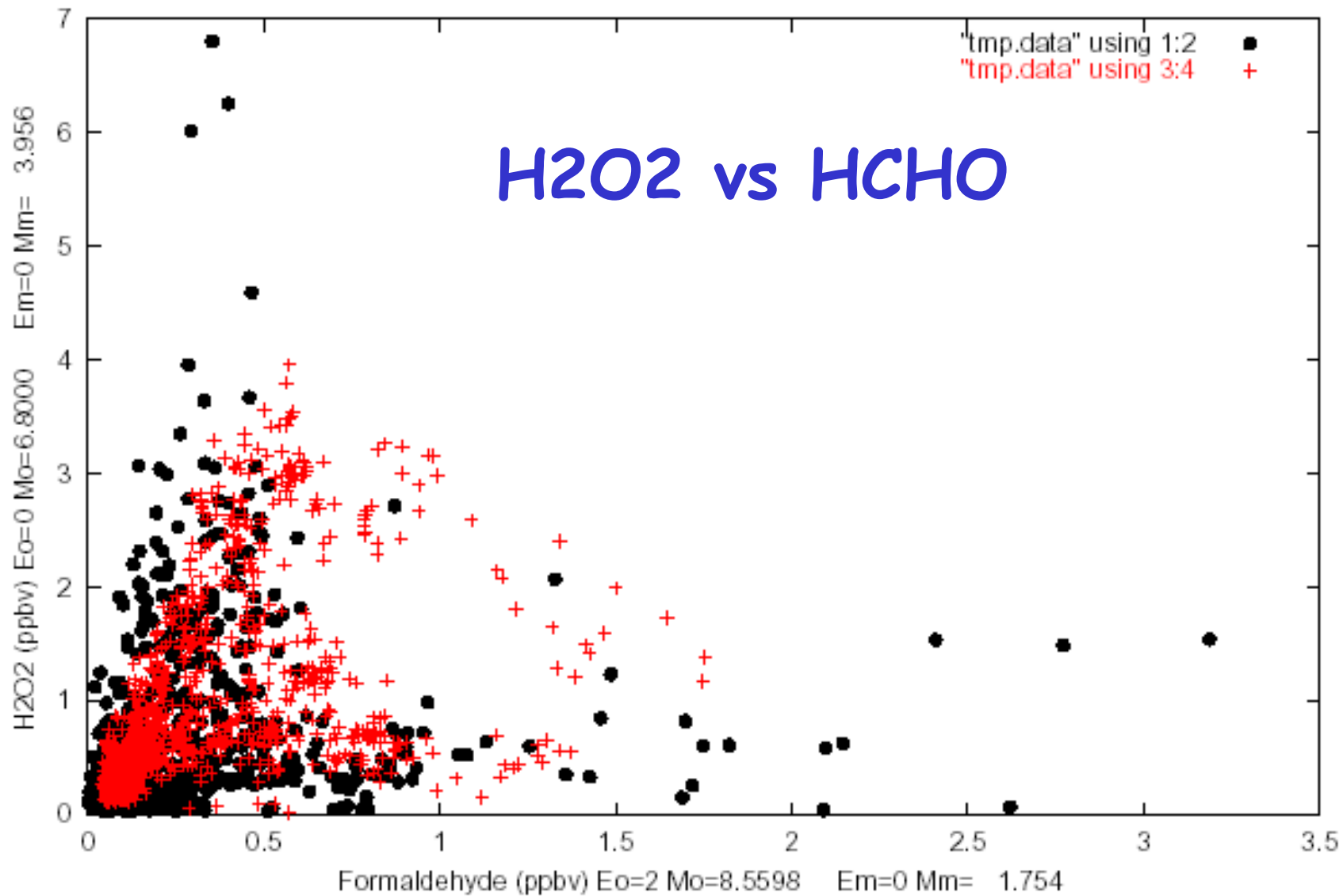
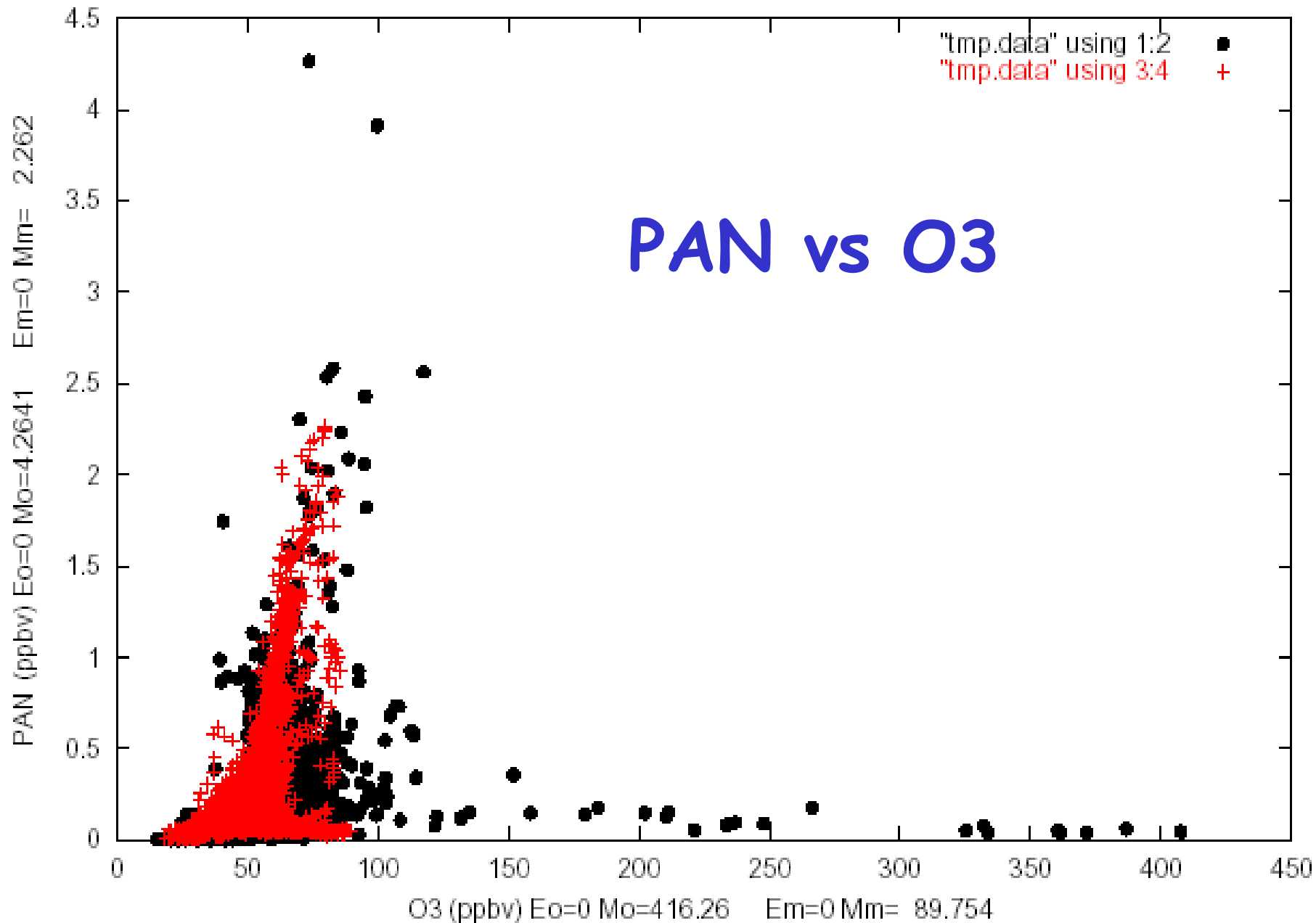
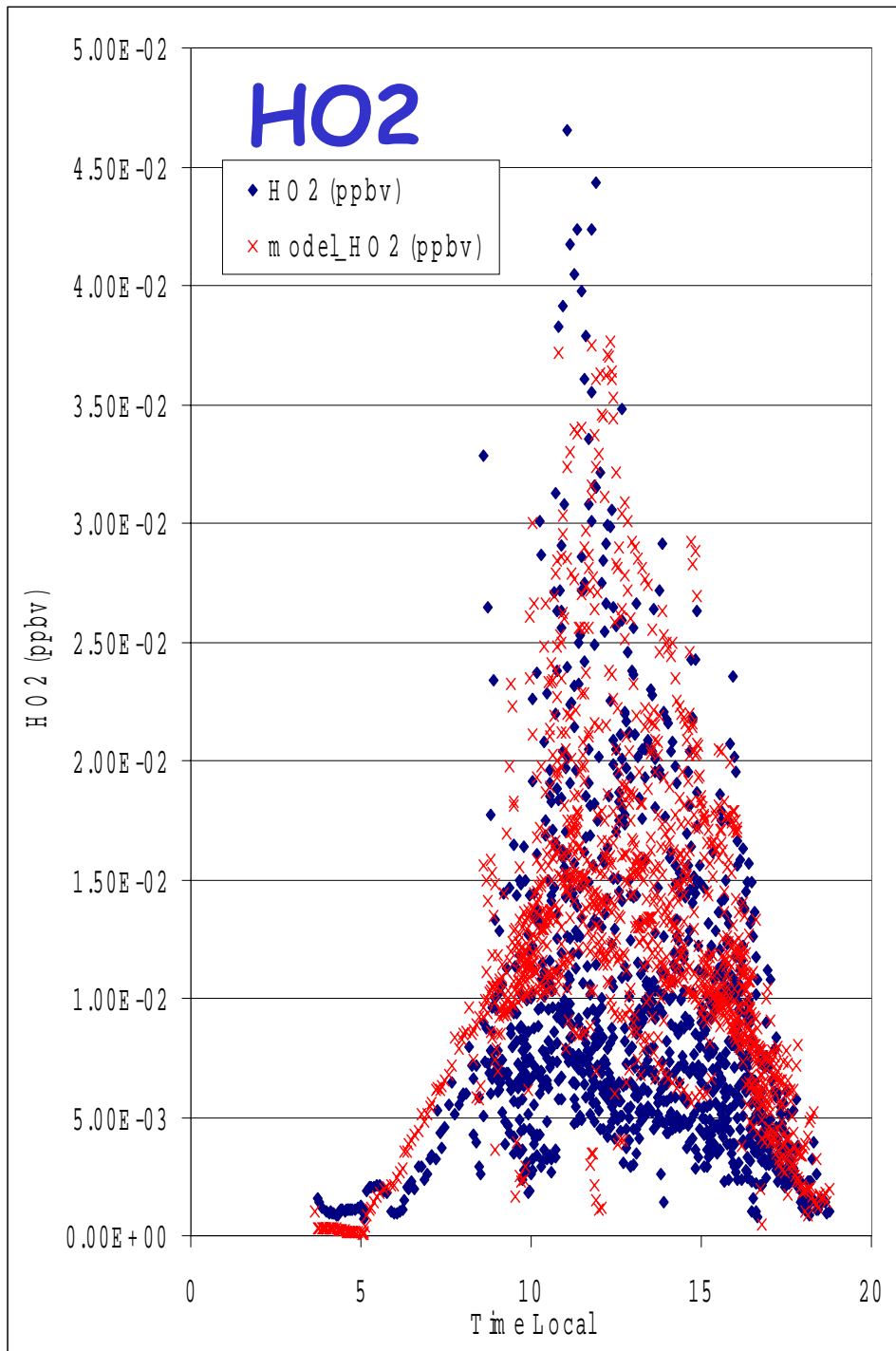
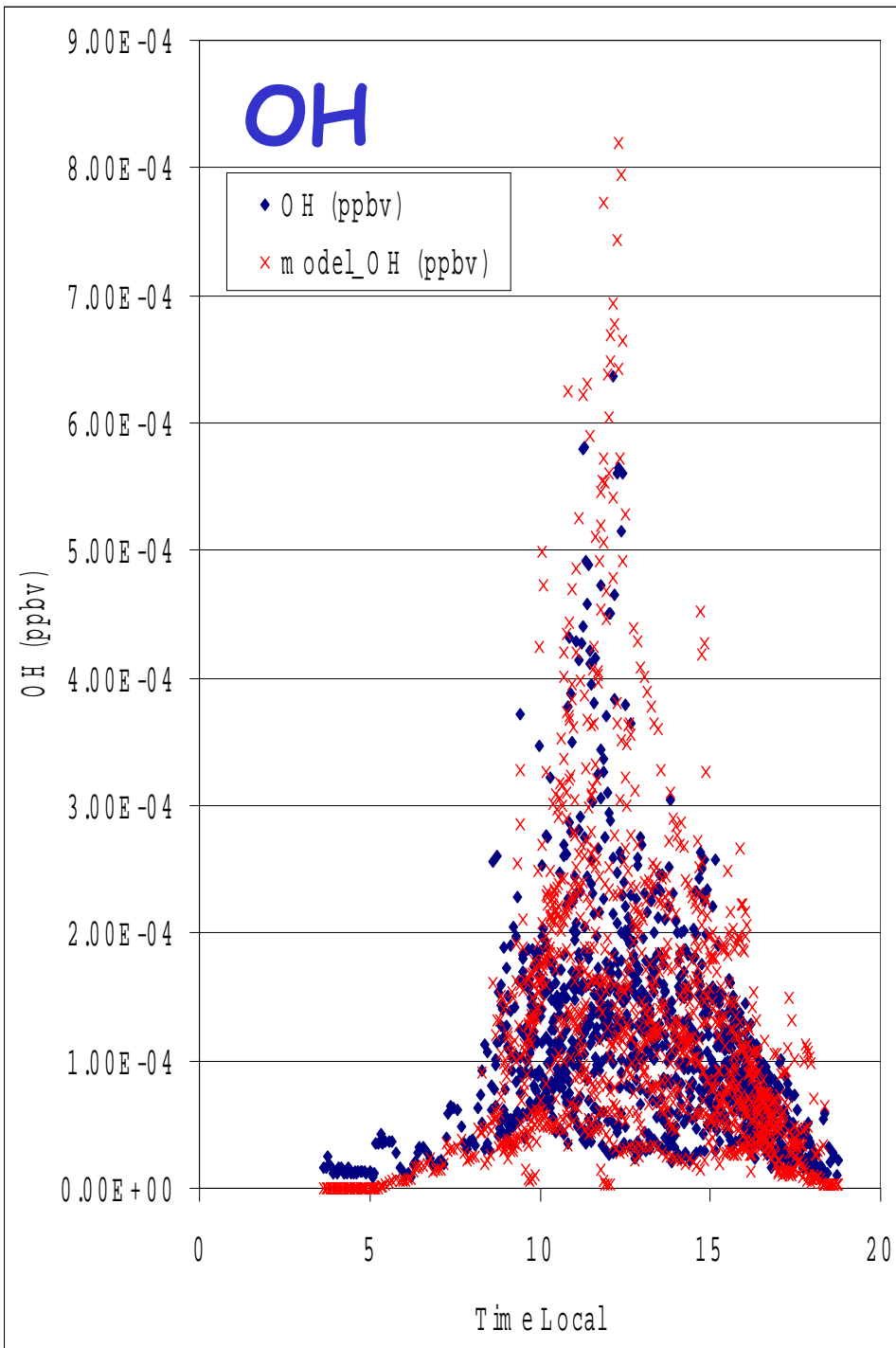


BOTH-ALL-Flight Formaldehyde (ppbv) and H2O2 (ppbv)



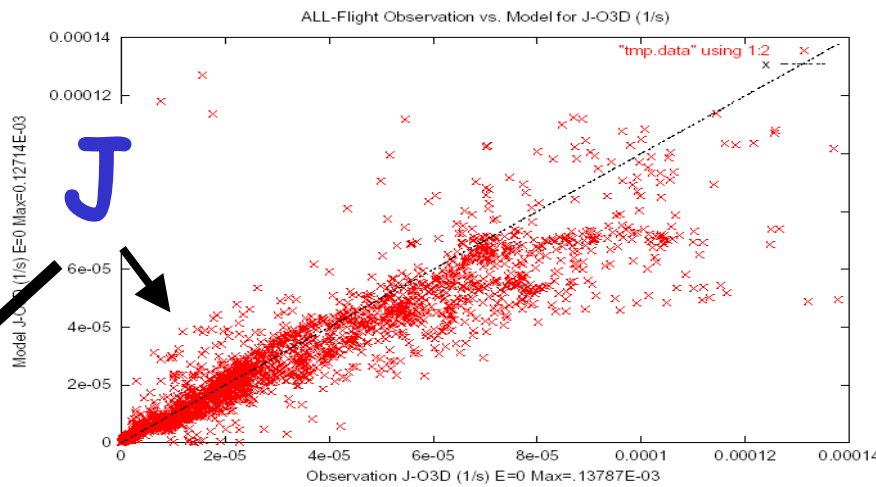
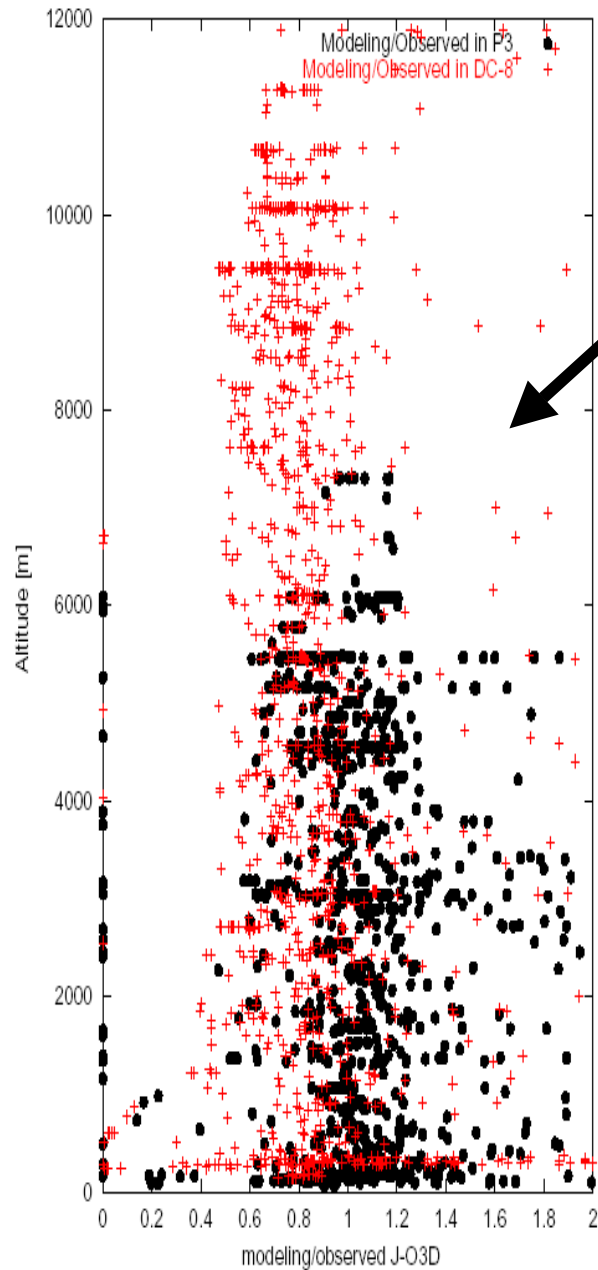
BOTH-ALL-Flight O3 (ppbv) and PAN (ppbv)



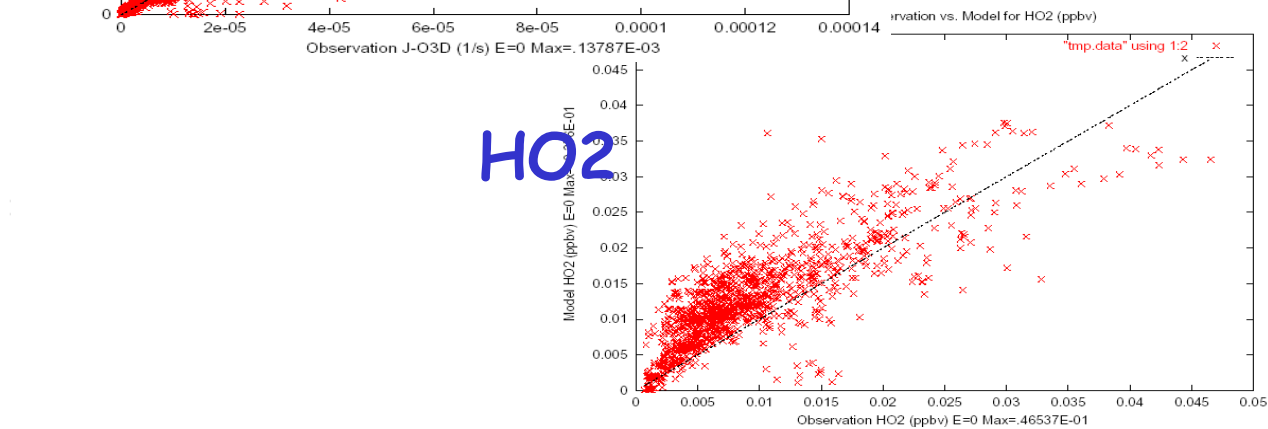


J's OH & HO2

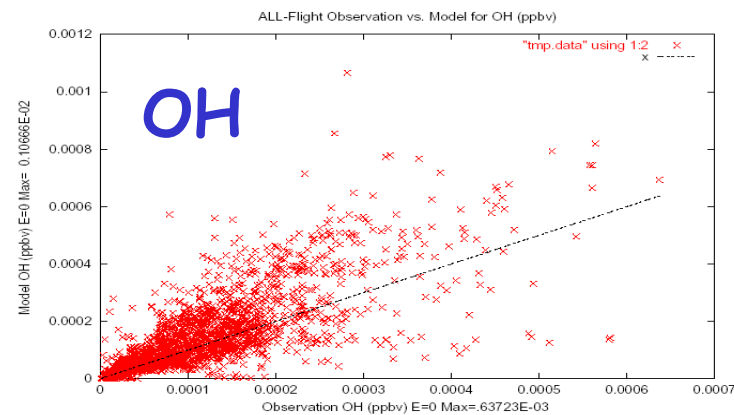
ALL TRACE-P Flights Modeling:Observed for J-O3D



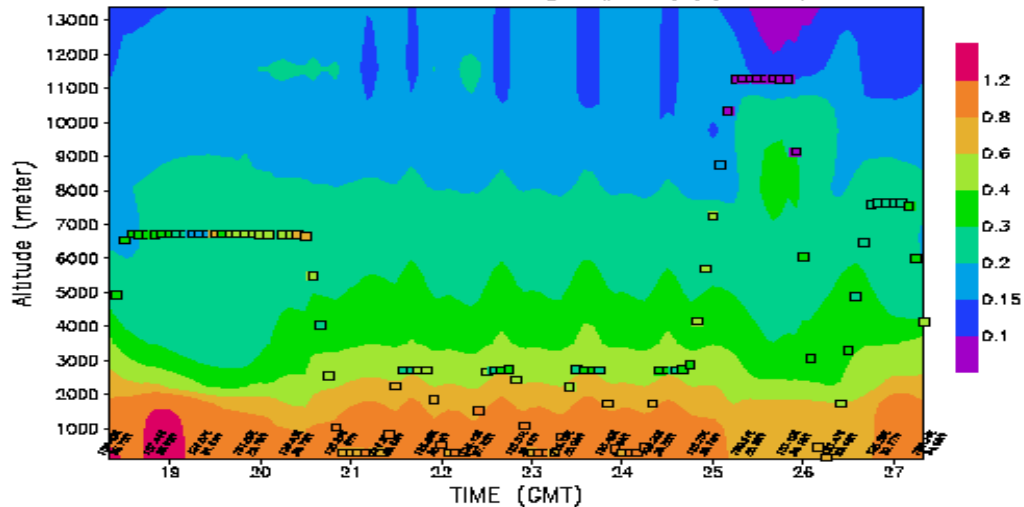
HO2



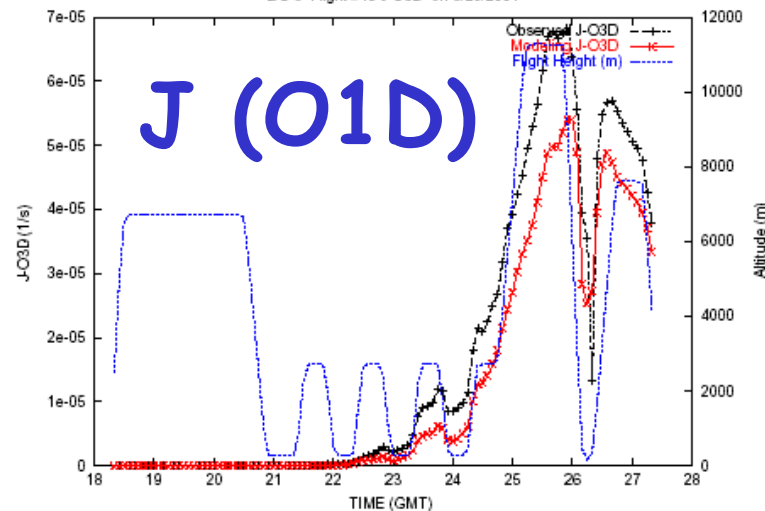
OH



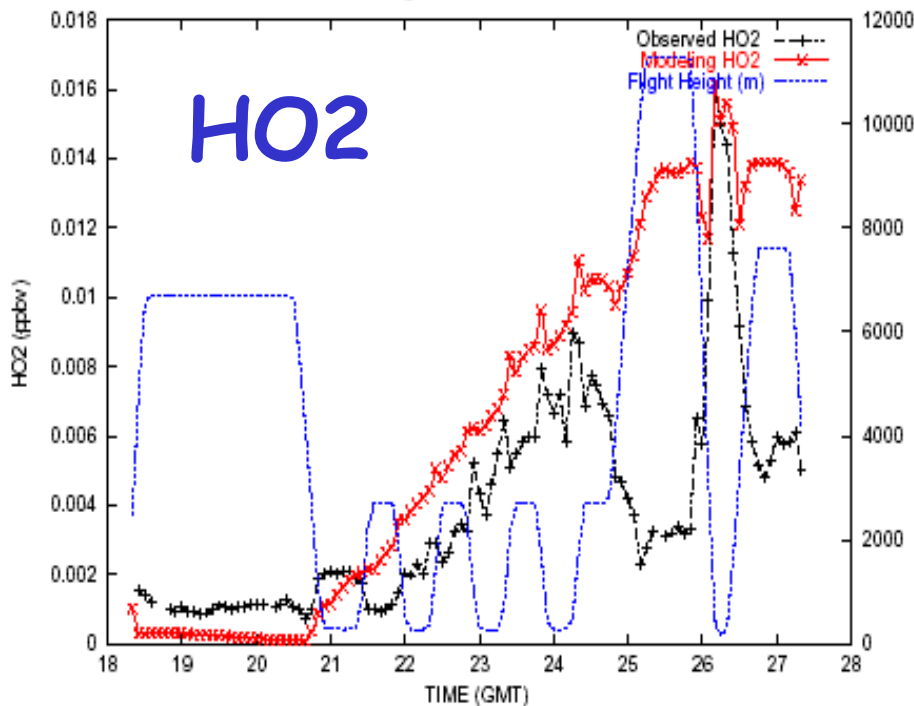
Simulated Propane Concentration (ppbv) compared to DC-8 observation in Flight #16 (1/7/2001)



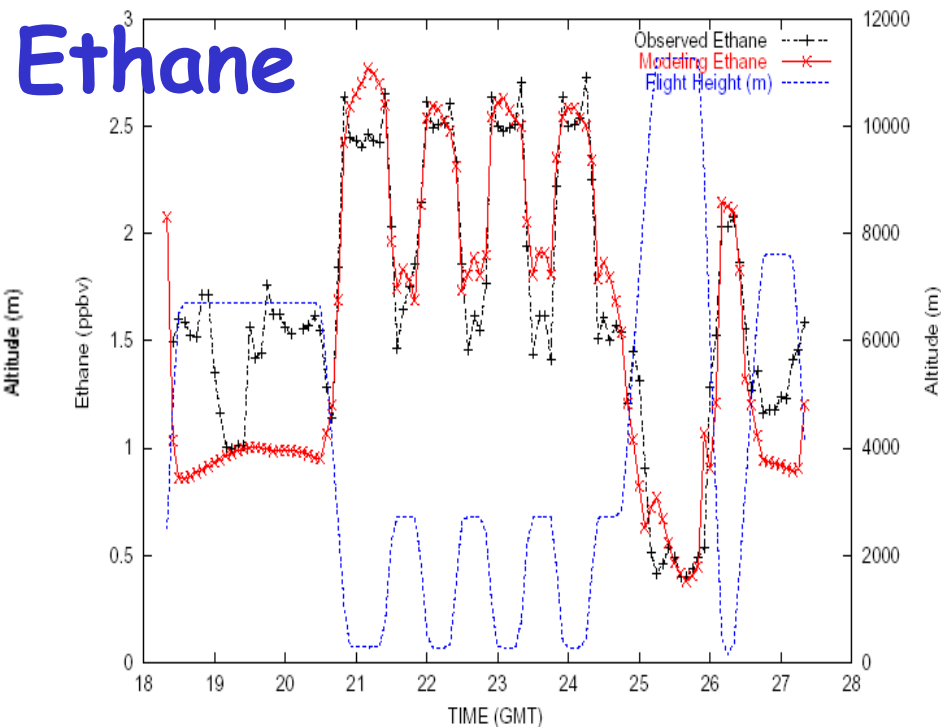
DC-8 Flight #16 J-O3D on 3/29/2001



DC-8 Flight #16 HO2 on 3/29/2001

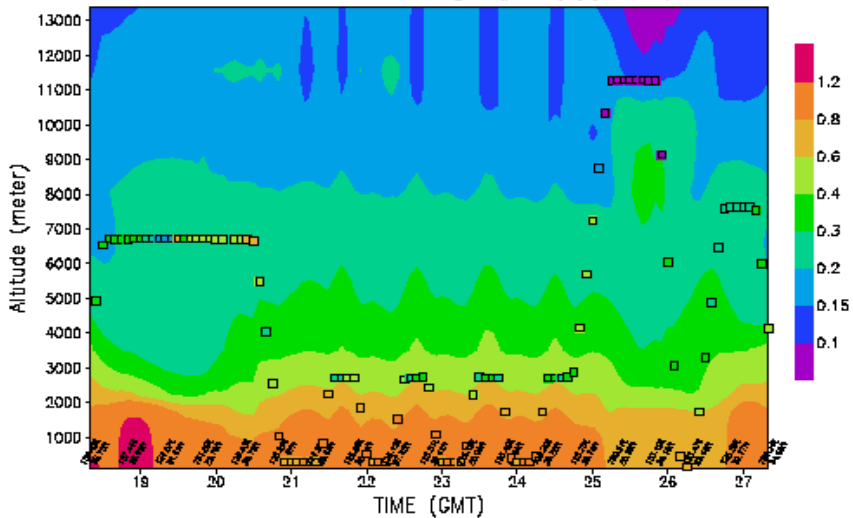


DC-8 Flight #16 Ethane on 3/29/2001

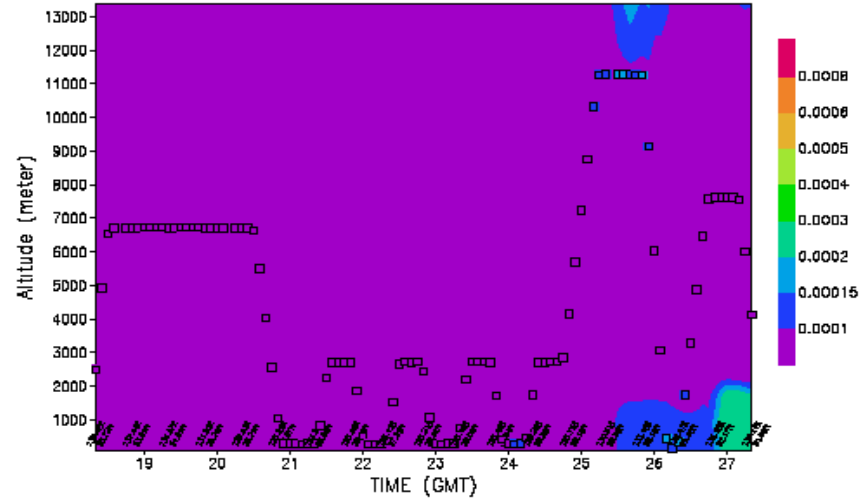


Why difference between HO2 and OH?

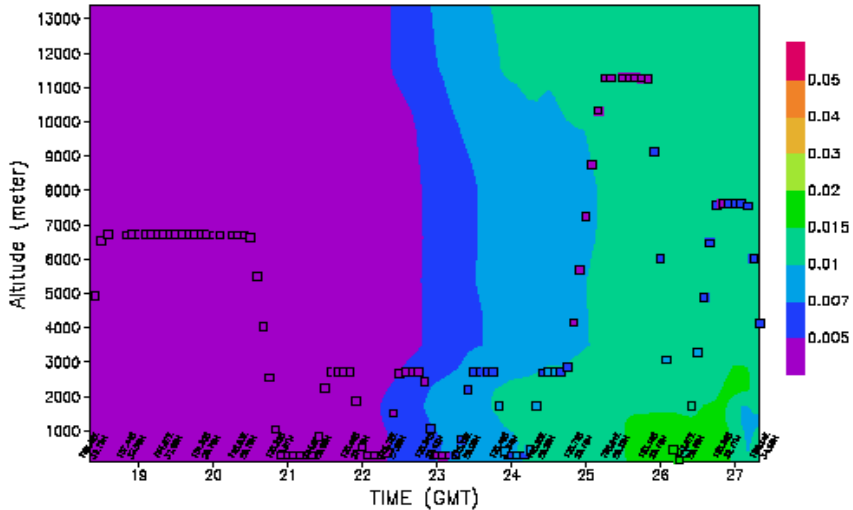
Simulated Propane Concentration (ppbv) compared to DC-8 observation in Flight #16 (1//2001)



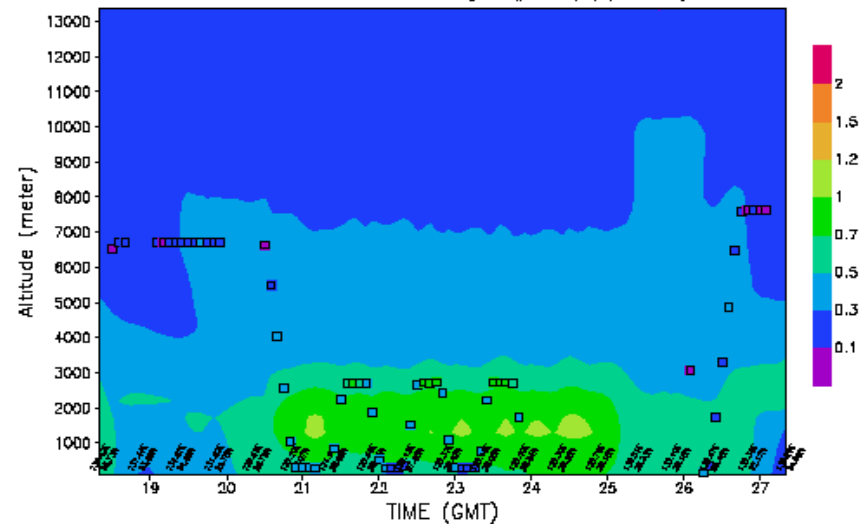
Simulated OH Concentration (ppbv) compared to DC-8 observation in Flight #16 (1//2001)



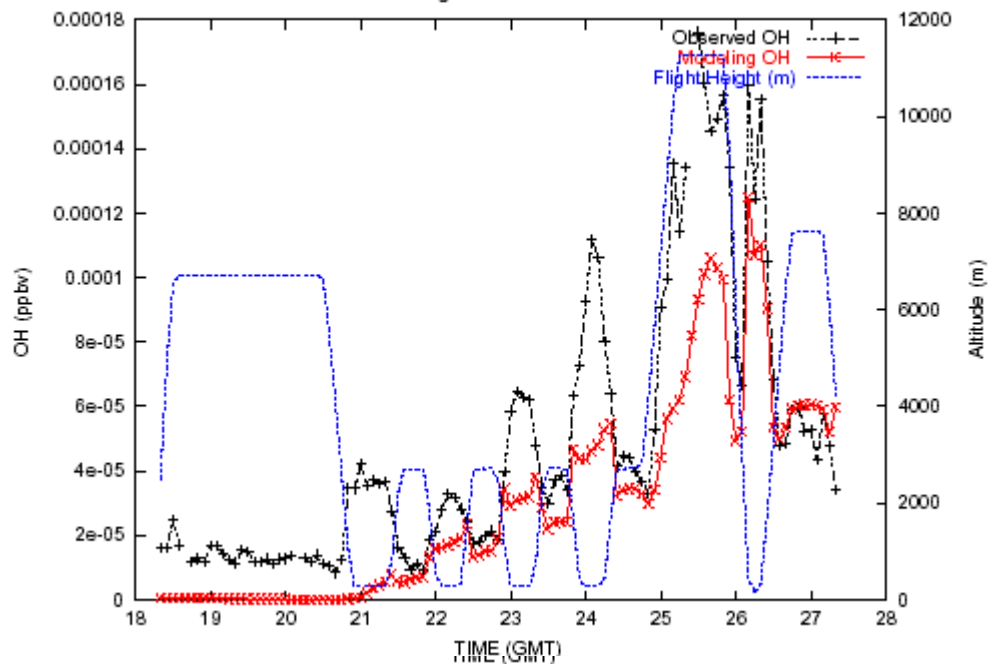
Simulated HO2 Concentration (ppbv) compared to DC-8 observation in Flight #16 (1//2001)



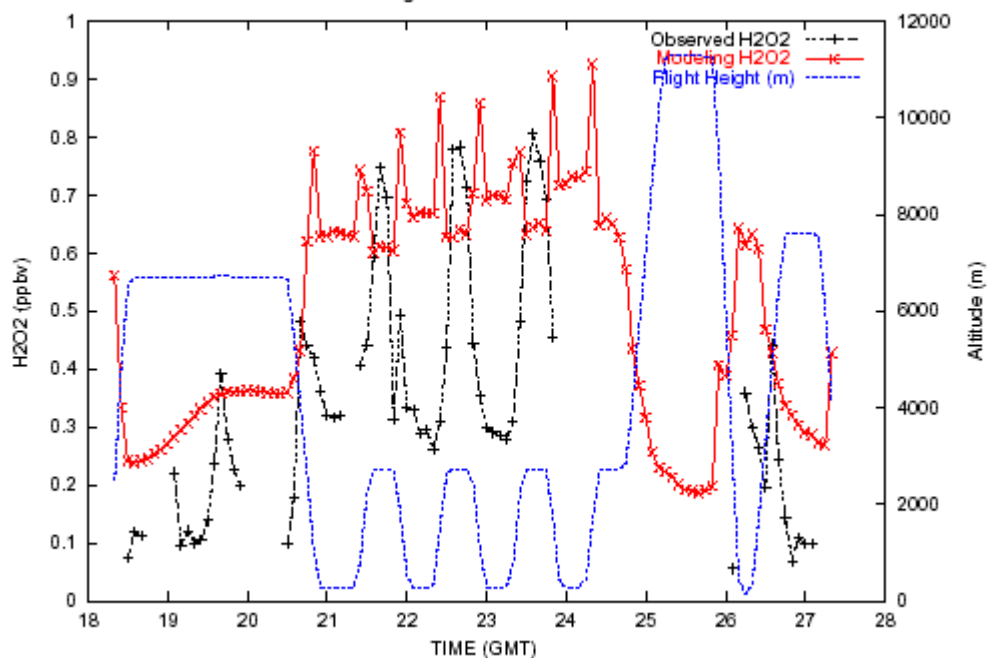
Simulated H2O2 Concentration (ppbv) compared to DC-8 observation in Flight #16 (1//2001)



DC-8 Flight #16 OH on 3/29/2001

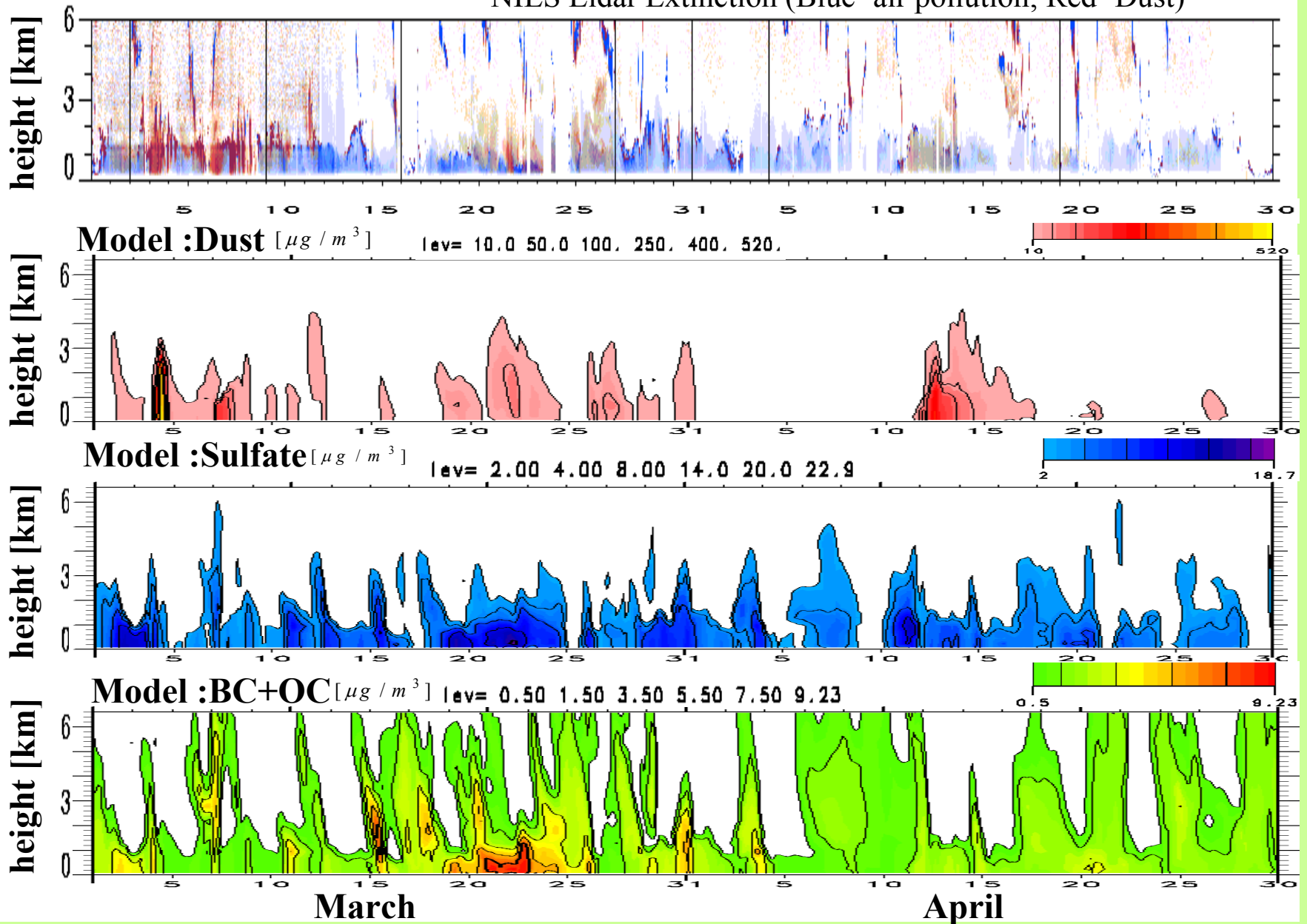


DC-8 Flight #16 H2O2 on 3/29/2001



Time-height cross section at Nagasaki

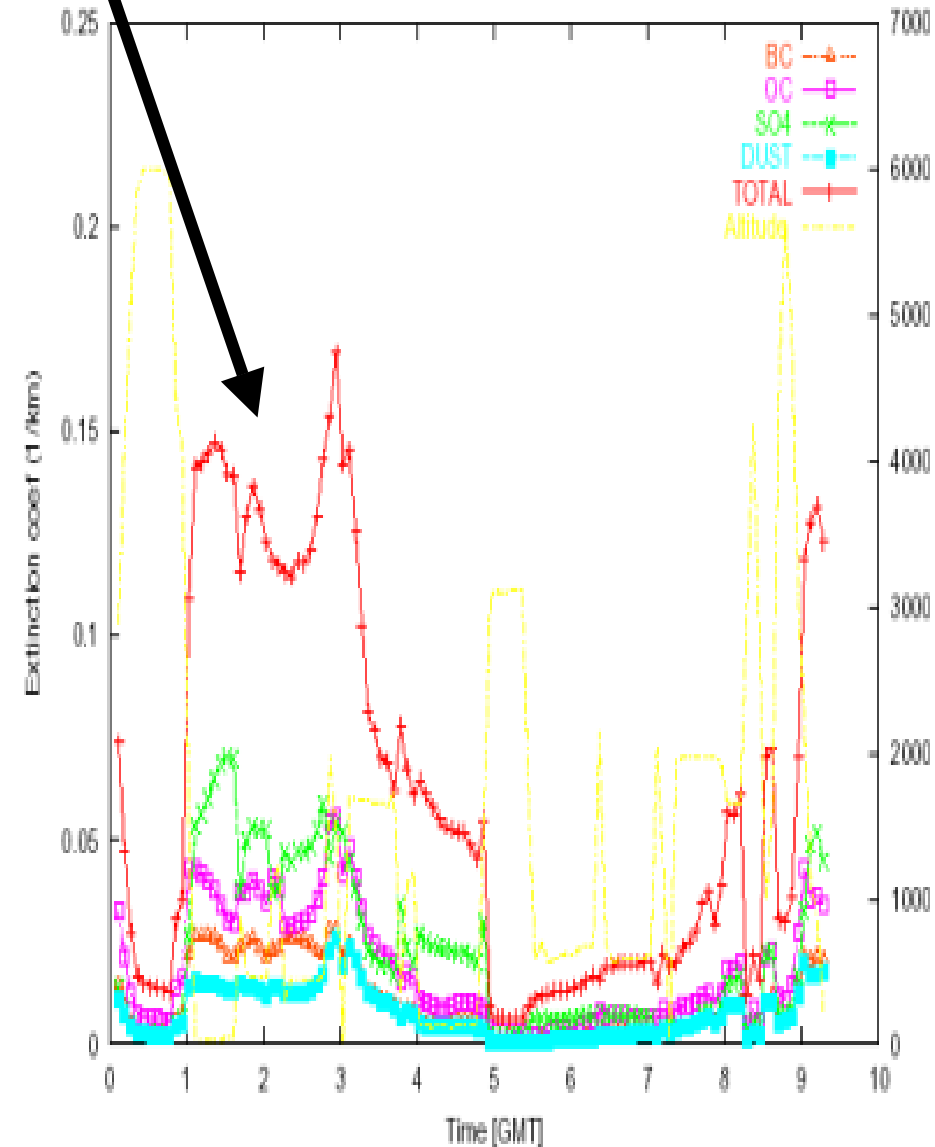
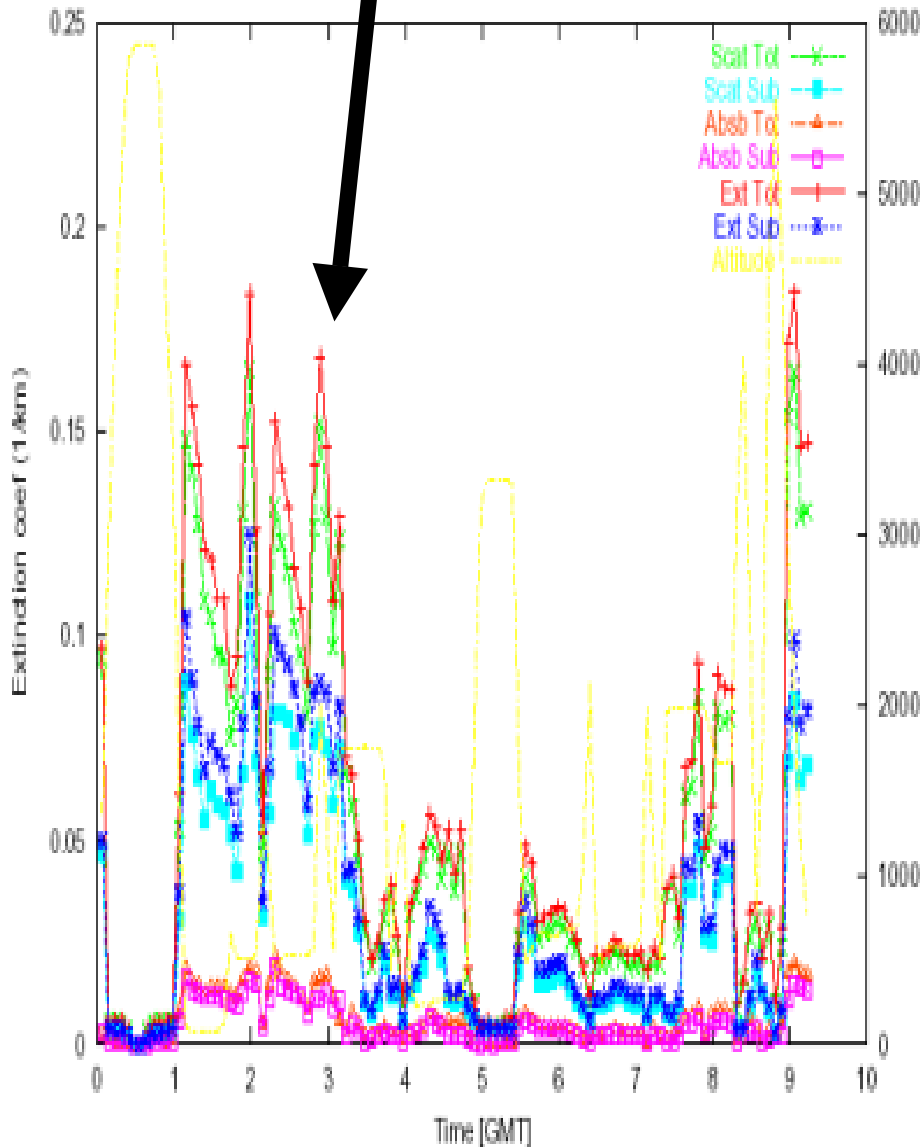
NIES Lidar Extinction (Blue=air pollution; Red=Dust)



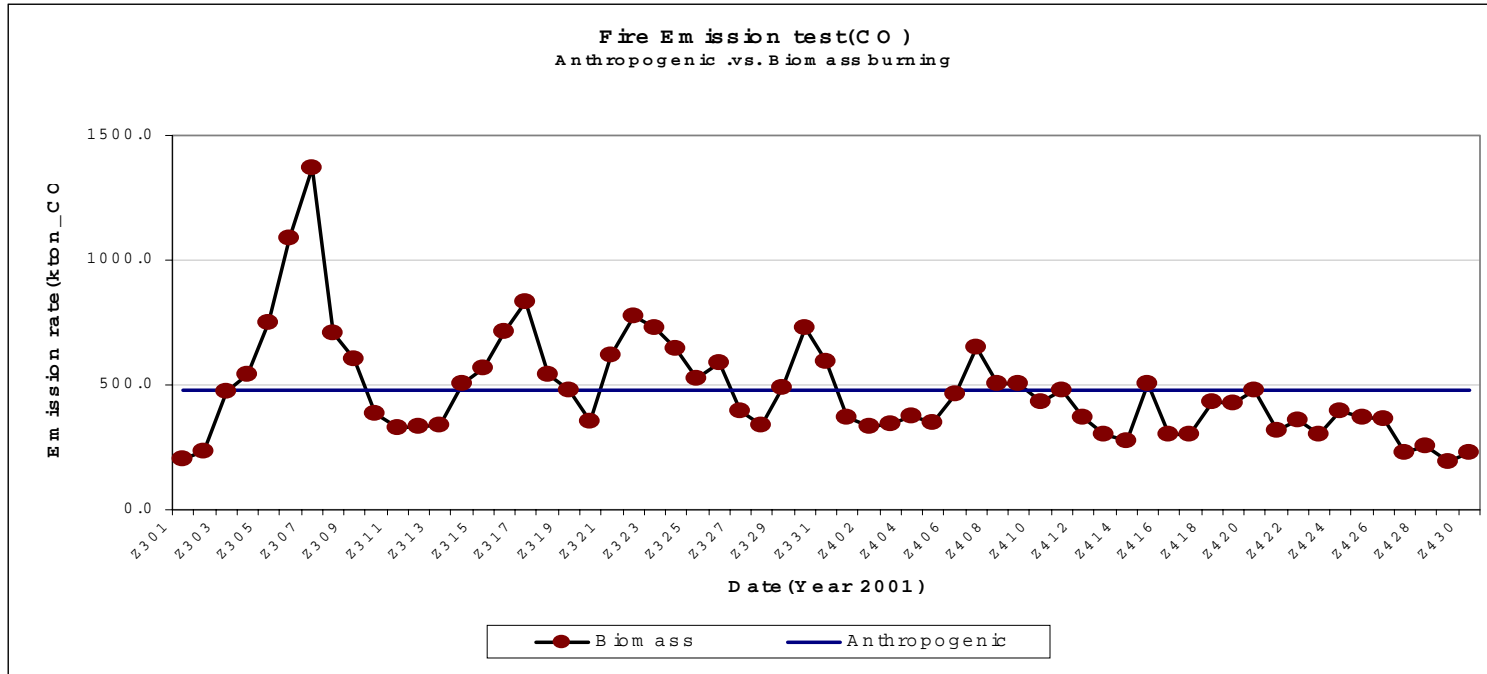
Observed and Modeled Extinction(C-130; Rf11)

130-Flight 11 Observation

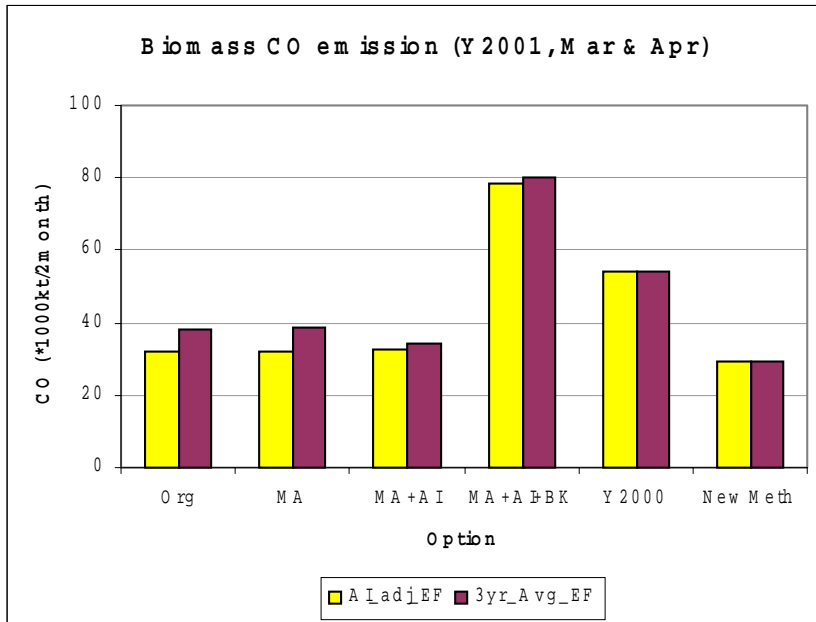
C130-Flight 11 MODEL



Biomass CO emission (Y2001 Mar & Apr.)

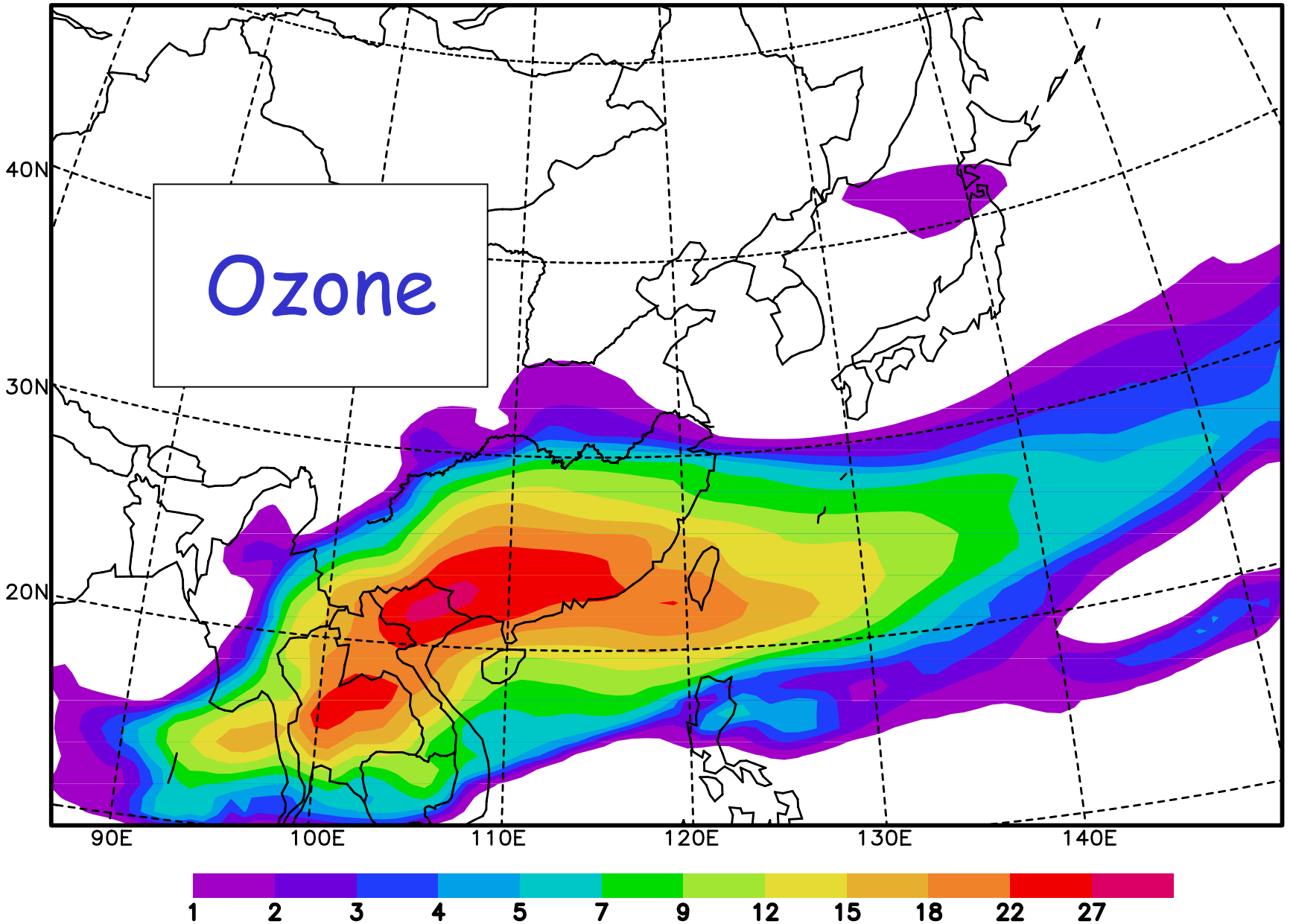


Daily sum of CO

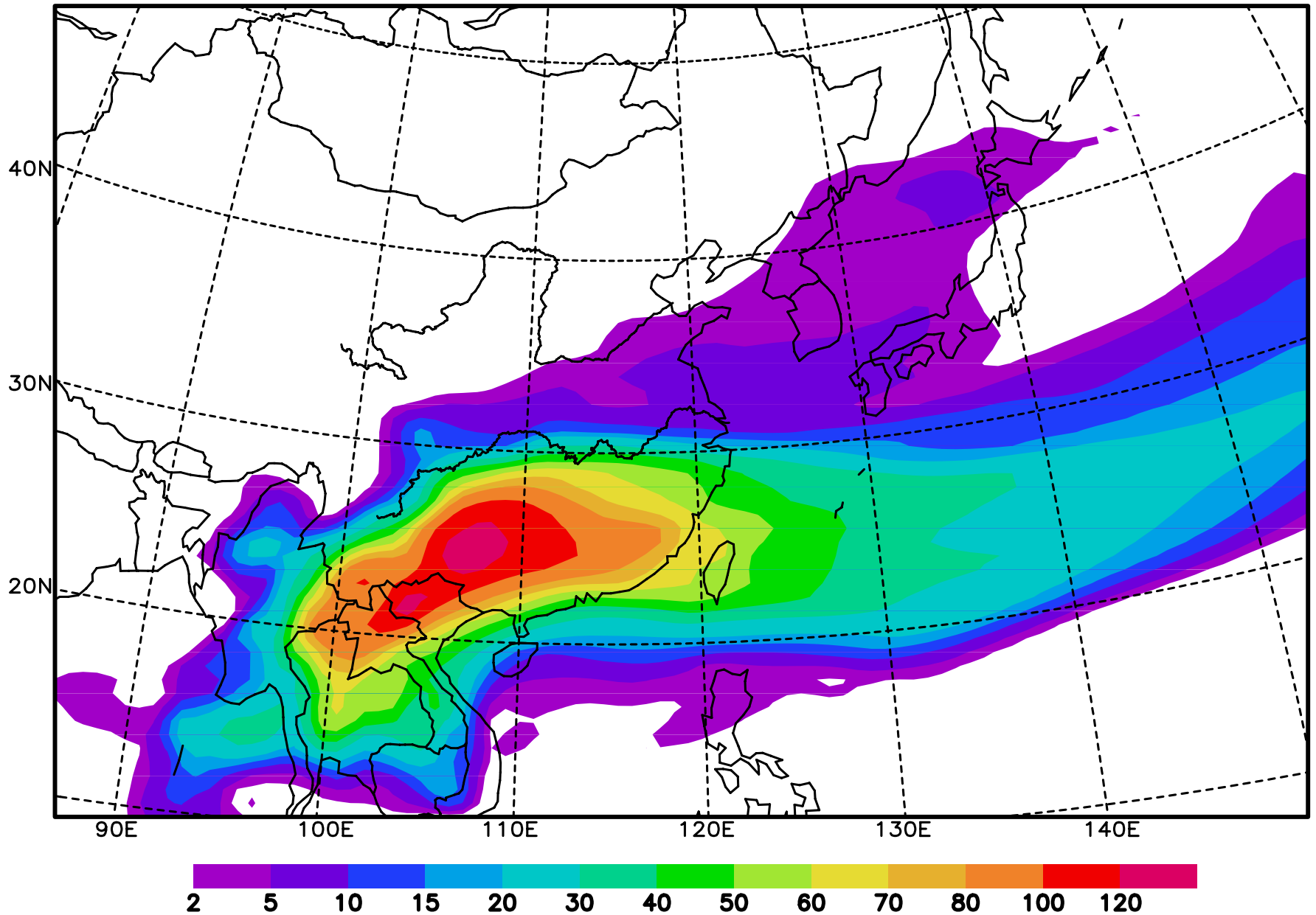


2 Month Sum of Biomass CO

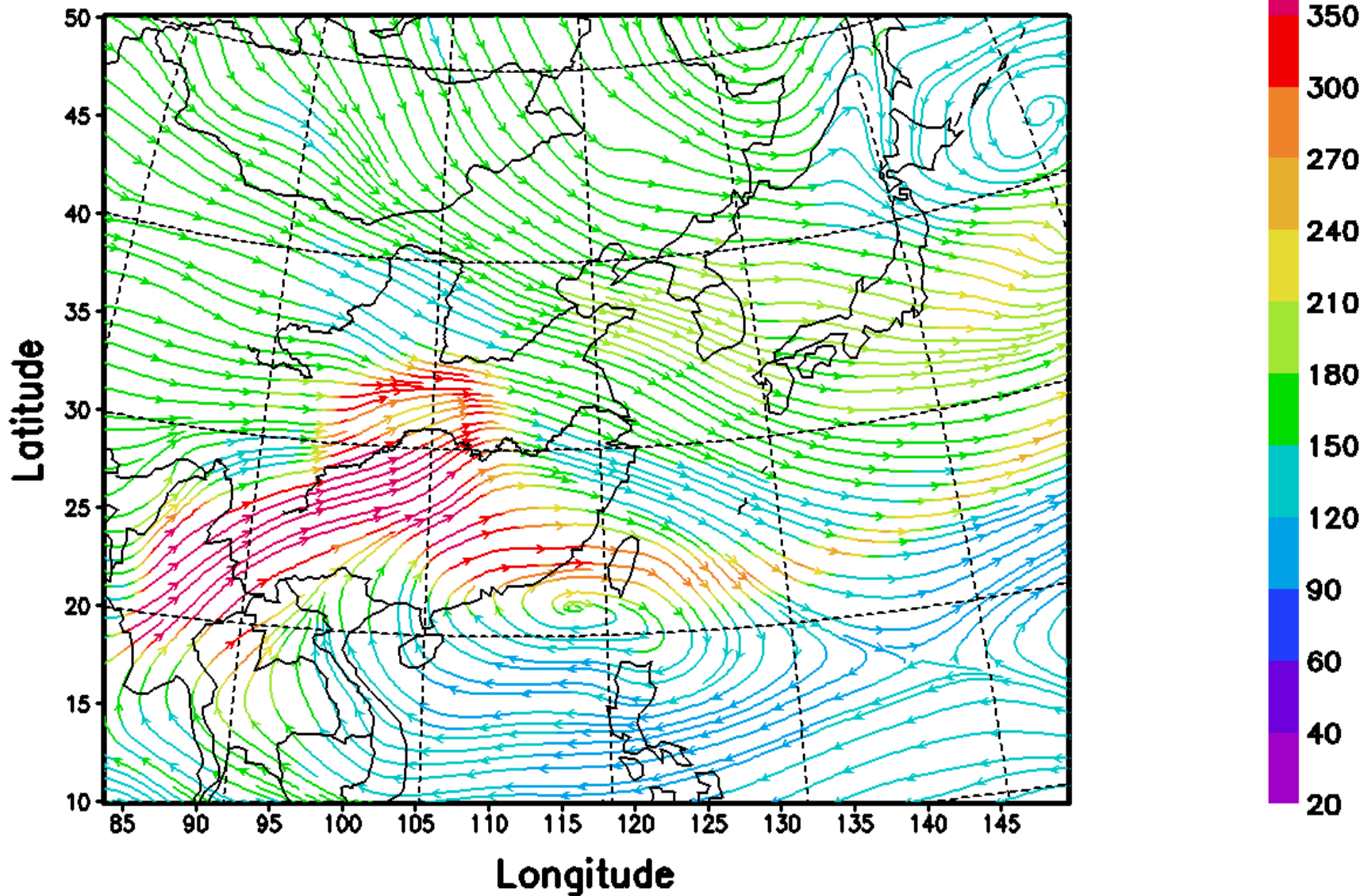
Average O₃ concentration change (%) in the 3.5km layer after considering biomass emissions



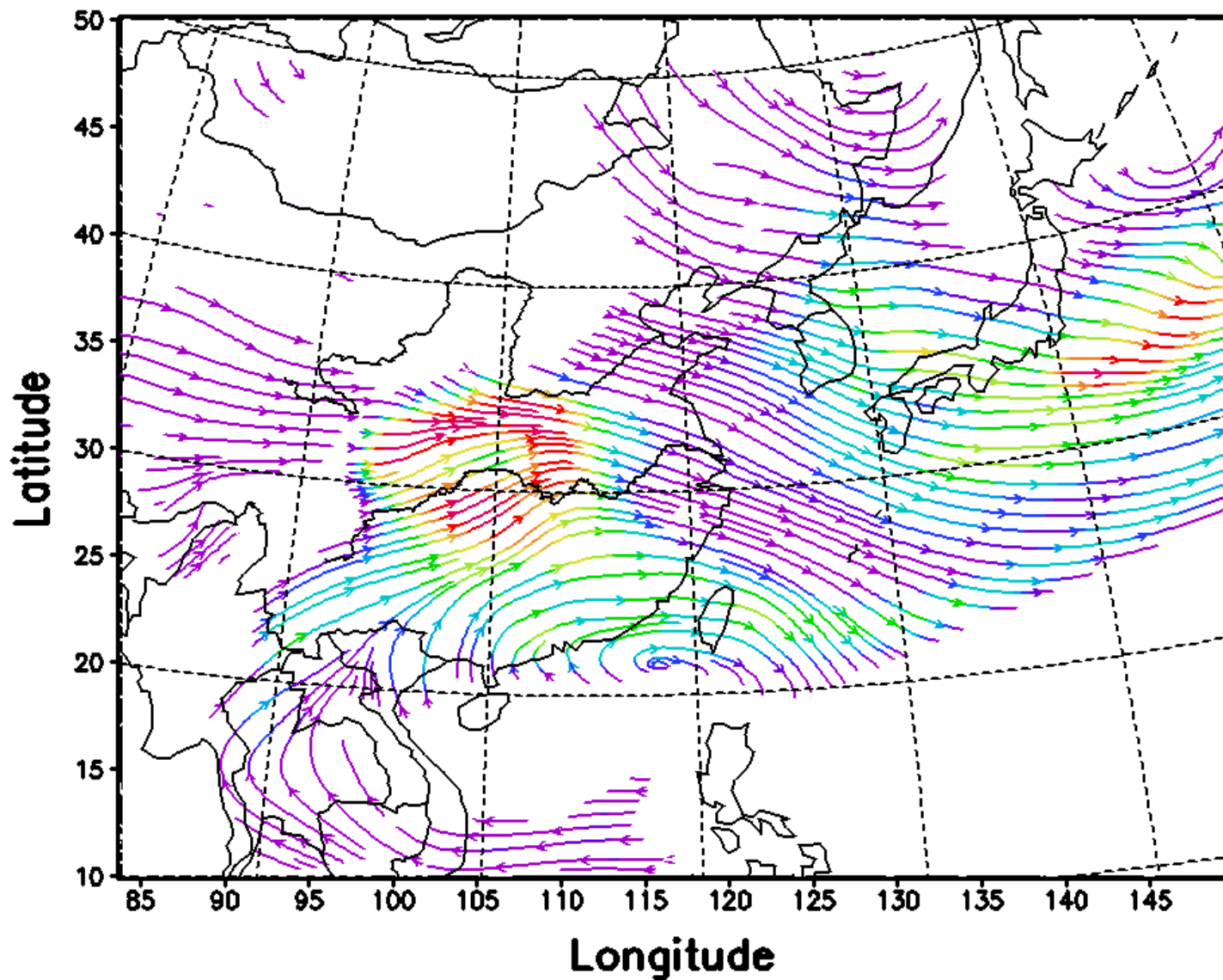
Average CO concentration change (%) in the 3.5km layer after considering biomass emissions



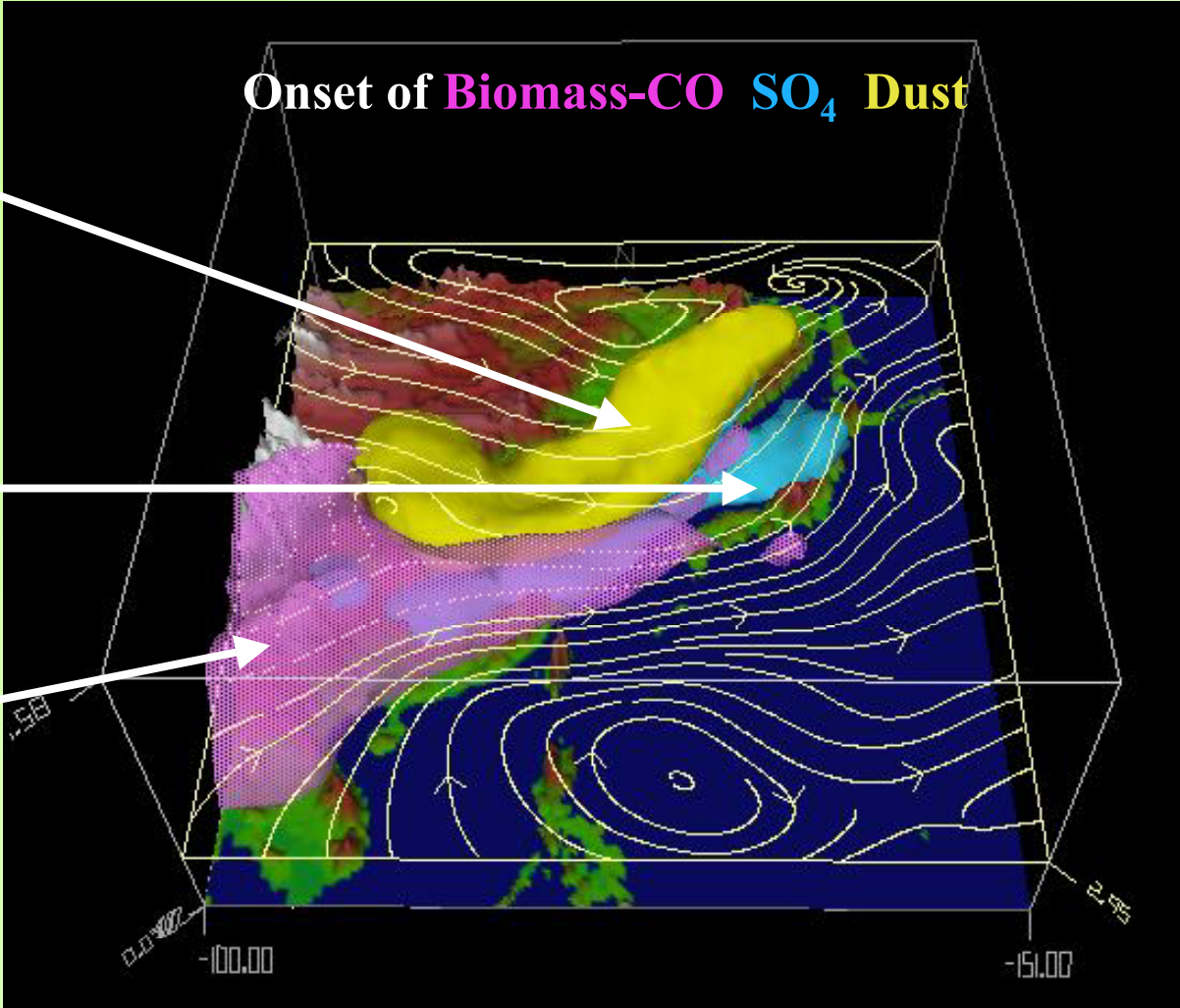
9 MAR 2001 0 GMT
Winds with CO (ppbv) at 2206 (m) Layer 8



9 MAR 2001 0 GMT
Winds with SO2 (ppbv) at 2206 (m) Layer 8



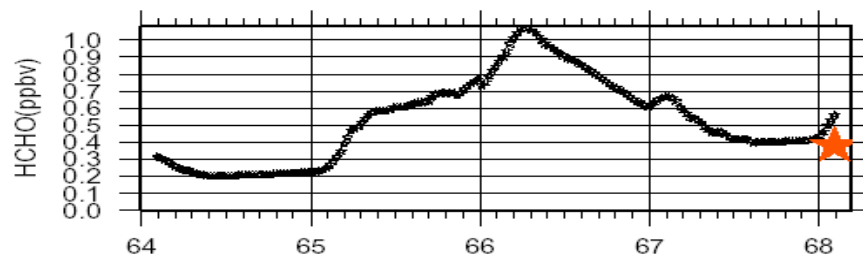
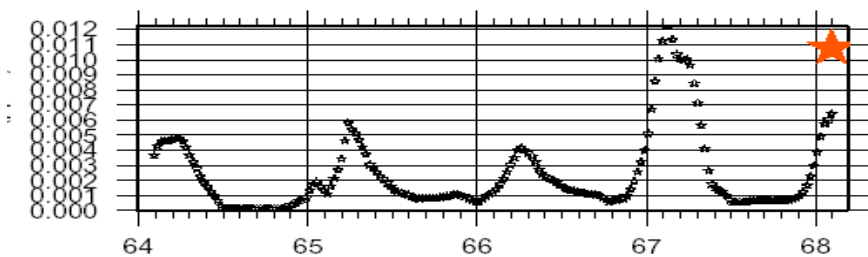
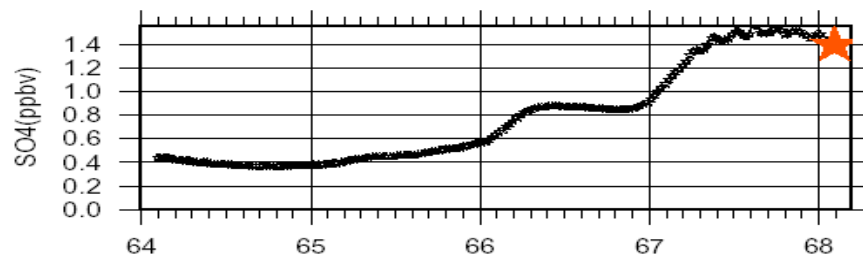
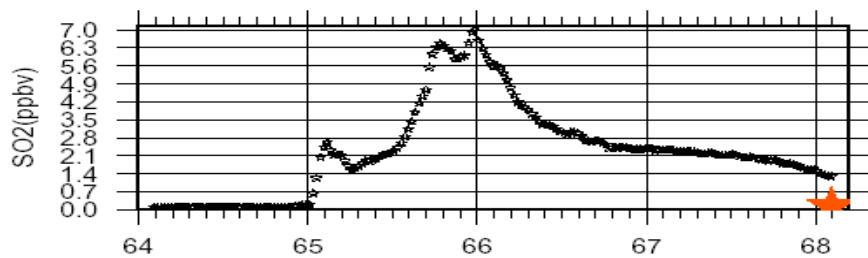
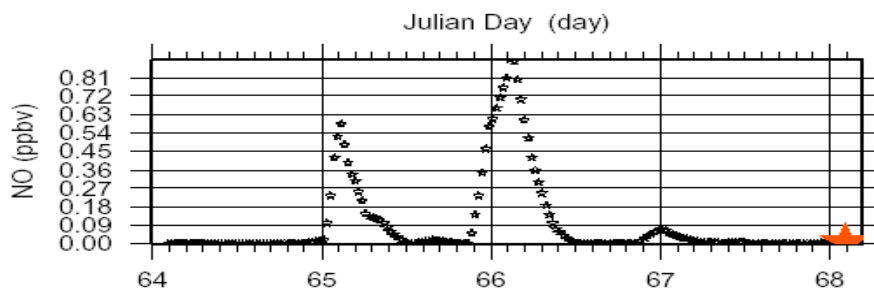
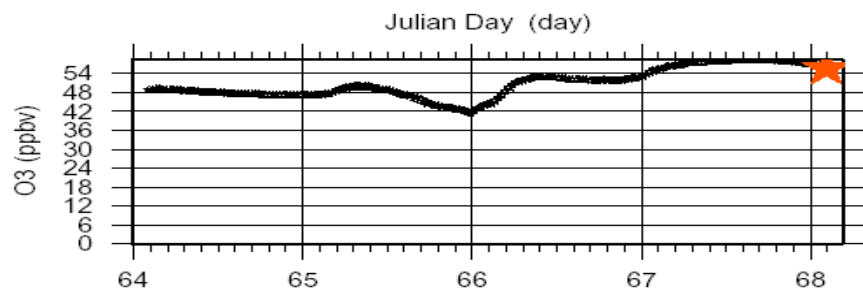
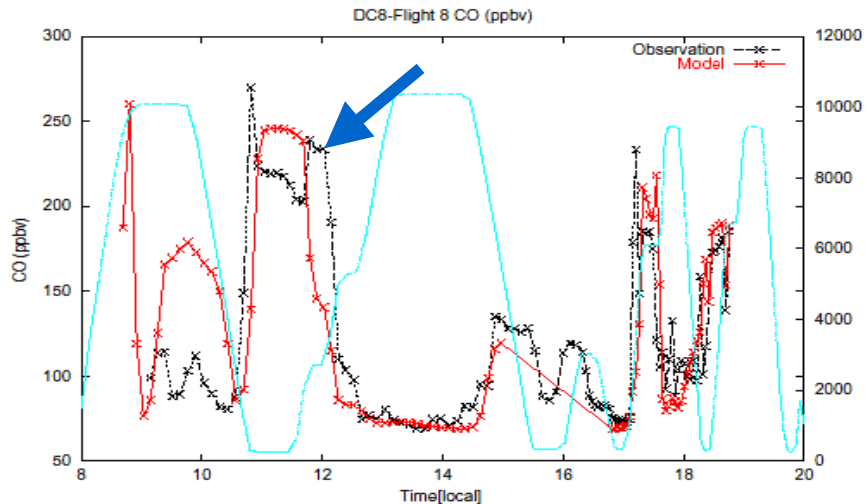
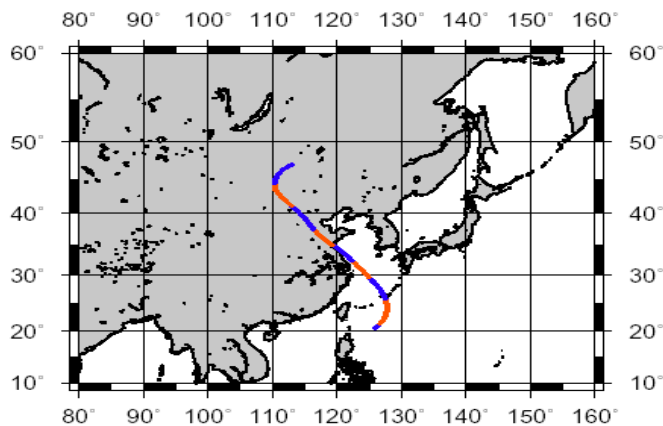
Multi-scale air flow over East Asia

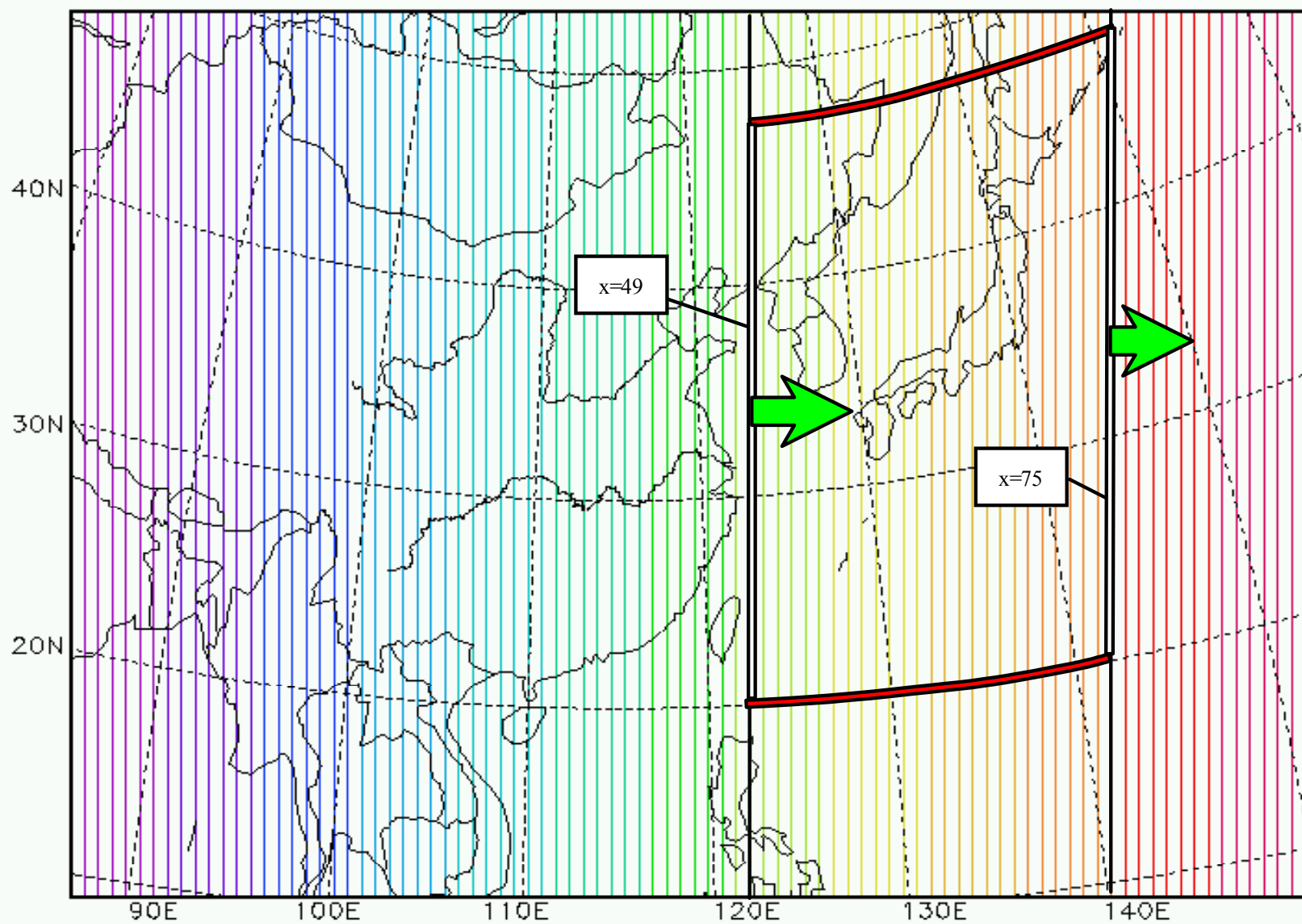


Cold front & Strong westerly & Chinese land use

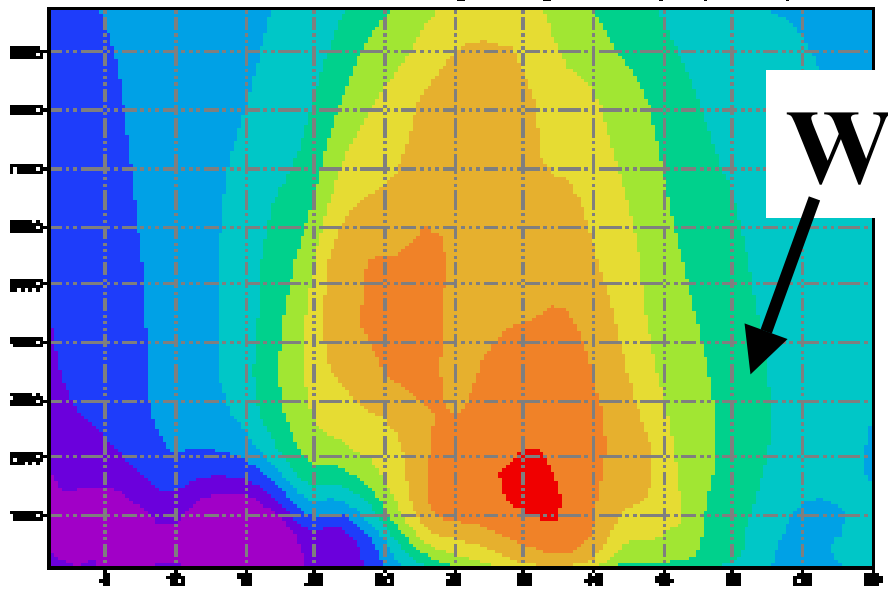
Frontal outflow

Cumulus convection & liftup of CO/BC

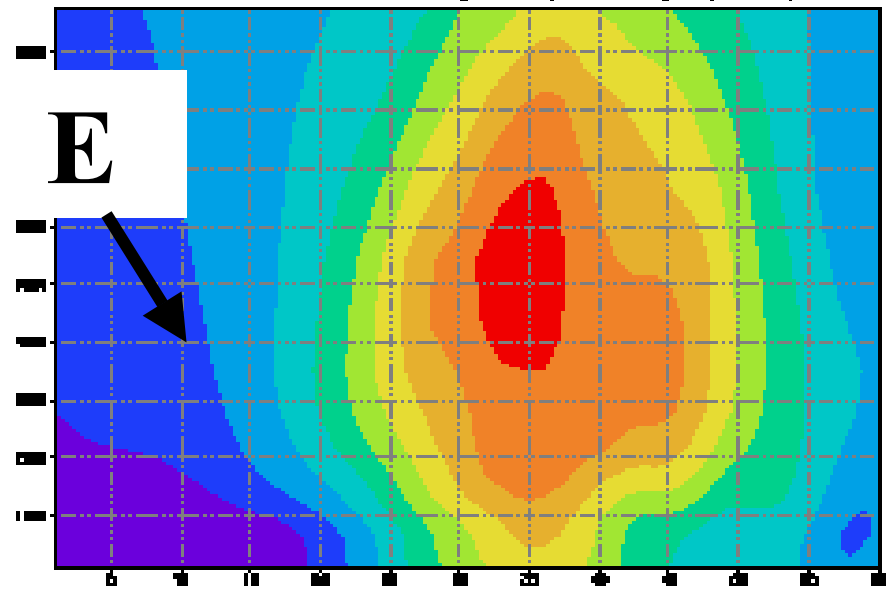




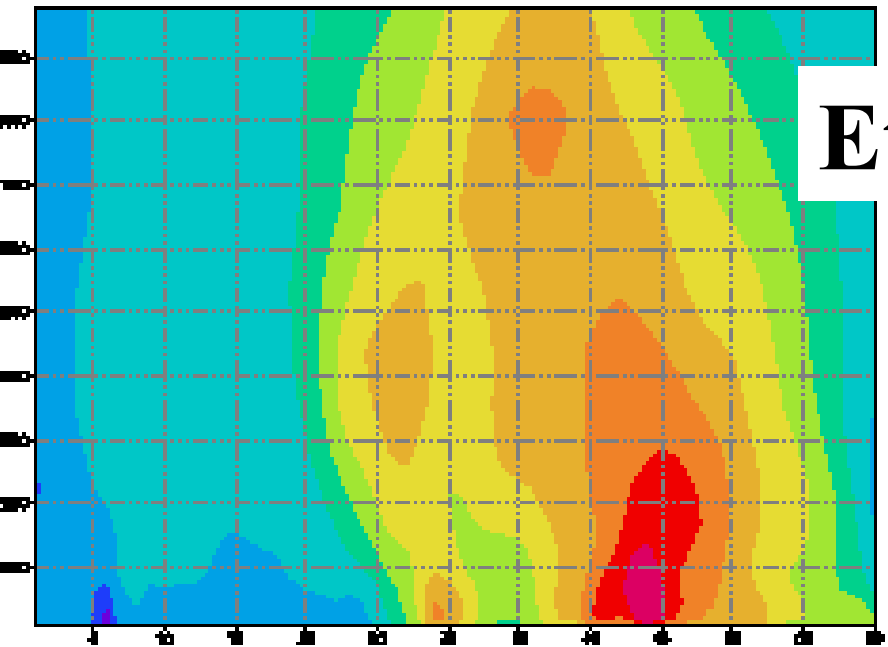
Flux $\kappa=48$ YS for Ethane ($\text{mmol}/\text{m}^2 \text{ s}$) 3/1-3/14



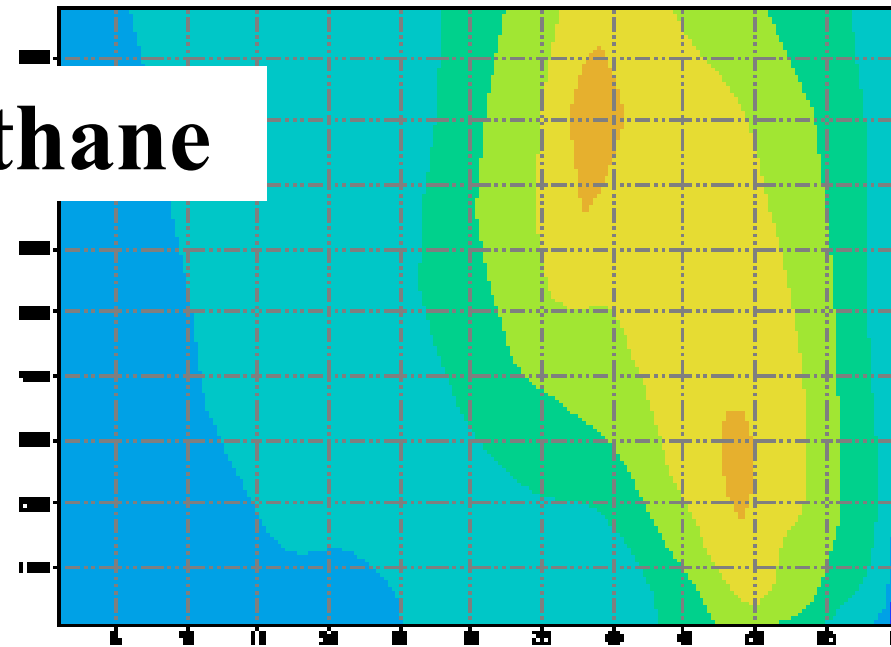
Flux $\kappa=75$ Ed for Ethane ($\text{mmol}/\text{m}^2 \text{ s}$) 3/1-3/14



Flux $\kappa=48$ YS for Ethane ($\text{mmol}/\text{m}^2 \text{ s}$) 3/15-3/30



Flux $\kappa=75$ Ed for Ethane ($\text{mmol}/\text{m}^2 \text{ s}$) 3/15-3/30

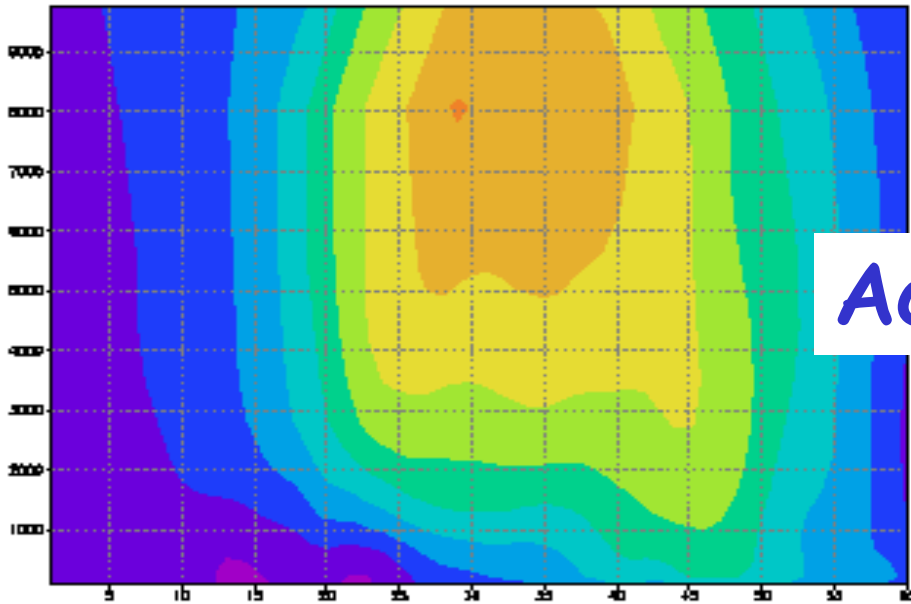


Ethane

-0.012 -0.008 -0.004 0 0.004 0.008 0.012 0.016 0.02 0.024 0.028

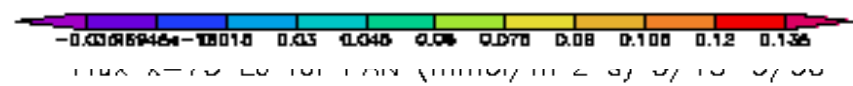
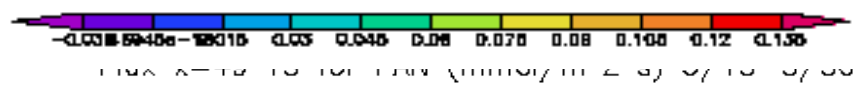
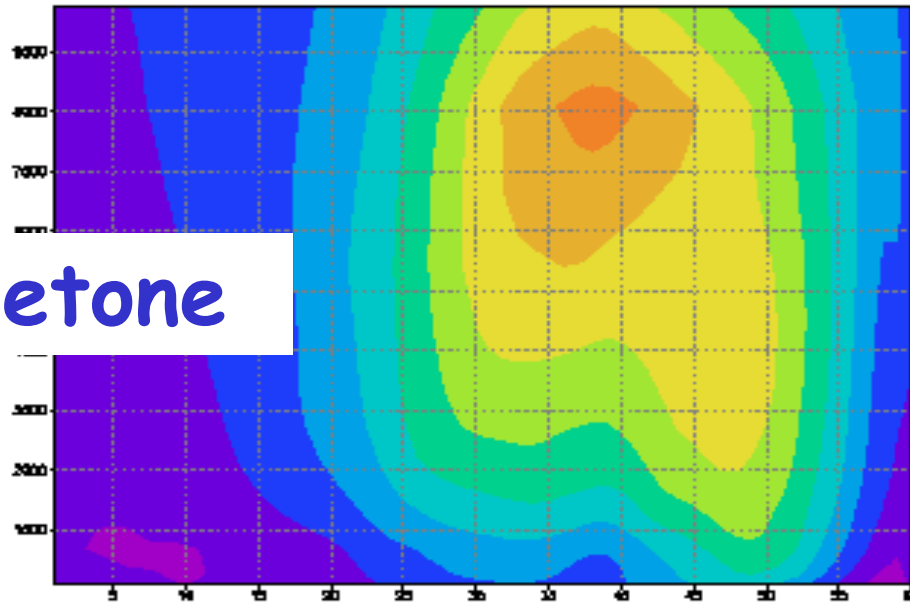
-0.012 -0.008 -0.004 0 0.004 0.008 0.012 0.016 0.02 0.024 0.028

Flux $\chi=49$ YS for Aceton ($\text{mmol/m}^2 \text{ s}$) 3/15-3/30

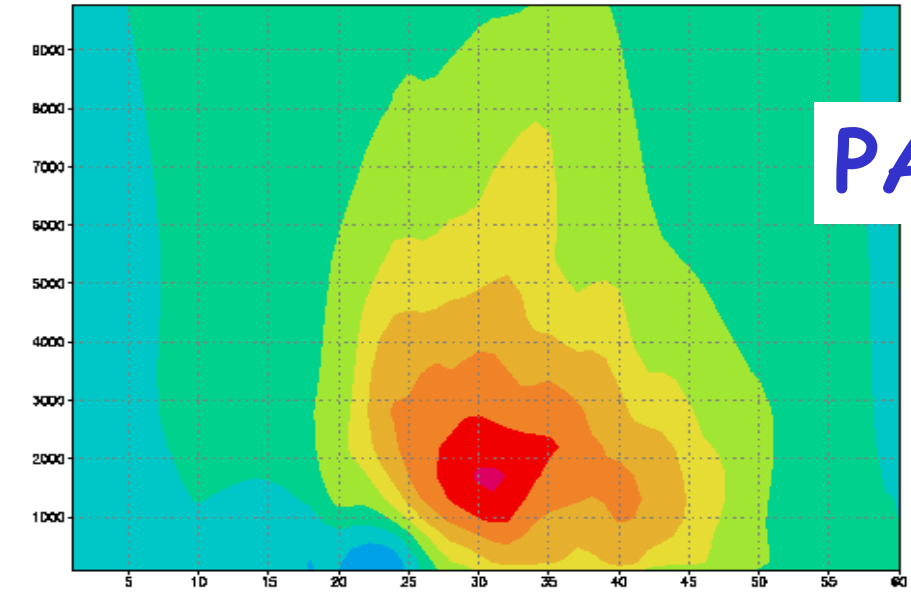


Acetone

Flux $\chi=75$ EJ for Aceton ($\text{mmol/m}^2 \text{ s}$) 3/15-3/30

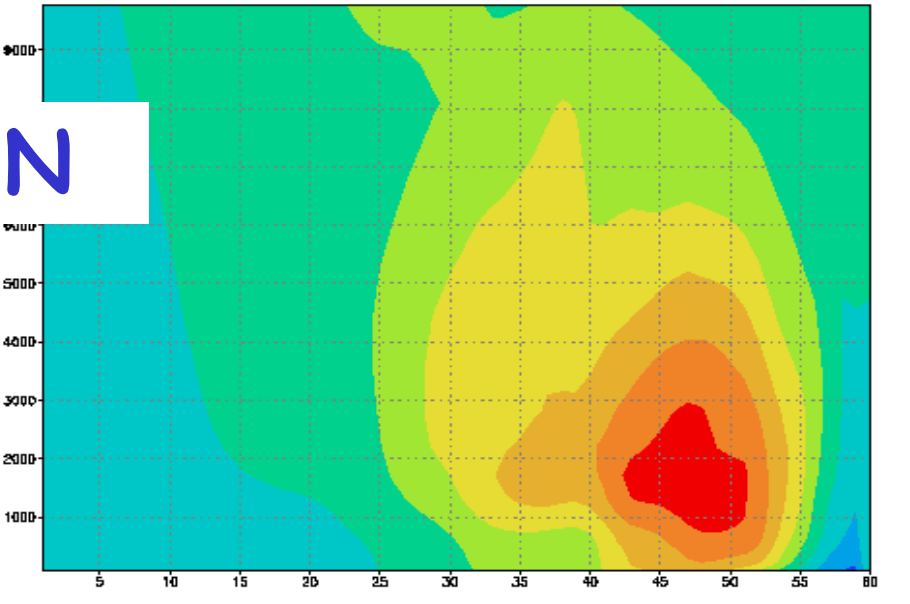


Flux $\chi=49$ YS for PAN ($\text{mmol/m}^2 \text{ s}$) 3/15-3/30



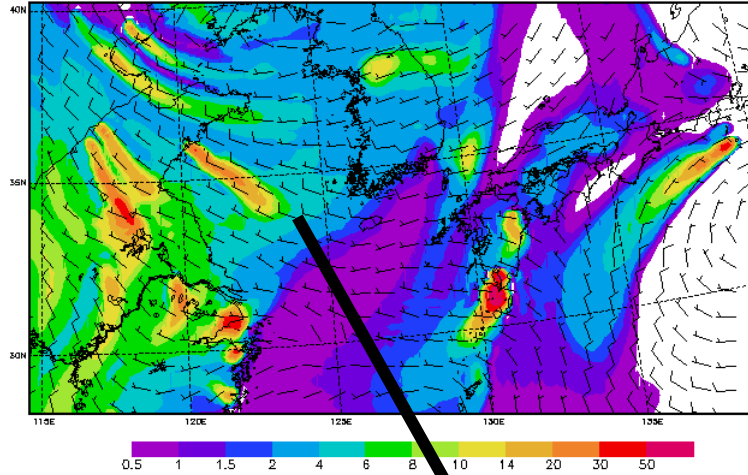
PAN

Flux $\chi=75$ EJ for PAN ($\text{mmol/m}^2 \text{ s}$) 3/15-3/30

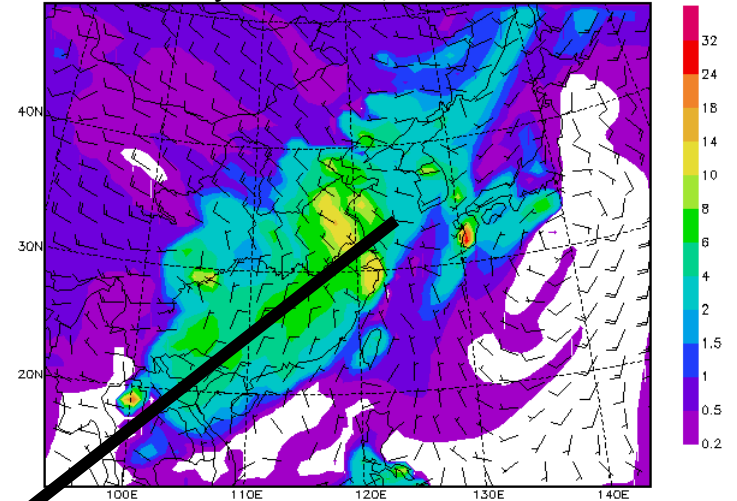


Effect of Model Resolution

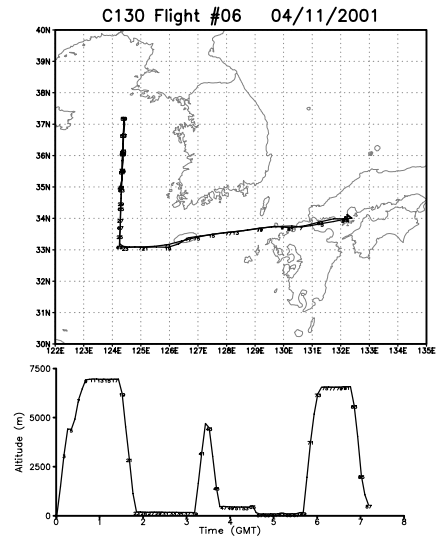
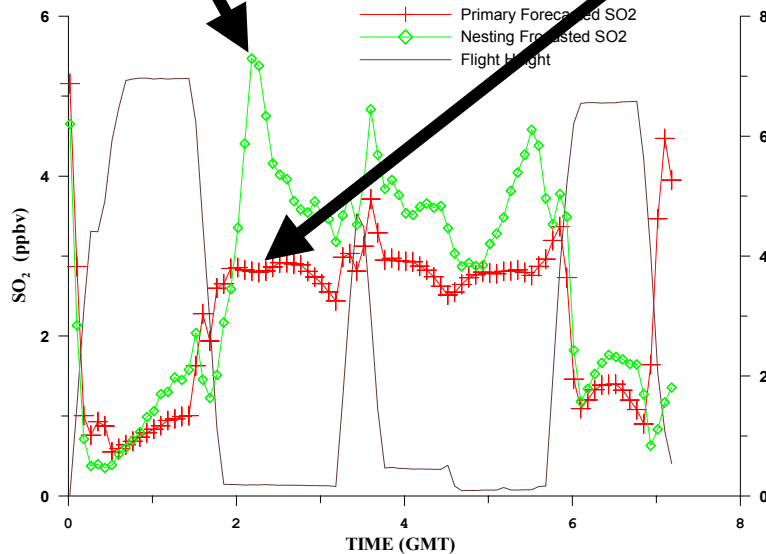
16km-resolution forecasted SO₂(ppbv)
at 1km layer at 3GMT, 04/11/2001



80km-resolution forecasted SO₂(ppbv)
at 1km layer at 3GMT, 04/11/2001

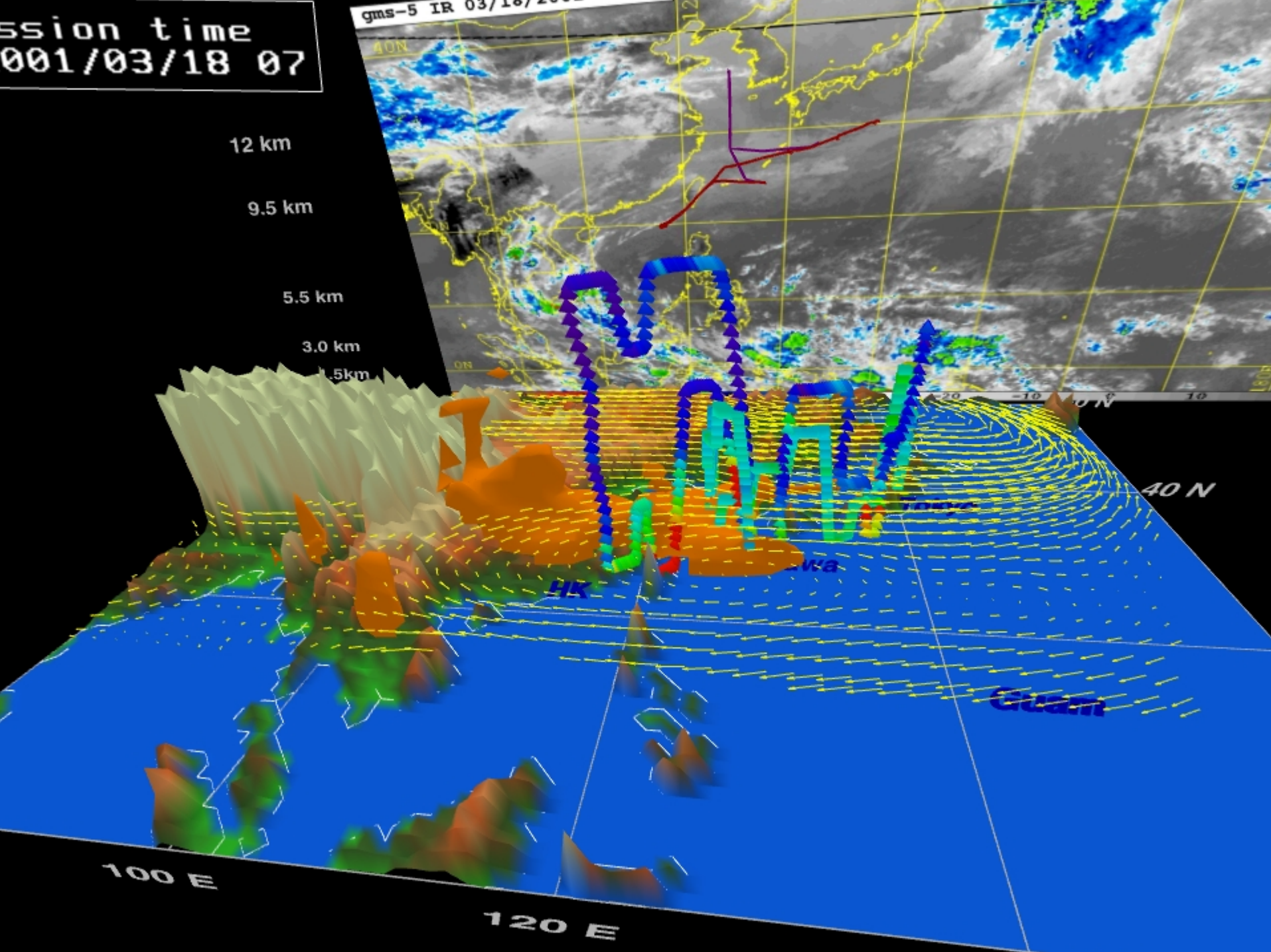


Forecasted SO₂ Compare to the C130 Observation REF6 (04/11/2001)



mission time
001/03/18 07

gms-5 IR 03/18/2008



12 km

9.5 km

5.5 km

3.0 km

1.5 km

40 N

HK

Iwa

Guam

100 E

120 E

CFORS Analysis Papers

- **Emissions** (Verification, regional signatures, fuels, biomass burning)
- **Transport & Meteorology** (Fronts, terrain)
- **Gaseous Species** (budgets & case studies, couple to global models)
- **Primary Aerosols** (same & together use to characterize air masses)
- **Radiative Transfer & Optical Properties** (Size, component contributions)
- **Aerosol Chemistry Interactions** (heterogeneous reactions— effects on aerosol composition & gas phase)



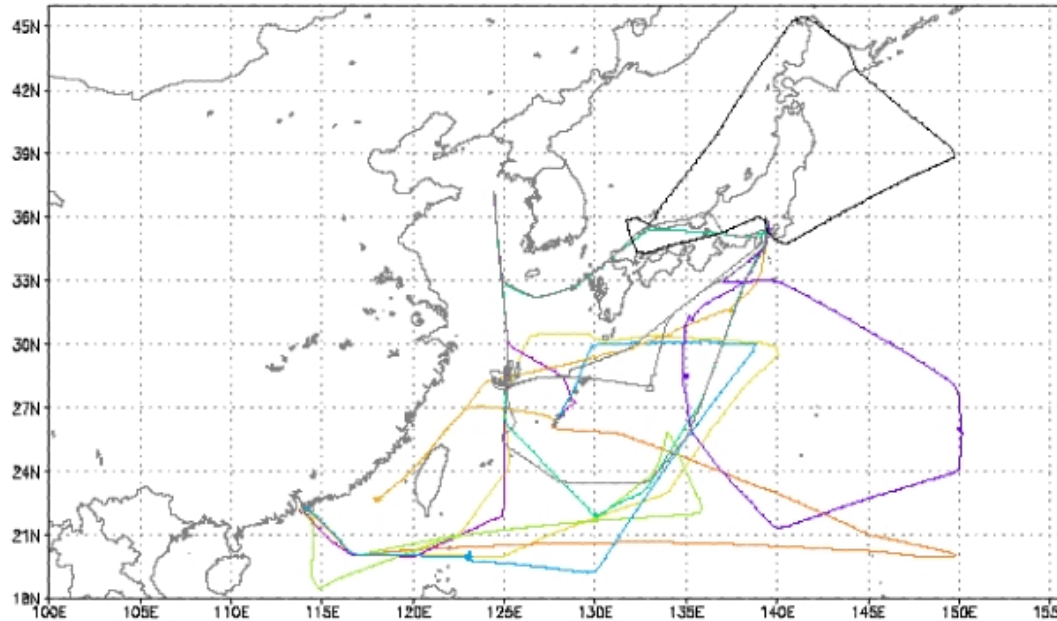
Trace-P

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TRACE-P DC-8 Flight Path
from 03/07 to 03/30



Mission Overview

Flight Tracks

Time Series

Streamlines

Back Trajectories

Special Analysis

Mission Overview

Flight Tracks

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Back Trajectories

Special Analysis

Flight Paths

www.cgrer.uiowa.edu/TRACE-P/index.htm

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DC-8