREAT A BUST?

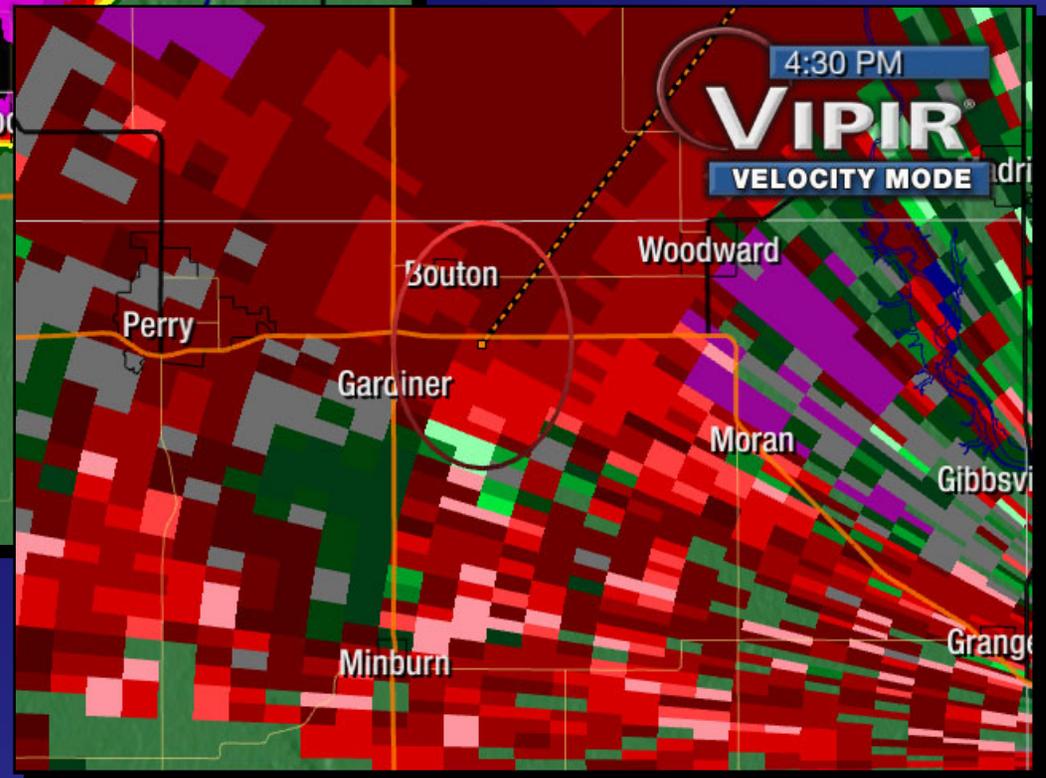
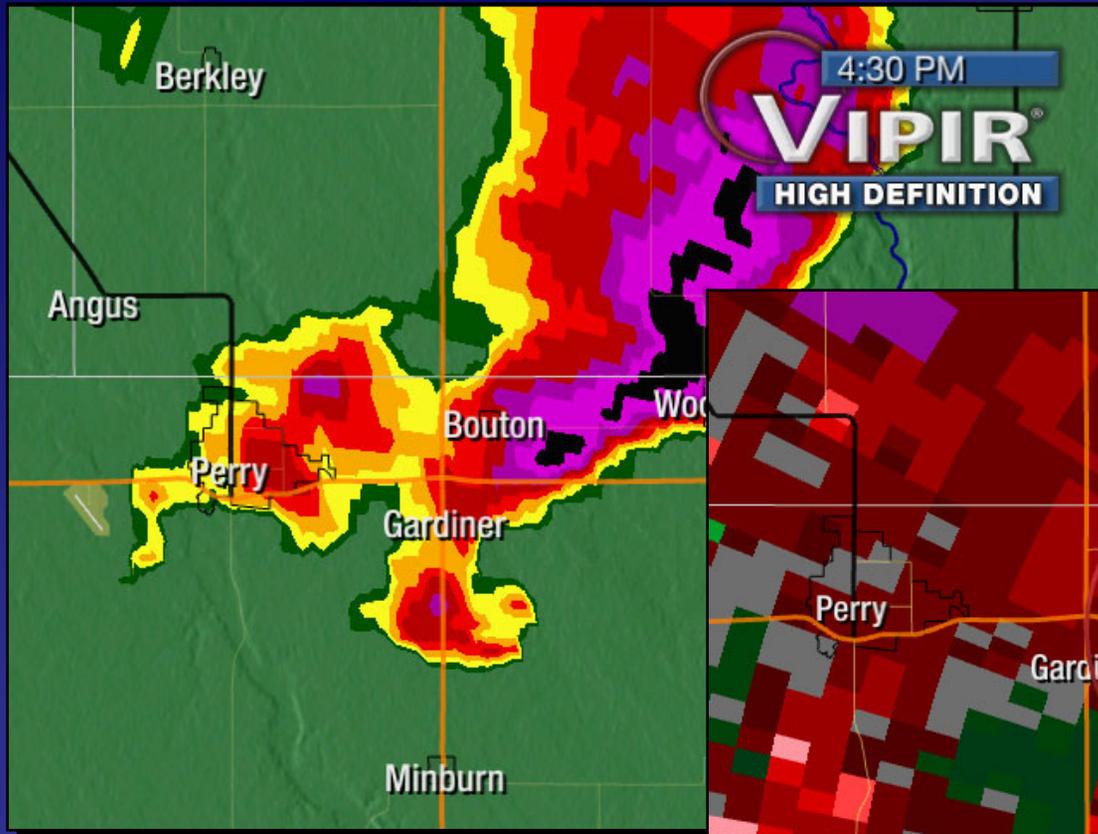
[4:29:18] nwsdmx1 Tornado on ground 3 w of pilot mound
[4:30:04] iembot DMX issues Tornado Warning for Boone,
Hamilton, Webster [IA] till 5:00 PM CST

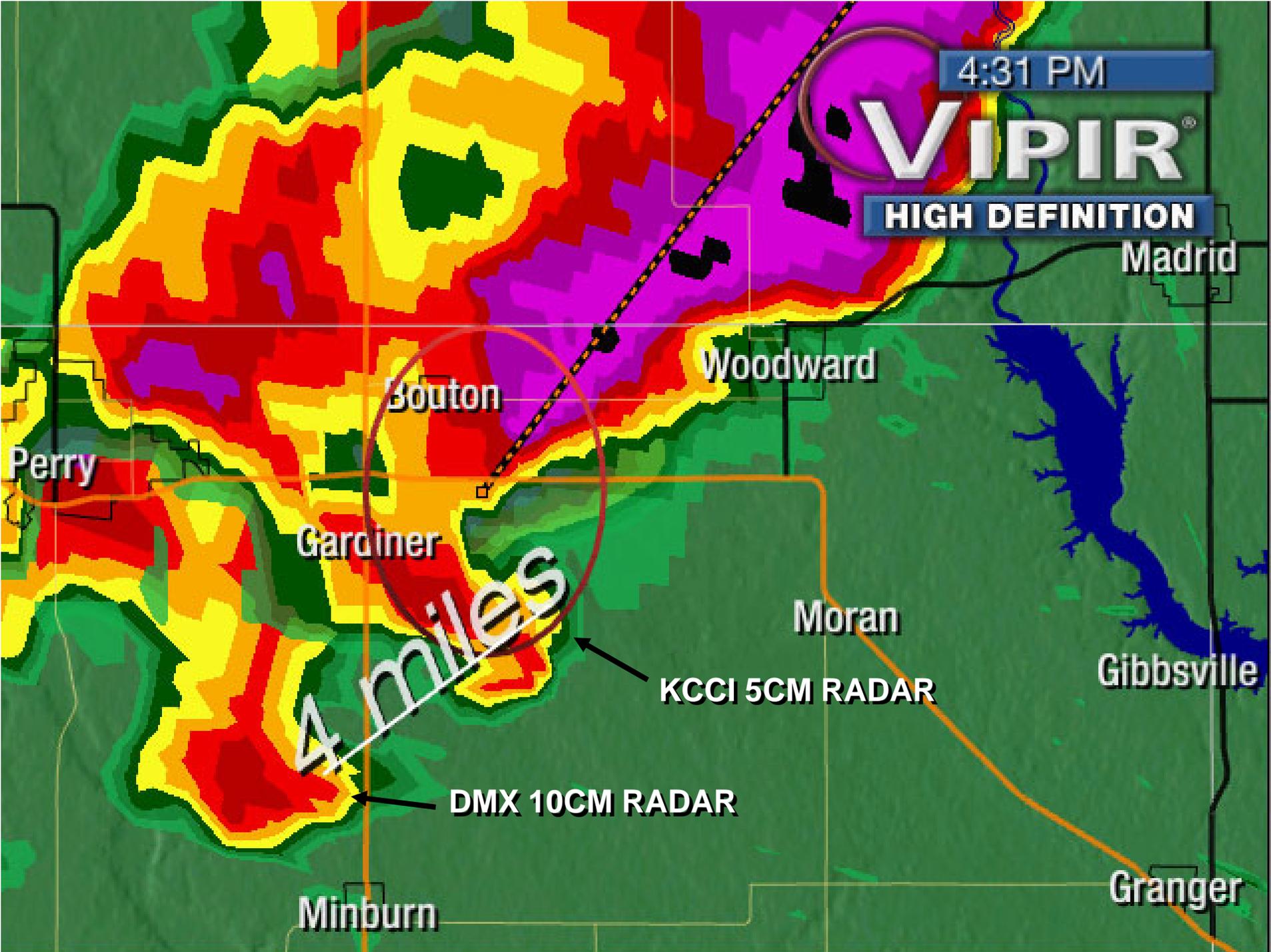


[4:30:12] nwsdmx6 tornado on ground 1 northeast of Minburn
[4:30:46] iembot DMX issues Tornado Warning for Boone,
Dallas [IA] till 5:00 PM CST



[4:30:12] nwsdmx6 tornado on ground 1 northeast of Minburn
[4:30:46] iembot DMX issues Tornado Warning for Boone,
Dallas [IA] till 5:00 PM CST





4:31 PM

VIPIR[®]

HIGH DEFINITION

Madrid

Woodward

Bouton

Perry

Gardiner

Moran

Gibbsville

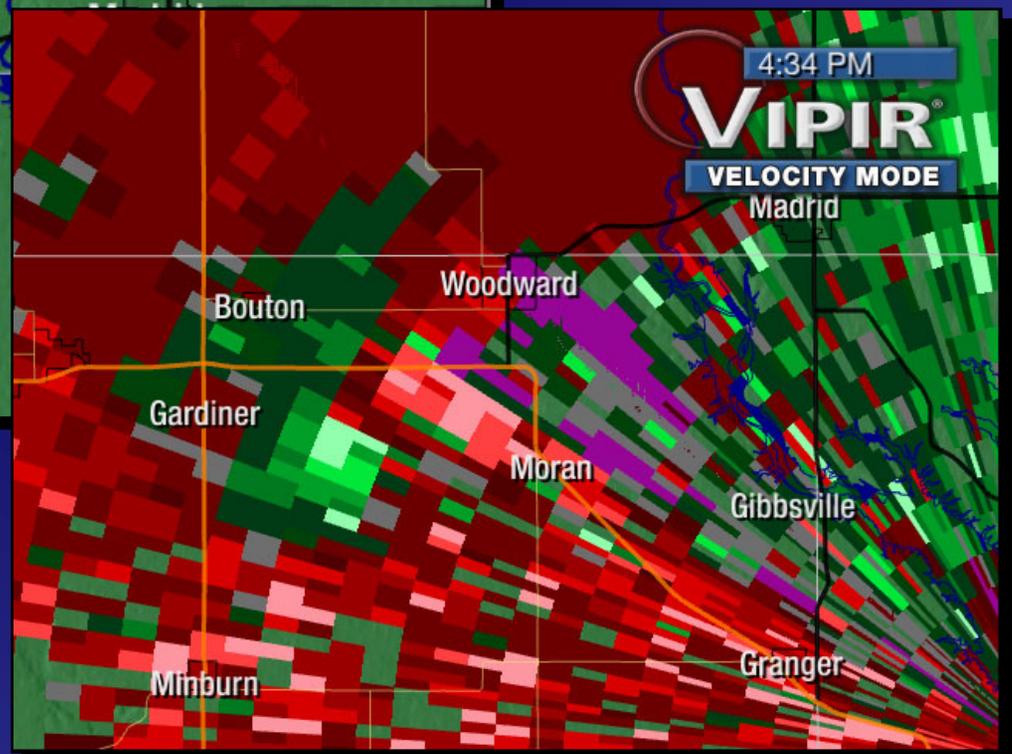
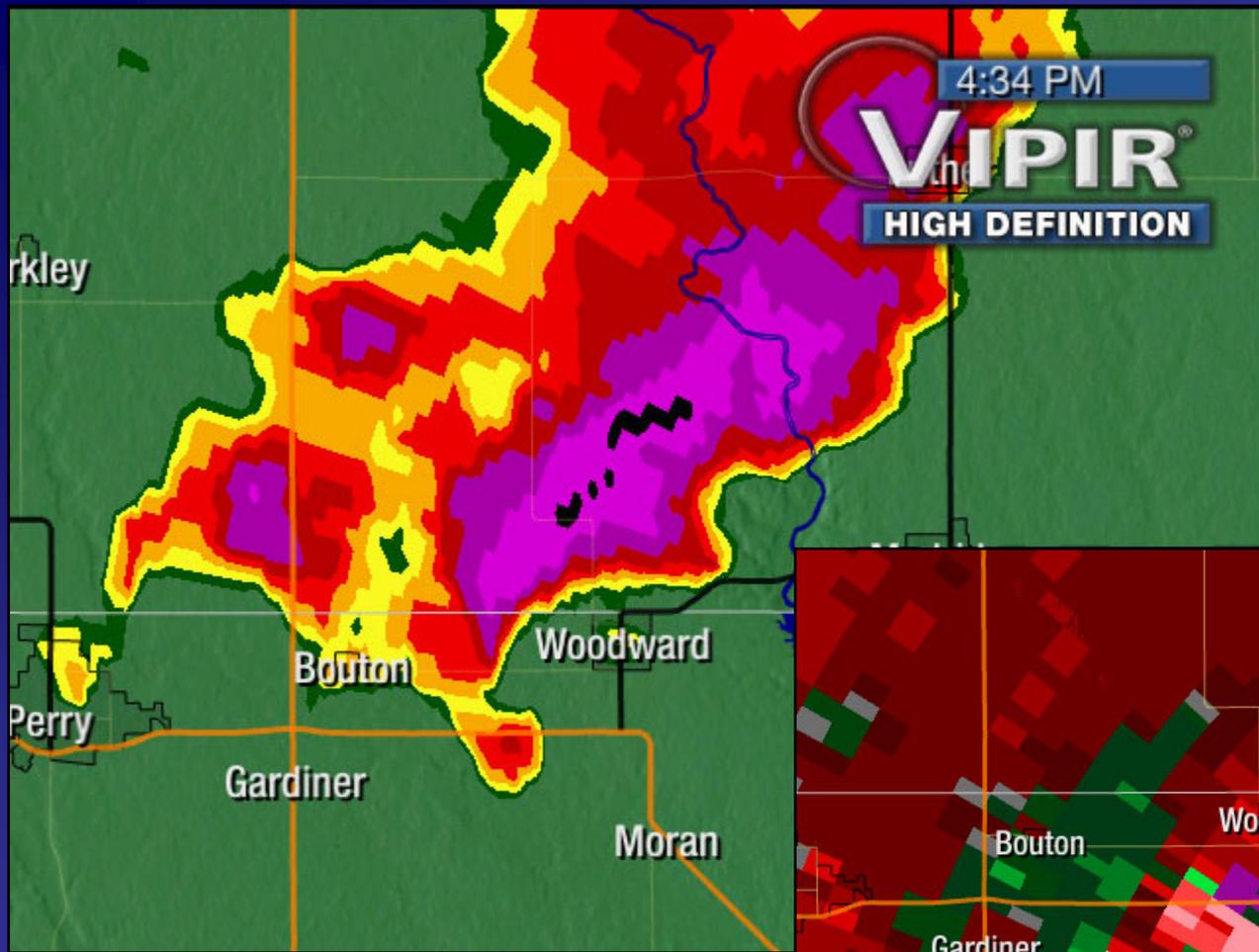
KCCI 5CM RADAR

DMX 10CM RADAR

Minburn

Granger

4 miles



2234Z

[4:34:51] iowamesonet check out Madrid webcam. Something looks ugly



Insanity Ensues

[4:35:04] iembot 4 W Pilot Mound [Boone Co, IA] law enforcement report TORNADO at 04:27 PM CST -- tornado on ground moving north

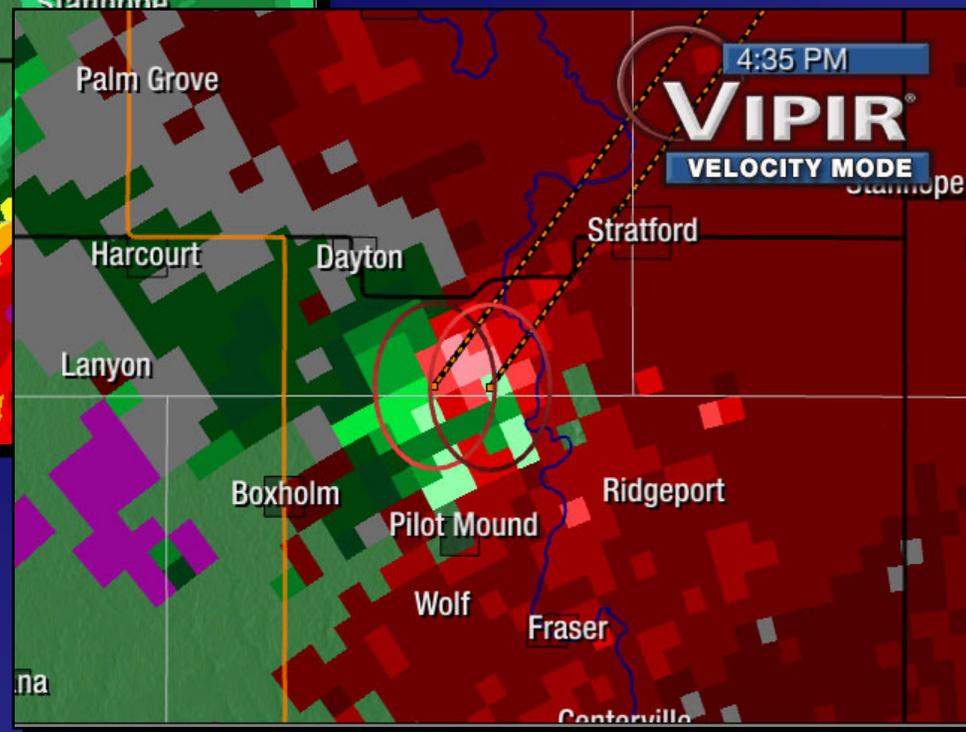
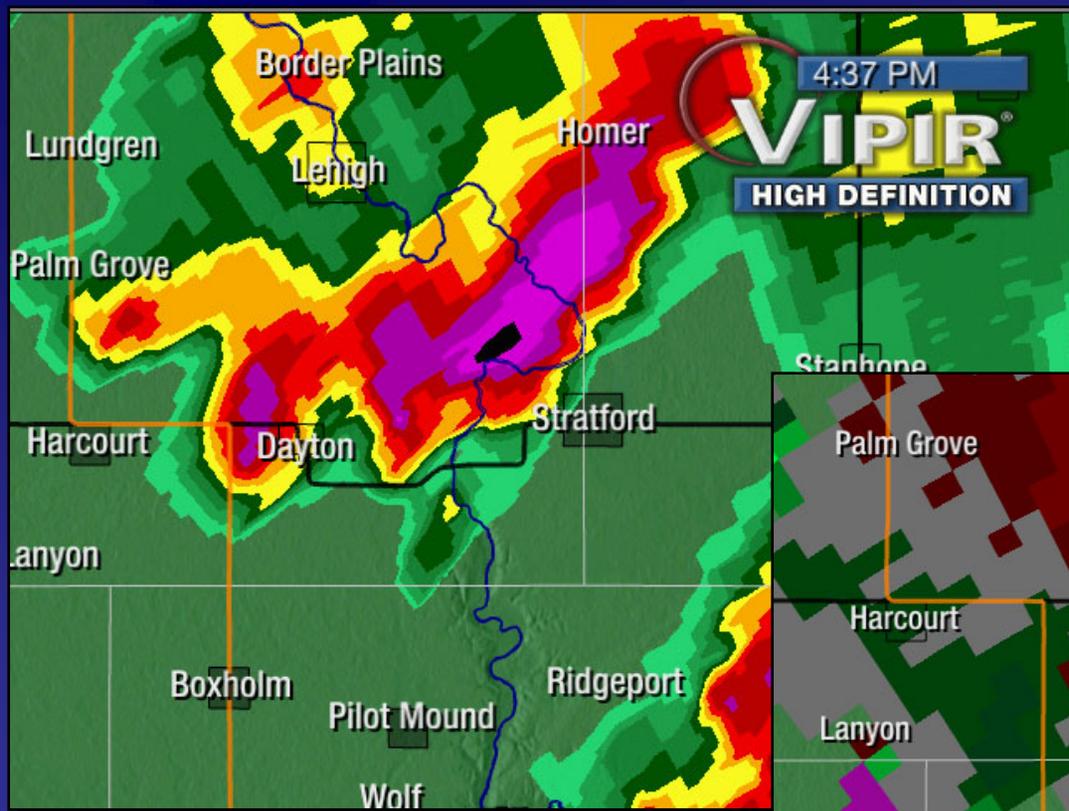
[4:35:07] nwsdmx1 Tornado continues on ground sw of stratford

[4:35:26] kcciwhite gertz sees tornado on ground getting ready to cross 141

[4:35:30] kcciwhite he's live... webcam...

[4:35:43] iowamesonet definite tornado on Madrid webcam

SUPERCCELL NEAR STRATFORD



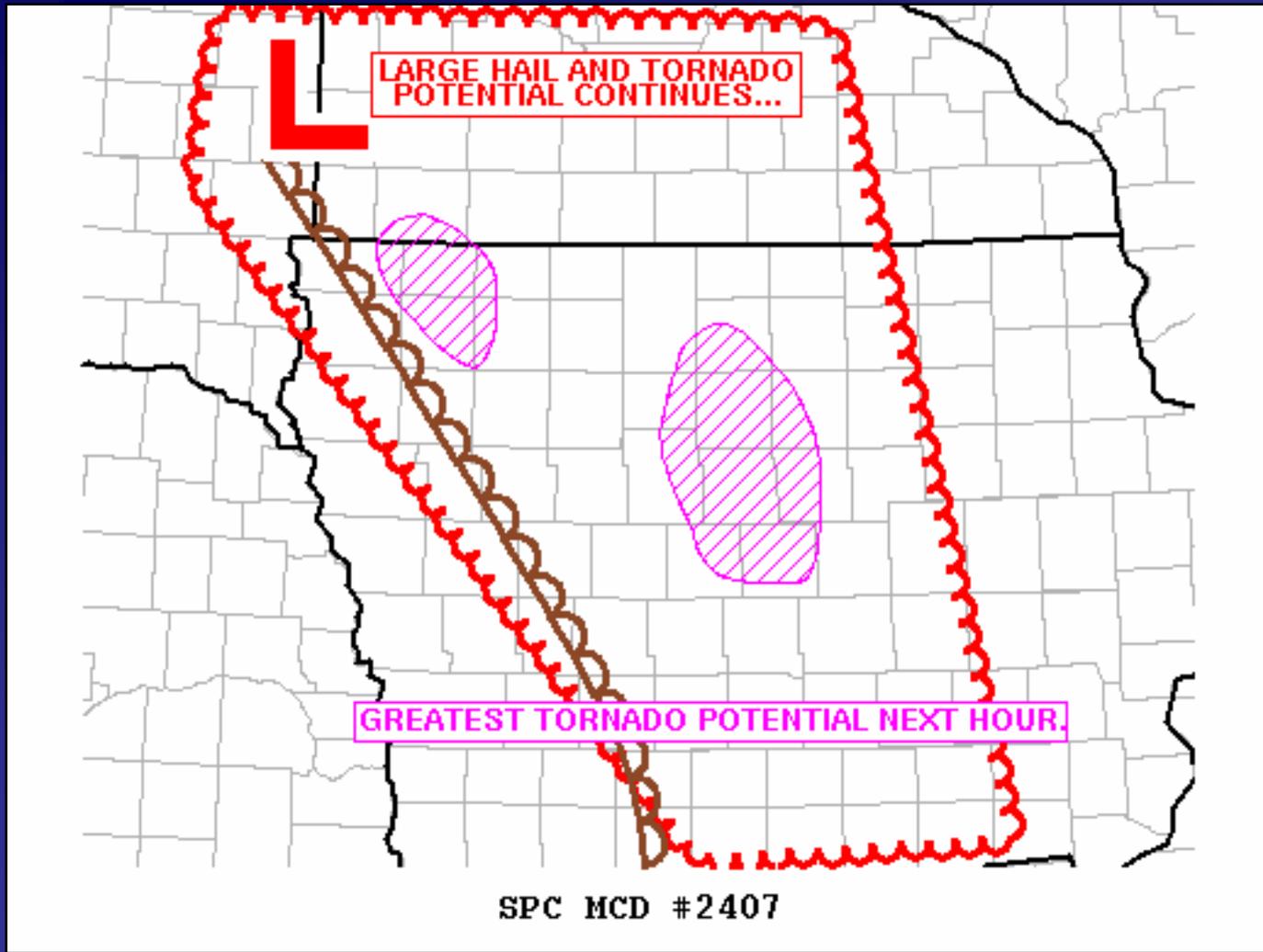
[4:36:11] kcciwhite large tornado near Woodward



[4:37:45] kcciwhite tornado on madrid webcam....zoom in daryl!!!



MESOSCALE DISCUSSION 2407 0440 PM CST SAT NOV 12 2005



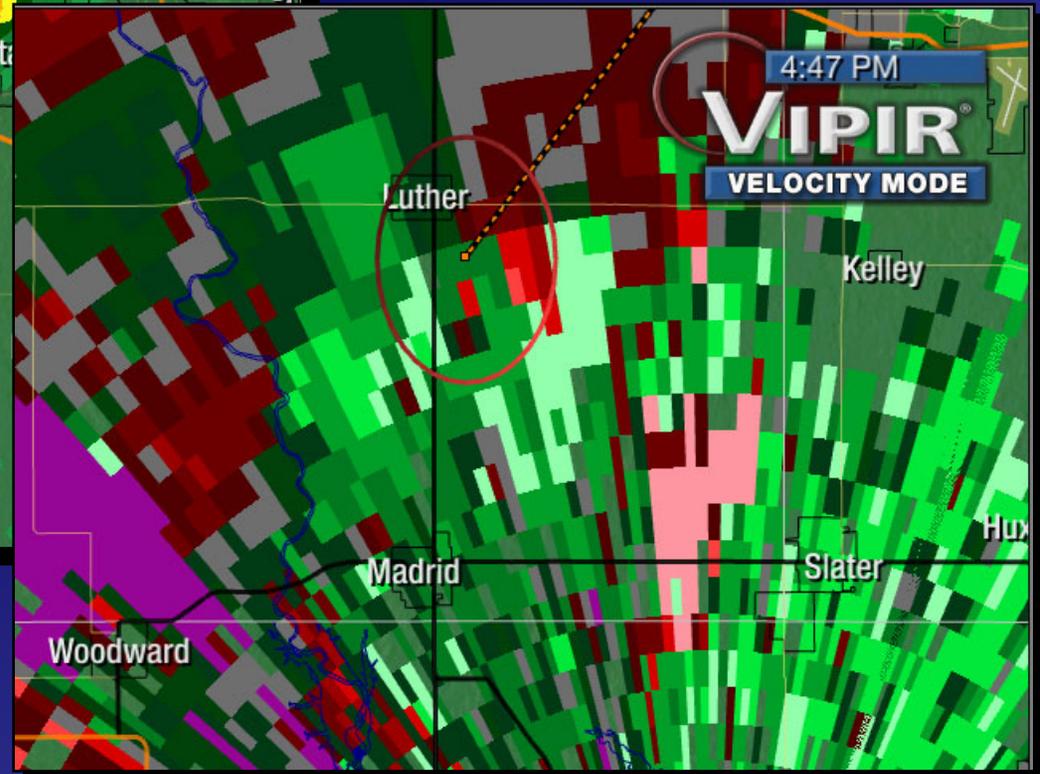
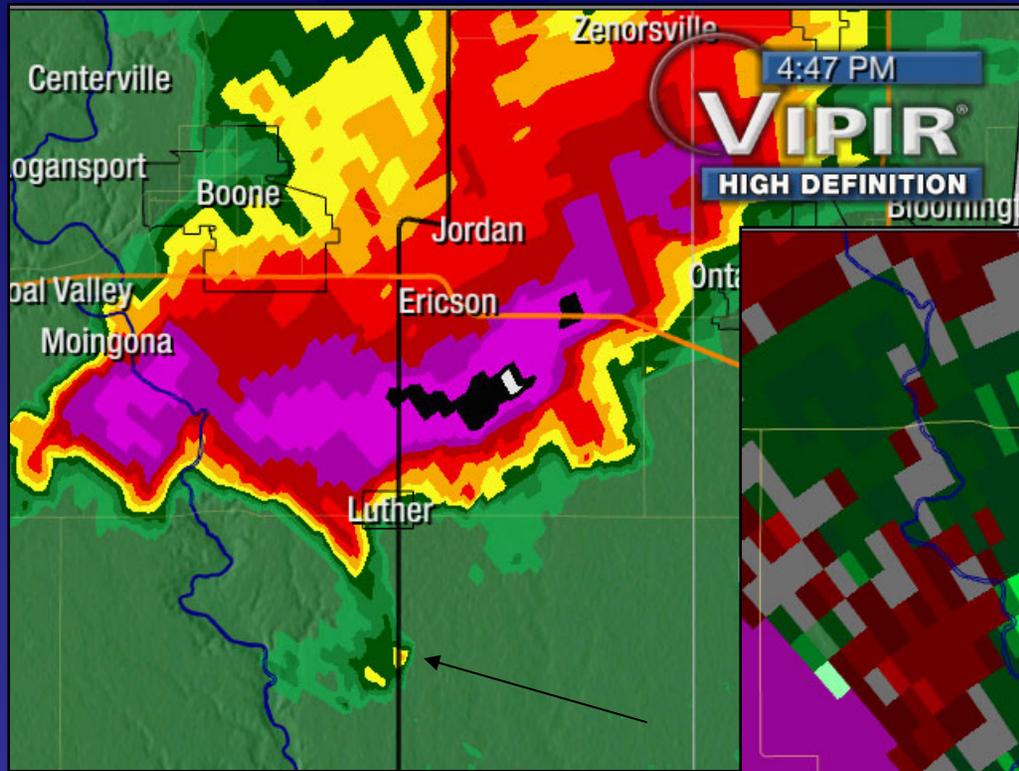
4:41 PM (2241Z)



WSW 4:40 PM

4:45 PM (2245Z)

[4:48:35] **iowamesonet** half way between luther and madrid tornado on ground now



4:49 PM (2249Z)

[4:50:27] **iowamesonet** nickels now (*My House*)

[4:50:49] **iowamesonet** 1 mile SE luther tornado on ground, ISU spotters

[4:52:16] **kcciwwhite** viewer confirms funnel/tor. report in luther area

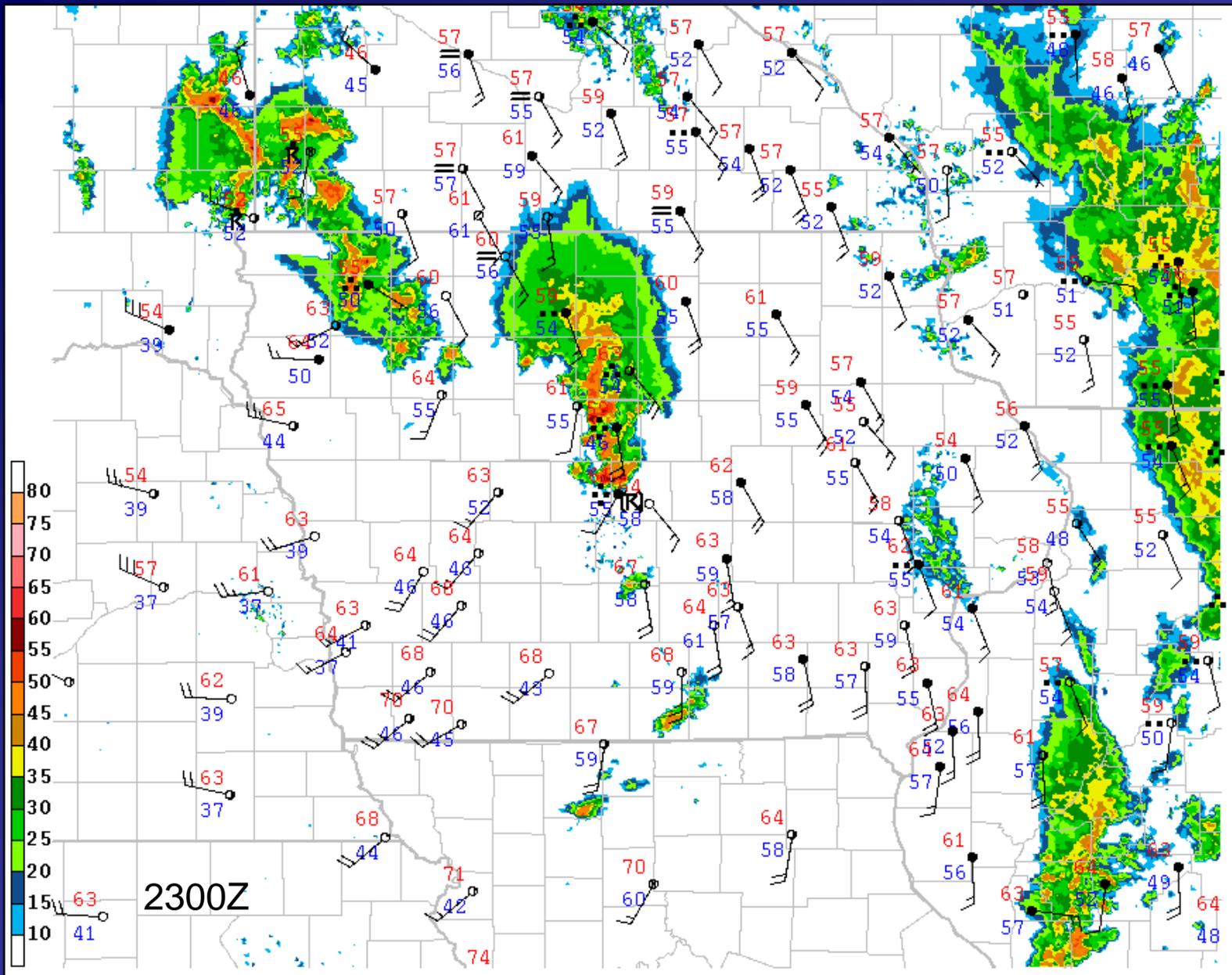
[4:52:19] **iowamesonet** 2 mile south of luther, farm house heavily damaged

[4:52:44] **nwsdmx6** ham radio reports luther tornado has begun to rope out

4:53 PM (2253Z)

[4:55:34] iowamesonet ISU spotters say former Luther tornado has dissipated

[4:56:06] nwsdmx6 tor wrng for story co coming



RADTIME: 051112/2300 SFCTIME: 051112/2300

4:58 PM (2258Z)

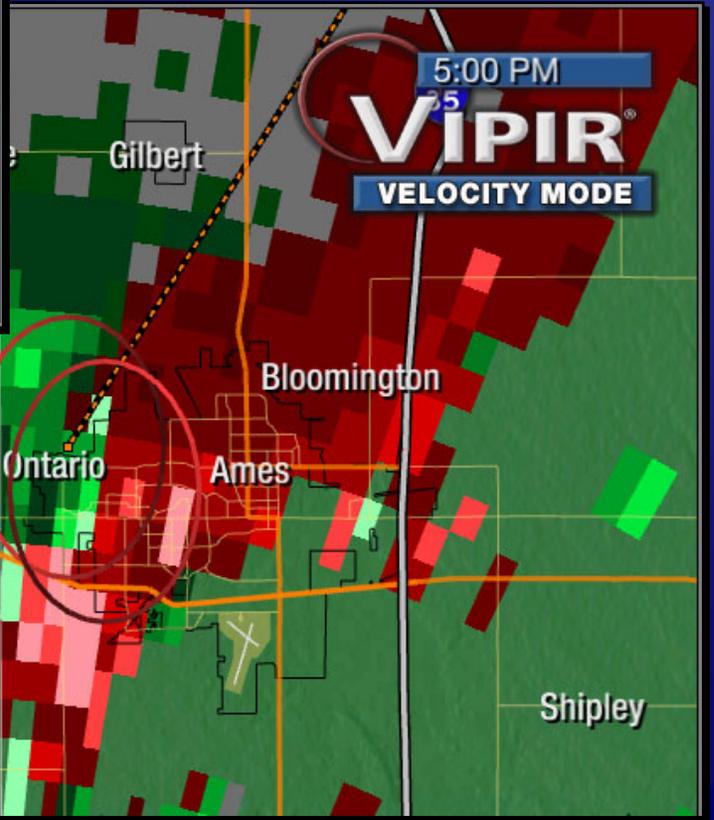
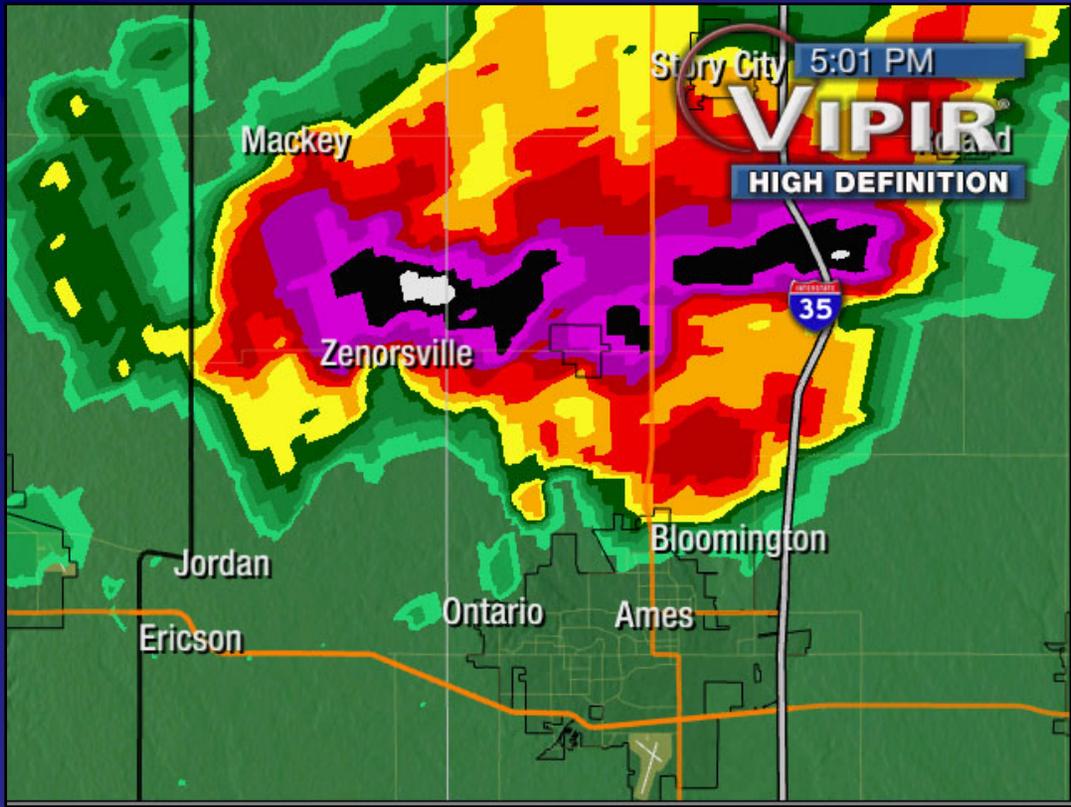
[4:59:09] [iowamesonet](#) funnel on Ames cam



[4:59:52] iowamesonet almost down



(It was actually down at this point)



2300Z

5:02 PM (2302Z)

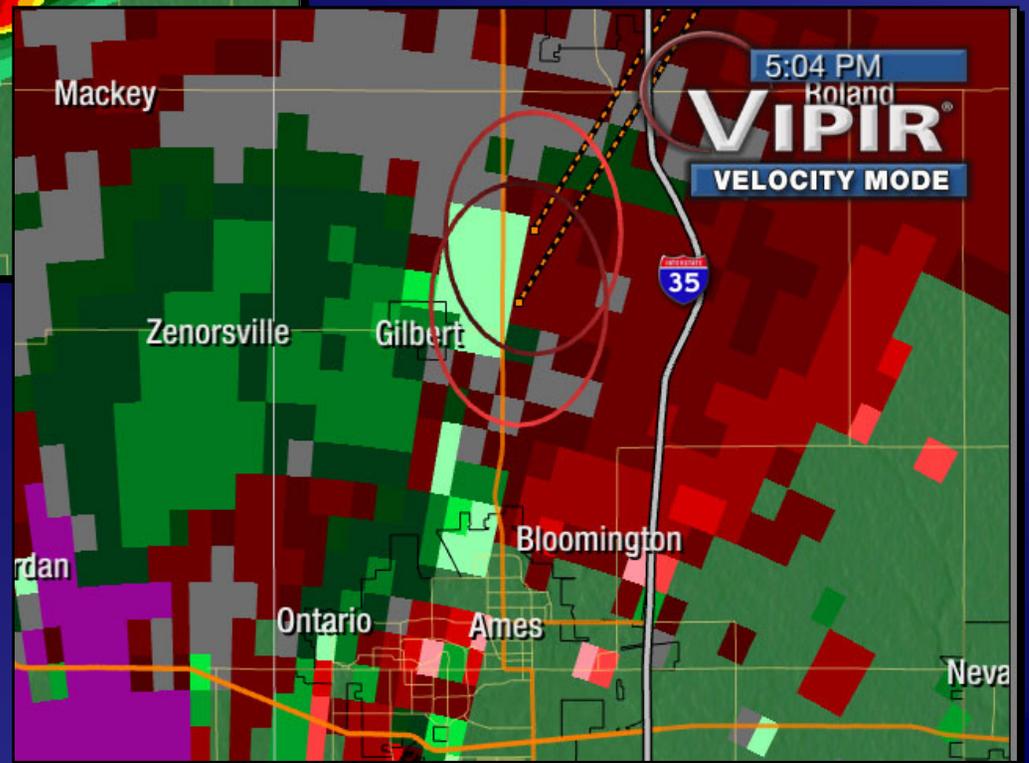
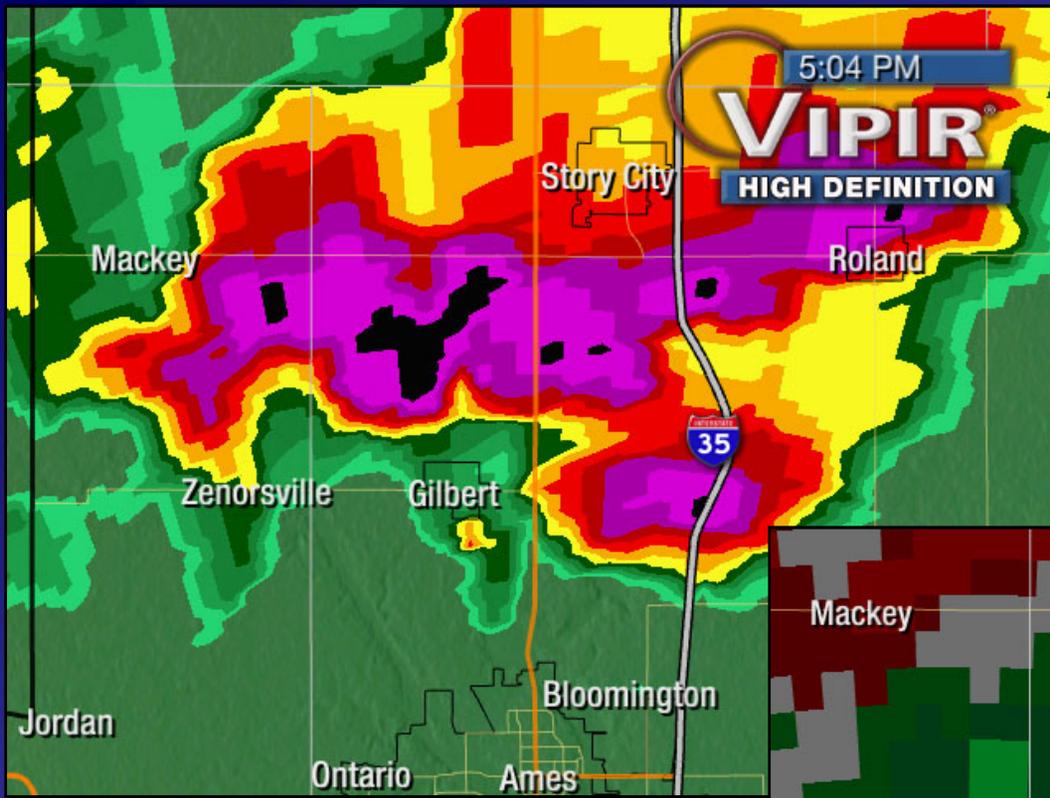
[5:02:00] wmt_am got a citizens report of a tornado that touched down briefly just north of lincoln way in ames



5:06 PM (2306Z)

[5:06:44] iembot DMX issues Tornado Warning for Hamilton [IA]
till 5:30 PM CST

[5:09:41] kcciwhite Chris Maiers reports home destroyed on N.
Dakota in Ames



2304Z

5:11 PM (2311Z)

[5:13:53] kcciwhite report from stratford of home damaged w/beauty shop attached to home damaged w/beauty shop attached

[5:14:13] kcciwhite gas leaks in stratford

[5:15:10] kcciwhite power lines down nw side of ames.... ham radio...

[5:15:39] nwsdmx6 1st three blocks on south side of woodward have some damage, possibly significant due to tornado. Emergency management checking.

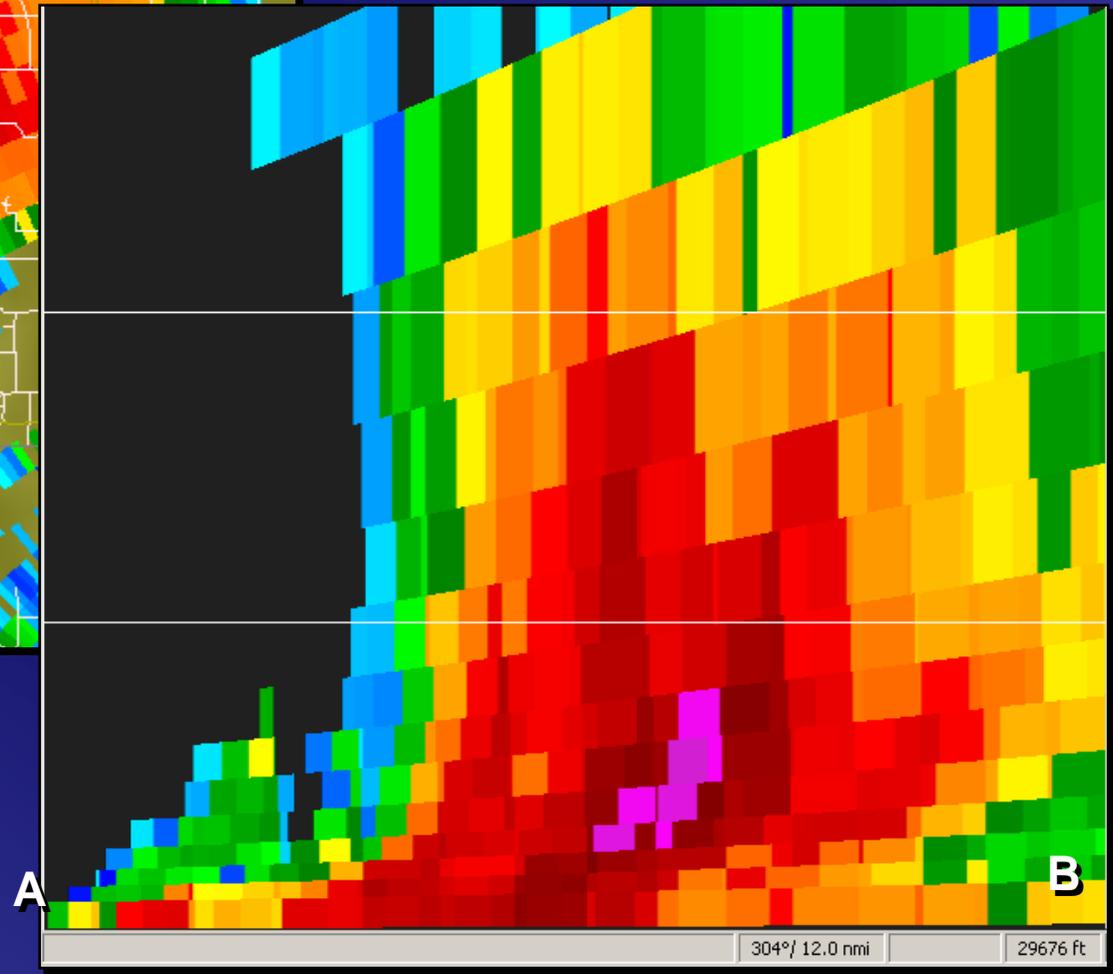
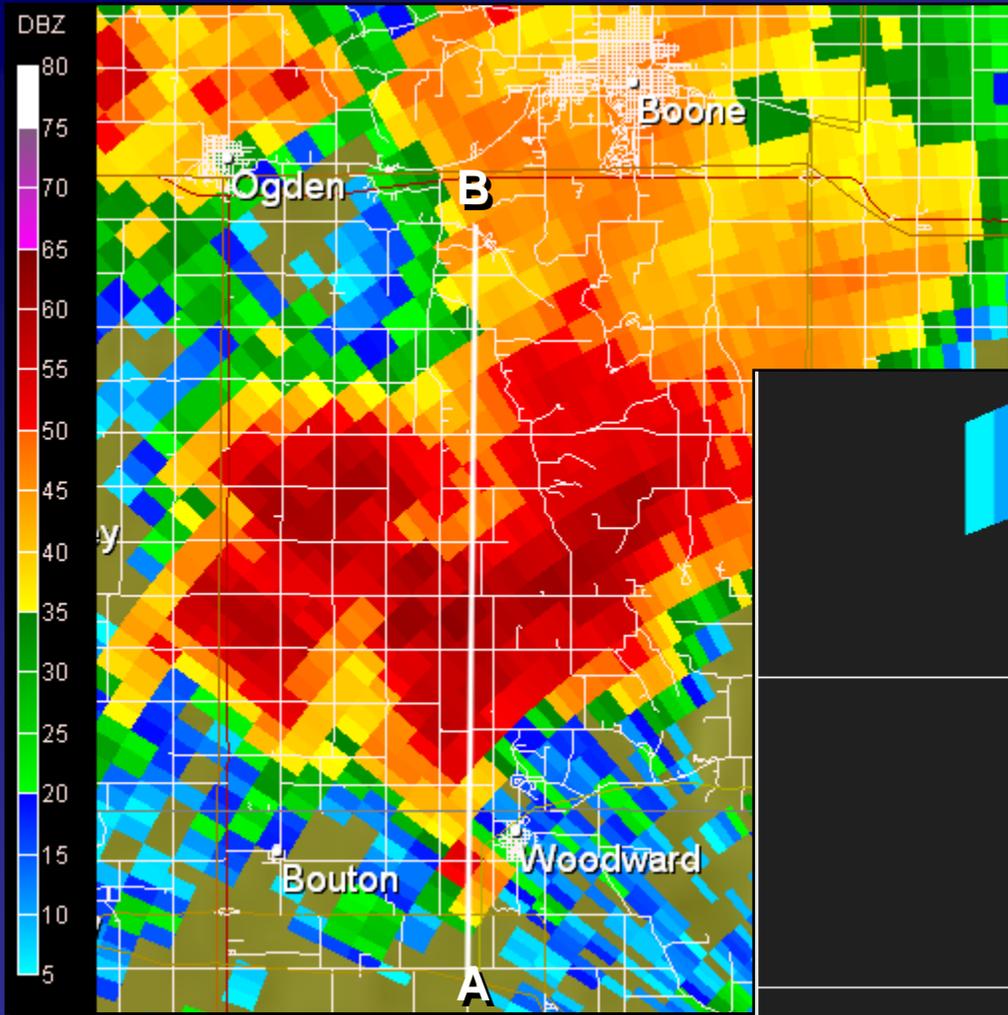
[5:16:44] kcciwhite kurtis says cars were flipped and one building removed from foundation...

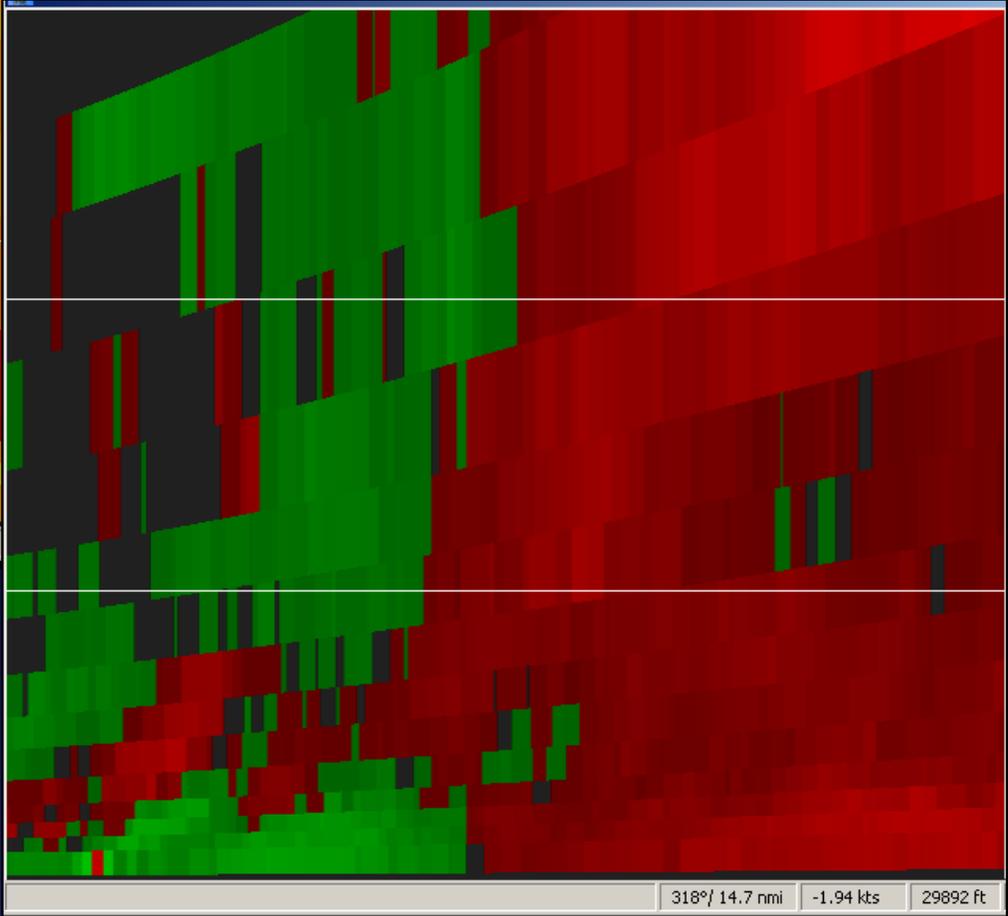
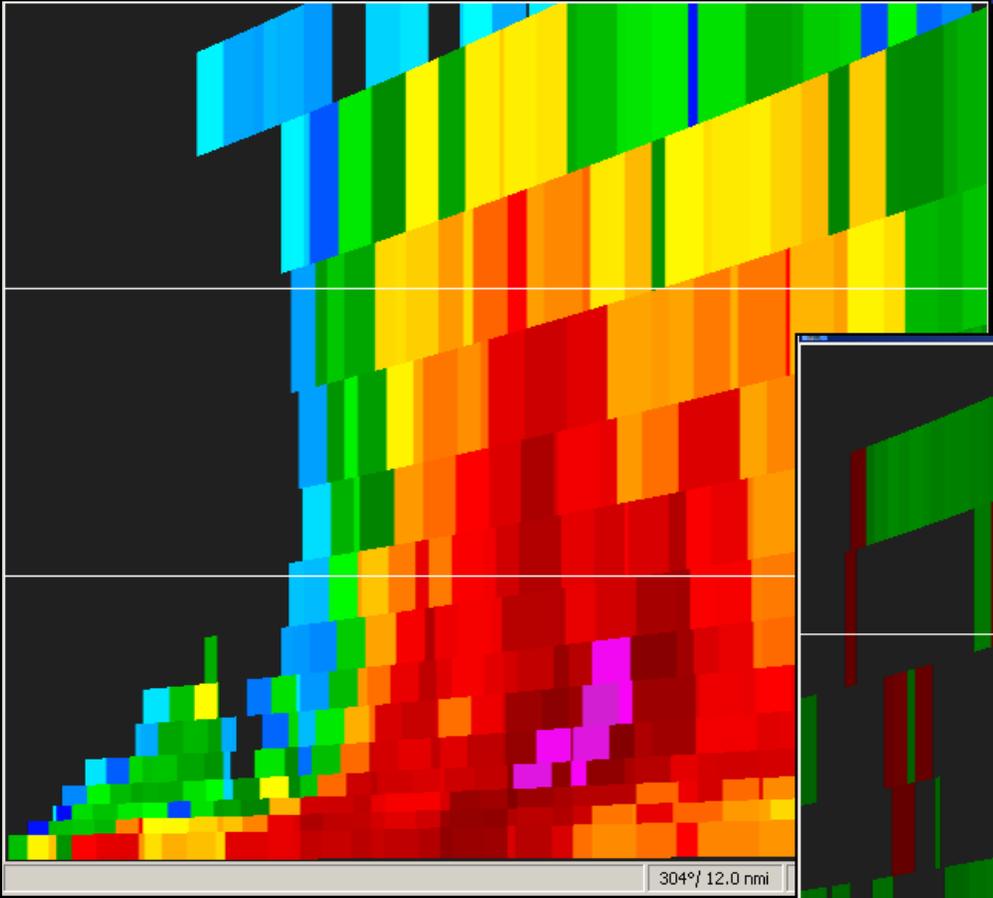
5:15 PM (2315Z)

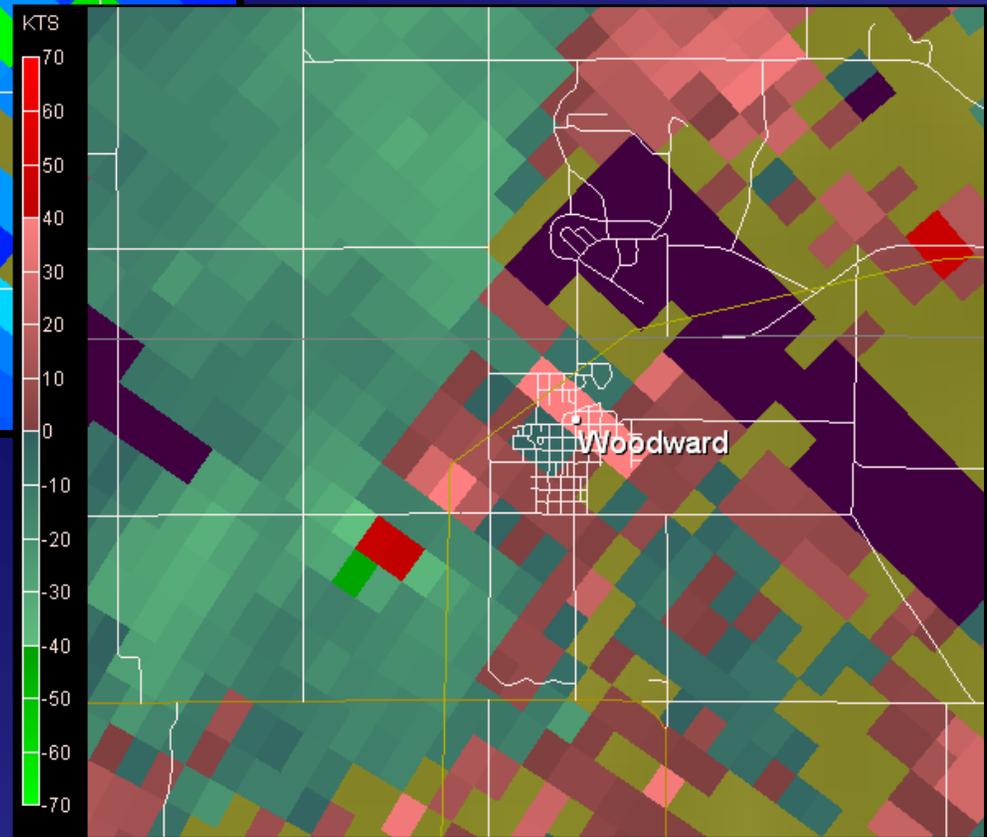
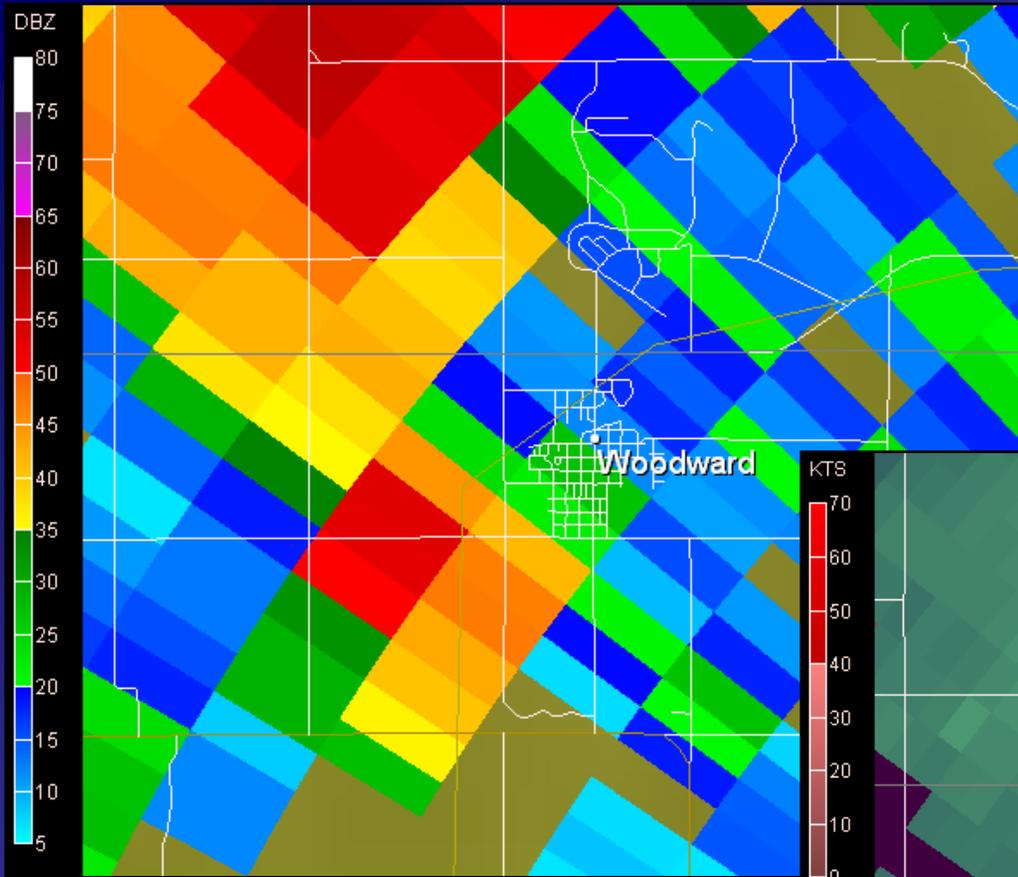
[5:22:53] kcciwhite piotrowski reporting a block wide of damage (relaying reports) in stratford... one home completely gone on east side of stratford... derbis in the field from stratford northwest all the way to highway 17... continues south of webster city

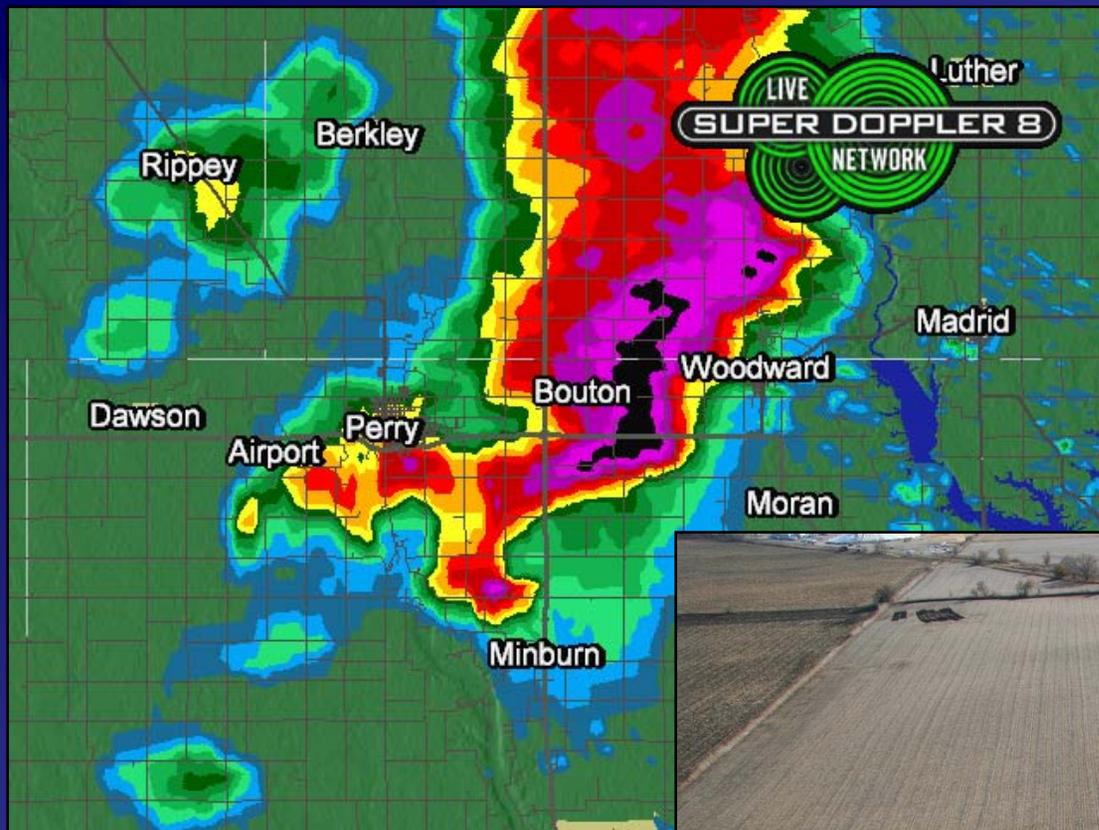
CONCLUSIONS

- LOW-TOPPED STORMS WITH RAPID MOTION RESULTED IN DISPLACEMENT OF SHEAR MARKER NORTH OF ACTUAL TORNADOES.
- PARTIALLY THE RESULT OF RADAR SAMPLING AND ALSO STORM TILT.







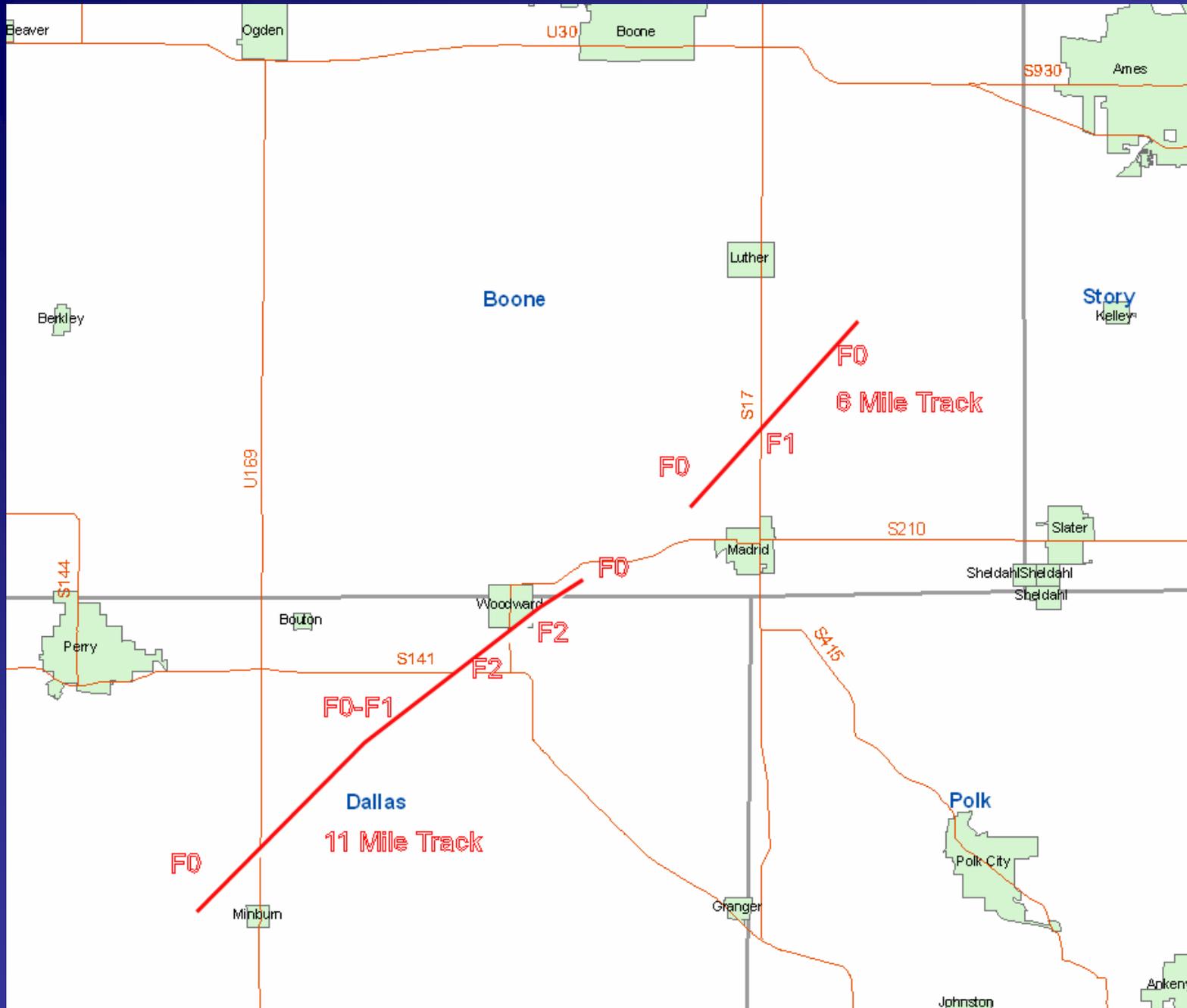


**COPTER SURVEY
REVEALED ACTUAL
START AND STOP
POINTS THAT WOULD
HAVE BEEN MISSED BY
GROUND SURVEY.**





WOODWARD, IA TORNADO: Photo by R. Pfannkuch





WOODWARD, IOWA DAMAGE COURTESY OF IOWAHELICOPTER.COM



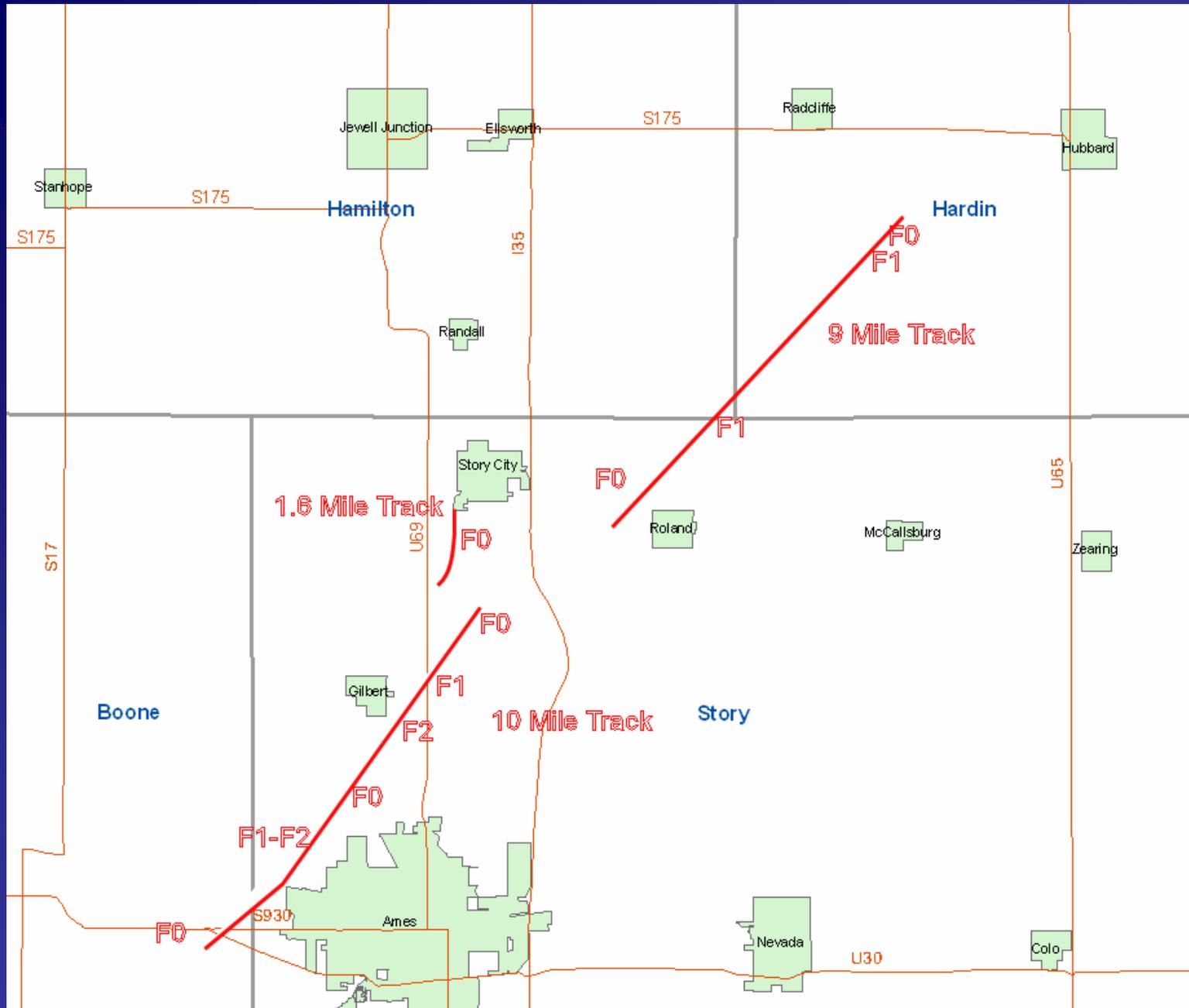
WOODWARD, IOWA DAMAGE COURTESY OF IOWAHELICOPTER.COM



WOODWARD, IOWA DAMAGE COURTESY OF IOWAHELICOPTER.COM



AMES, IOWA TORNADO



View looking N from Ames Country Club (between Ames & Gilbert)



Twin vortices





TWIN VORTICES DISCOVERED BY IOWAHELICOPTER.COM SURVEY



KCCI VIEWER WATCHING COVERAGE UNTIL 60 SECOND BEFORE IMPACT

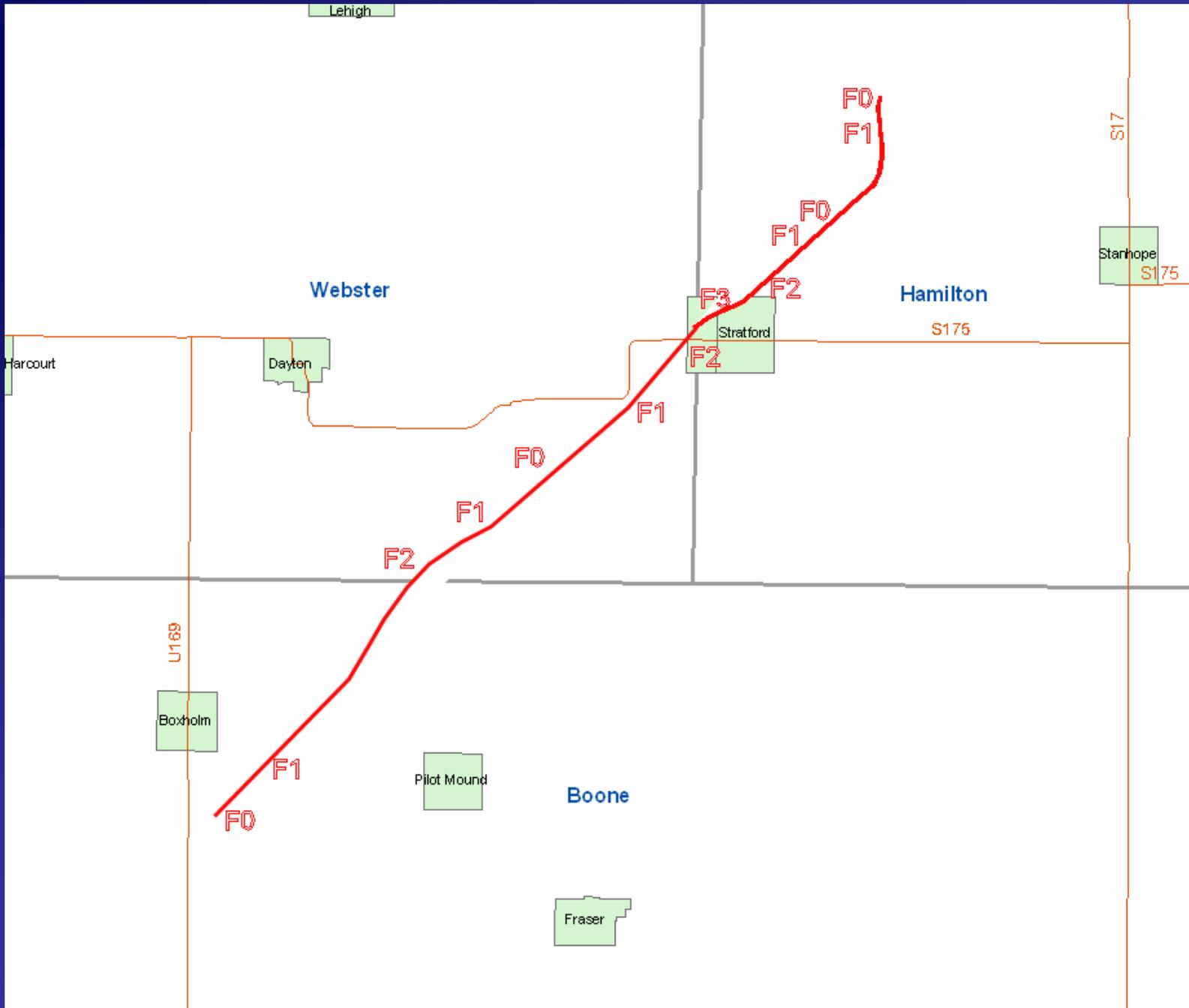
View southward of widest part of path – just east of Gilbert (note new Middle School on right)







STRATFORD, IA TORNADO: Photo by Scott Bergman





STRATFORD, IA LOOKING SW





SPC Storm Reports for 11/12/05

Map updated at 1201Z on 11/19/05



TORNADO REPORTS.. (30)
WIND REPORTS/HI..... (7/0)
HAIL REPORTS/LG..... (33/2)
TOTAL REPORTS..... (70)

National Weather Service
Storm Prediction Center Norman, Oklahoma.

- High Wind Report (65KT +)
- ▲ Large Hail Report (2" dia. +)

PRELIMINARY DATA ONLY

