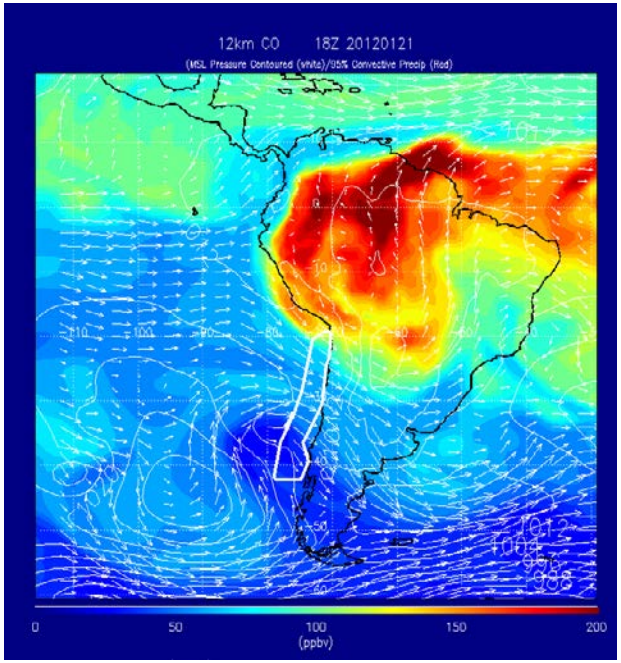
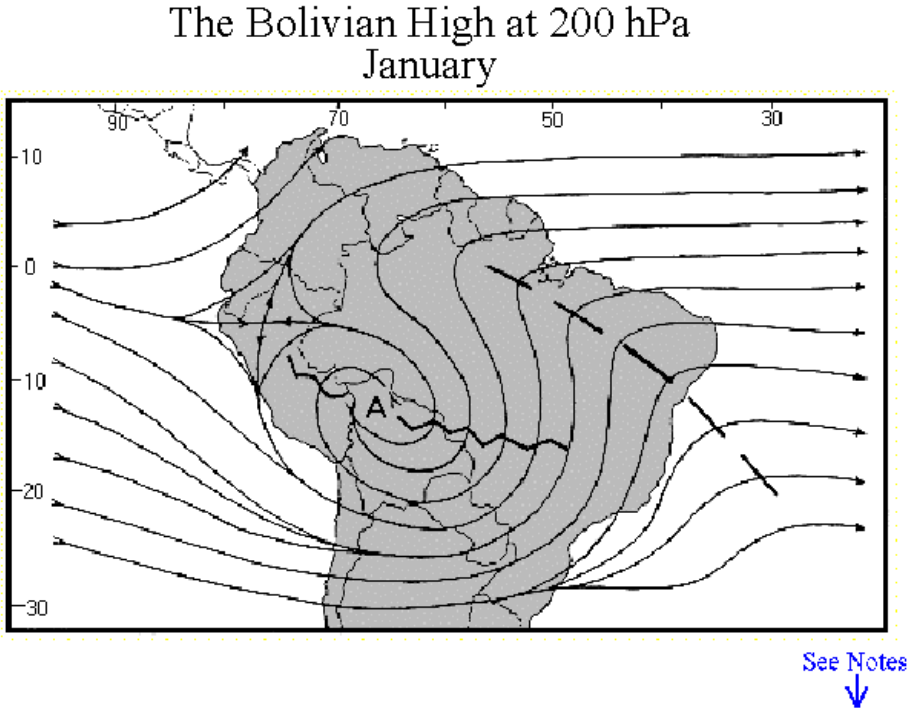
TORERO Science Meeting 01/26/2012: RF02 (01/21/2012)

Brad Pierce, RuShan Gao, Teresa Campos, Andrew Heidinger, Andi Walter

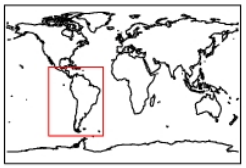




The Bolivian High is generated through a combination of heating over the Andes Mountains/Bolivian Altiplano and the latent heat of condensation released by intense convection over the western Amazon basin. It forms in December and remains a major feature through March. Wind speeds are higher to the south of the high due to the presence of the Subtropical Jet. The Bolivian High and the STJ provide good venting for thunderstorm development.

From: Mr. Mike Davison (NOAA/NCEP/HPC)
email: michel.davison@noaa.gov

http://www.hpc.ncep.noaa.gov/international/training/climatsa/sld001.htm

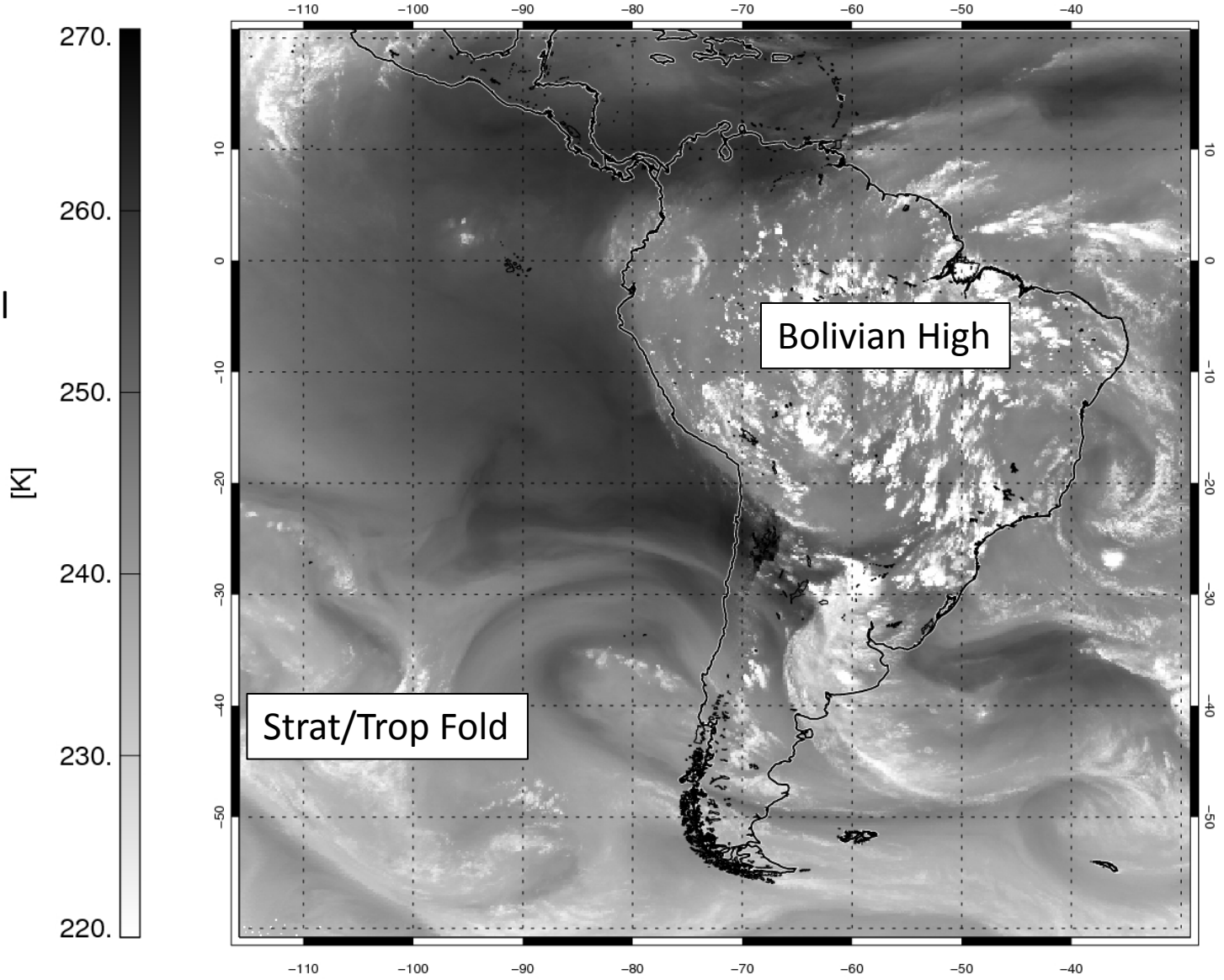


Brightness Temperature 6.7 micron

17:45Z 20120121

GOES-12 P-ATMOSX
Water Vapor Channel
Imagery

Valid 17:45Z 01/21



Provided by Andrew Heidinger (NESDIS/STAR) and Andi Walther (UW-Madison/CIMSS)

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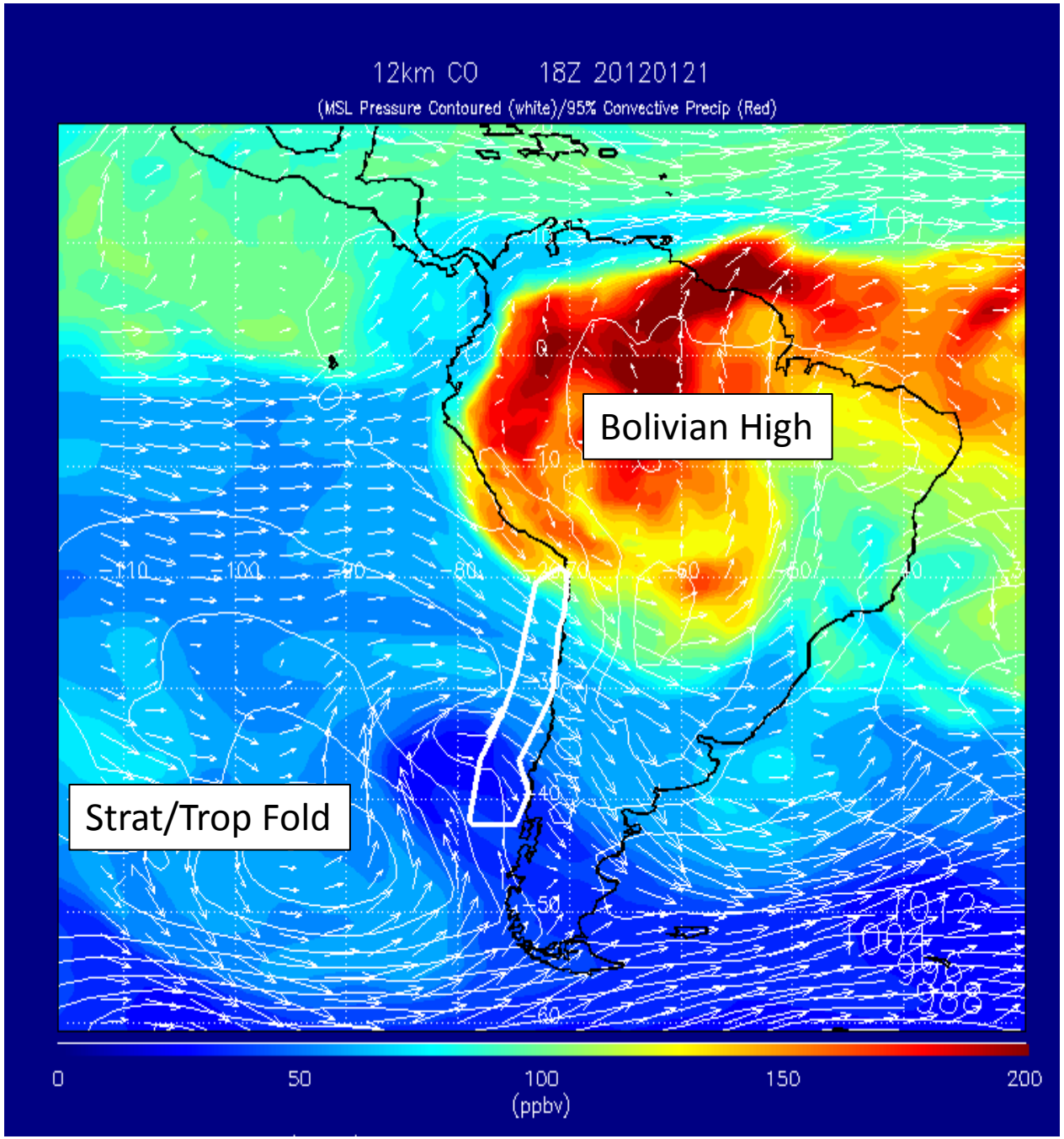
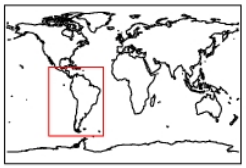
RAQMS 12km CO Analysis

Valid 18Z 01/21

Enhanced CO associated with Convective outflow from Bolivian High

Low CO associated with Strat/frop fold





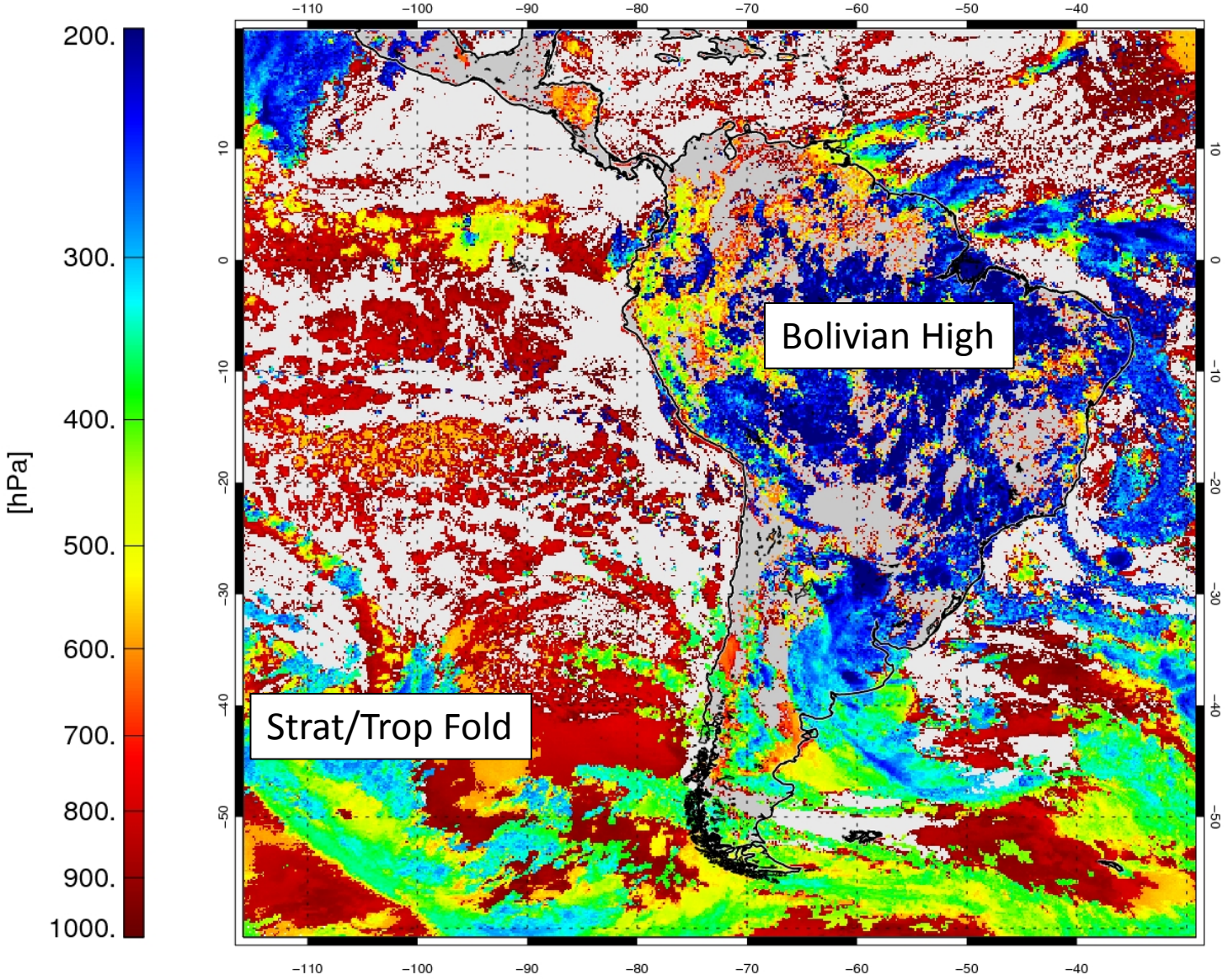
Cloud Top Pressure

17:45Z 20120121

GOES-12 P-ATMOSX Cloud Top Pressure Retrieval

Valid 17:45Z 01/21

Convective outflow within Bolivian High reaches 200mb (12km)



Provided by Andrew Heidinger (NESDIS/STAR) and Andi Walther (UW-Madison/CIMSS)

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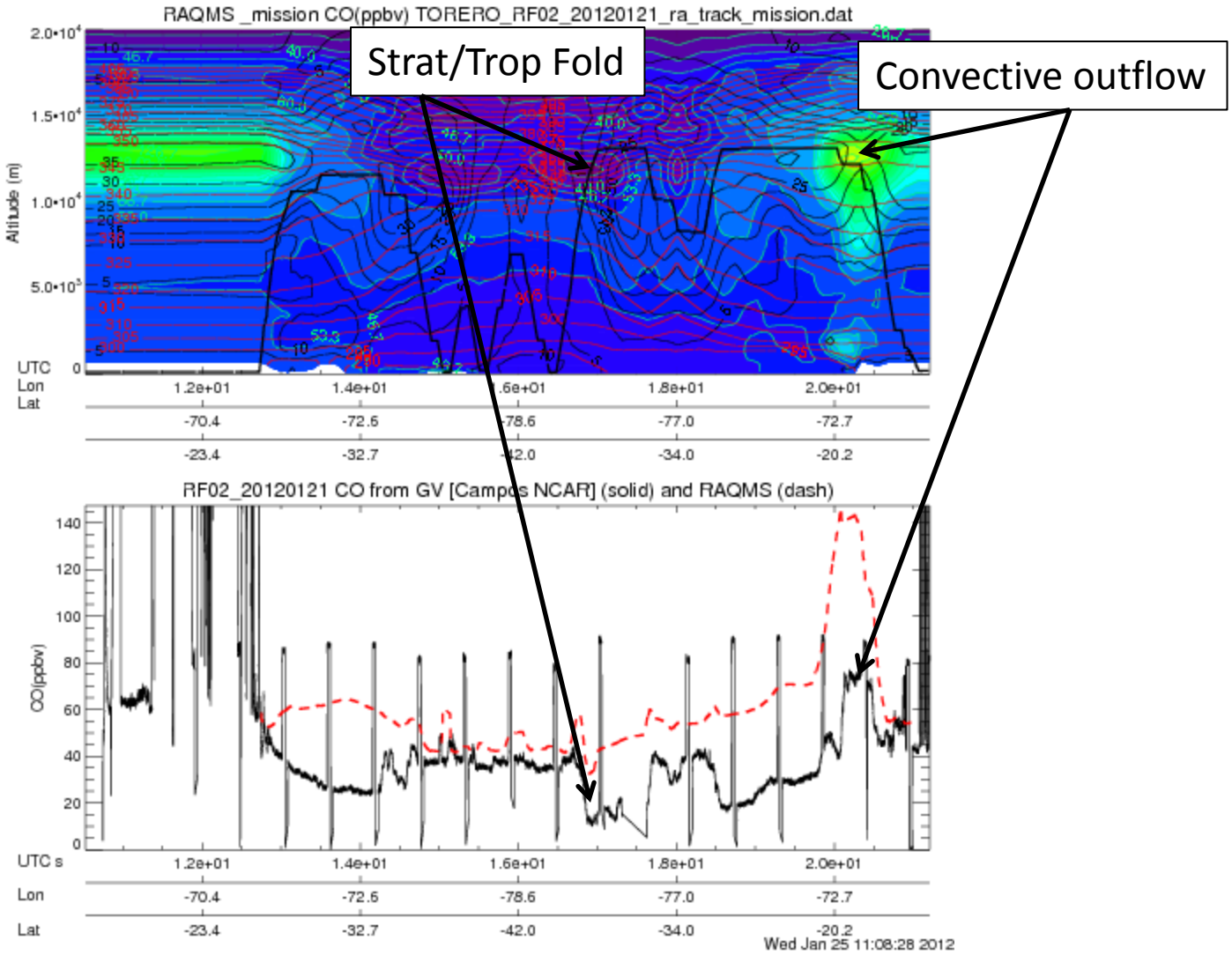
RAQMS vs UCAR (Campo) CO (ppbv)



RAQMS overestimates free tropospheric CO by 30ppbv

RAQMS overestimates convective outflow CO by factor of 2

RAQMS minimum CO mixing ratio within marine BL is within 10ppbv of insitu

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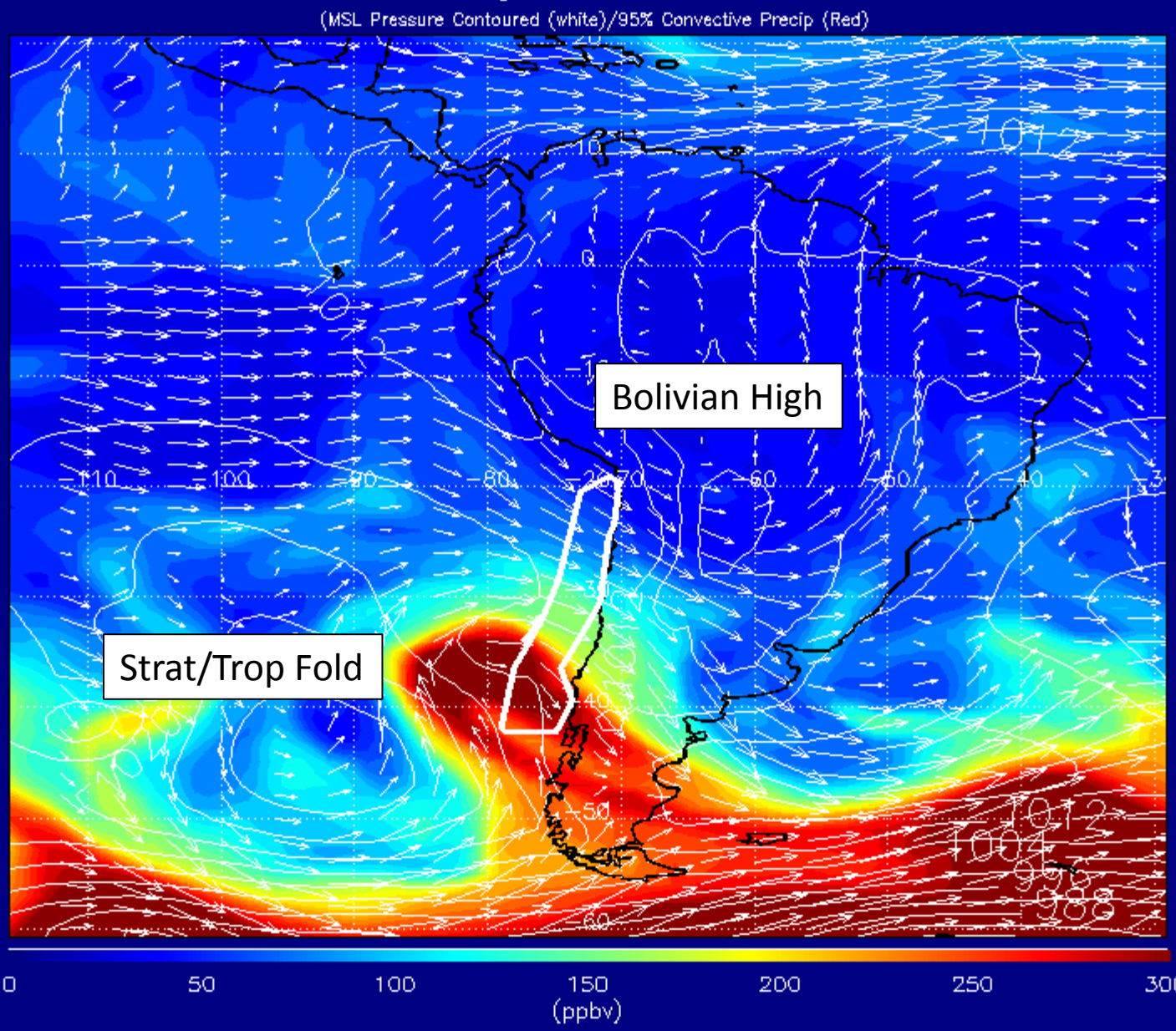
RAQMS 12km O3 Analysis



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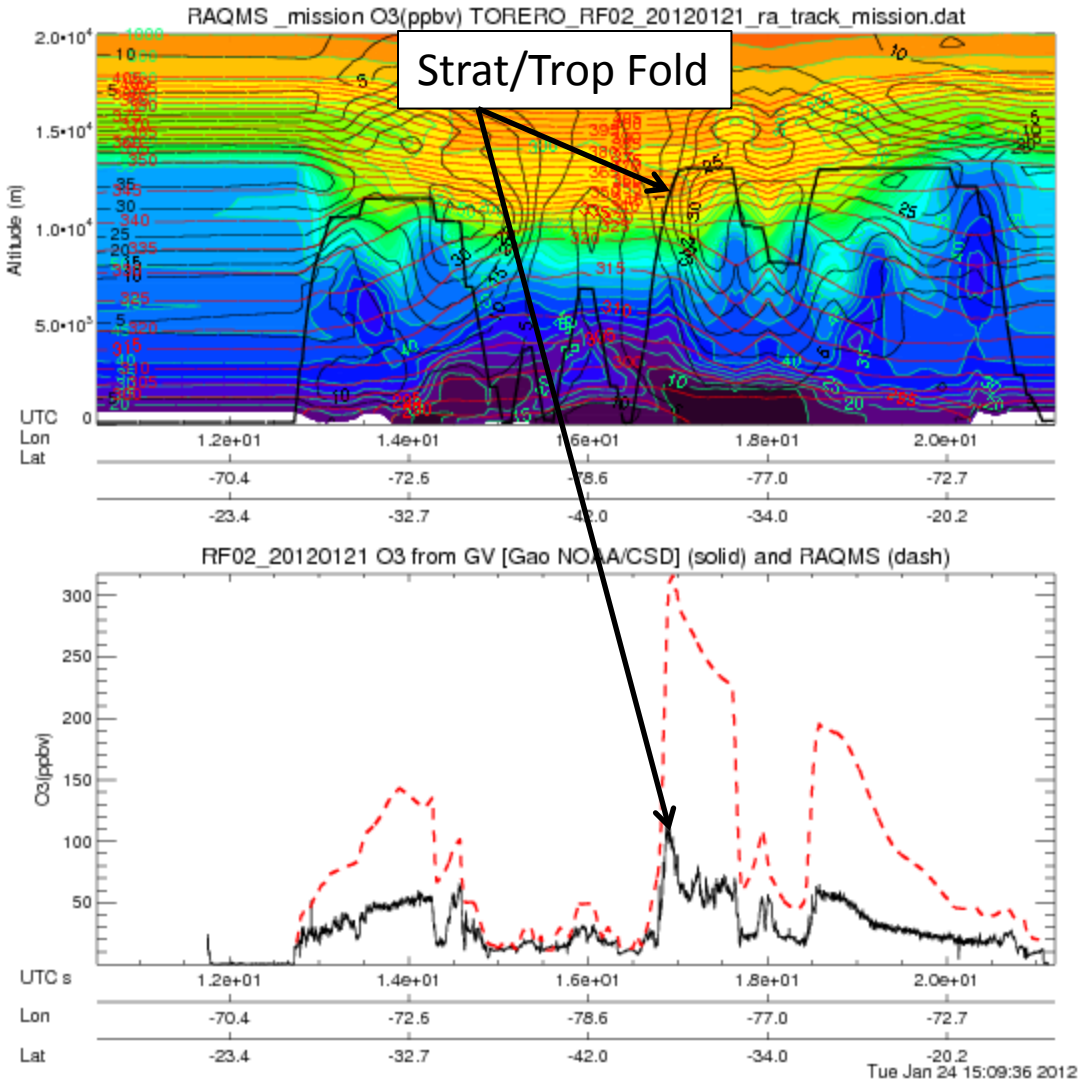
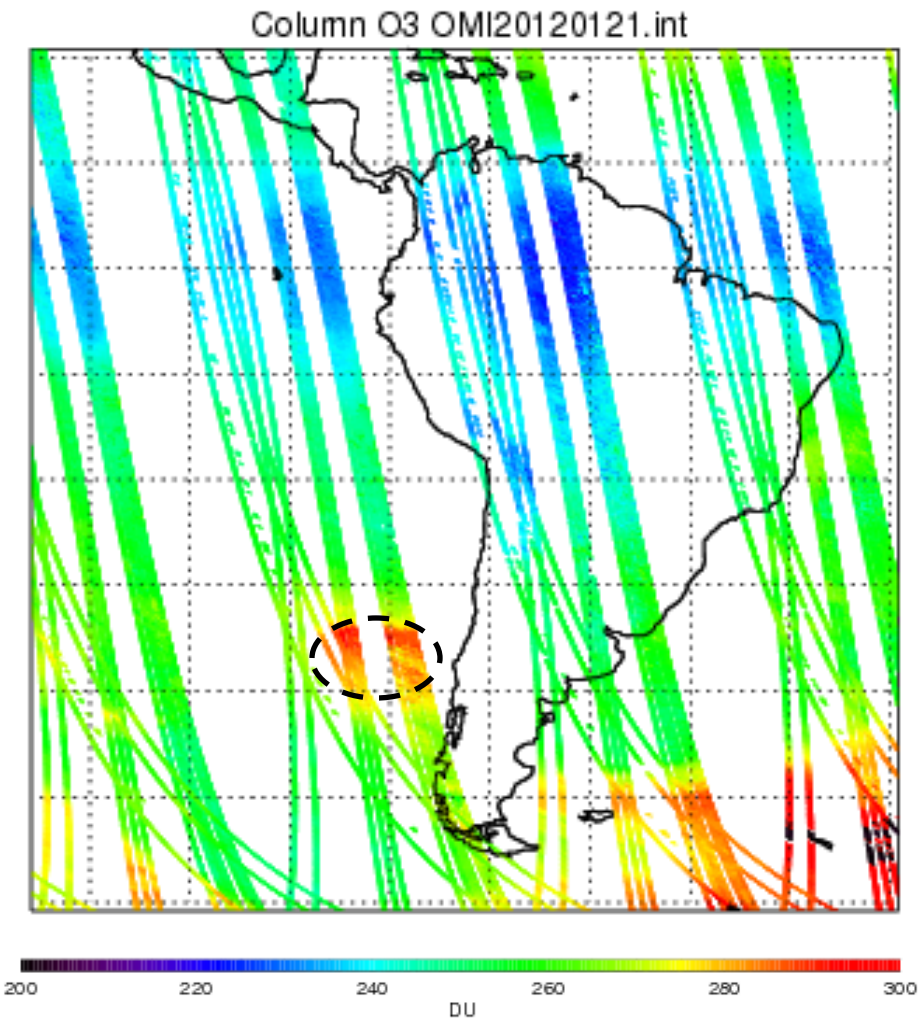
RAQMS vs NOAA/CSD (Gao) O3 (ppbv)

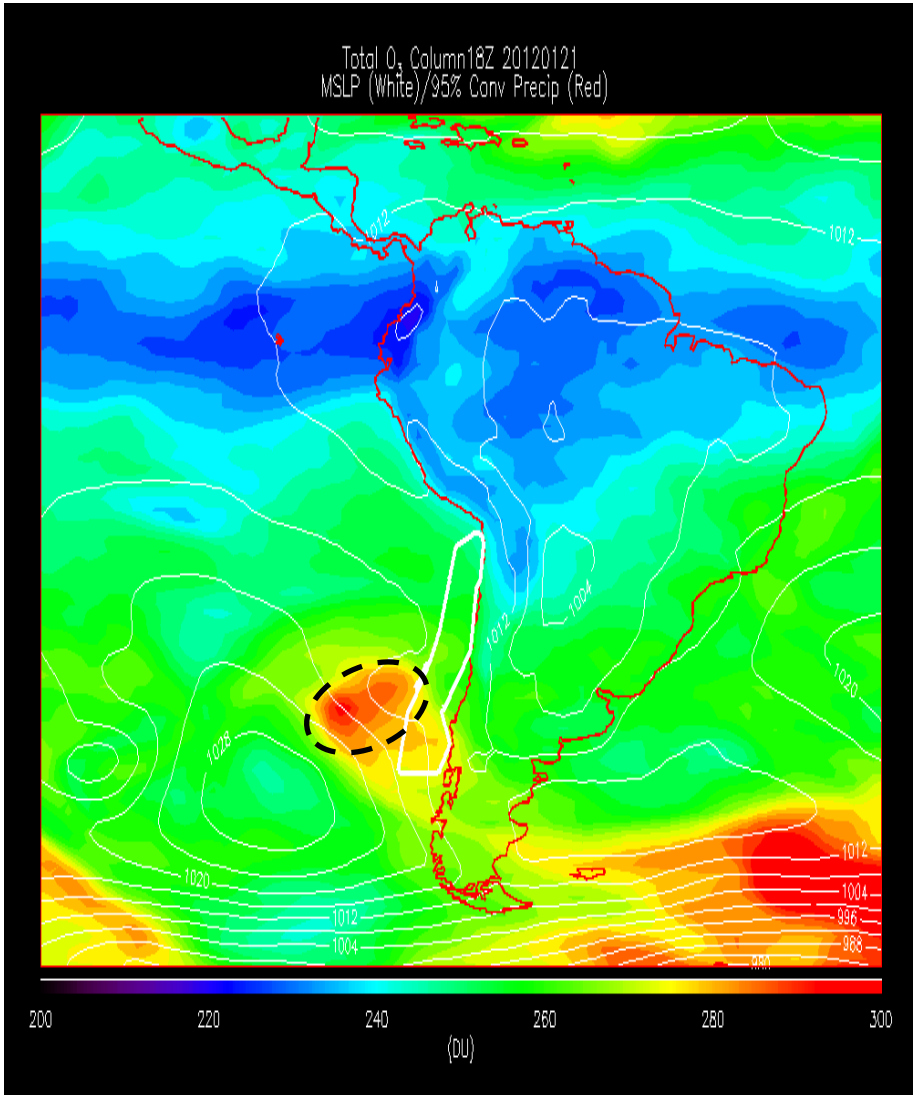


RAQMS significantly overestimates maximum O3 mixing ratio within fold (factor of 3)

RAQMS captures fold placement and minimum O3 mixing ratio very well

TORERO RF02 01/21/2012 RAQMS vs OMI Total Column O3 (DU)





RAQMS Total Column Ozone abundance is in good agreement with OMI (OMI clear sky retrievals are assimilated). However, orientation of RAQMS stratospheric fold is different than observed.

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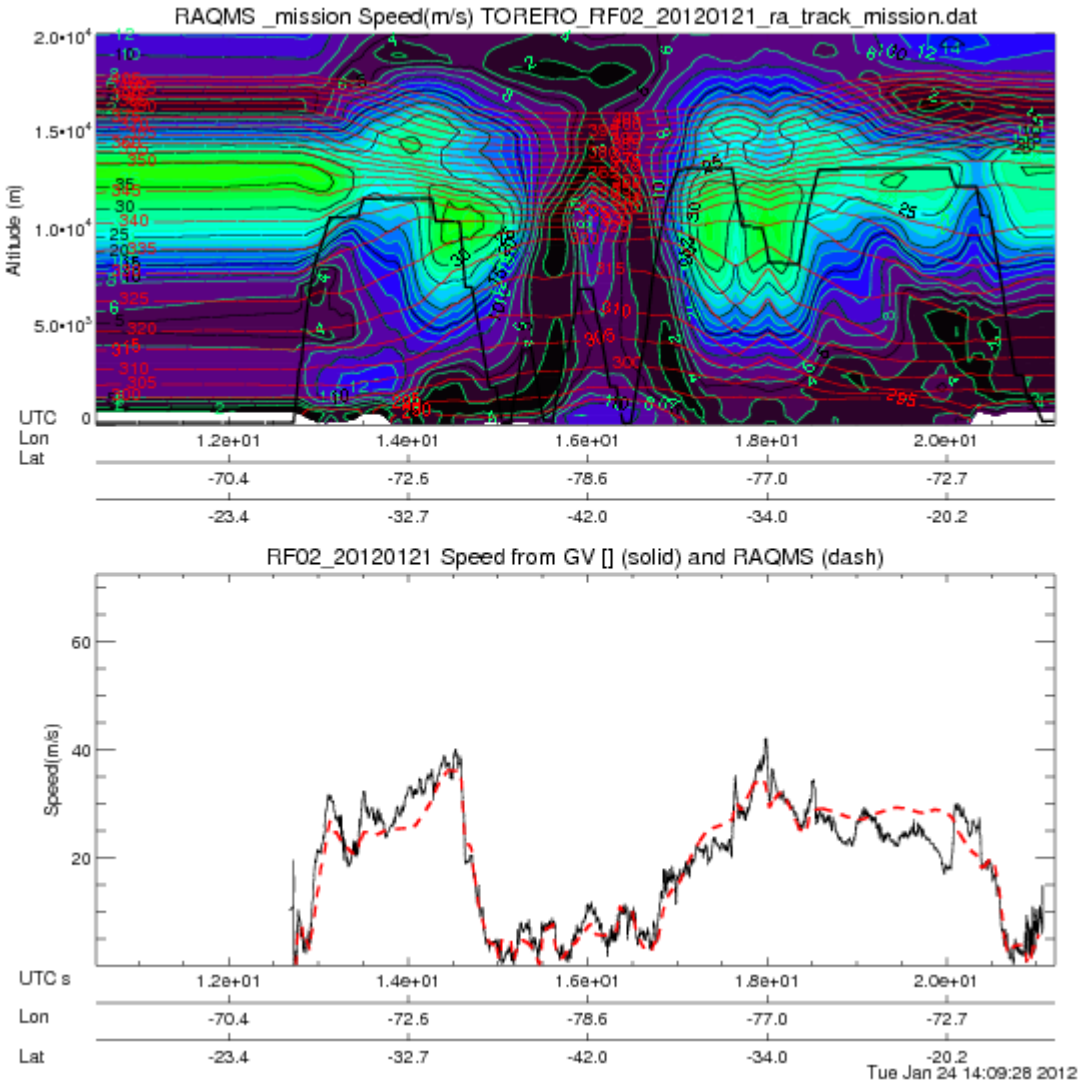
RAQMS vs GV Wind Speed (m/s)



RAQMS underestimates maximum wind speed by 5m/s

RAQMS captures jet placement and minimum wind speed very well

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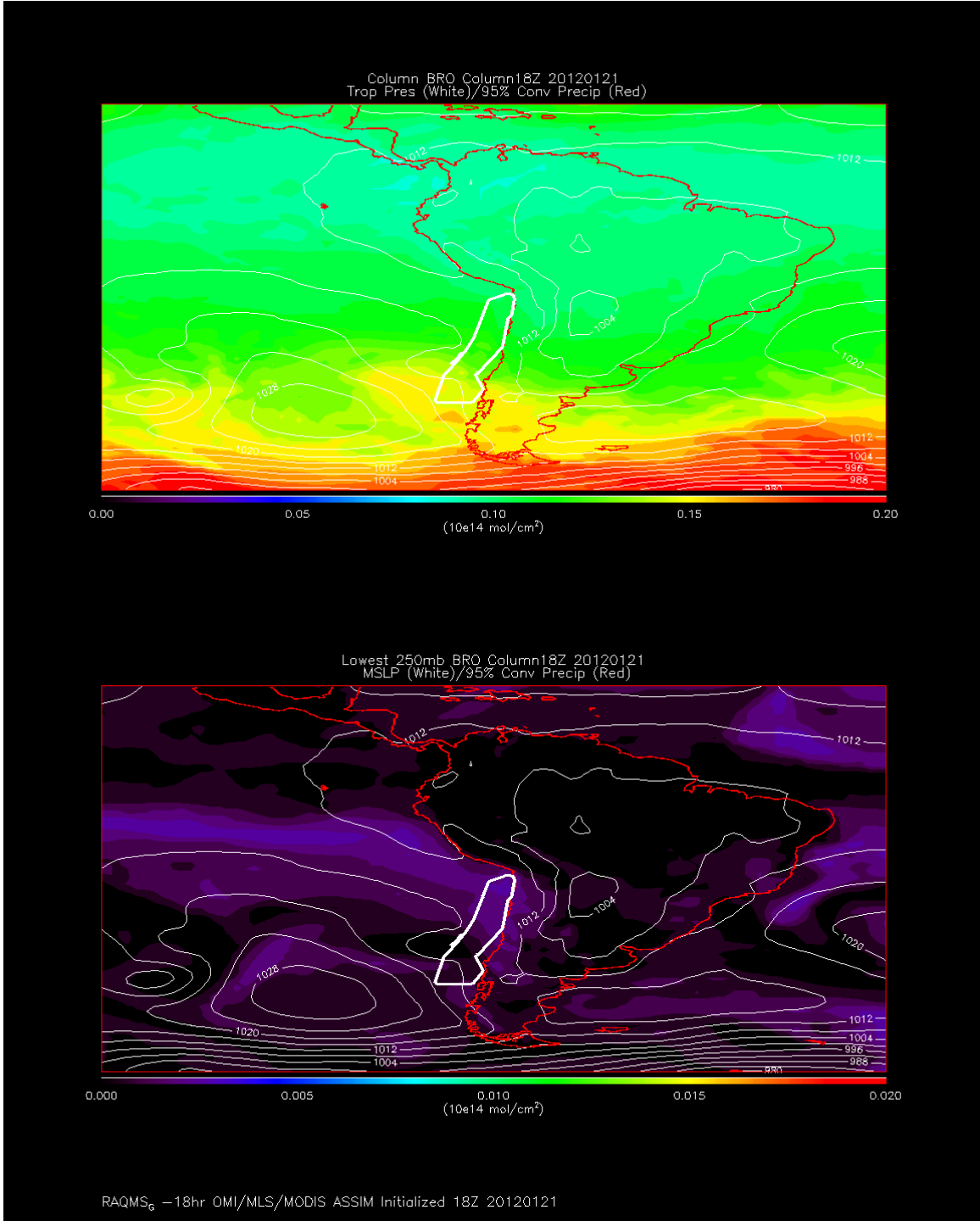
RAQMS BrO (mol/cm^2)

RAQMS Total Column BrO is >0.15x1014 within strat/trop fold.

RAQMS Partial Column BrO is <0.005x1014 in marine BL (lowest 250mb).

Enhancements along 15S possibly due to convective mixing



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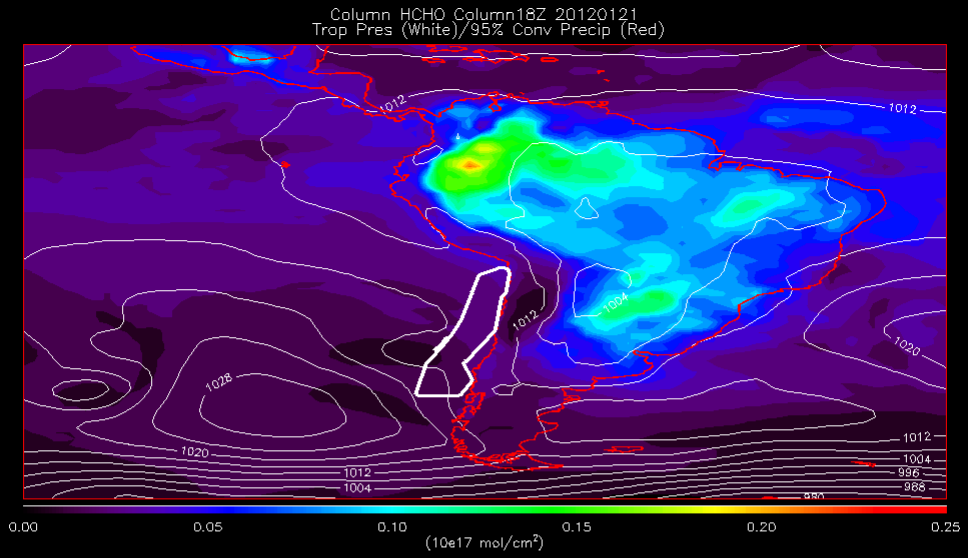
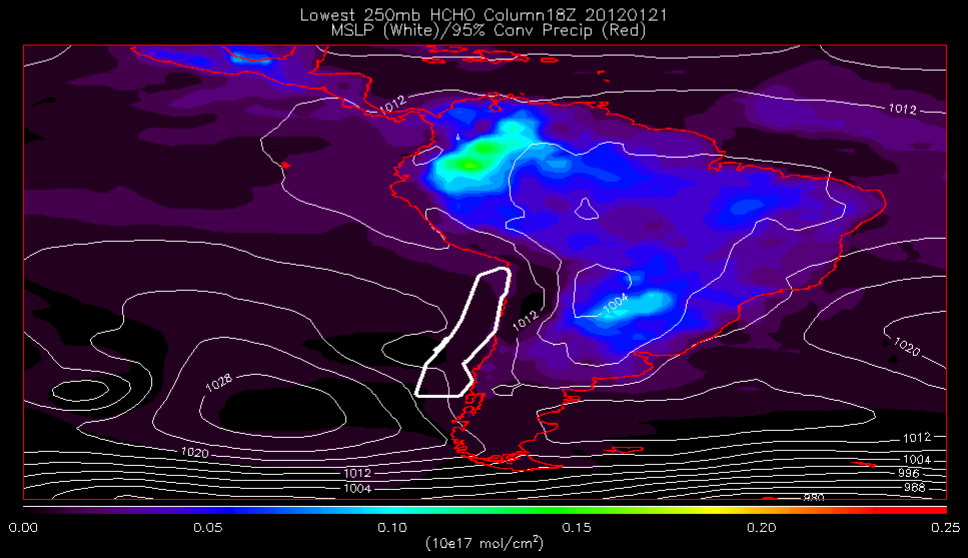
RAQMS Formaldehyde (mol/cm^2)

RAQMS Total Column HCHO is >0.10x1017 over S. America

RAQMS Partial Column HCHO is <0.05x1017 in marine BL (lowest 250mb).

Enhancements along 15S possibly due to convective mixing





RAQMS$_G$ –18hr OMI/MLS/MODIS ASSIM Initialized 18Z 20120121