

Operations Guide for Turbulence Forecasting

Turbulence - Analog Catalog



Chicago CWSU

Motivation

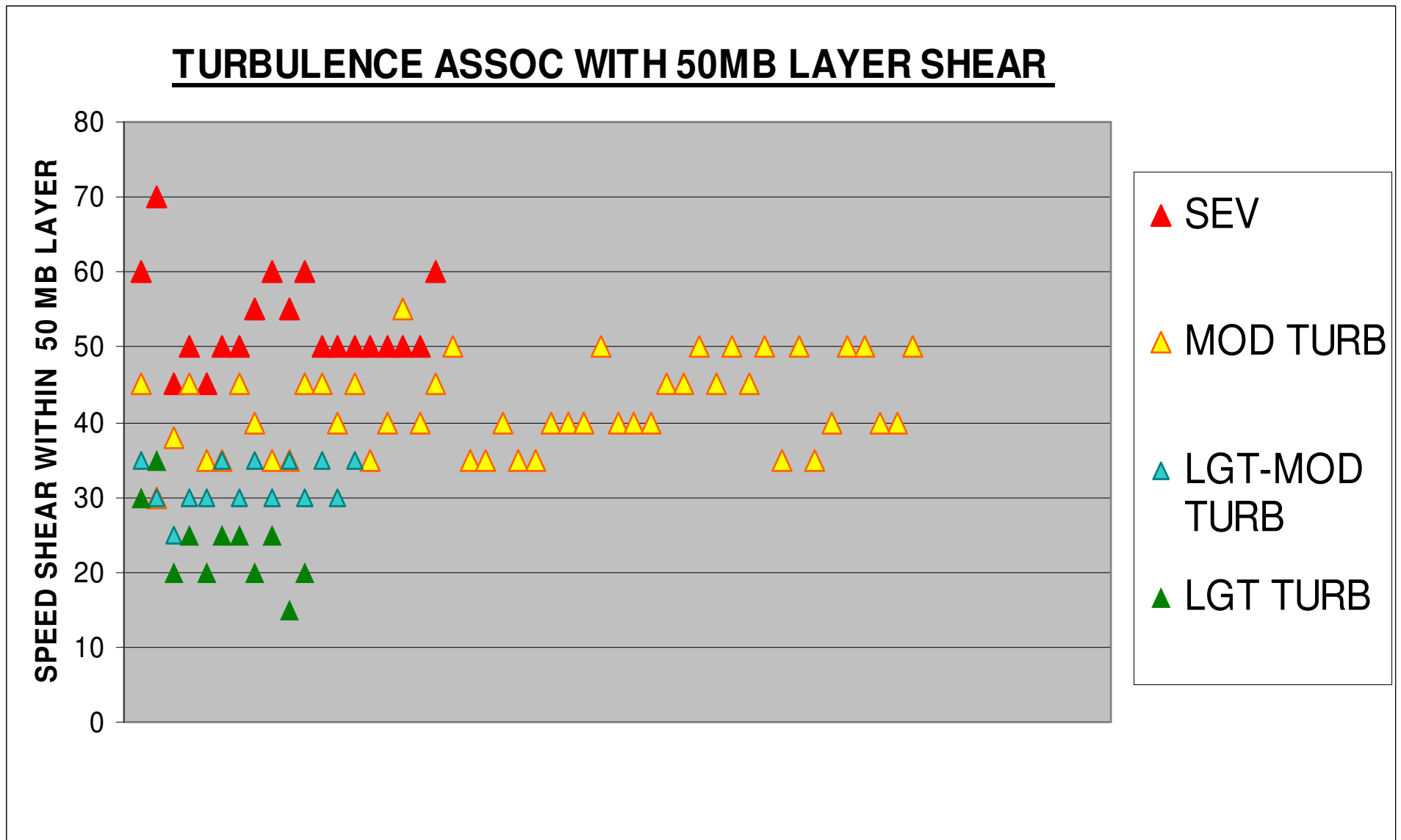
A provision for operational aviation forecasters

- Quantification of Turbulence intensity and associated shear magnitude.
- Aid in distinguishing between high and low impact events.
- Increase the awareness of severe turbulence signatures in an effort to reduce passenger injuries.



Chicago CWSU

PIREP SCATTER PLOTS & ASSOCIATED STRENGTH OF 50MB SPEED SHEAR

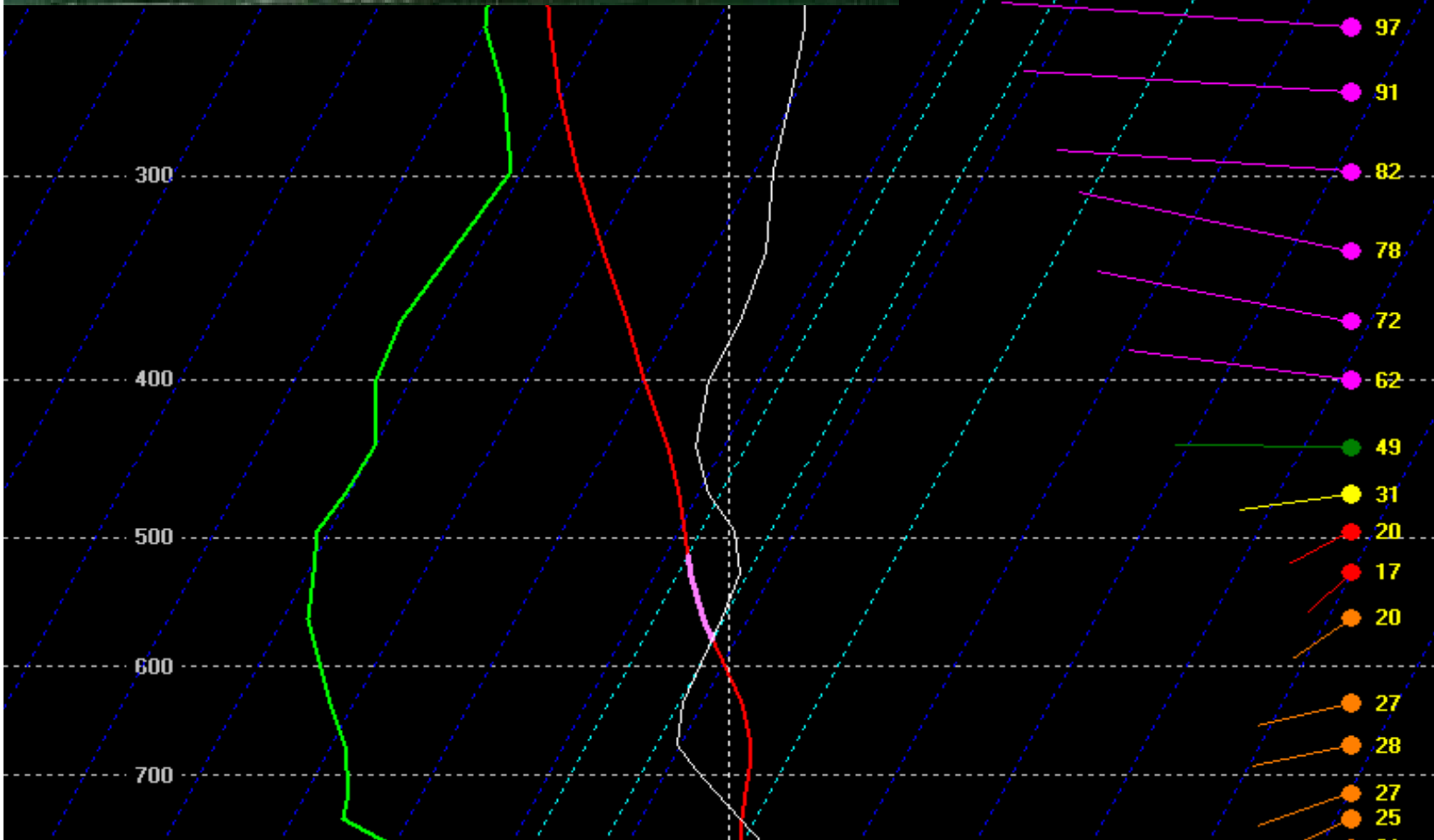


SMOOTH

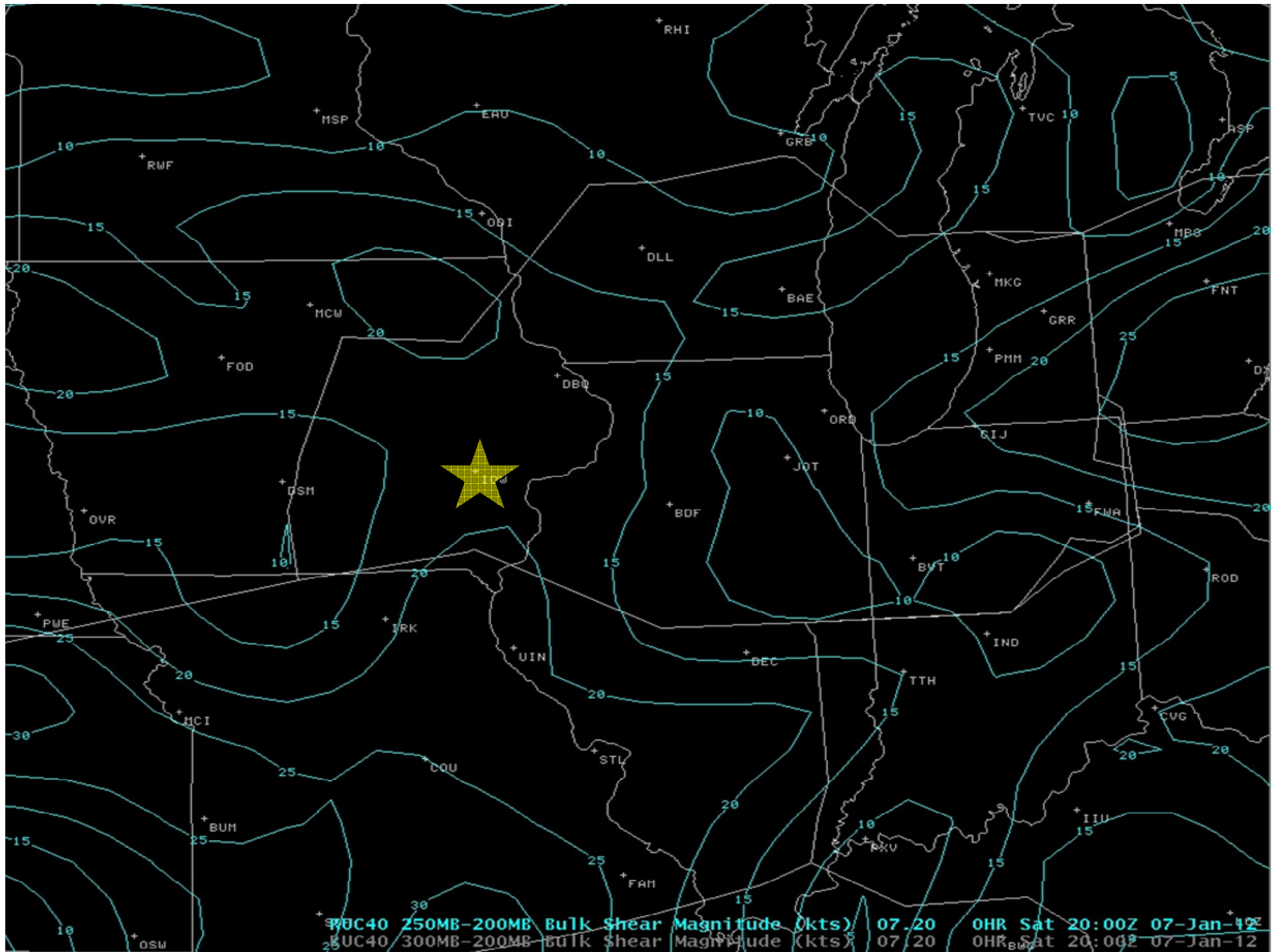
TWO EXAMPLES:

VCNTY BDF, VCNTY IOW

OV BDF/TM 2025/FL390/TP A320/WV 280103KT/TB SMOOTH



**50MB
SHEAR
OF
10-15KT**



1930Z UA /OV IOW /FL360/TP UAL517TB SMOOTH

36000'

-62.2

<-54.4

274

50MB
SHEAR
~15KT

47-3

300 * 12 kts
13.1
296 * 10 kts

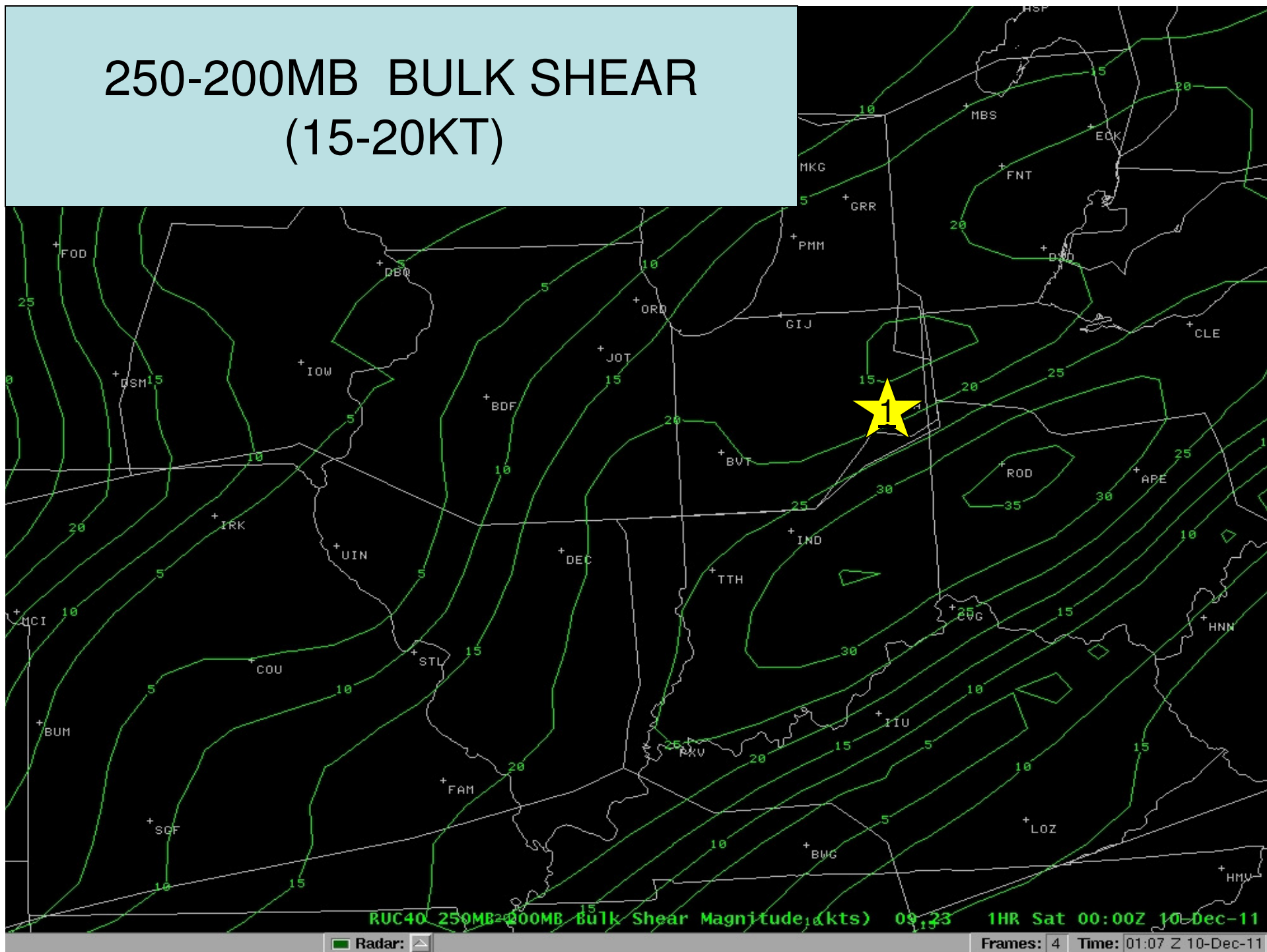
297

50

7

LIGHT TURBULENCE AND LIGHT CHOP

250-200MB BULK SHEAR (15-20KT)



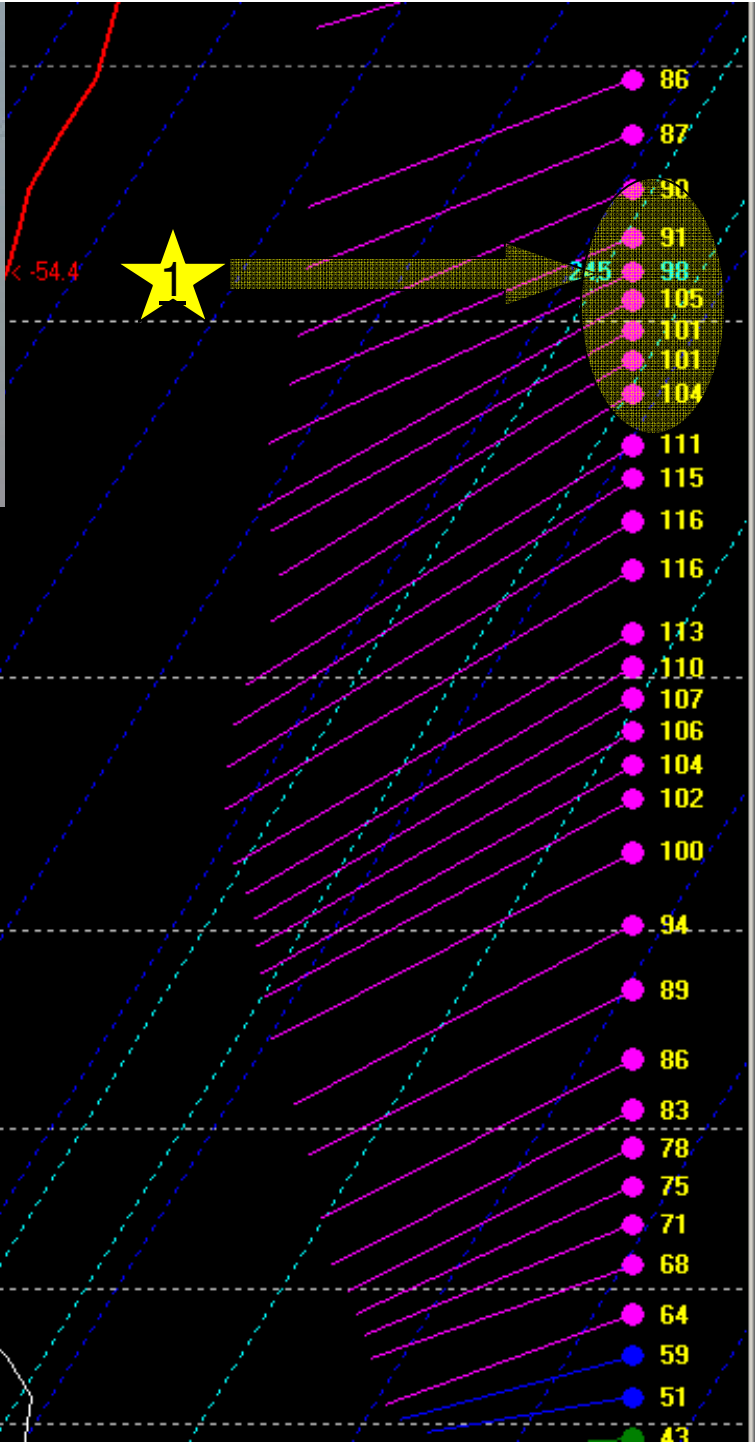
RUC40 250MB-200MB Bulk Shear Magnitude (kts) 09,23 1HR Sat 00:00Z 10-Dec-11

Radar: [arrow icon]

Frames: 4 Time: 01:07 Z 10-Dec-11

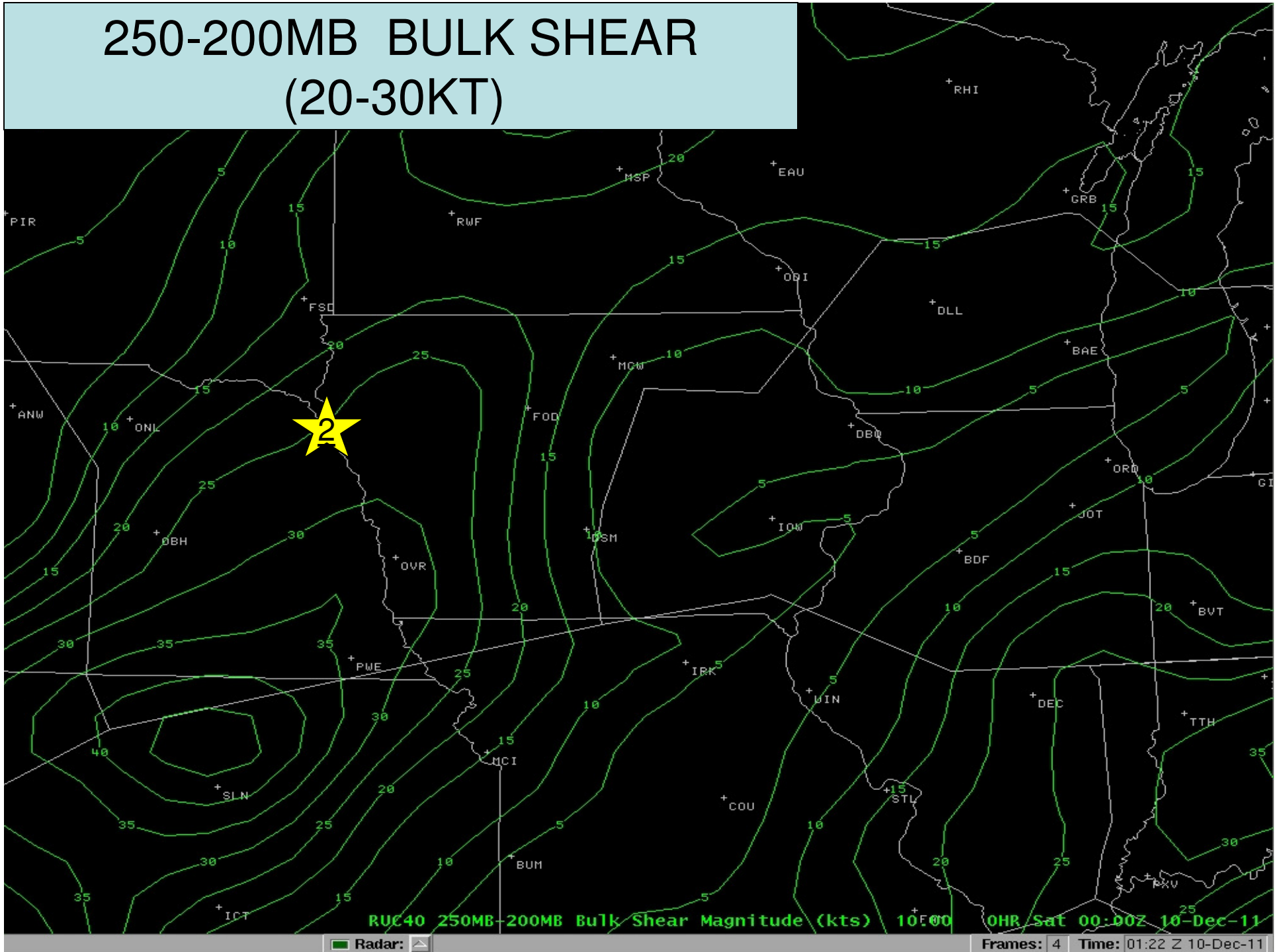


0022Z UA /OV FWA 020040 /FL380-400/TP 757/TB CONT LGT CHOP



50MB
SHEAR
~15KT

250-200MB BULK SHEAR (20-30KT)

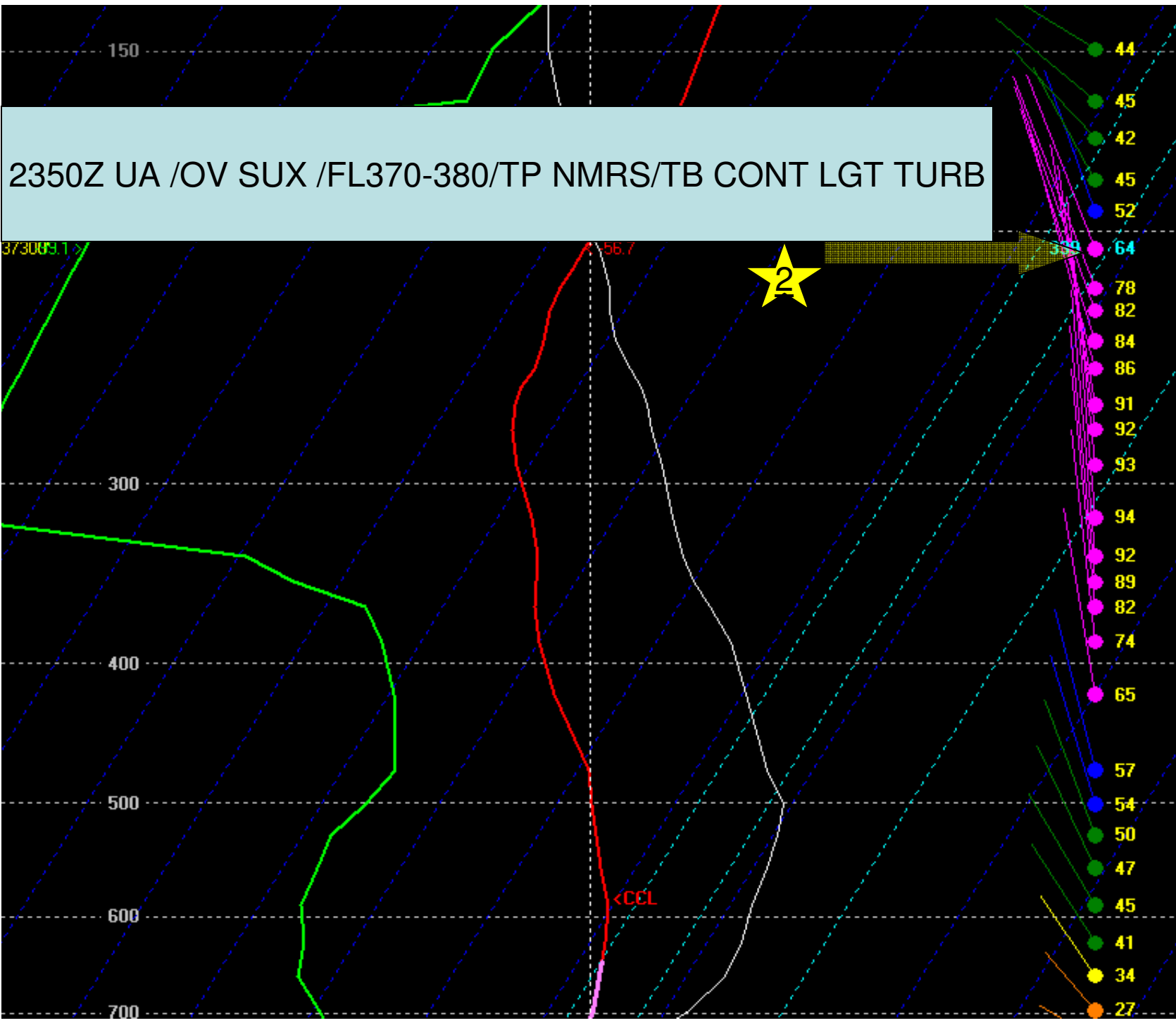


Radar: []

Frames: 4 Time: 01:22 Z 10-Dec-11

2350Z UA /OV SUX /FL370-380/TP NMRS/TB CONT LGT TURB

373009.1

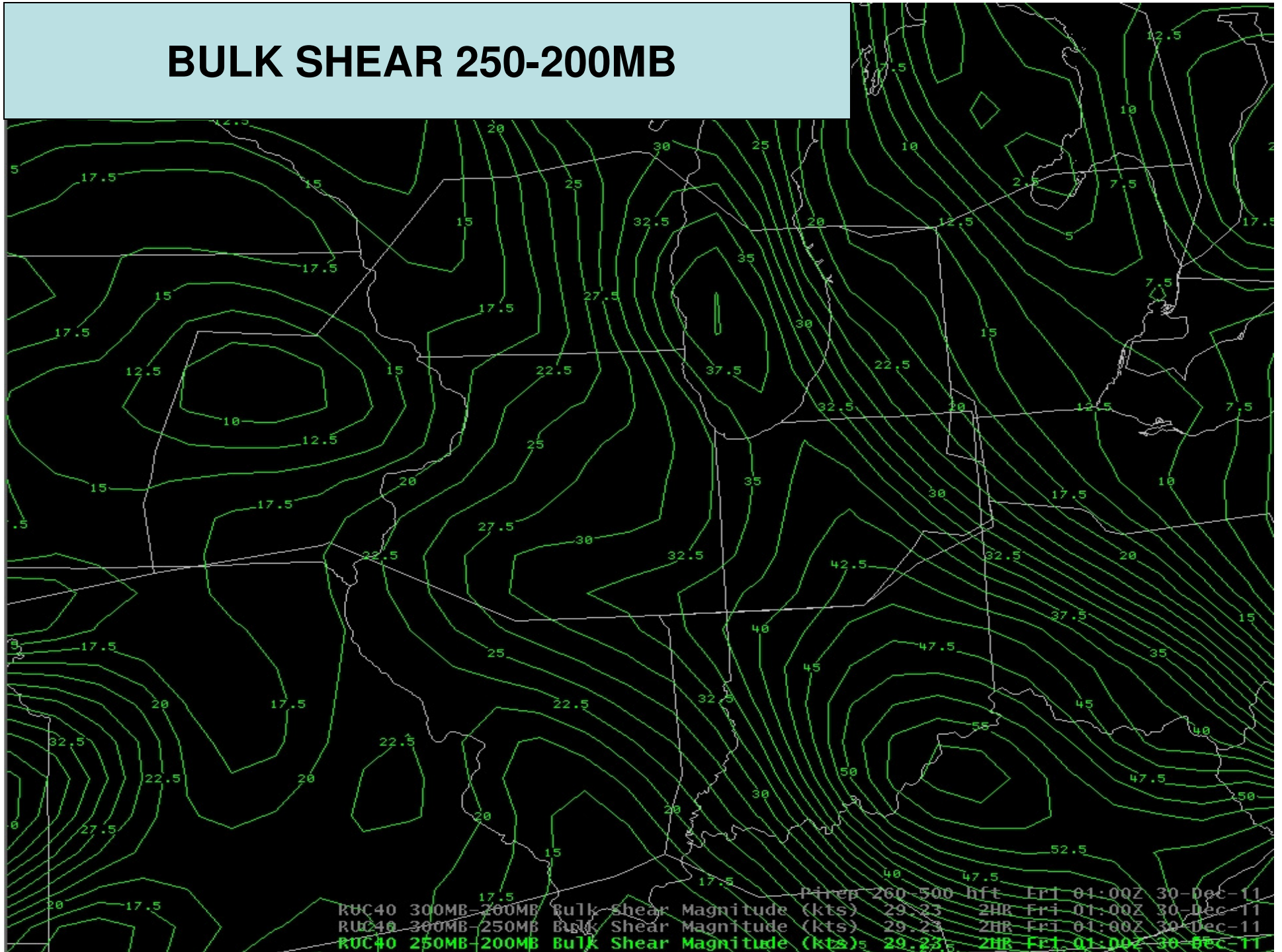


- 44
- 45
- 42
- 45
- 52
- 64
- 78
- 82
- 84
- 86
- 91
- 92
- 93
- 94
- 92
- 89
- 82
- 74
- 65
- 57
- 54
- 50
- 47
- 45
- 41
- 34
- 27

50MB
SHEAR
~25-30KT

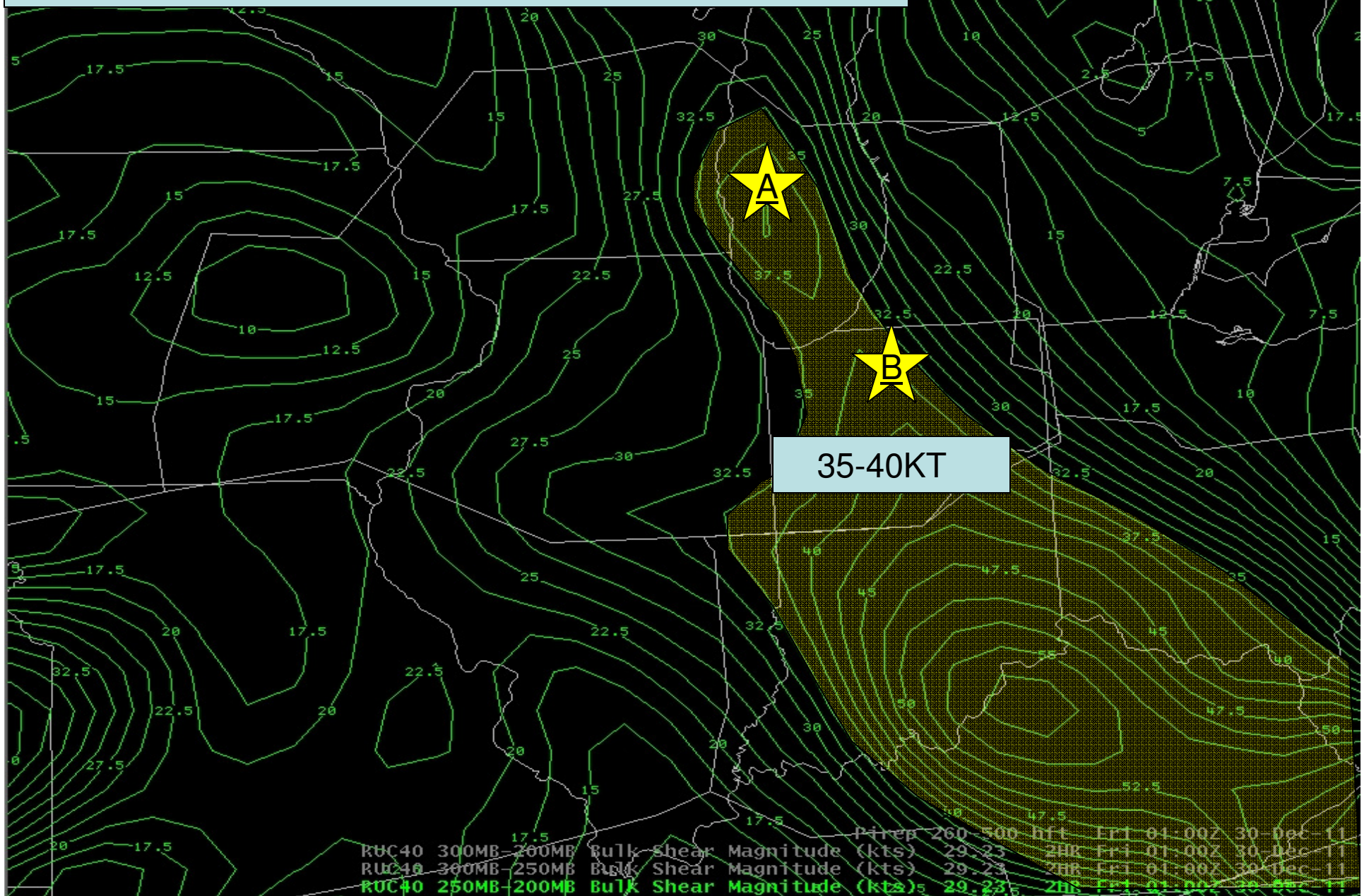
MODERATE TURBULENCE

BULK SHEAR 250-200MB



RUC40	300MB-200MB	Bulk Shear Magnitude (kts)	29.23	2HR	FRI 01:00Z	30-Dec-11
RUC40	300MB-250MB	Bulk Shear Magnitude (kts)	29.23	2HR	FRI 01:00Z	30-Dec-11
RUC40	250MB-200MB	Bulk Shear Magnitude (kts)	29.23	2HR	FRI 01:00Z	30-Dec-11

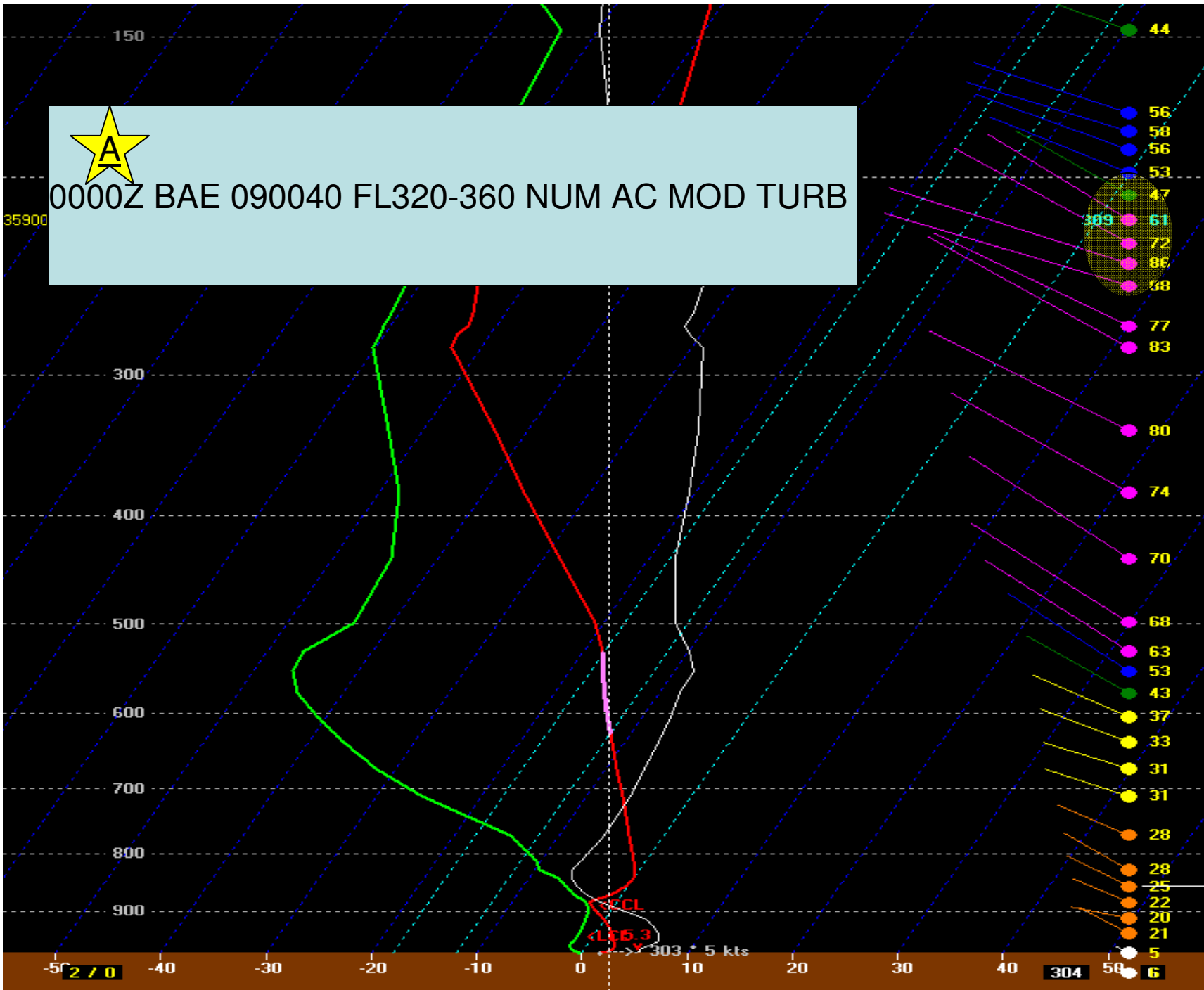
BULK SHEAR 250-200MB (35-40KT)





0000Z BAE 090040 FL320-360 NUM AC MOD TURB

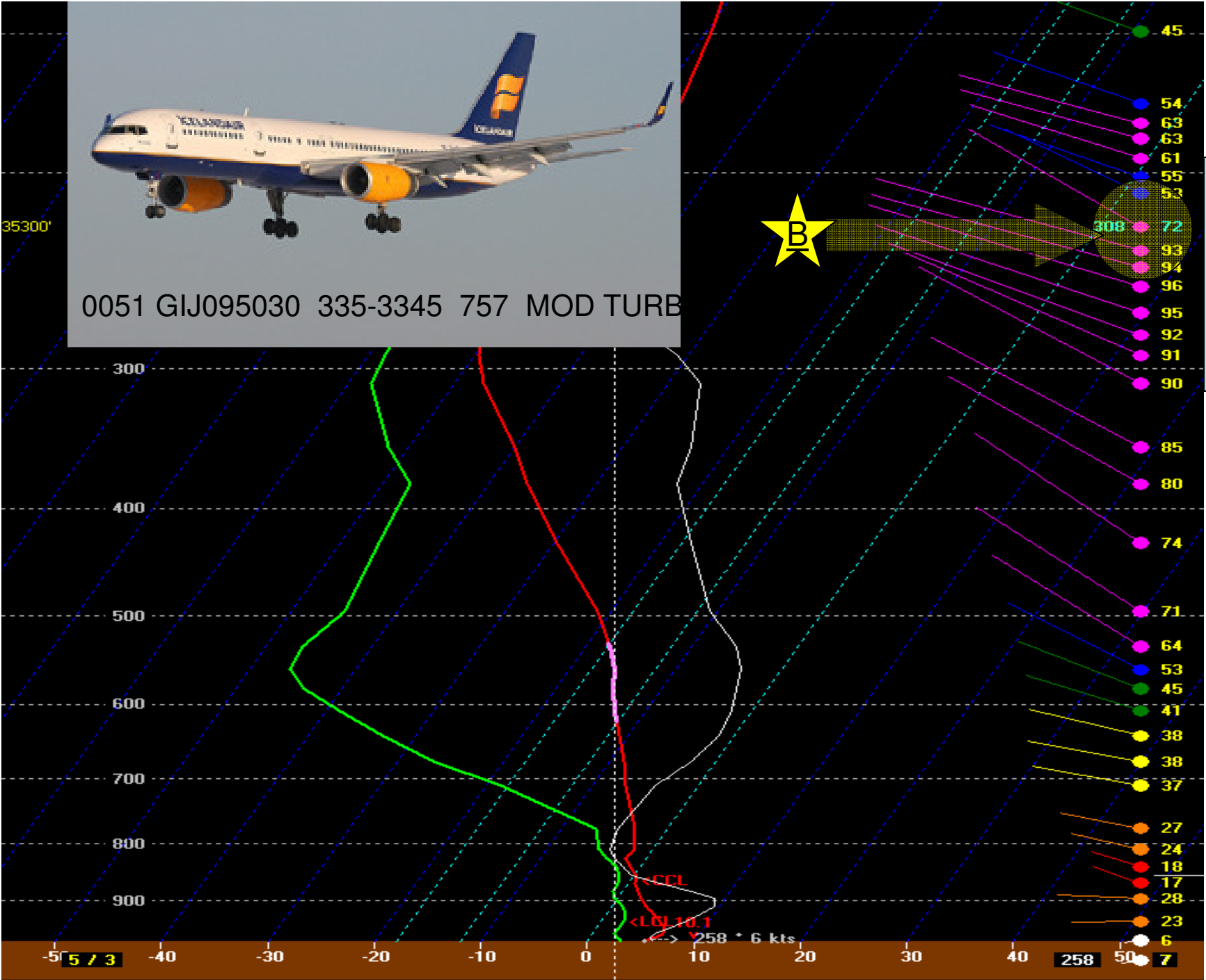
35900



50MB
SHEAR
~40KT



0051 GIJ095030 335-3345 757 MOD TURB

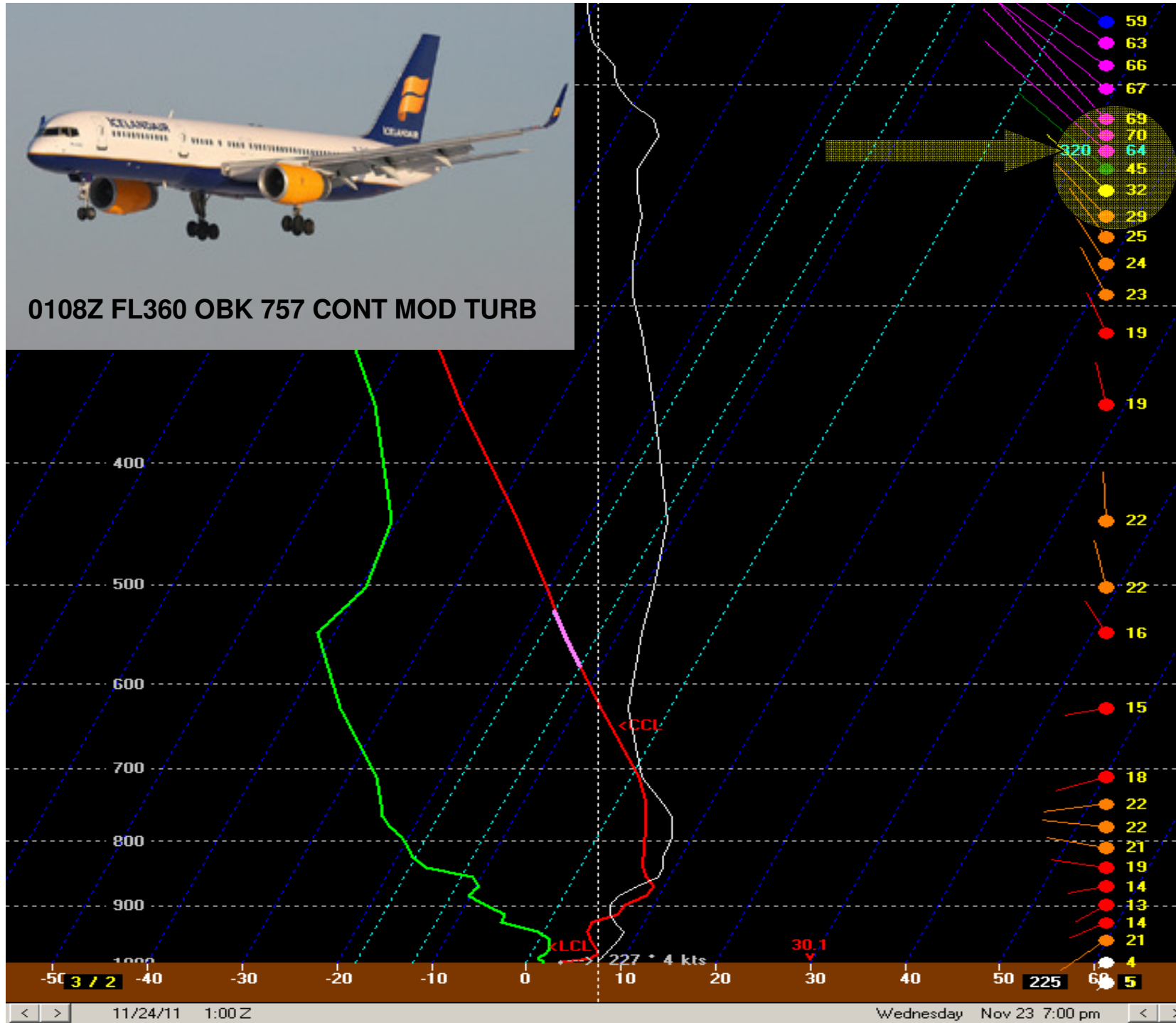


50MB
SHEAR
~40KT
36,700'-
33,600'

OTHER MODERATE TURBULENCE SIGNATURES



0108Z FL360 OBK 757 CONT MOD TURB



**50MB
SHEAR
OF
45KT,
BETWEEN
36,300'-
33,200'**

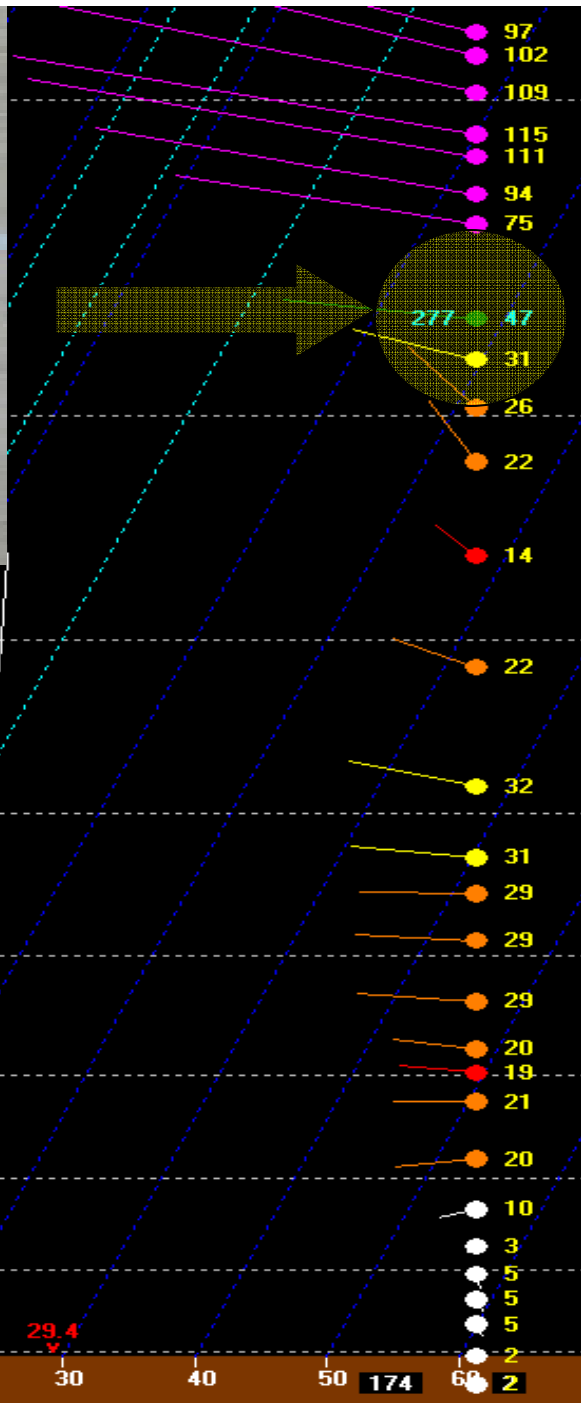
MODERATE TURBULENCE

VS.

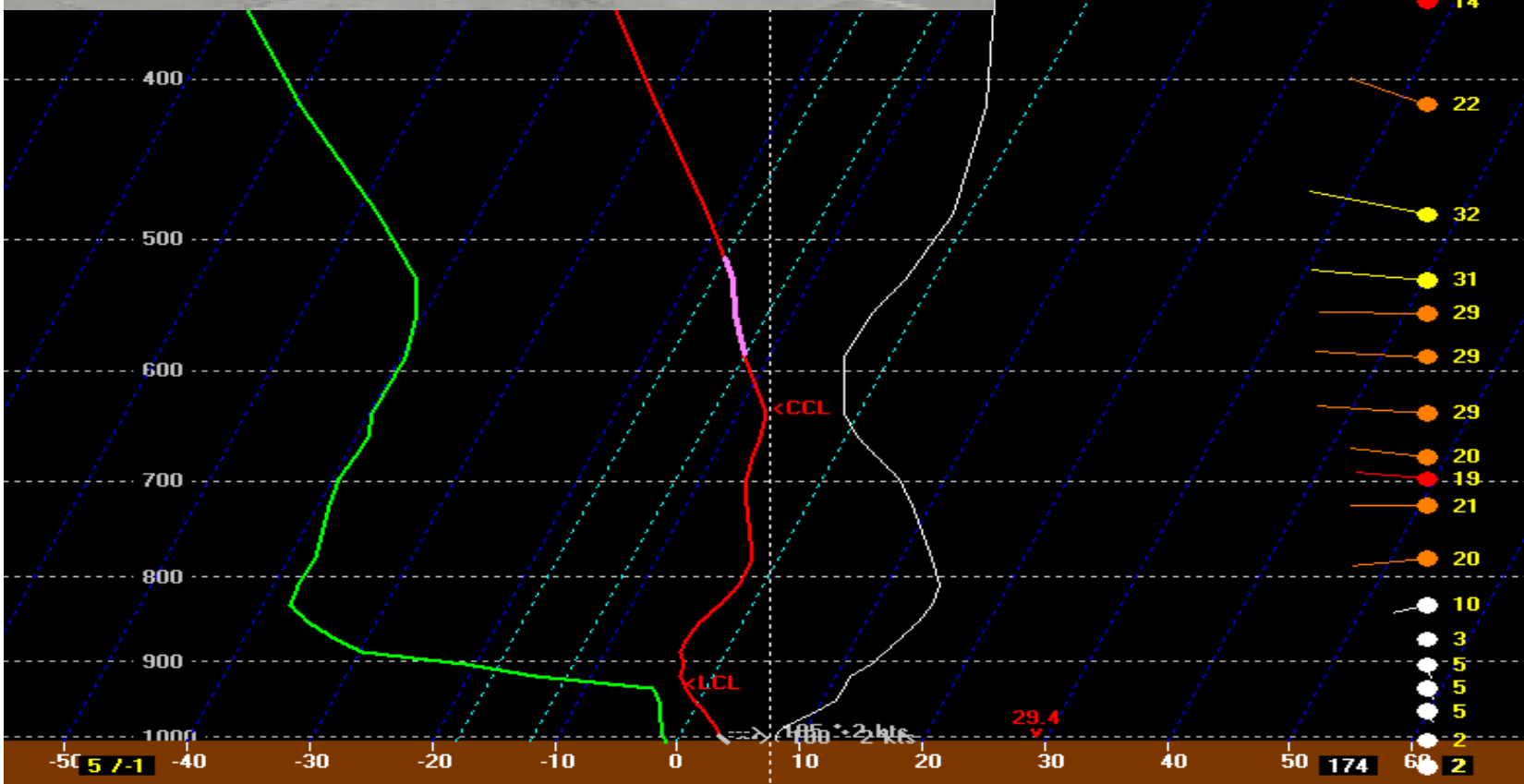
MODERATE CHOP

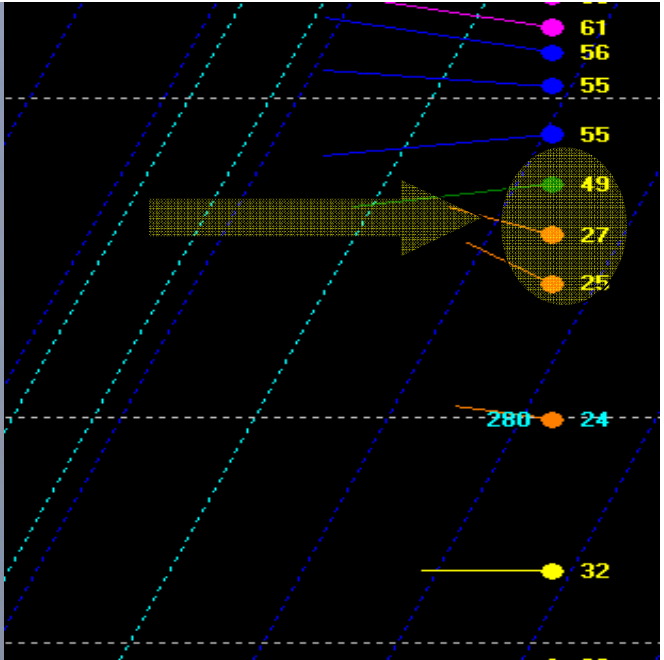


OV JOT /TM 1900 /FL320 /TP CRJ2 /TB MOD TURB



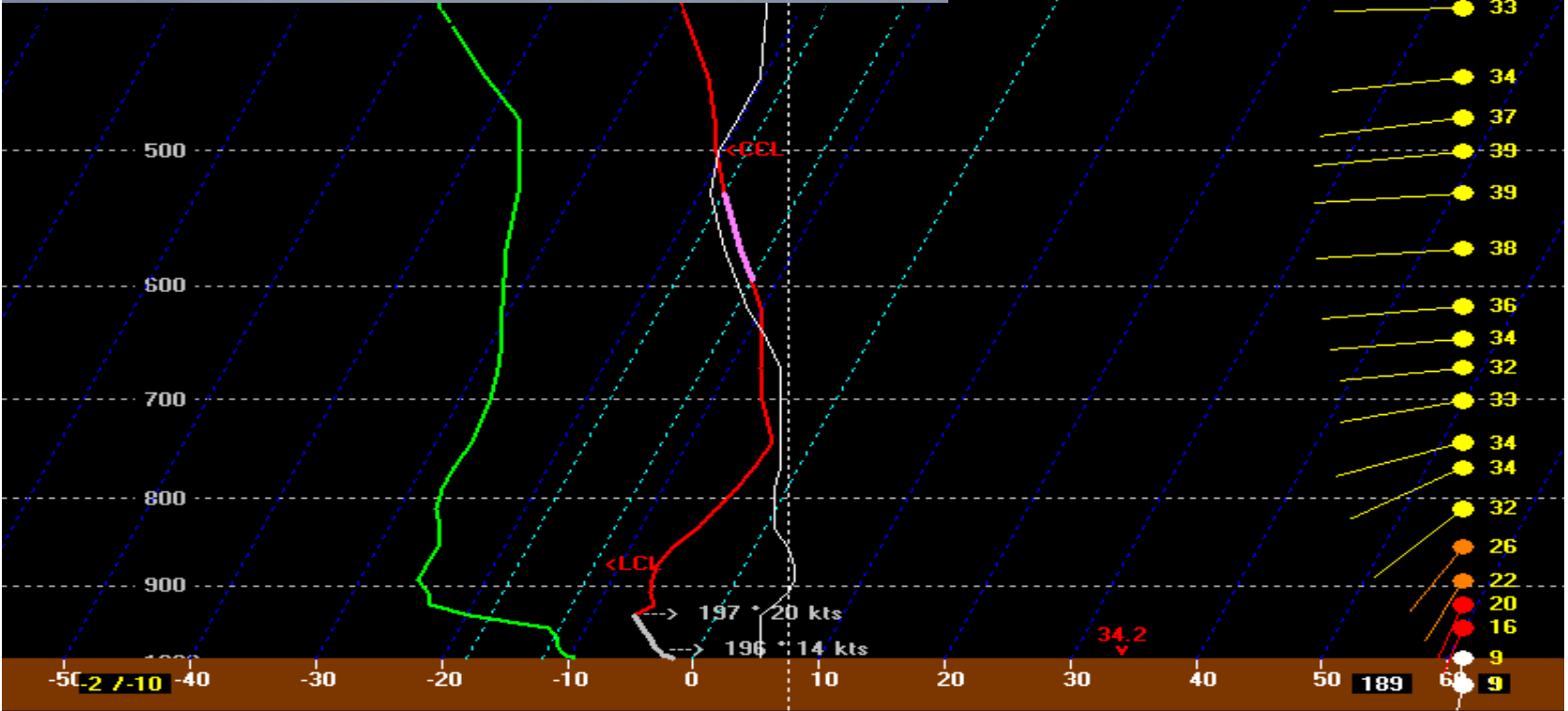
**50MB
SHEAR
OF
~45KT,
BETWEEN
FL340-FL300**



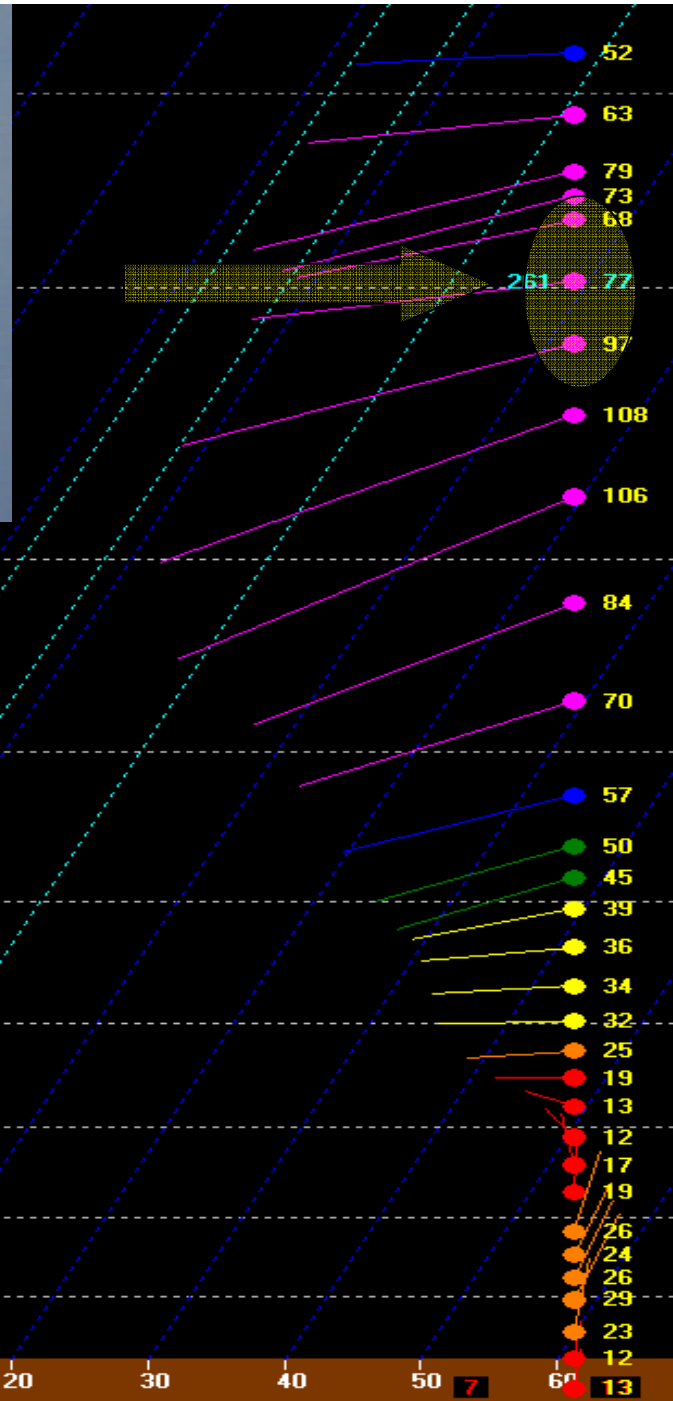


**50MB
SHEAR
OF
~30KT,
BETWEEN
36,000'-
32,000'**

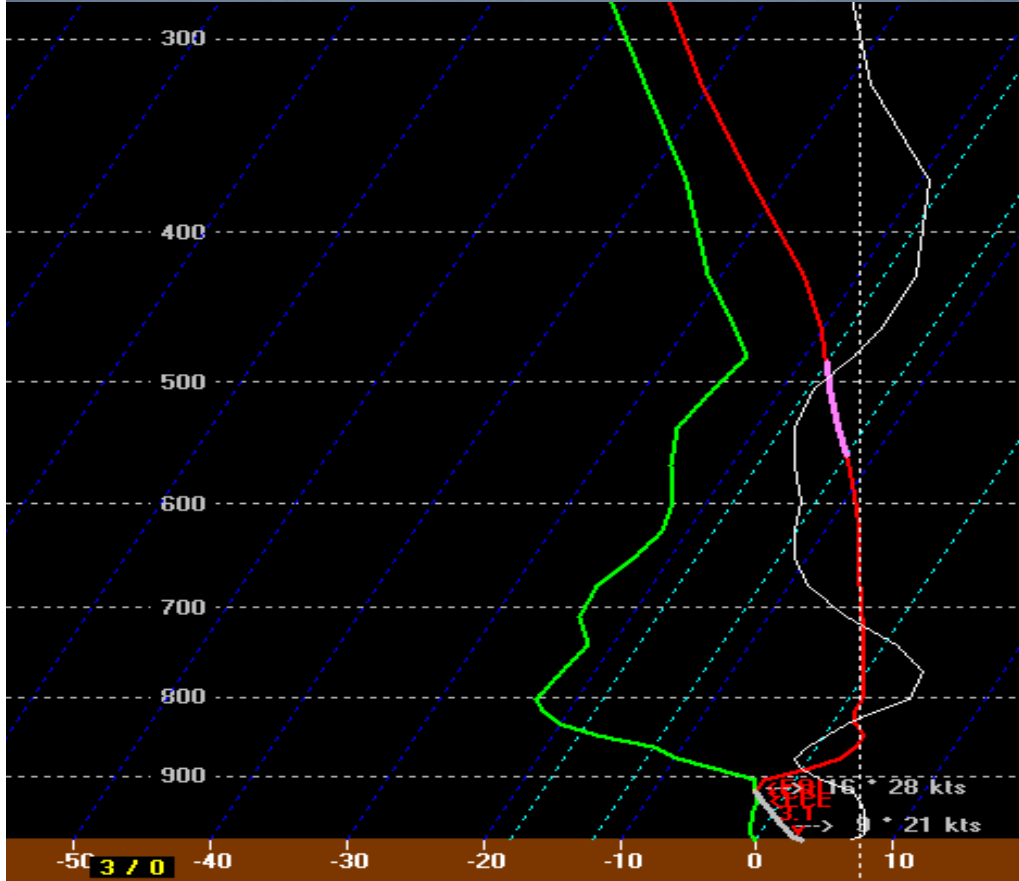
OV EAU090030/TM 1920/FL340/TP A319/TB OCNL MOD CHOP



1930Z /OV 40E DSM FL280 /TP 737
TB/MOD CHOP

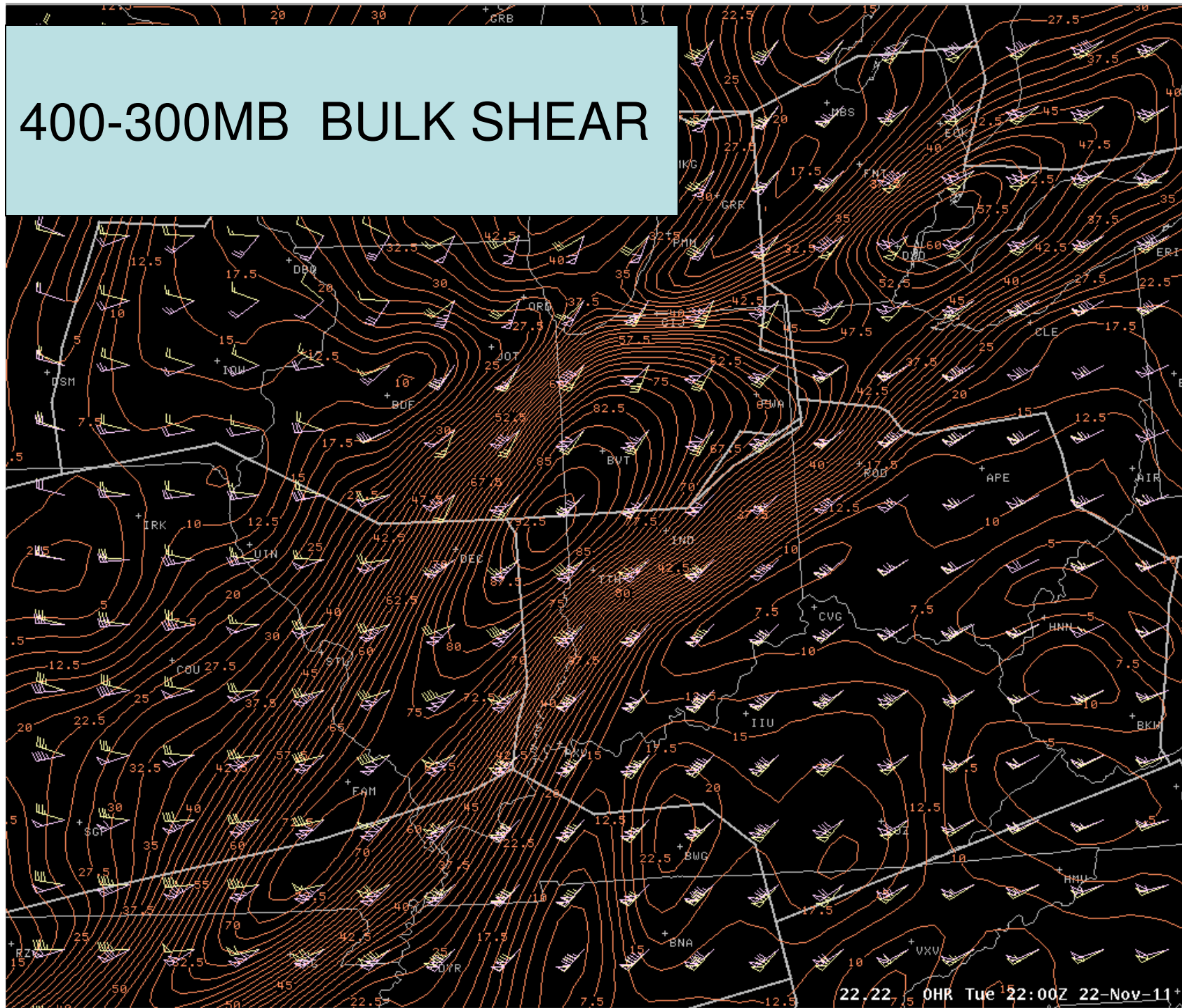


50MB
SHEAR
30-35KT

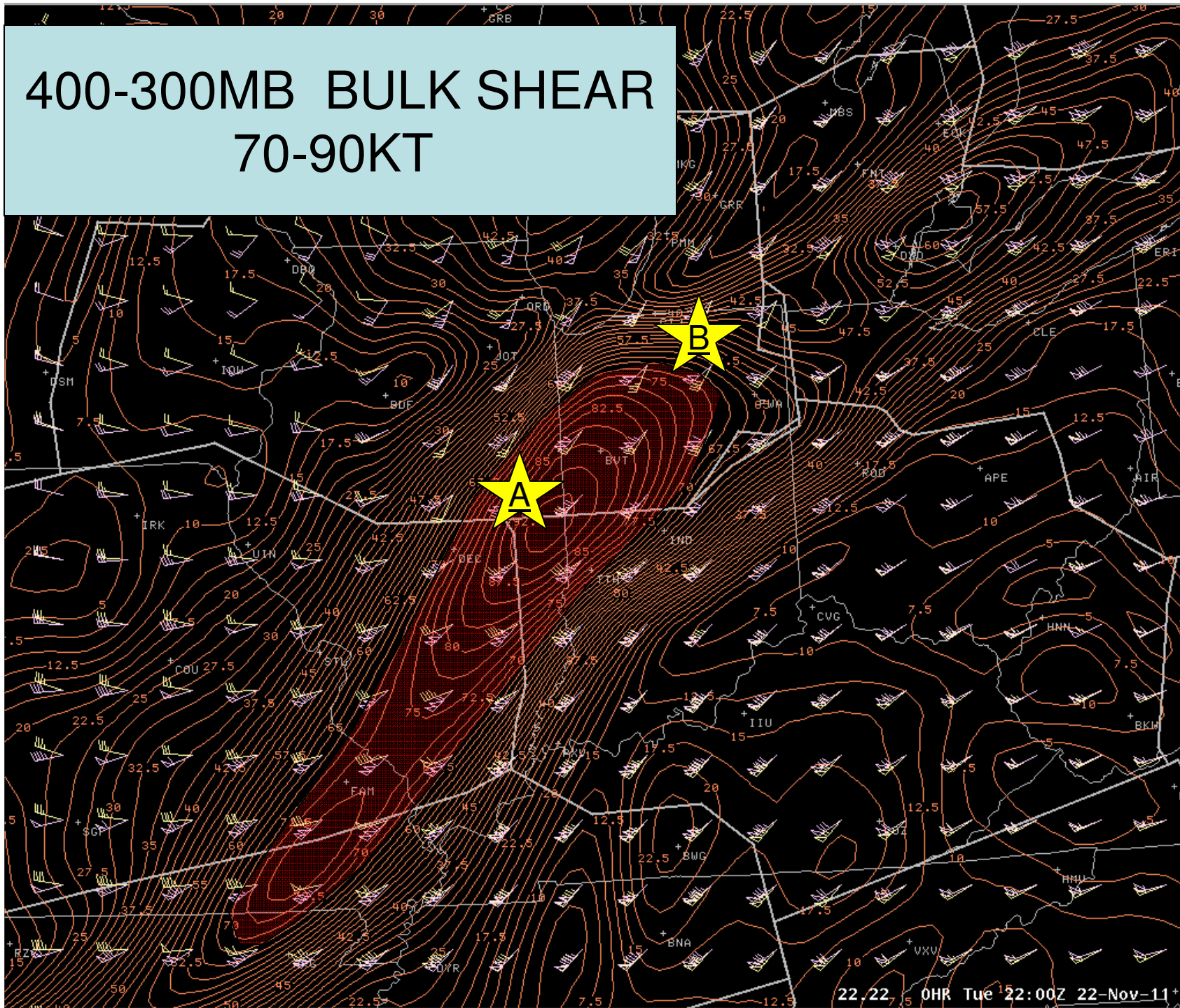


SEVERE TURBULENCE

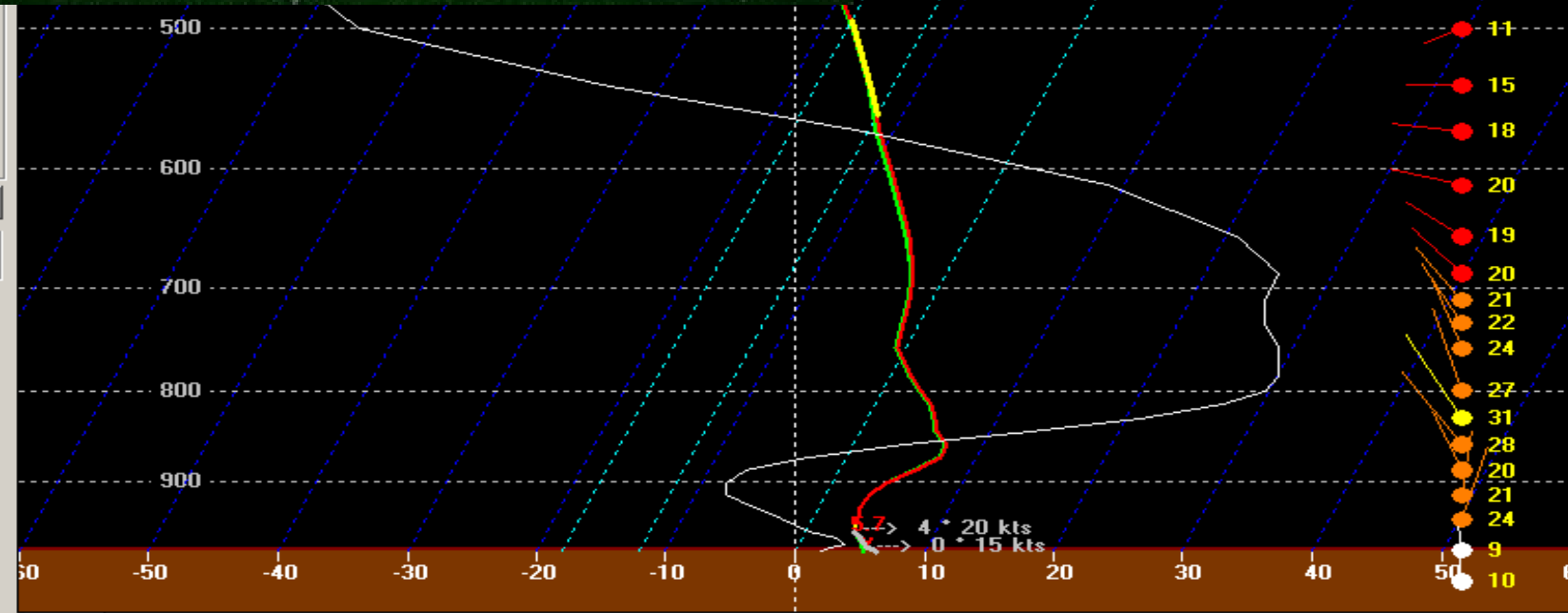
400-300MB BULK SHEAR



400-300MB BULK SHEAR 70-90KT



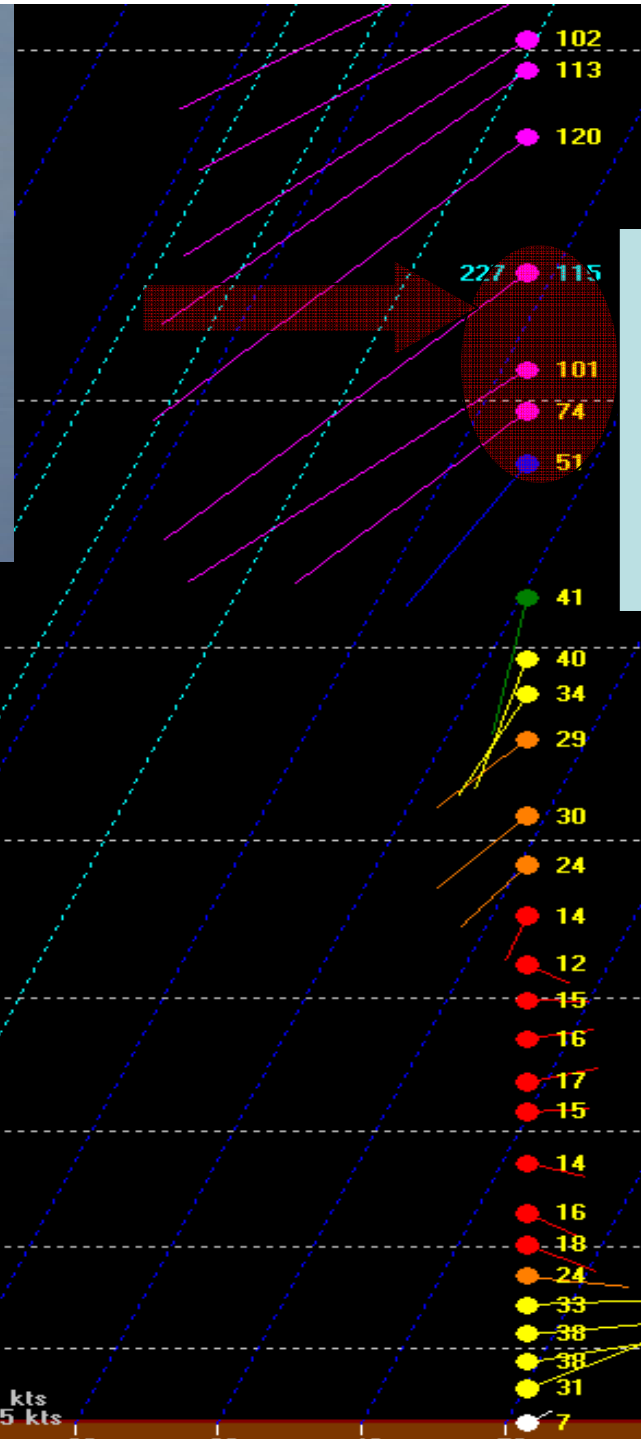
2118Z FL240-FL300 OV/CMI
TP/C560 TB/CONT MOD-OCNL SEV TURB



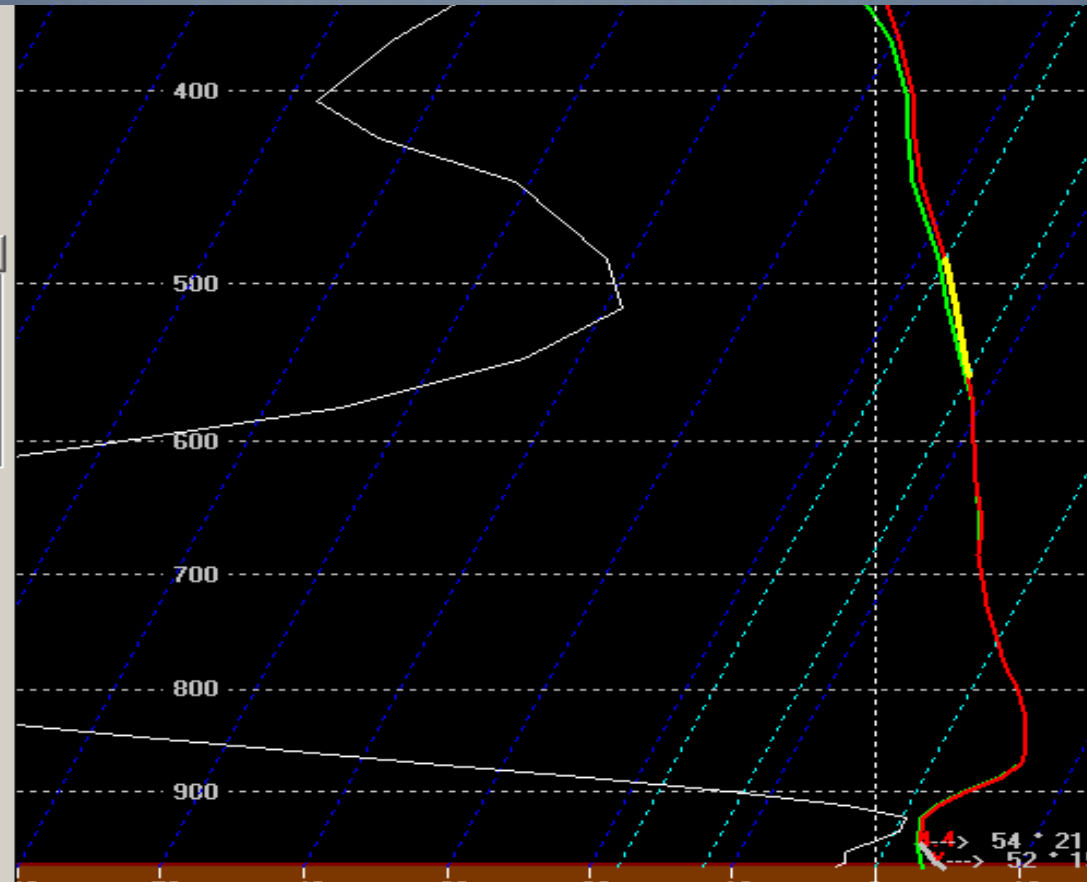
FL290
FL240

100MB
SHEAR
~80KT
29,000-
24,000

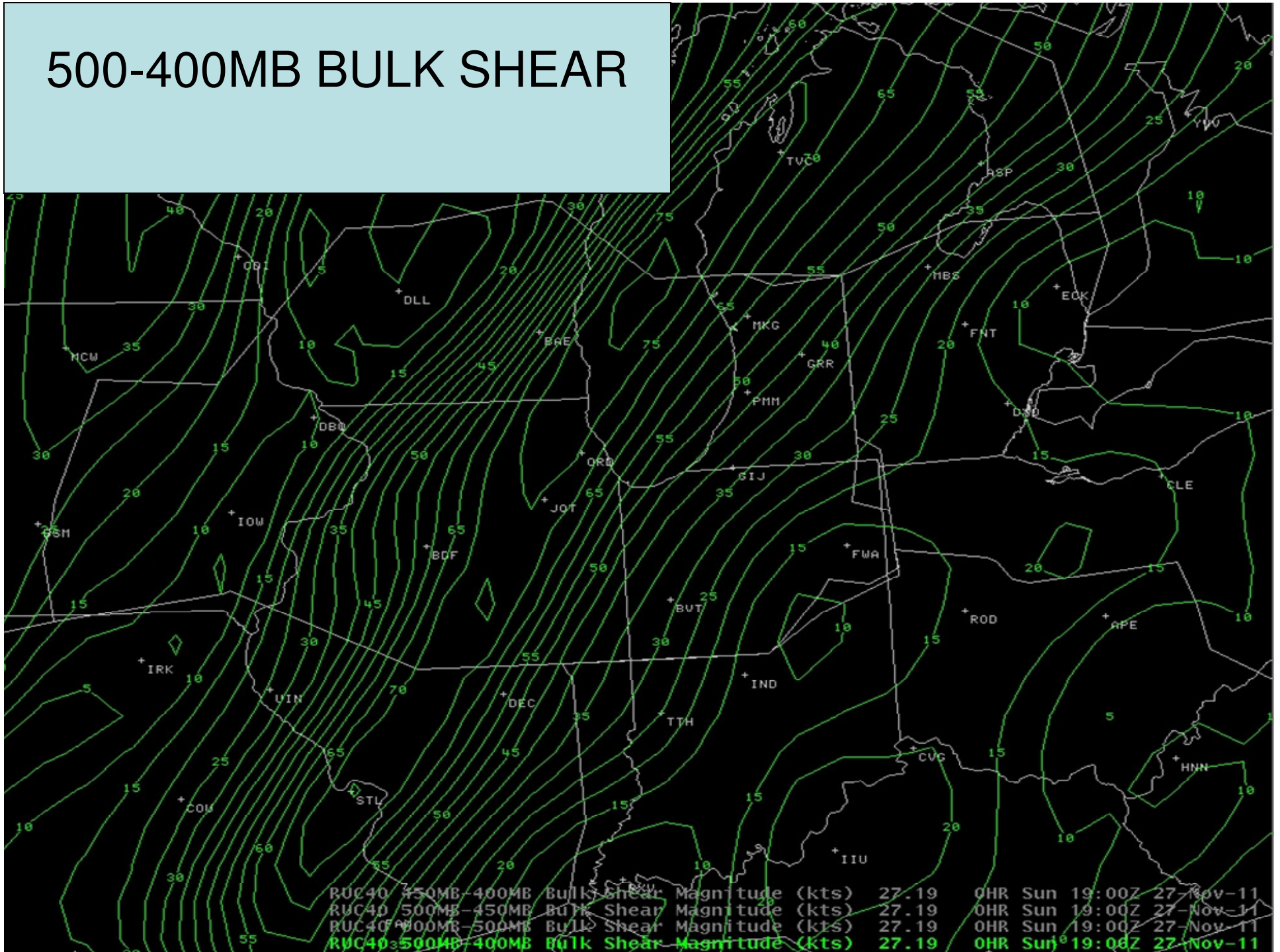
2145 60E GIJ FL320 737 MOD-SEV TURB



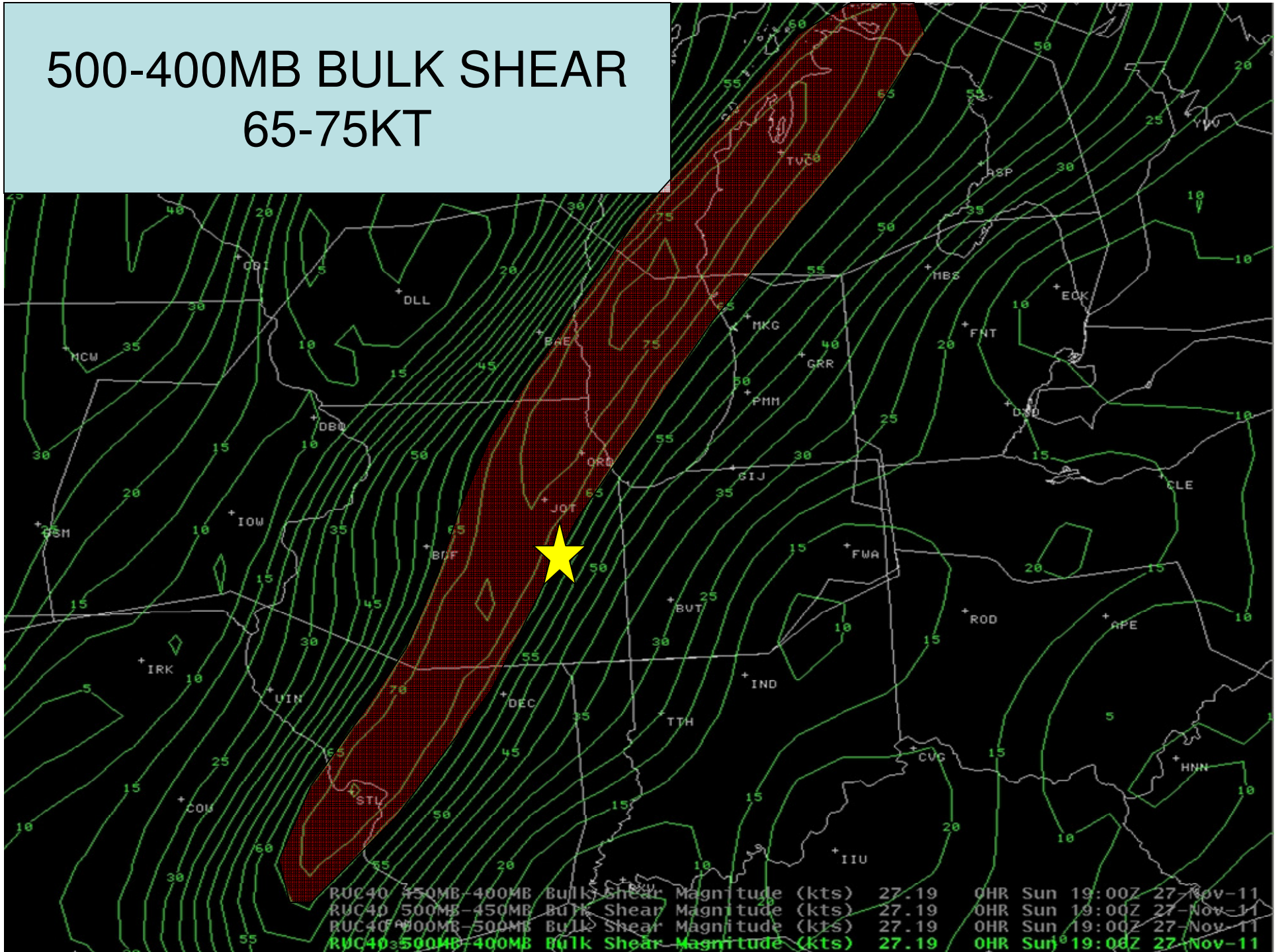
**50MB
SHEAR
OF
65KT
WITHIN
32,500'-
27,500'**

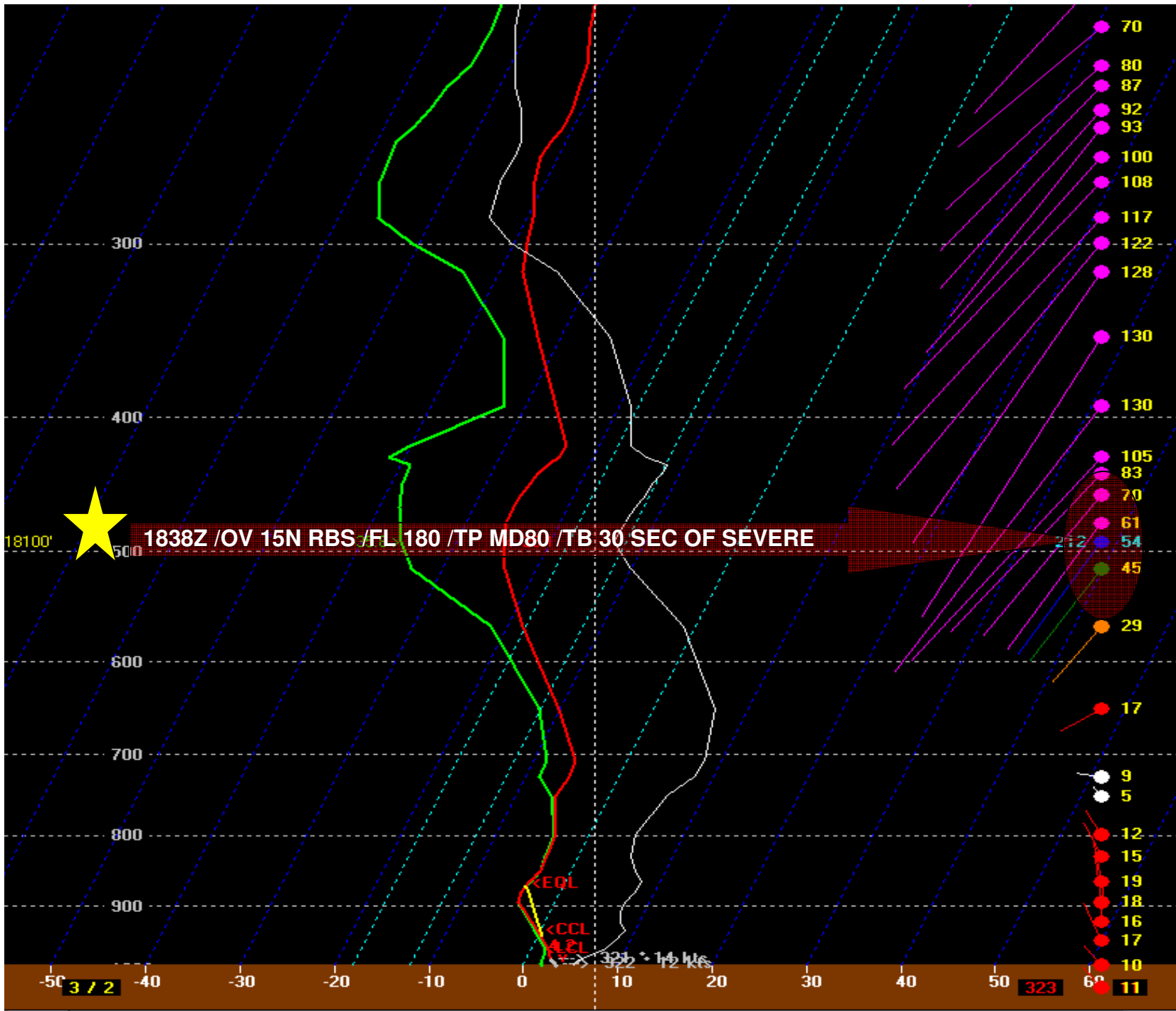


500-400MB BULK SHEAR



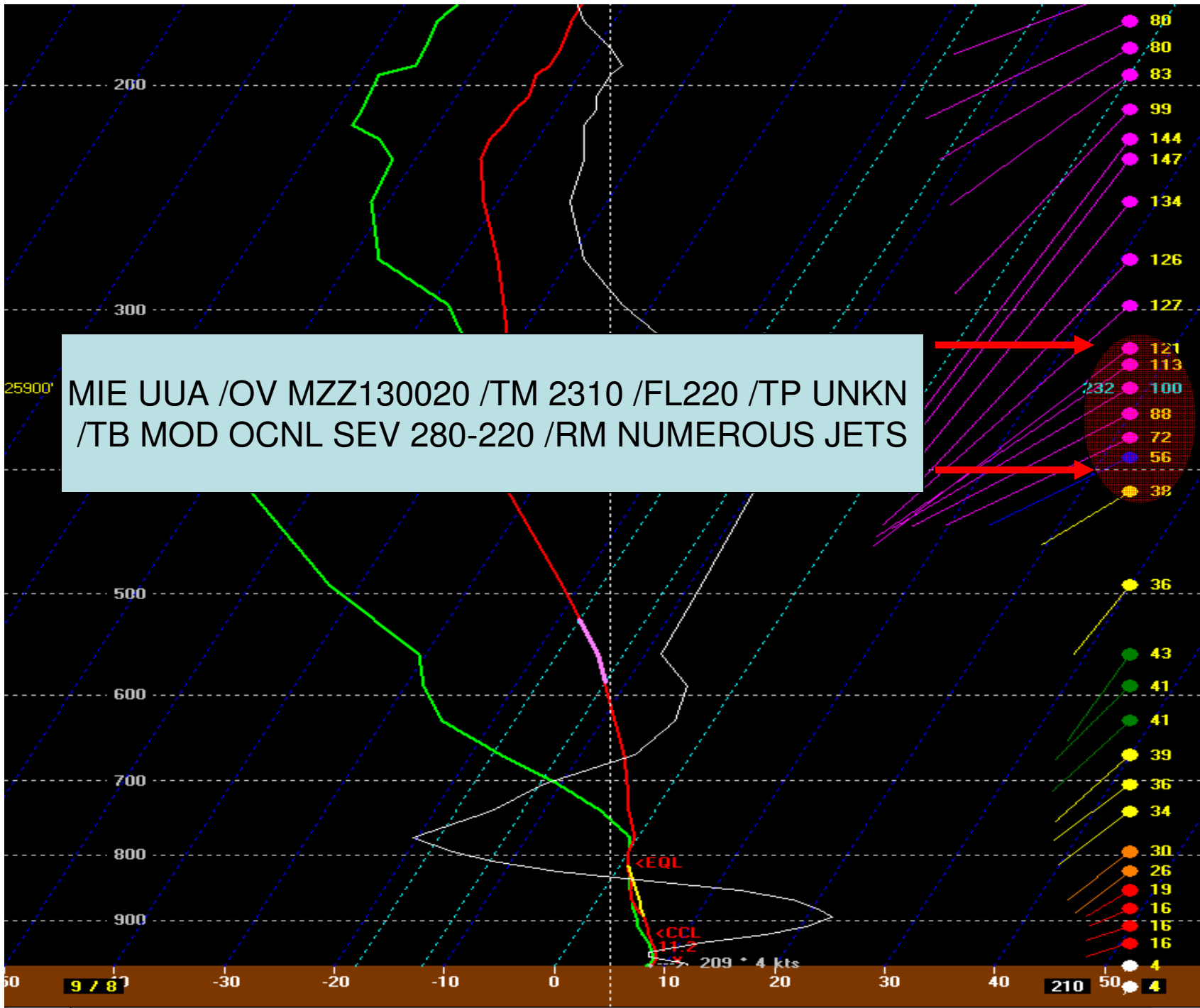
500-400MB BULK SHEAR 65-75KT





100MB
SHEAR
~50-55KT

MODERATE-SEVERE
NO AWIPS BULK SHEAR AVAILABLE.



MIE UUA /OV MZZ130020 /TM 2310 /FL220 /TP UNKN
 /TB MOD OCNL SEV 280-220 /RM NUMEROUS JETS

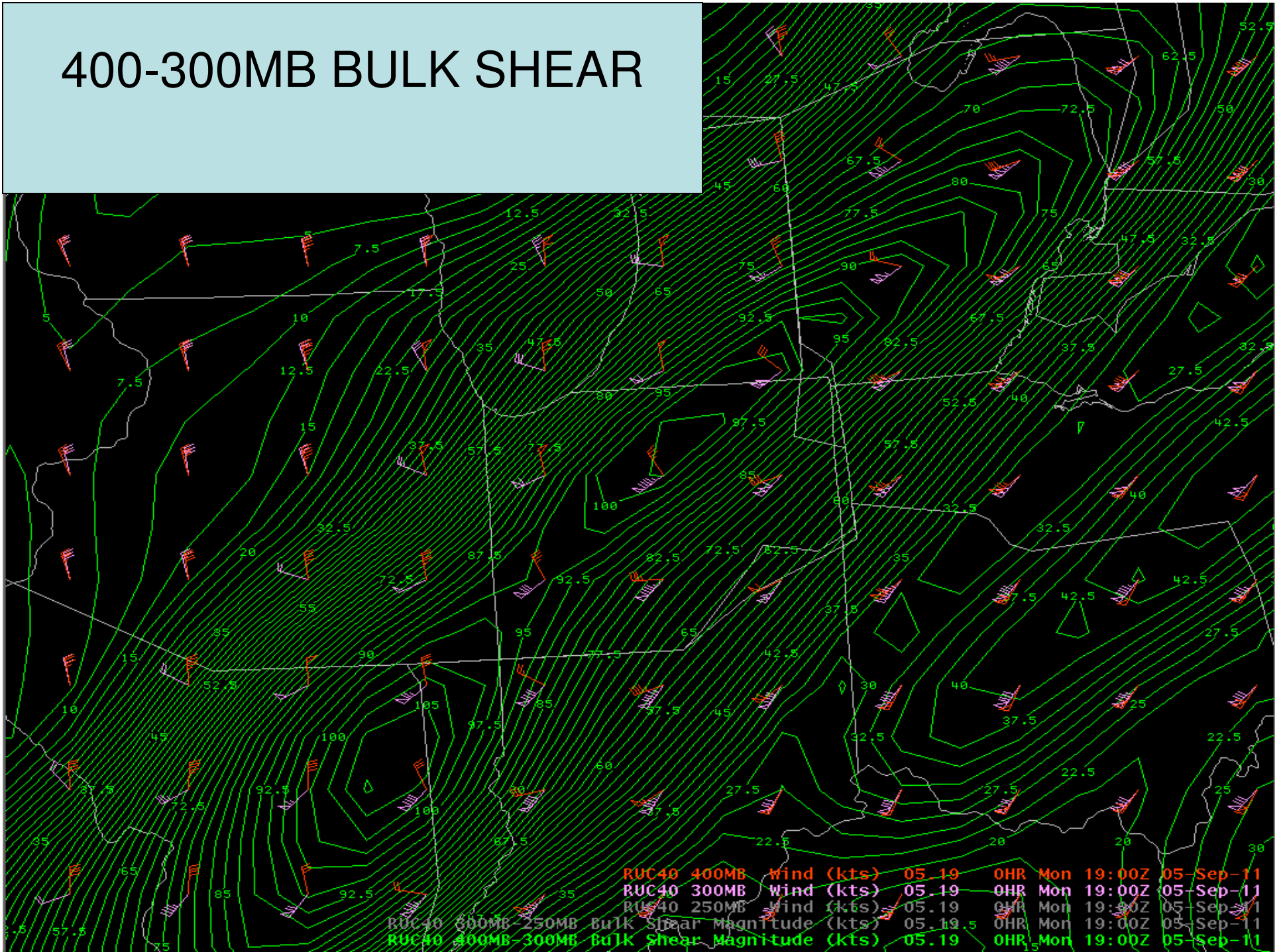
100MB
SHEAR
 ~70KT

50MB
SHEAR
 ~55-60KT

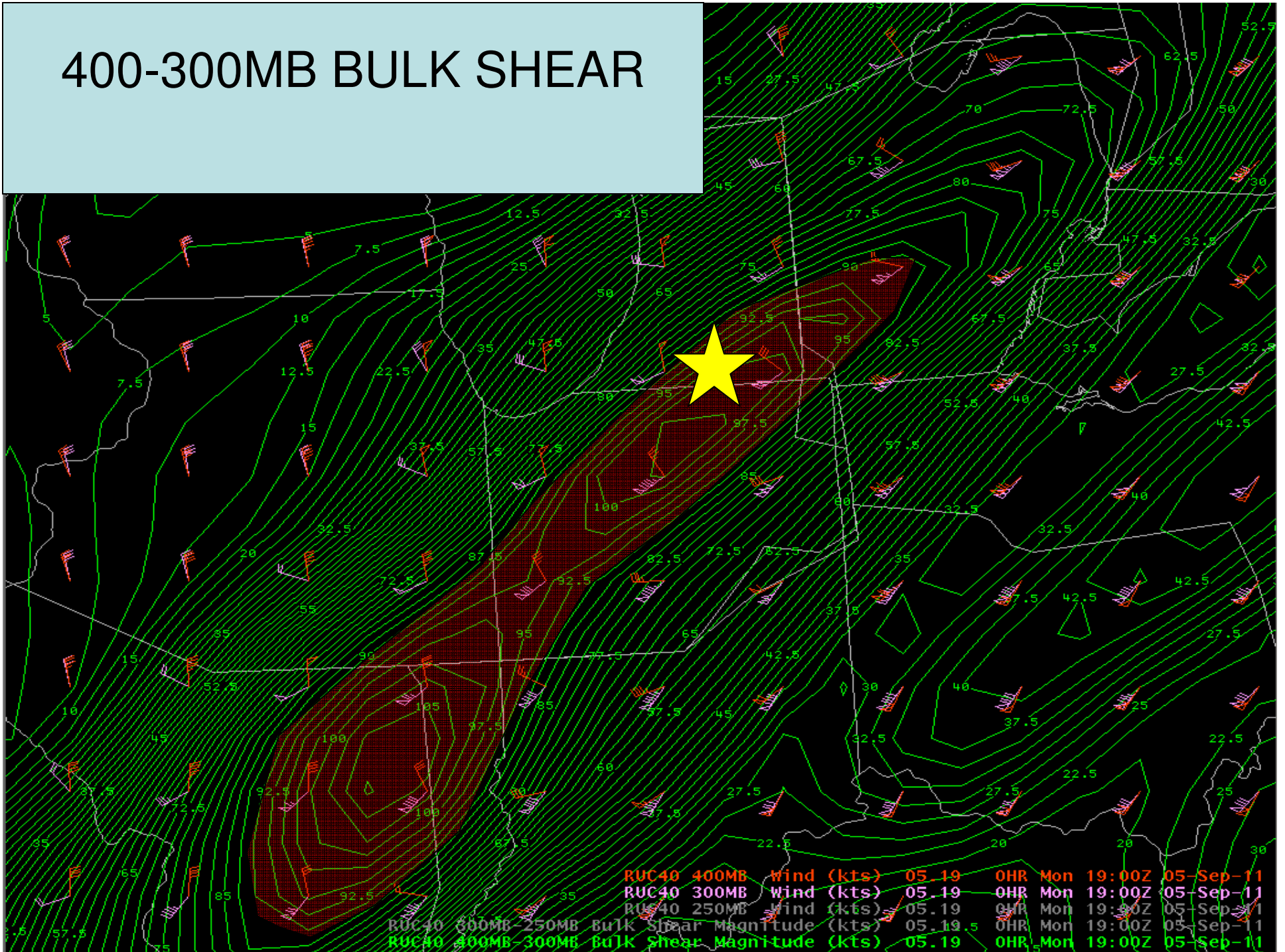
OTHER SEVERE SIGNATURES

(SPEED AND DIRECTIONAL
SHEAR CASES)

400-300MB BULK SHEAR

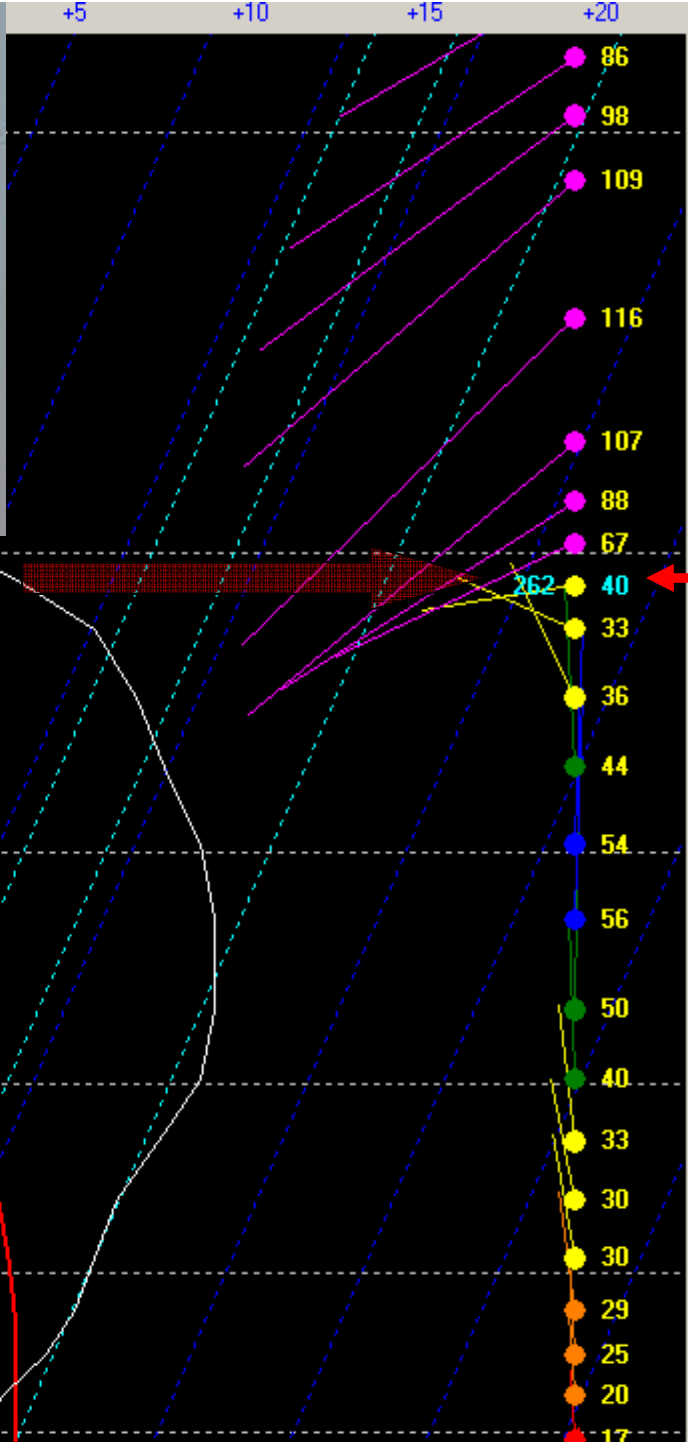


400-300MB BULK SHEAR



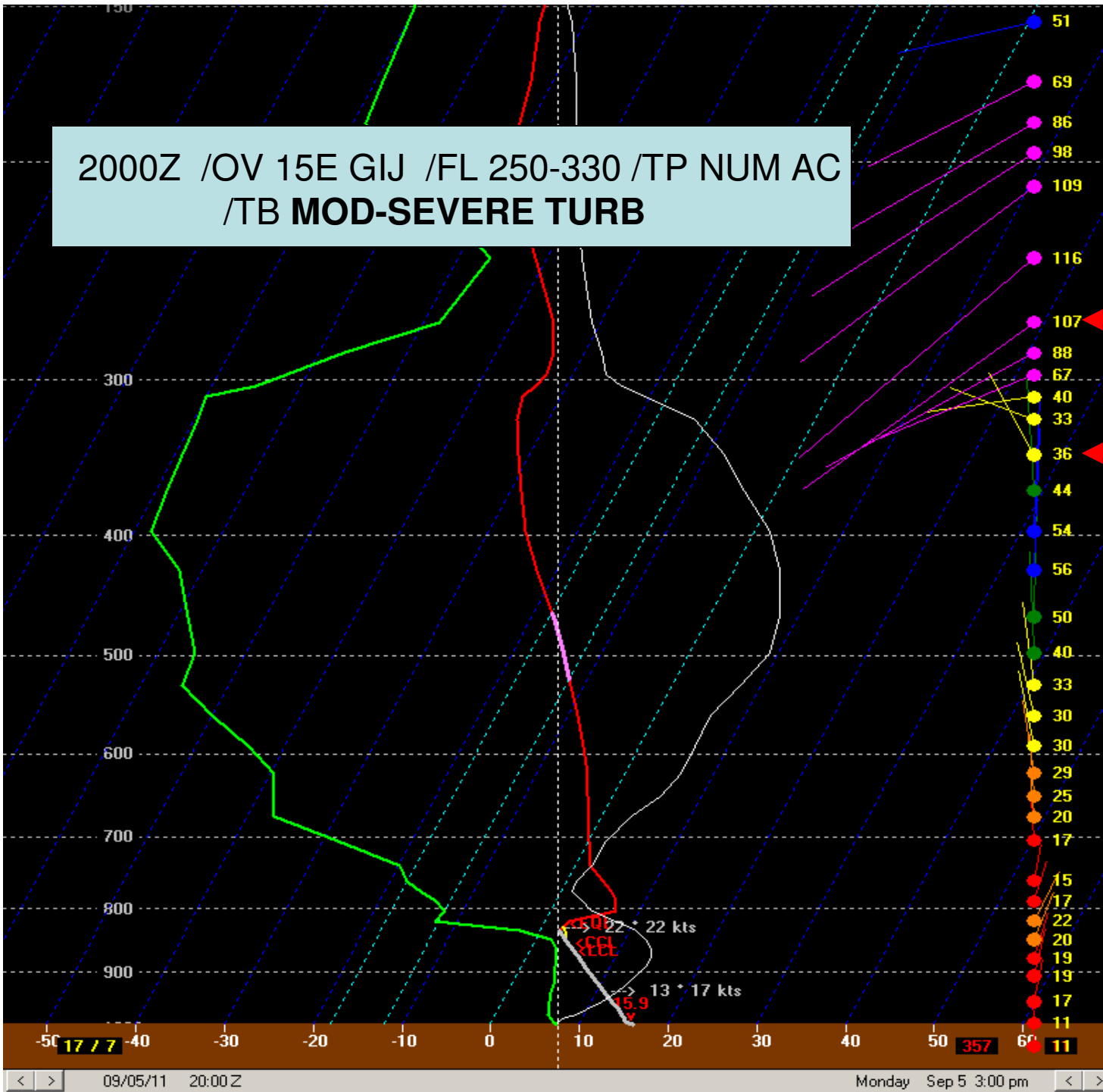


1937Z 15NE GIJ 285-290 757 SEVERE.



Sev Turb
FL285-290

2000Z /OV 15E GIJ /FL 250-330 /TP NUM AC
/TB MOD-SEVERE TURB



31,700'
Numerous AC
Mod-Severe
FL250-FL330
26,300'

