

Aviation Meteorological Forecaster Competency 2

Forecast Aeronautical Meteorological Phenomena and Parameters

High-Level Significant weather chart Turbulence - CAT AMF AC 2.1.2, 2.1.8, 2.2 and 2.3

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AIM OF THIS PRESENTATION

Before reviewing this presentation ensure to first consult the following theory presentation to enable better understanding:

RTC-PRE-079 AMF AC 3.1.2 3.1.3 2.1.9 Forecast and Warn of Hazardous Phenomena Turbulence and Windshear

At the end of this presentation, you will be able to:

- Compile high significant weather charts and use it to demonstrate competency in AMF AC 2.1.2, 2.1.8, 2.2 and 2.3 – Turbulence (CAT), format and boundaries
- Complete weekly quizzes related to Significant weather charts using this presentation as an example.
- Use the Aviation Software to construct low- and high-level significant weather charts.
- Display commands relevant to turbulence using the Wingrids weather display system software.



Calculating areas of Clear Air Turbulence (CAT) (AMF AC 2.1.2, 2.1.8)

The following commands will be used in our weather display system to calculate speed shear

AMTU. - Moderate turbulence for use with WAF and GFS

ASTU. – Severe turbulence for use with WAF and GFS

AMT2. - Moderate low-level turbulence for use with GFS

AST2. – Severe low-level turbulence for use with GFS

Turbulence	Vertical Speed Shear	Horizontal Speed shear	Directional shear
Moderate	6KT per 1000 ft _w	20KT per 1° of LAT/LON	
Severe	9KT per 1000 ft _w	20KT per 1° of LAT/LON	75° and ≥ 50KT



Moderate turbulence at 12Z due to vertical wind speed shear (AMF AC 2.1.8)

INPUT 4 CHARACTER COMMANDS AND DELIMITERS OR EXIT

MODERATE SPEED SHEAR BETWEEN FL100 AND FL050 (PURPLE)
MODERATE SPEED SHEAR BETWEEN FL140 AND FL100 (RED)
MODERATE SPEED SHEAR BETWEEN FL180 AND FL140 (WHITE)
MODERATE SPEED SHEAR BETWEEN FL240 AND FL180 (YELLOW)
MODERATE SPEED SHEAR BETWEEN FL300 AND FL240 (CYAN)
MODERATE SPEED SHEAR BETWEEN FL340 AND FL300 (GREEN)
MODERATE SPEED SHEAR BETWEEN FL390 AND FL340 (BLUE)
MODERATE SPEED SHEAR BETWEEN FL450 AND FL390 (BROWN)

MODERATE SPEED SHEAR BETWEEN FL100 AND FL050 (PURPLE)
MODERATE SPEED SHEAR BETWEEN FL140 AND FL100 (RED)
MODERATE SPEED SHEAR BETWEEN FL180 AND FL140 (WHITE)
MODERATE SPEED SHEAR BETWEEN FL240 AND FL180 (YELLOW)
MODERATE SPEED SHEAR BETWEEN FL300 AND FL240 (CYAN)
MODERATE SPEED SHEAR BETWEEN FL340 AND FL300 (GREEN)
MODERATE SPEED SHEAR BETWEEN FL390 AND FL340 (BLUE)
MODERATE SPEED SHEAR BETWEEN FL450 AND FL390 (BROWN)

After entering the macro (amtu.) press enter 10 times for every layer to be displayed like this

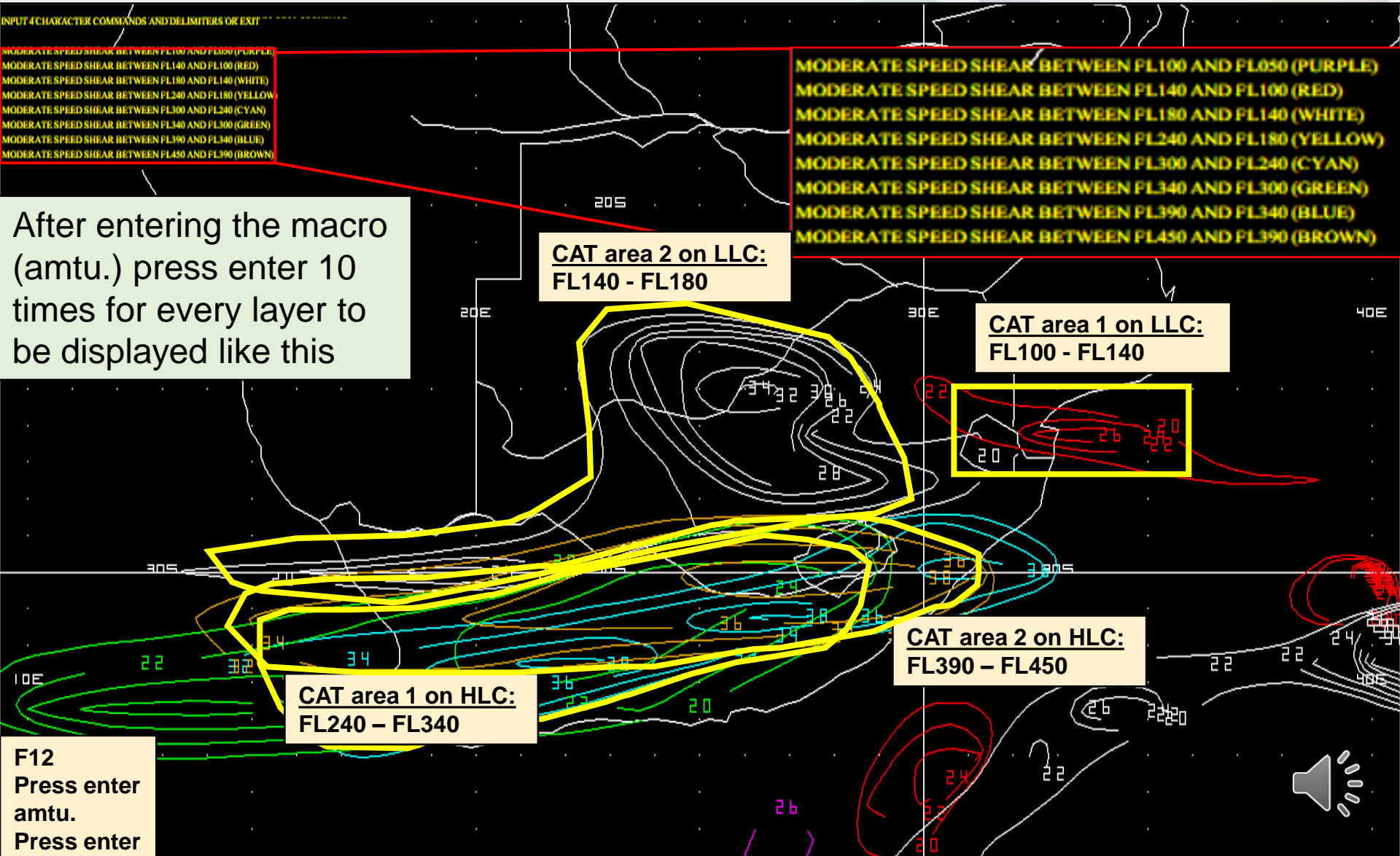
CAT area 2 on LLC:
FL140 - FL180

CAT area 1 on LLC:
FL100 - FL140

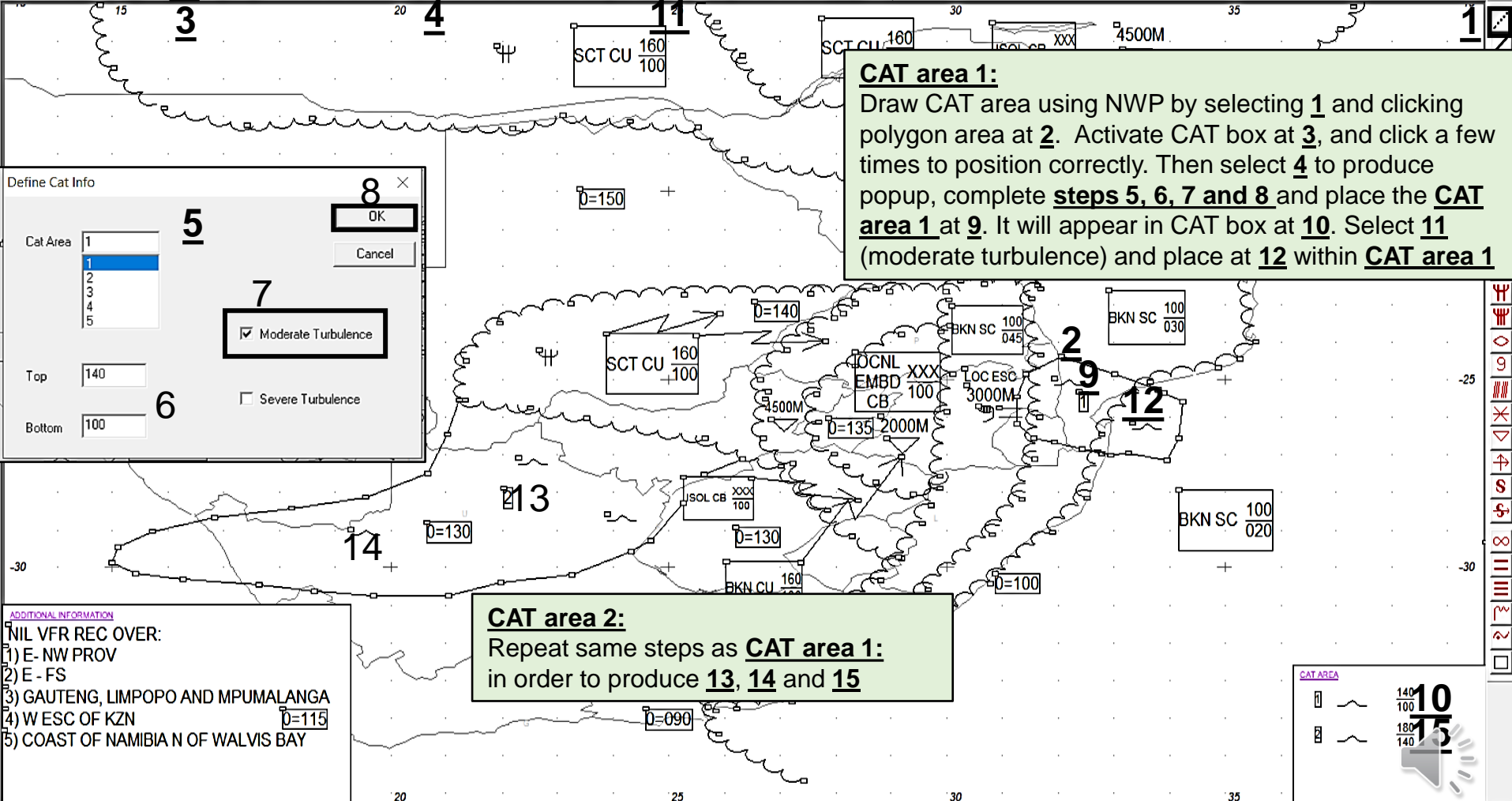
CAT area 2 on HLC:
FL390 - FL450

CAT area 1 on HLC:
FL240 - FL340

F12
Press enter
amtu.
Press enter



Depicting Mod CAT on low-level significant weather chart (AMF AC 2.2)



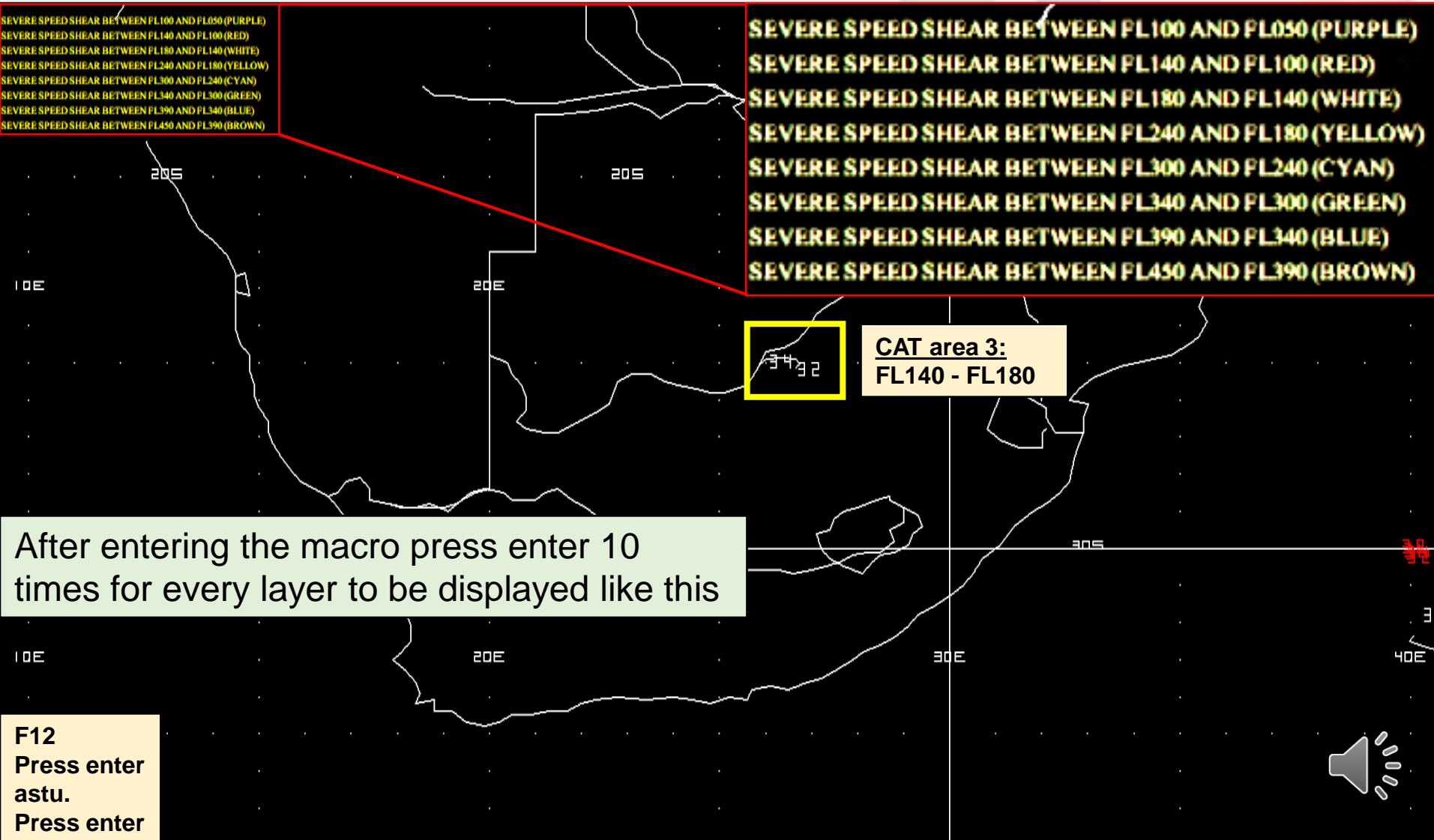
CAT area 1:
Draw CAT area using NWP by selecting 1 and clicking polygon area at 2. Activate CAT box at 3, and click a few times to position correctly. Then select 4 to produce popup, complete steps 5, 6, 7 and 8 and place the CAT area 1 at 9. It will appear in CAT box at 10. Select 11 (moderate turbulence) and place at 12 within CAT area 1

CAT area 2:
Repeat same steps as CAT area 1: in order to produce 13, 14 and 15

Severe turbulence at 12Z due to vertical wind speed shear (AMF AC 2.1.8)

SEVERE SPEED SHEAR BETWEEN FL100 AND FL050 (PURPLE)
SEVERE SPEED SHEAR BETWEEN FL140 AND FL100 (RED)
SEVERE SPEED SHEAR BETWEEN FL180 AND FL140 (WHITE)
SEVERE SPEED SHEAR BETWEEN FL240 AND FL180 (YELLOW)
SEVERE SPEED SHEAR BETWEEN FL300 AND FL240 (CYAN)
SEVERE SPEED SHEAR BETWEEN FL340 AND FL300 (GREEN)
SEVERE SPEED SHEAR BETWEEN FL390 AND FL340 (BLUE)
SEVERE SPEED SHEAR BETWEEN FL450 AND FL390 (BROWN)

SEVERE SPEED SHEAR BETWEEN FL100 AND FL050 (PURPLE)
SEVERE SPEED SHEAR BETWEEN FL140 AND FL100 (RED)
SEVERE SPEED SHEAR BETWEEN FL180 AND FL140 (WHITE)
SEVERE SPEED SHEAR BETWEEN FL240 AND FL180 (YELLOW)
SEVERE SPEED SHEAR BETWEEN FL300 AND FL240 (CYAN)
SEVERE SPEED SHEAR BETWEEN FL340 AND FL300 (GREEN)
SEVERE SPEED SHEAR BETWEEN FL390 AND FL340 (BLUE)
SEVERE SPEED SHEAR BETWEEN FL450 AND FL390 (BROWN)



After entering the macro press enter 10 times for every layer to be displayed like this

CAT area 3:
FL140 - FL180

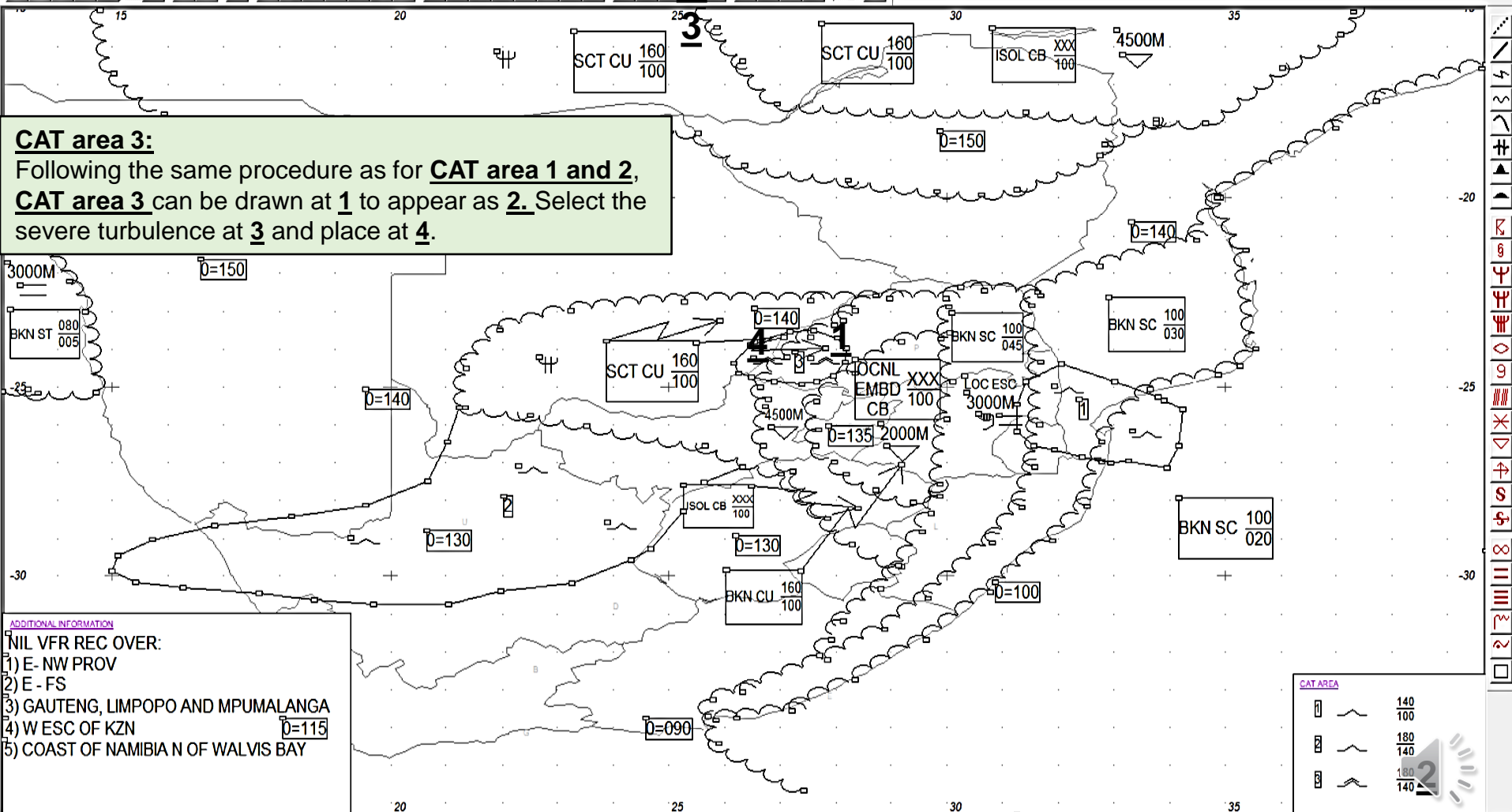
F12
Press enter
astu.
Press enter



Depicting Severe CAT on low-level significant weather chart (AMF AC 2.2 ,2.3)

South African Weather Service - Computer Aided Aviation - avian

File Edit Administration Product Import



Depicting CAT on high-level significant weather chart (AMF AC 2.2, 2.3)

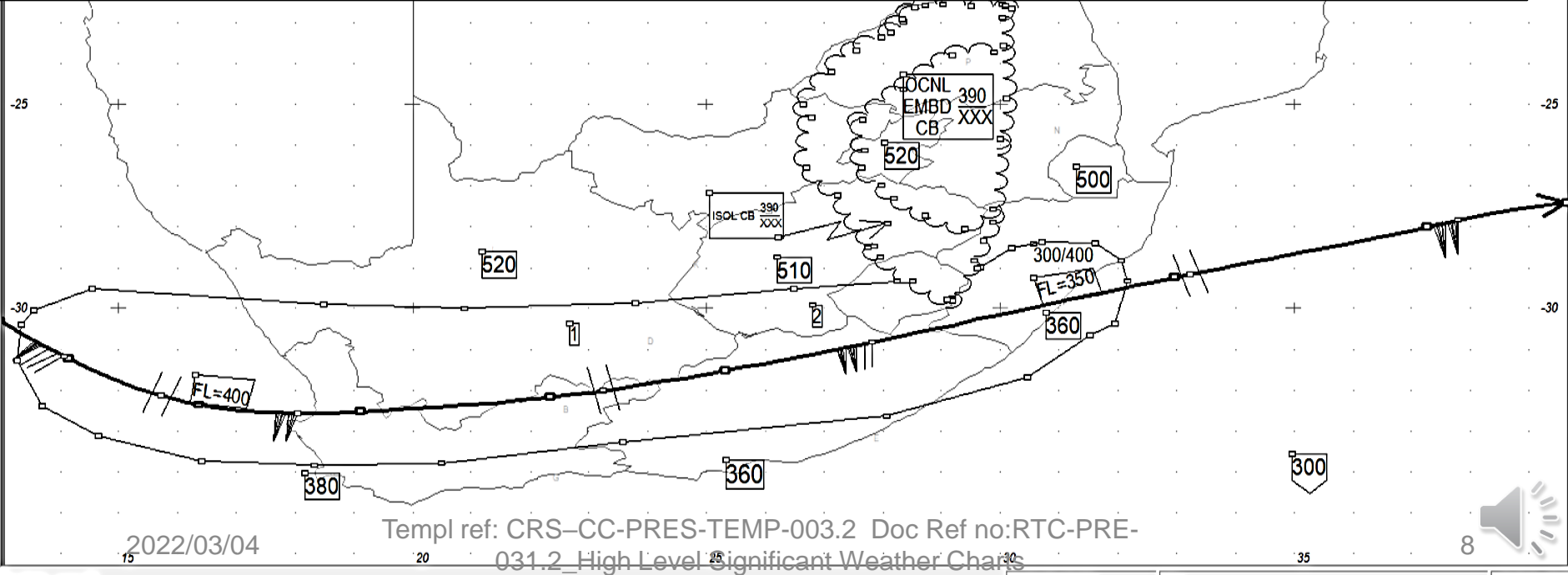
CAT AREA

☐	340
☐	240
☐	450
☐	390

The same procedure is followed as per the low level significant weather chart to depict the CAT.

Considering the NWP slide for moderate turbulence, there is moderate turbulence above FL180.

It wont require any warnings for AIRMET. See AMF Competency 3



References

- Latest edition of RTC-CN-020_Aviation Practical Course Notes
- RTC-PRE-079_AMF AC 3.1.2_3.1.3_2.1.9_Forecast and Warn of Hazardous Phenomena_Turbulence and Windshear

