

Weather discussion for Thursday, January 26, 2012

Jim Bresch NCAR/MMM

Overview: The Amazon high aloft continues to expand with the subtropical jet moving southward. A trough in the westerlies is expected to cross 80W on Friday, south of 40S. The cold front associated with the trough will bring precipitation onshore south of Concepcion.

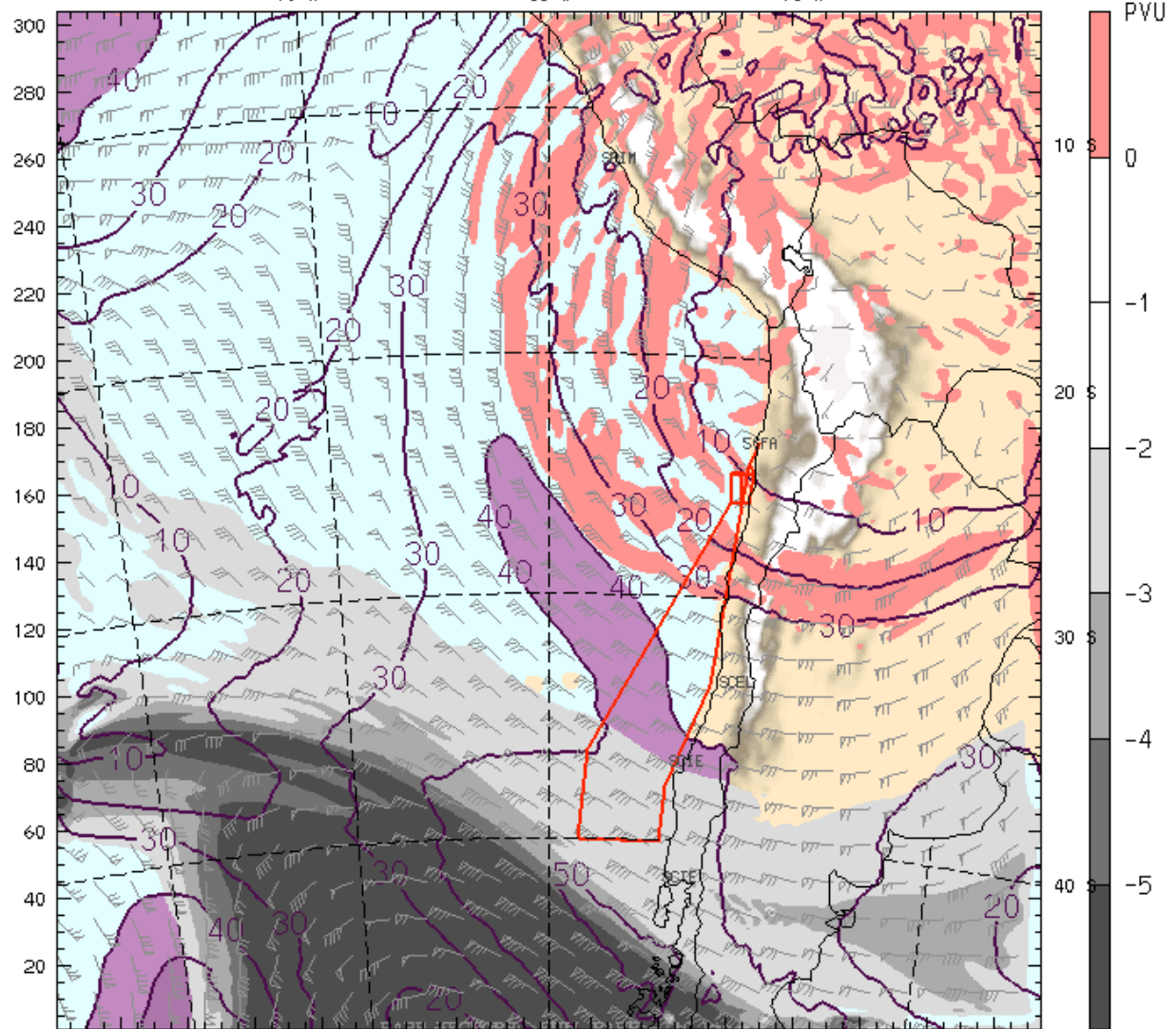
A southern research flight is scheduled for Friday, 27 Jan. Low clouds can be avoided by staying north of 40S. Low clouds along the coast south of SCFA are expected to clear by 3 PM local time.

TORERO 15km ARW NCAR/MMM Init: 06 UTC Thu 26 Jan 12
 Fcst: 33 h Valid: 15 UTC Fri 27 Jan 12 (12 LST Fri 27 Jan 12)
 Horizontal wind speed at height = 12.00 km sm= 1
 Potential vorticity at height = 12.00 km sm= 1
 Horizontal wind vectors 90 N at height = 12.00 km sm= 1

12 km chart
 (FL390) from WRF

Subtropical jet core
 is progged to be
 well SW of SCFA to
 near SCIE. The
 polluted air aloft
 should be
 observed N of 30S.

A stronger jet (50
 m/s) is found S of
 40 S. Fairly high
 values of PV (-5
 PVU) are found in
 this region.

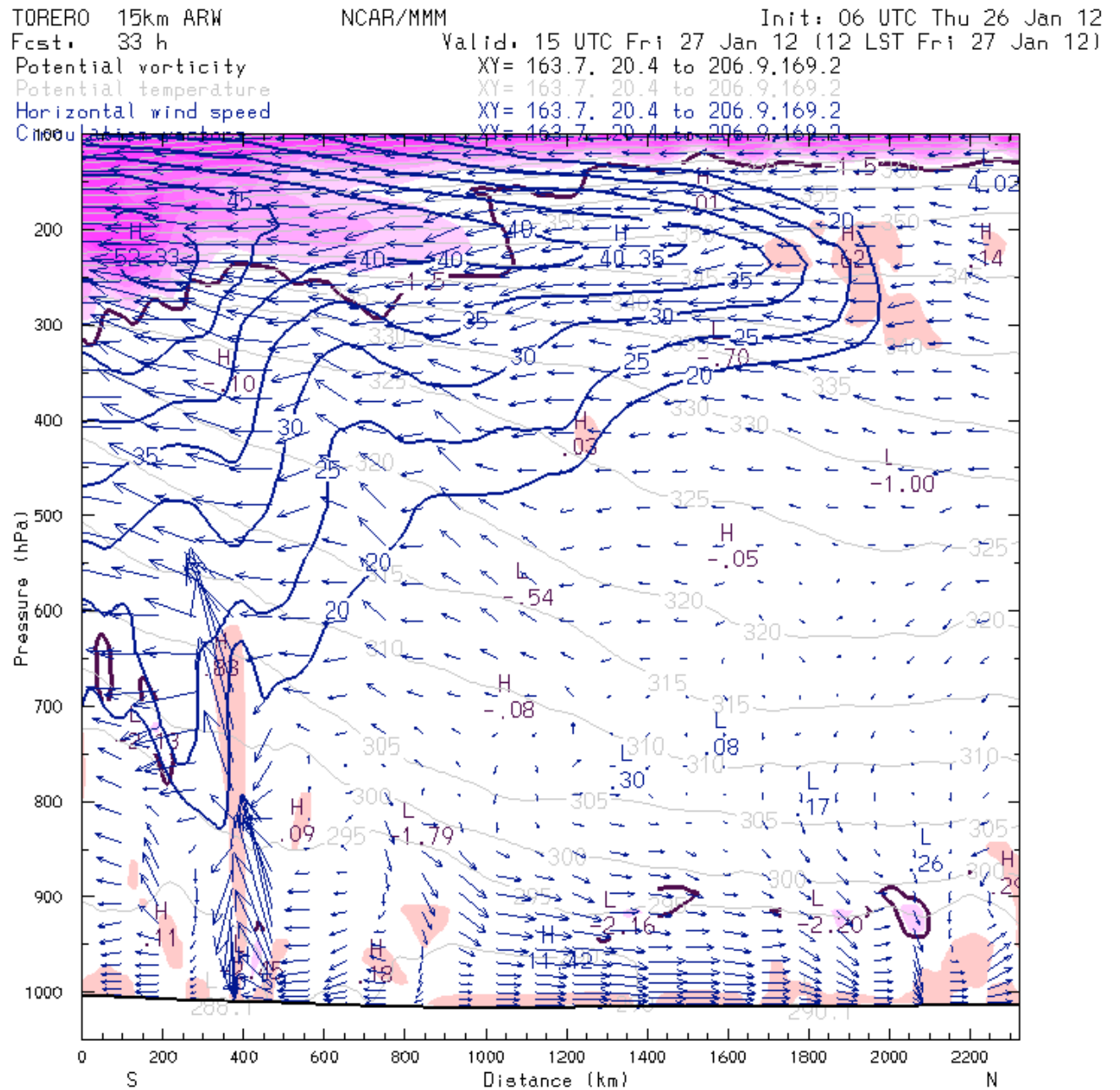


20 CONTOURS: 5 UNITS: $s^{-1} 10^{-6}$ W=120.00040 HIGH=180000 200 INTERVAL=40 10.000 280
 Model Info: V3.3.1 Tiedtke YSU PBL Thompson Noah LSM 15 km, 44 levels, 91 sec
 LY: Godd SM: Goddard DIFF: simple KM: 20 Smagor

Cross-section along the eastern track (PARAL to 45S, 77W).

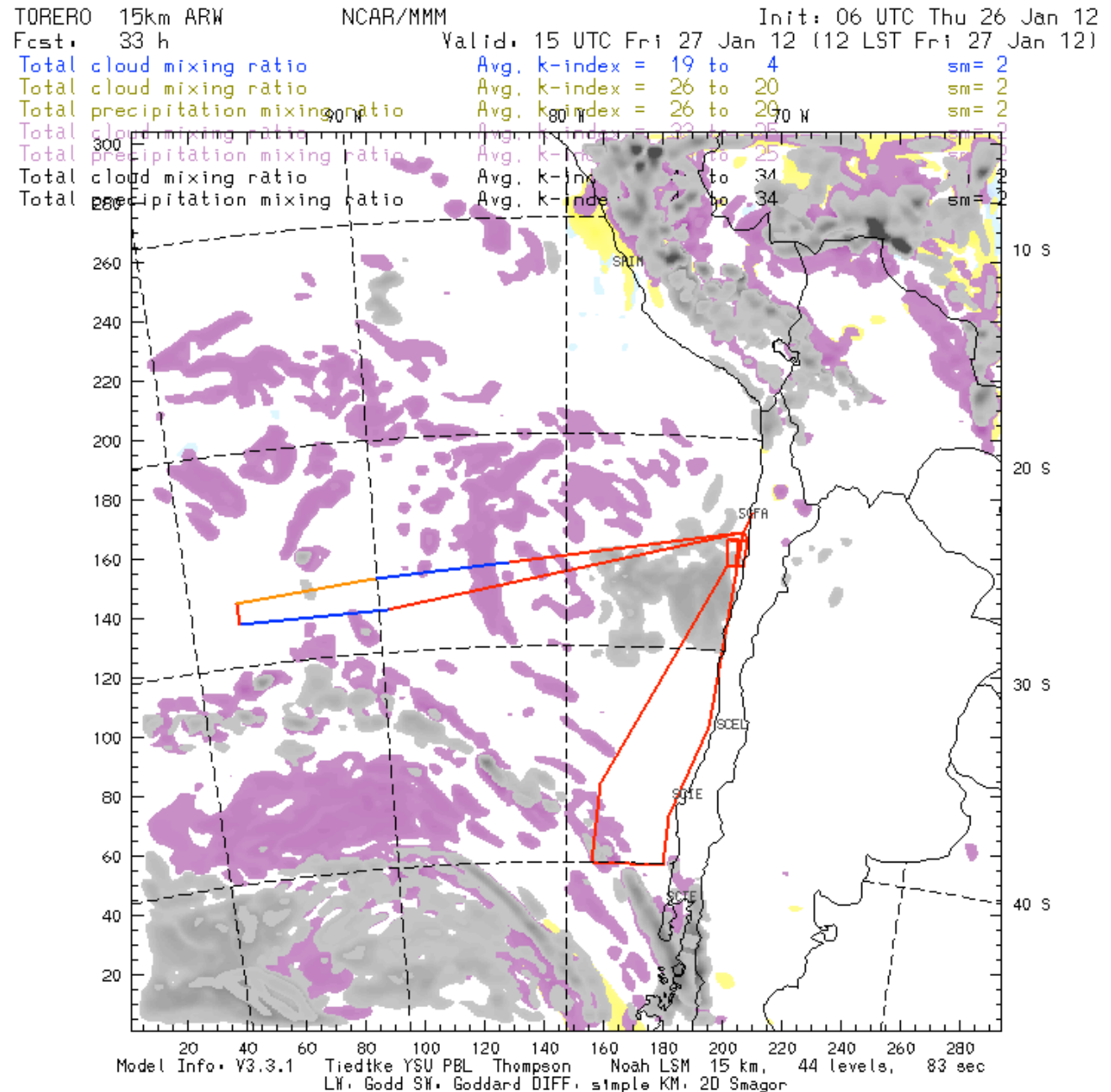
The STJ core (40 m/s) is about 800 km south of PARAL at FL390.

High PVU air is present in the midlatitude jet core (52 m/s) around 45S.

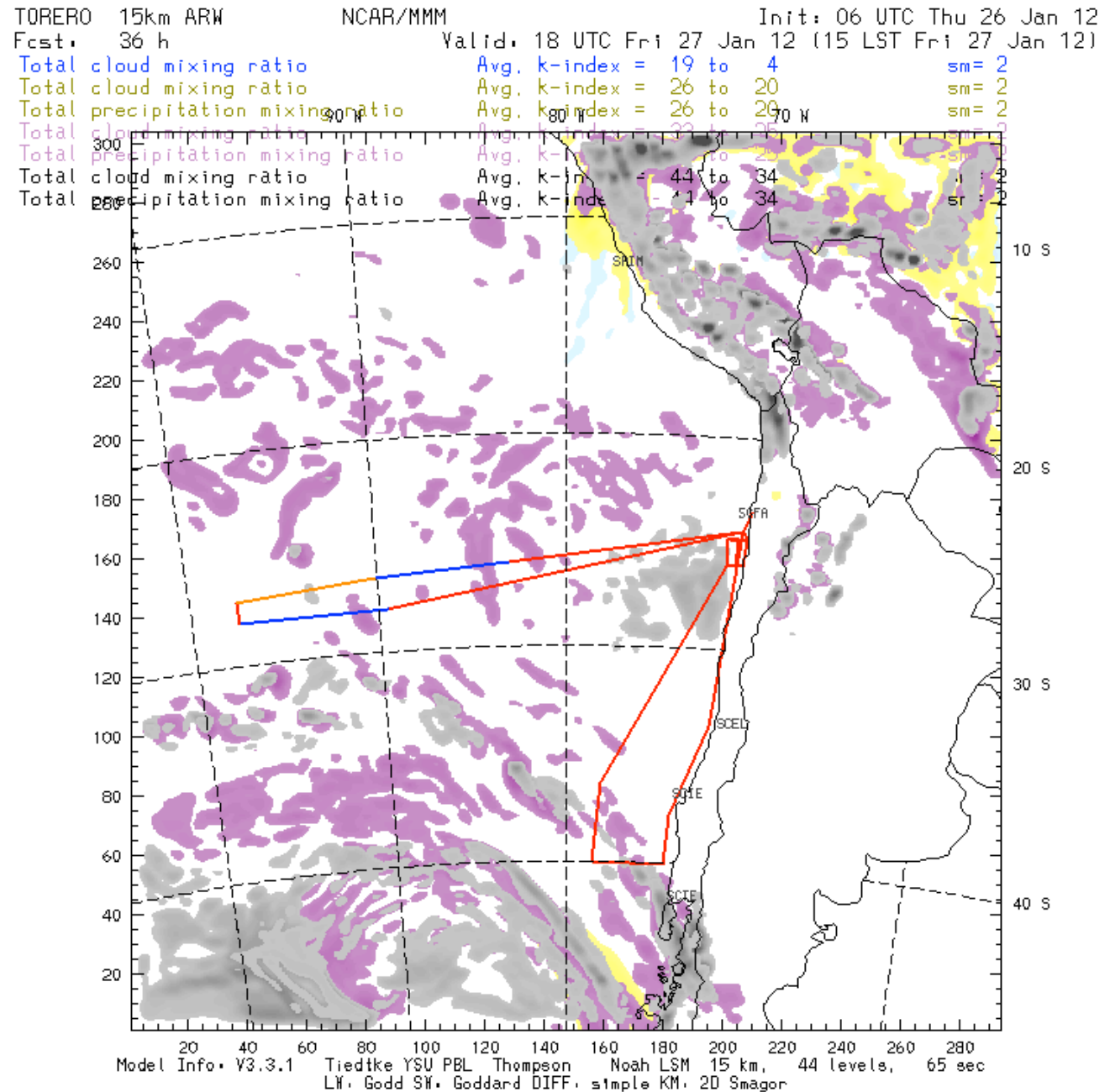


WRF predicts clear skies from 30 to 40S along the Chilean coast (a rather unusual situation to say the least). Frontal clouds and rain arc from about 42S, 72W to 32S, 80W.

Low clouds are forecast from 25S to 30S along the coast at noon local time.



By 3 PM local time
 low clouds are
 predicted to clear
 away from the BL
 sampling region
 near 26S.

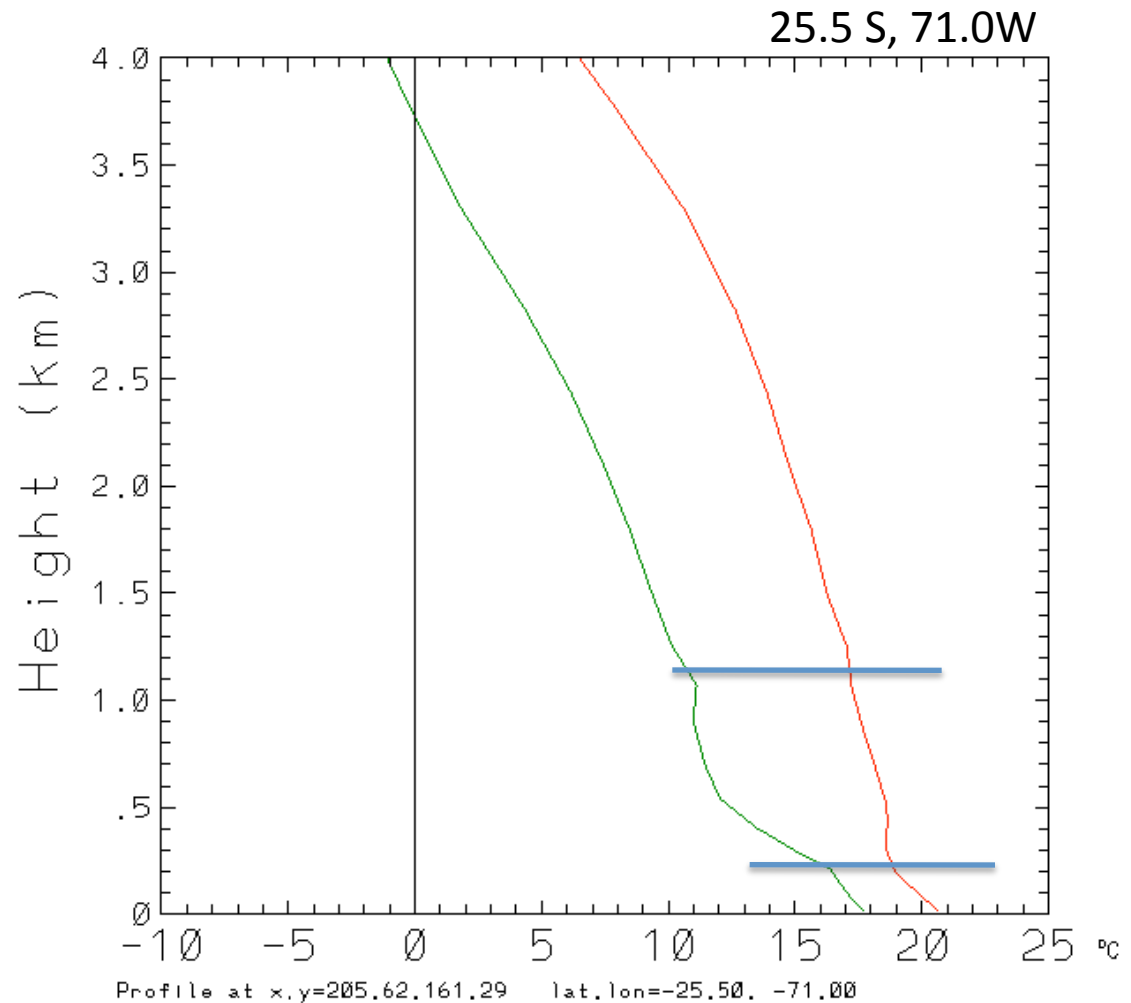


TORERO 3 km ARW
Fcst. 30 h
Temperature
Dewpoint temperature

NCAR/MMM

Init: 12 UTC Thu 26 Jan 12
Valid: 18 UTC Fri 27 Jan 12 (15 LST Fri 27 Jan 12)

At 3 PM local time surface southerlies (> 8 m/s) change to northerlies above the inversion (> 1.5 km).



Model Info: Y3.3.1 Tiedtke YSU PBL Thompson Noah LSM 15 km, 44 levels, 103 sec
LW, Godd SW, Goddard DIFF, simple KM, 2D Smagor

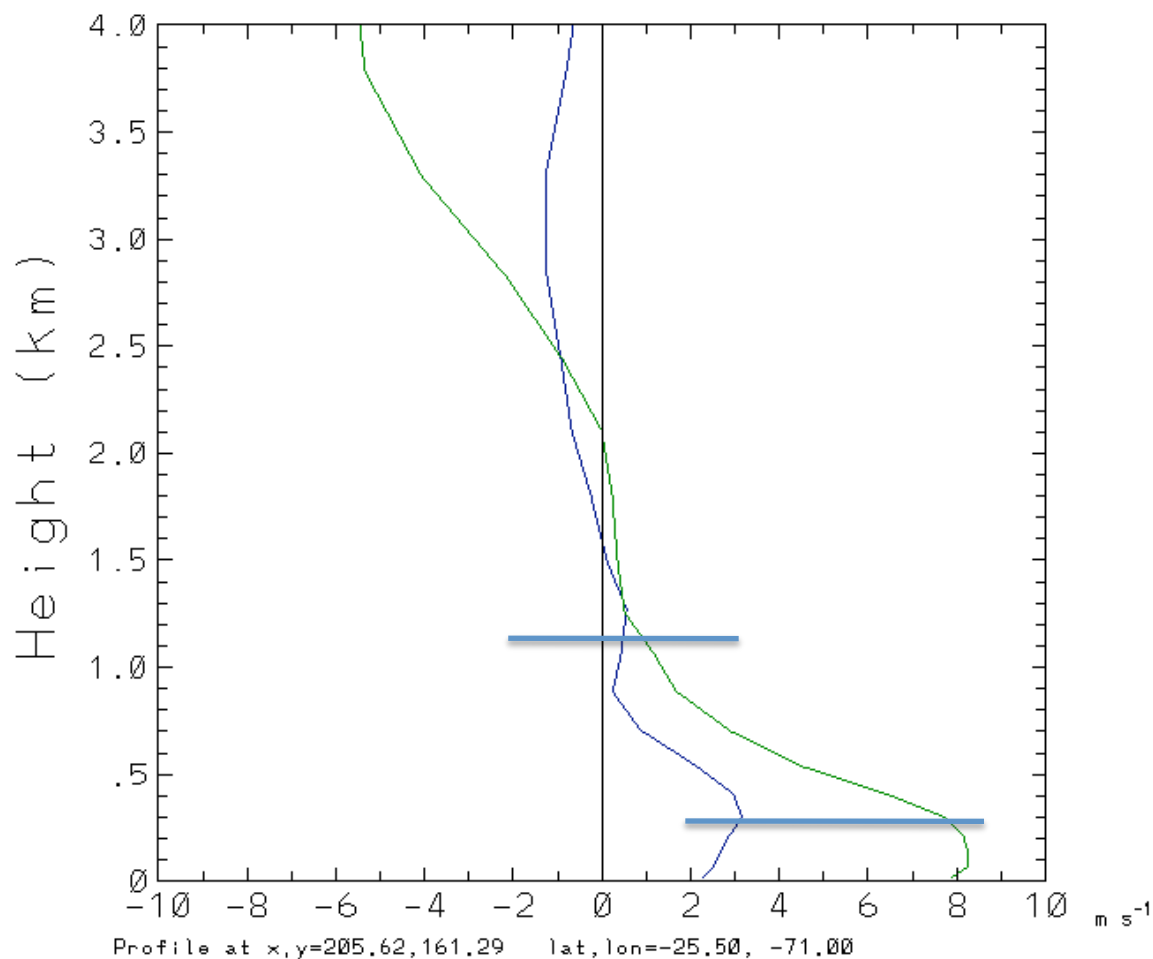
TORERO 3 km ARW
Fcst: 30 h
Westerly wind component
Southerly wind component

NCAR/MMM

Init: 12 UTC Thu 26 Jan 12
Valid: 18 UTC Fri 27 Jan 12 (15 LST Fri 27 Jan 12)

At 3 PM local time surface southerlies (> 8 m/s) change to northerlies above the inversion (> 1.5 km).

25.5 S, 71.0W



Model Info: V3.3.1 Tiedtke YSU PBL Thompson Noah LSM 15 km, 44 levels, 103 sec
LY: Godd SW: Goddard DIFF: simple KM: 20 Smagor

3-km WRF trajectories
Fcst: 30 h
Relative humidity (w.r.t. water)
Trajectories from hour 0.000 to 30.000 XY= 94.5,139.4 to 94.5, 39.7
Trajectories from hour 0.000 to 30.000 XY= 94.5,139.4 to 94.5, 39.7

Init: 12 UTC Mon 23 Jan 12
Valid: 18 UTC Tue 24 Jan 12 (11 MST Tue 24 Jan 12)

Tuesday, 24 Jan.

