

Peroxide Observations in the Mid to Upper Troposphere Adjacent and Downwind of Deep Convection.

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Data Reduction Status

Hydrogen Peroxide

ions and m/z of interest

$O_2^- \cdot CO_2$, 110 good

O_2^- , 66 and 84 (hydrate)

more sensitive,

water enhancement

flow and kinetics to finalize

I-, 161; cost of MHP, gain HFO and HAC

Methylhydroperoxide

O_2^- cluster ion at m/z 80

water vapor sensitivity decrease

weak or no "switching" reaction

Remaining Issue

Gas Calibration Source Stability

post-mission calibrations

water vapor effects

inlet flow/pressure

Carulite 200 Peroxide Trap

issue at m/z 66 on absolute value

m/z 66 better for leg variations

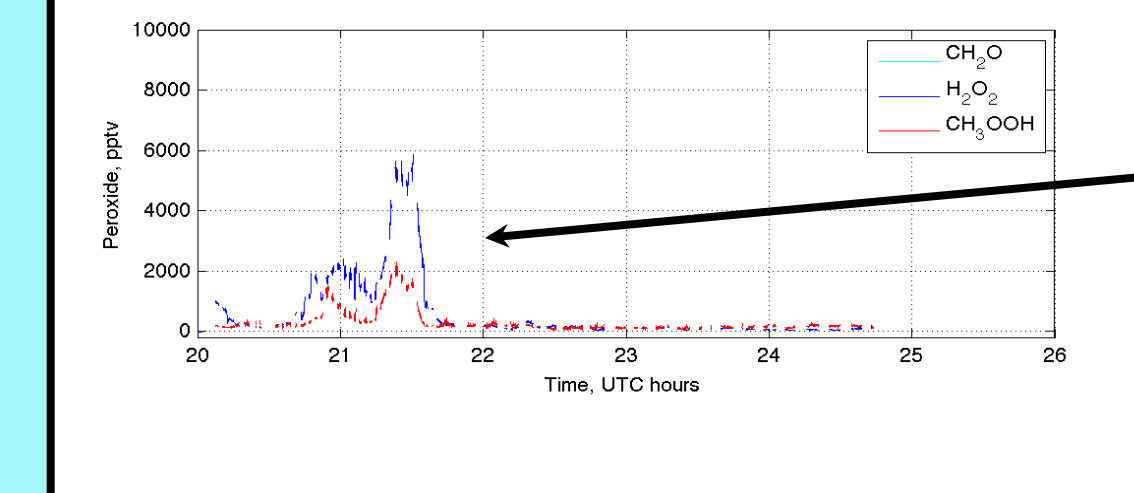
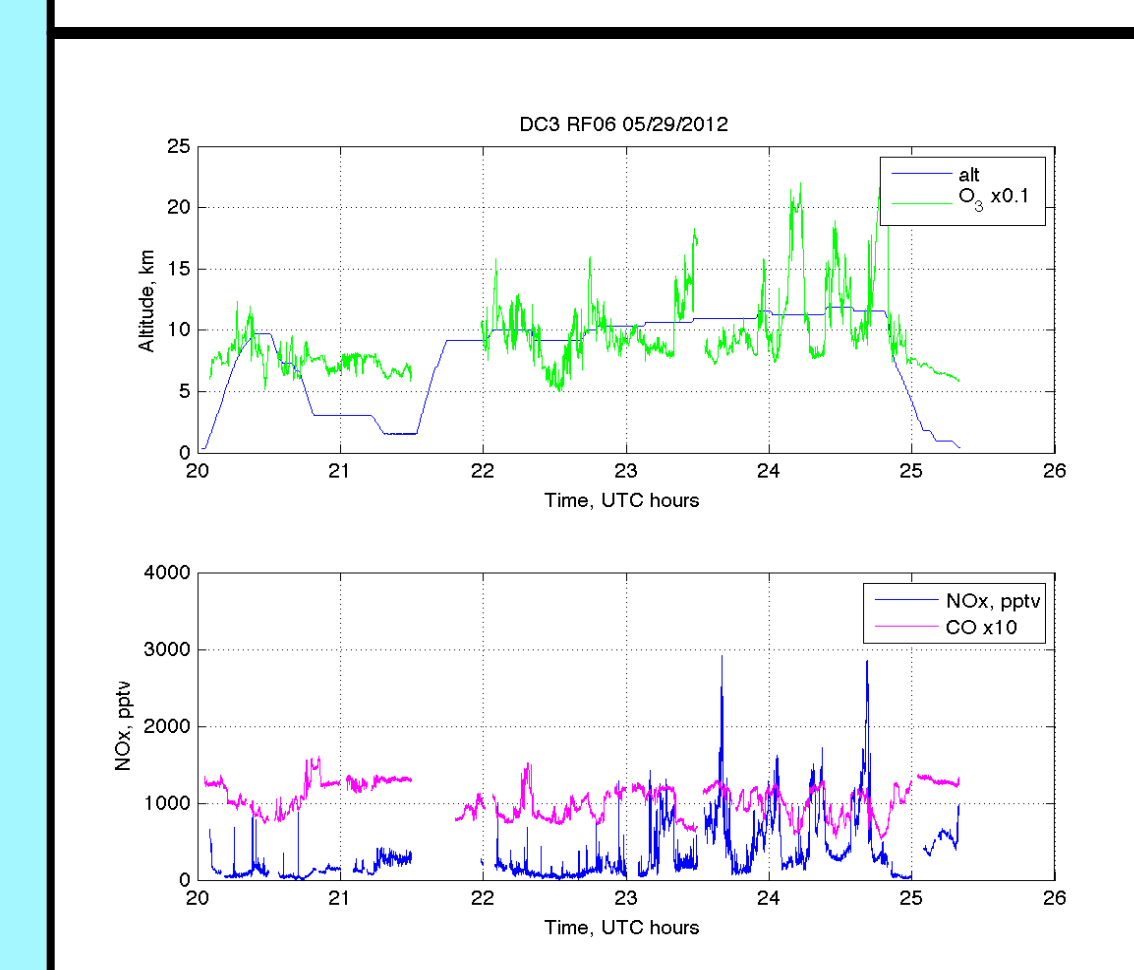
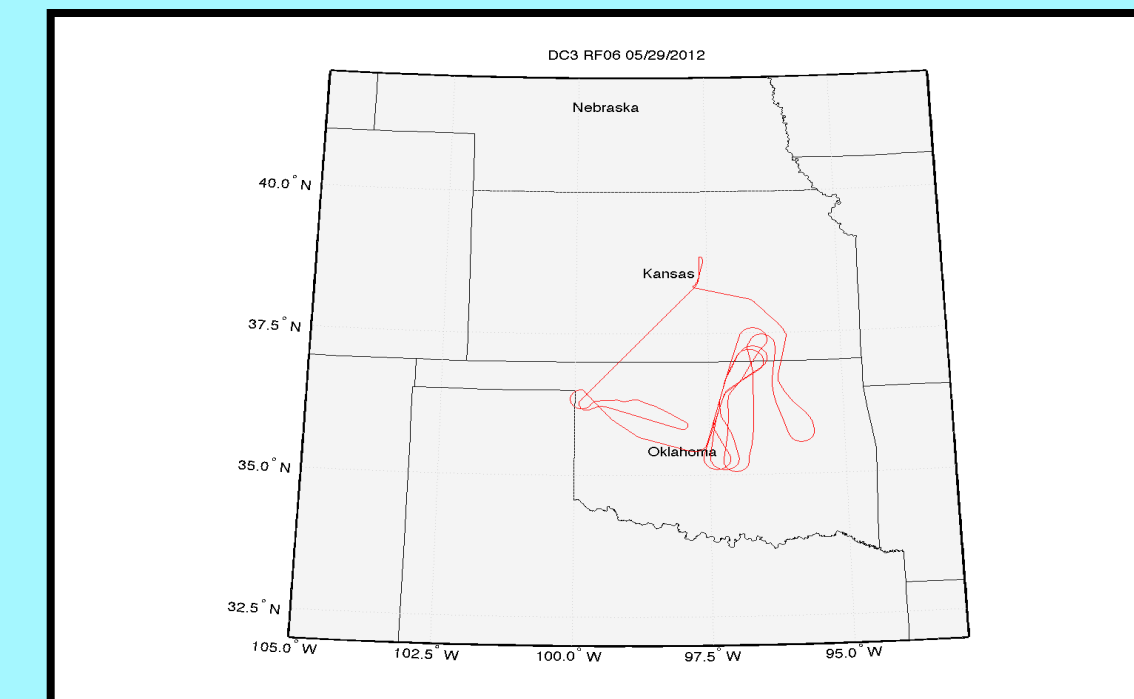
Approximately 2 months to final data

Preliminary Data

Ex. 1: Lower Inflow and Upper Level Outflow

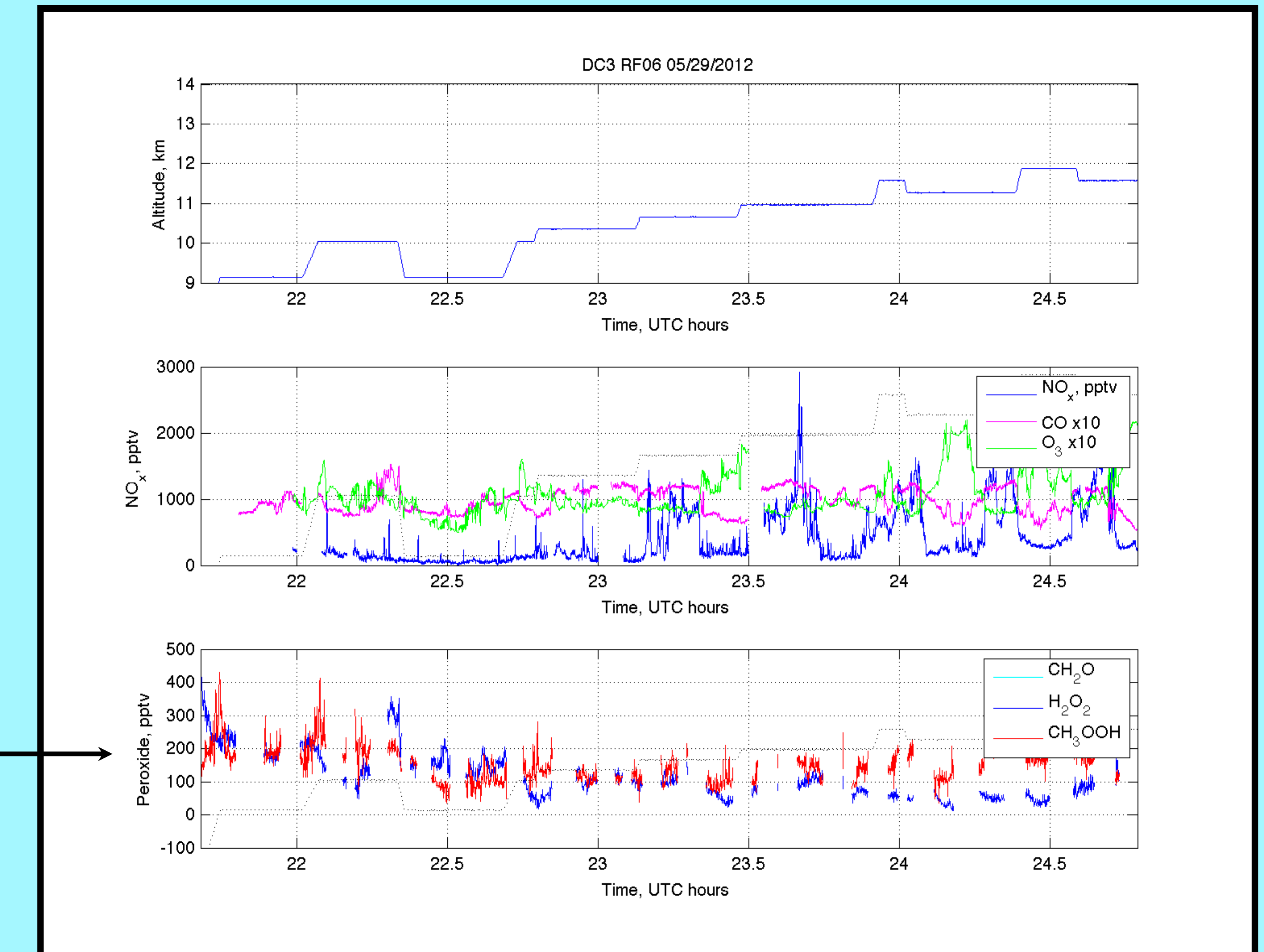
GV RF06 May 29, 2013

Oklahoma Kansas Flight Track



- O_3 , CO , NO_x , CH_2O , Z
1-sec merge product
Note scaling factors for CO and O_3

- Preliminary peroxides
One 0.5 s value every ~3 sec
Upper 9-12 km
 H_2O_2 0 to 300 ppt
 CH_3OOH 50 to 200 ppt
Lower 2-4 km
 H_2O_2 1.5 to 2.0 ppb
 CH_3OOH 1 to 2 ppb

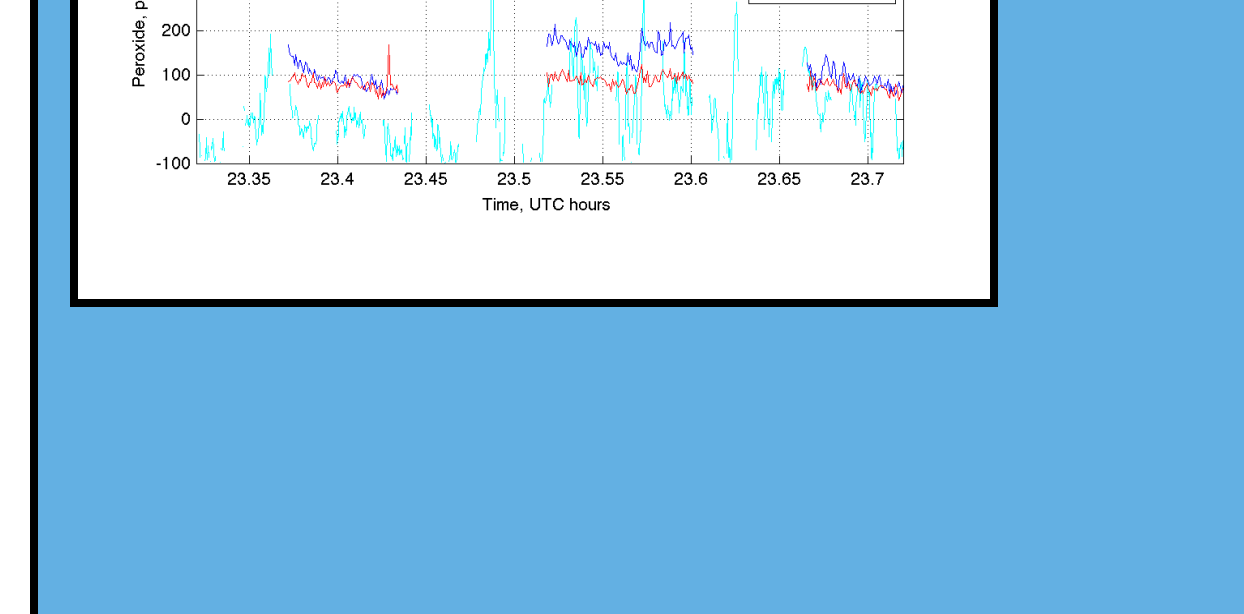
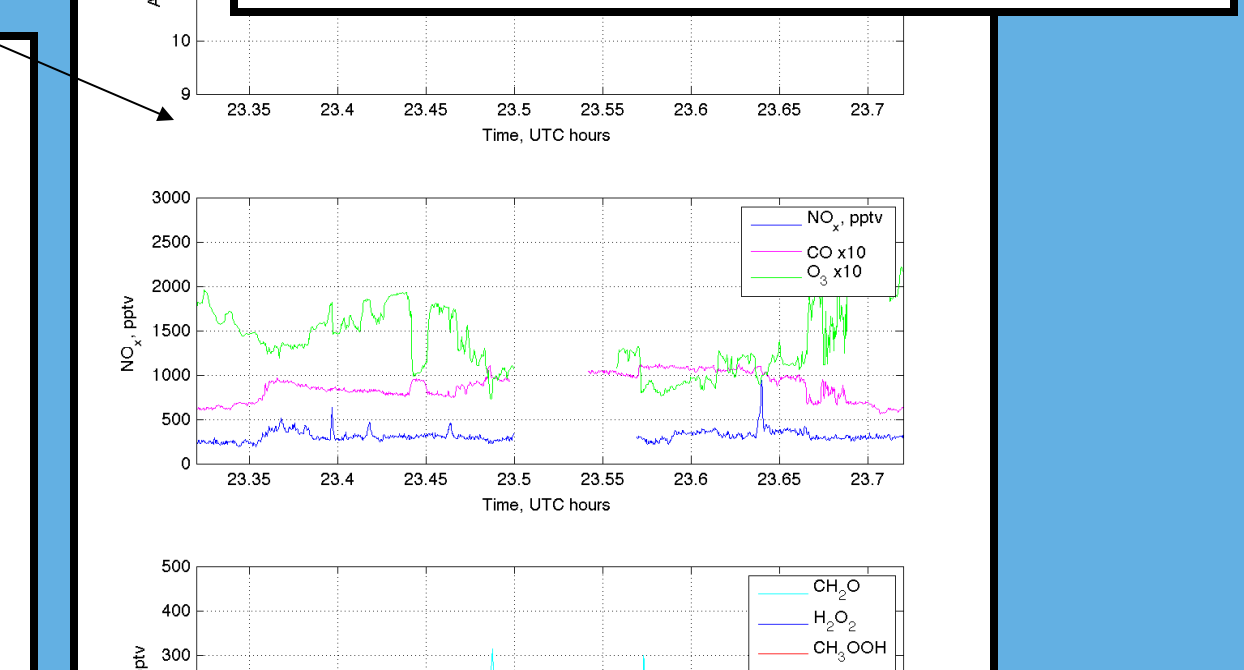
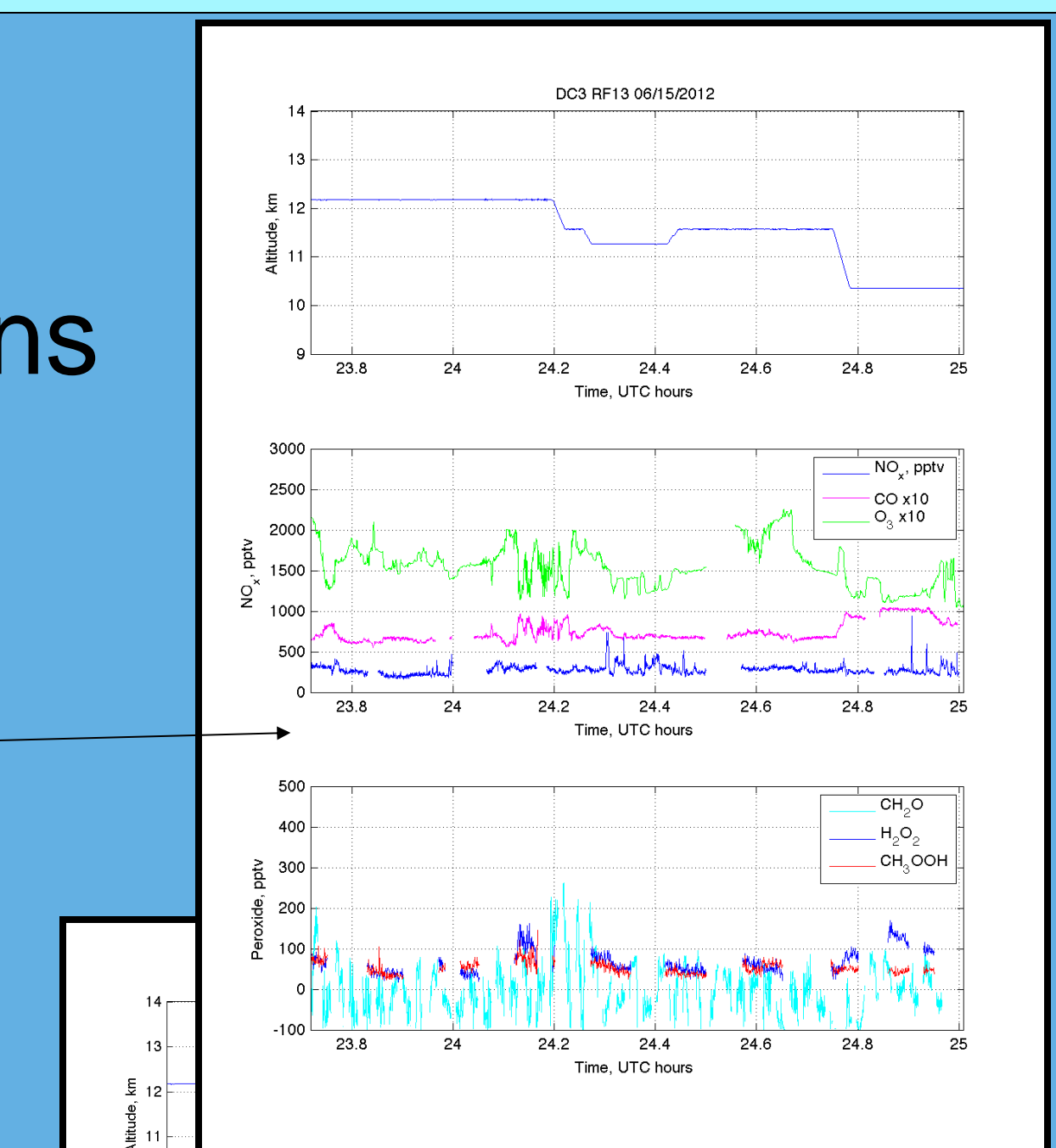
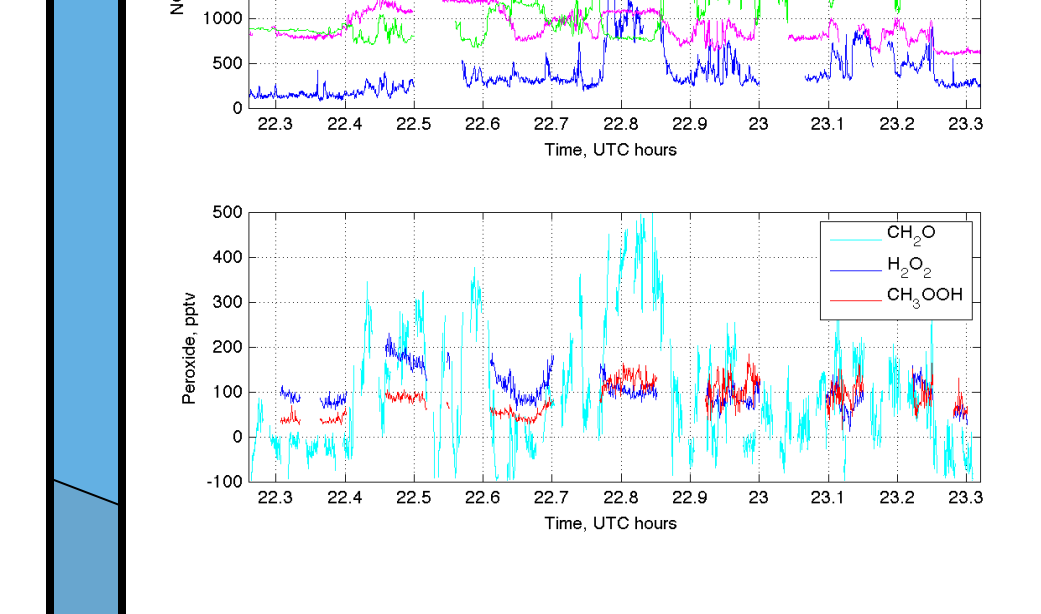
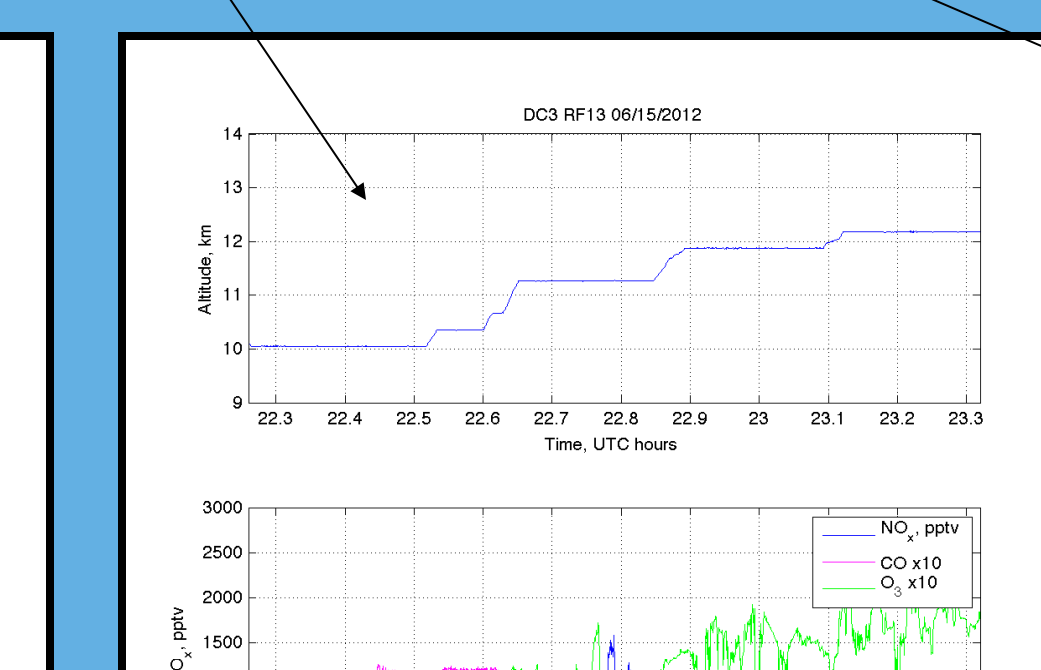
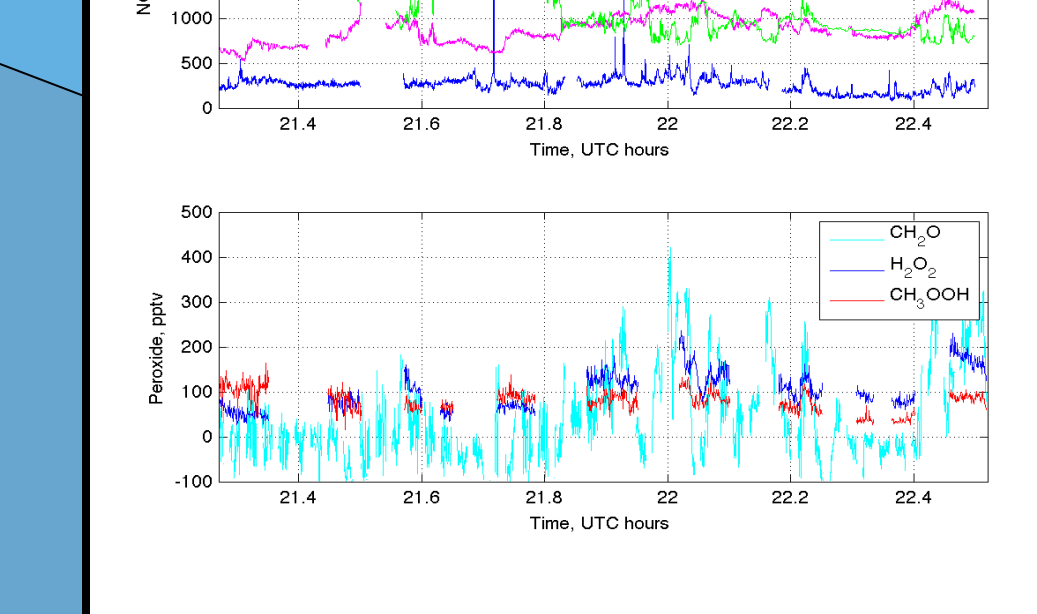
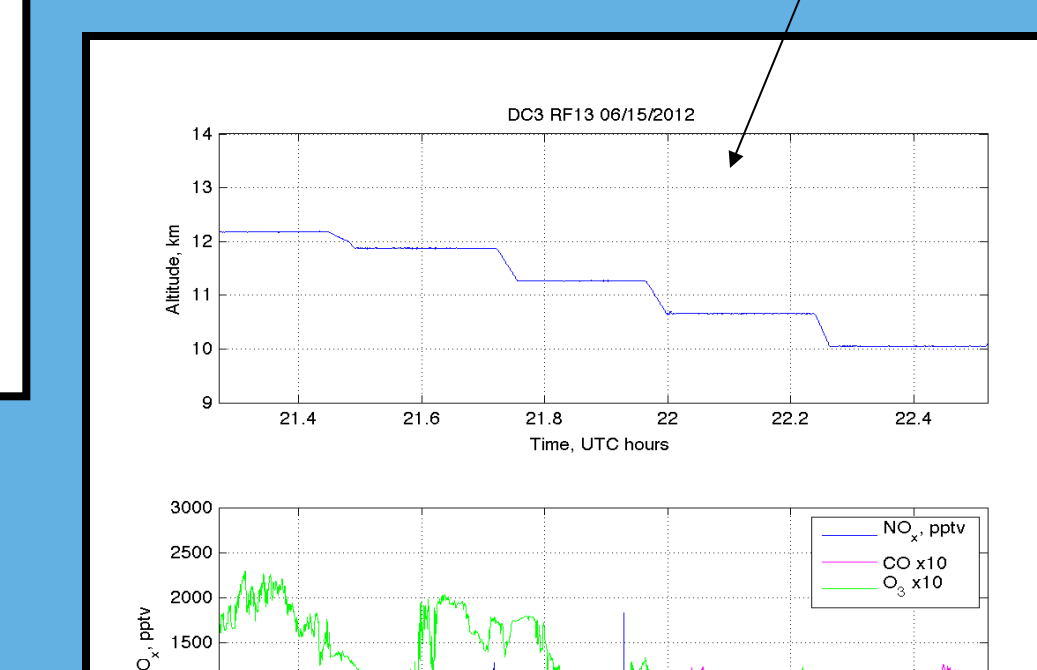
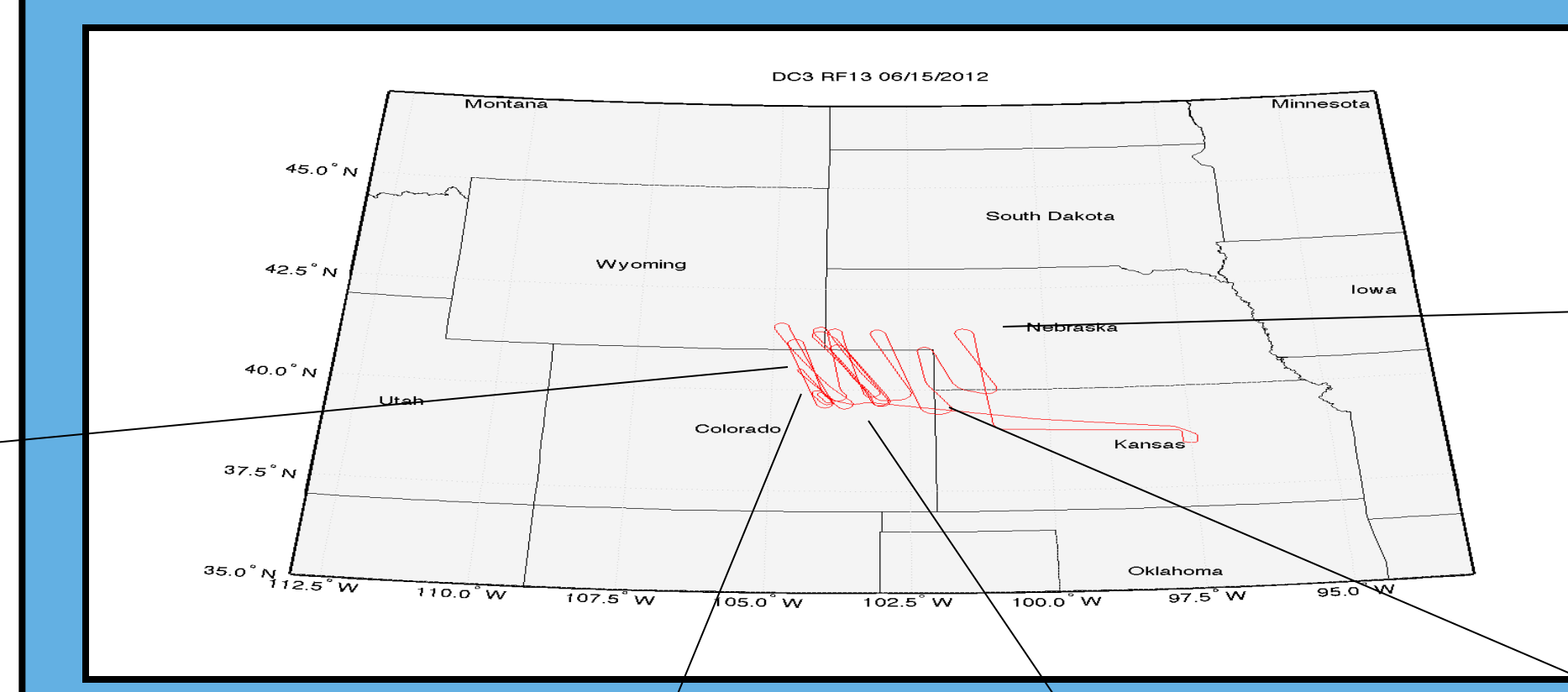
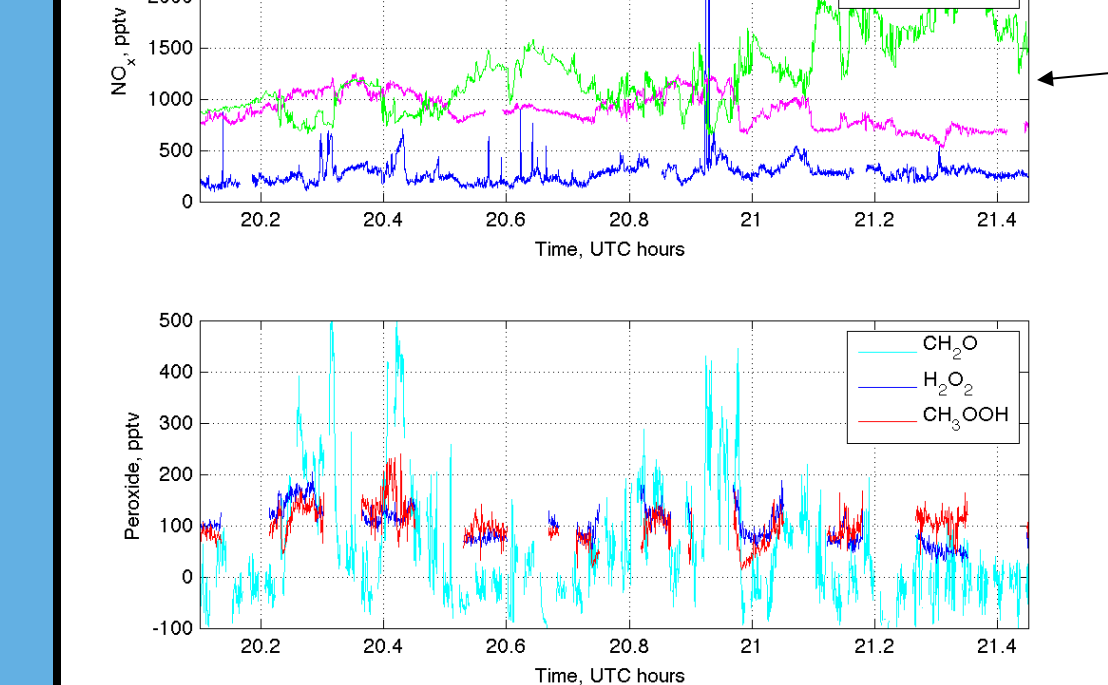
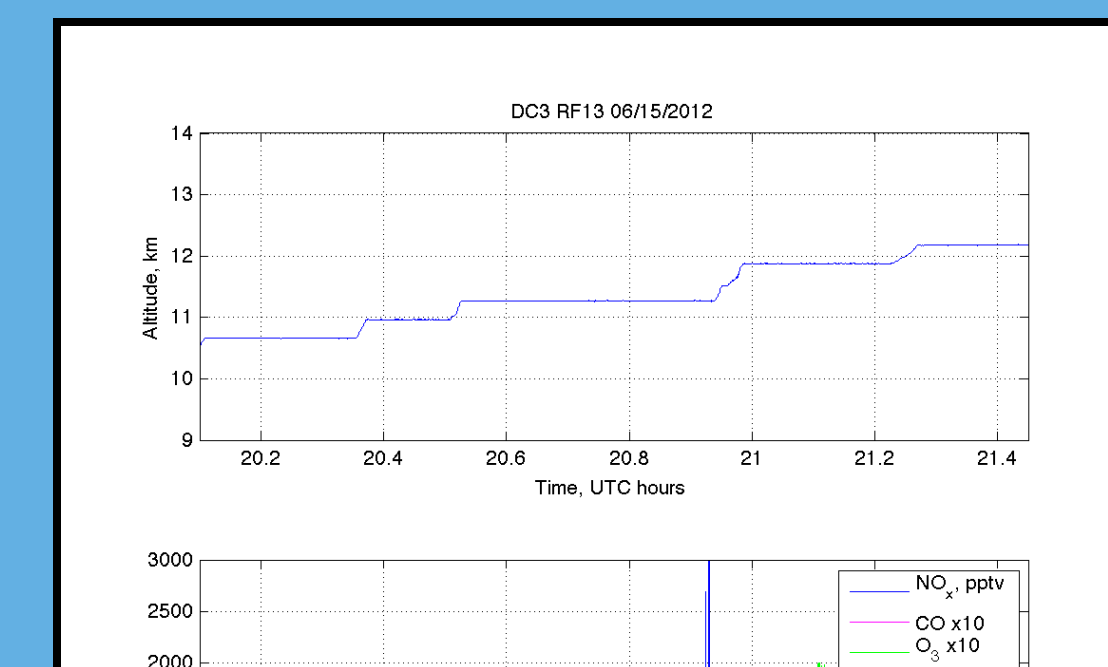
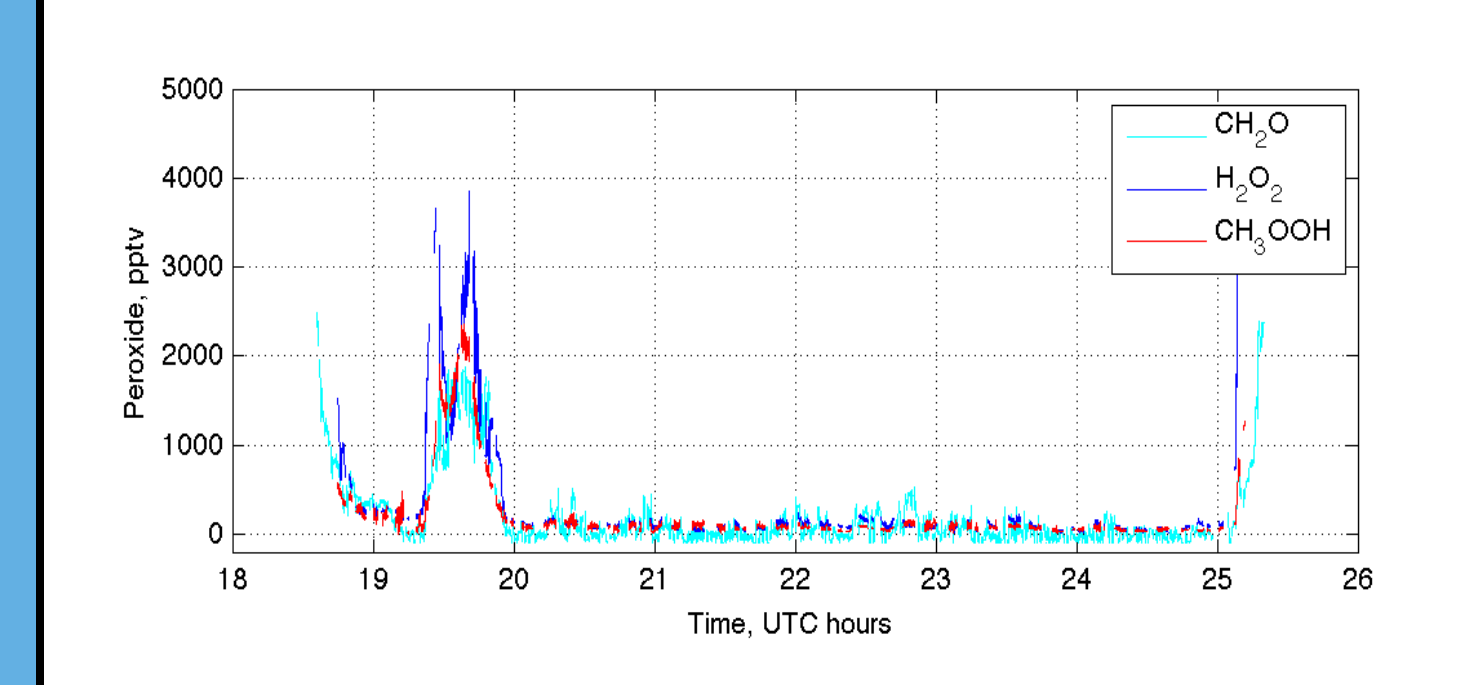
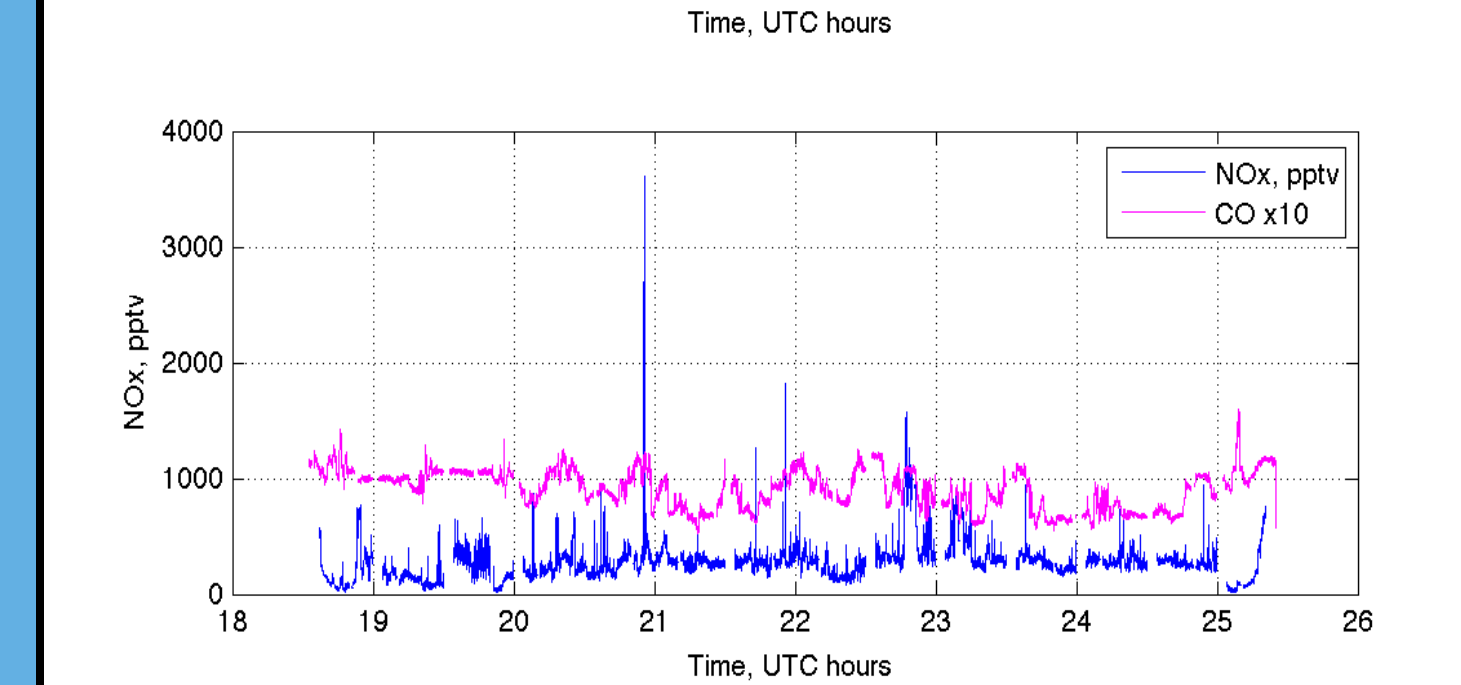
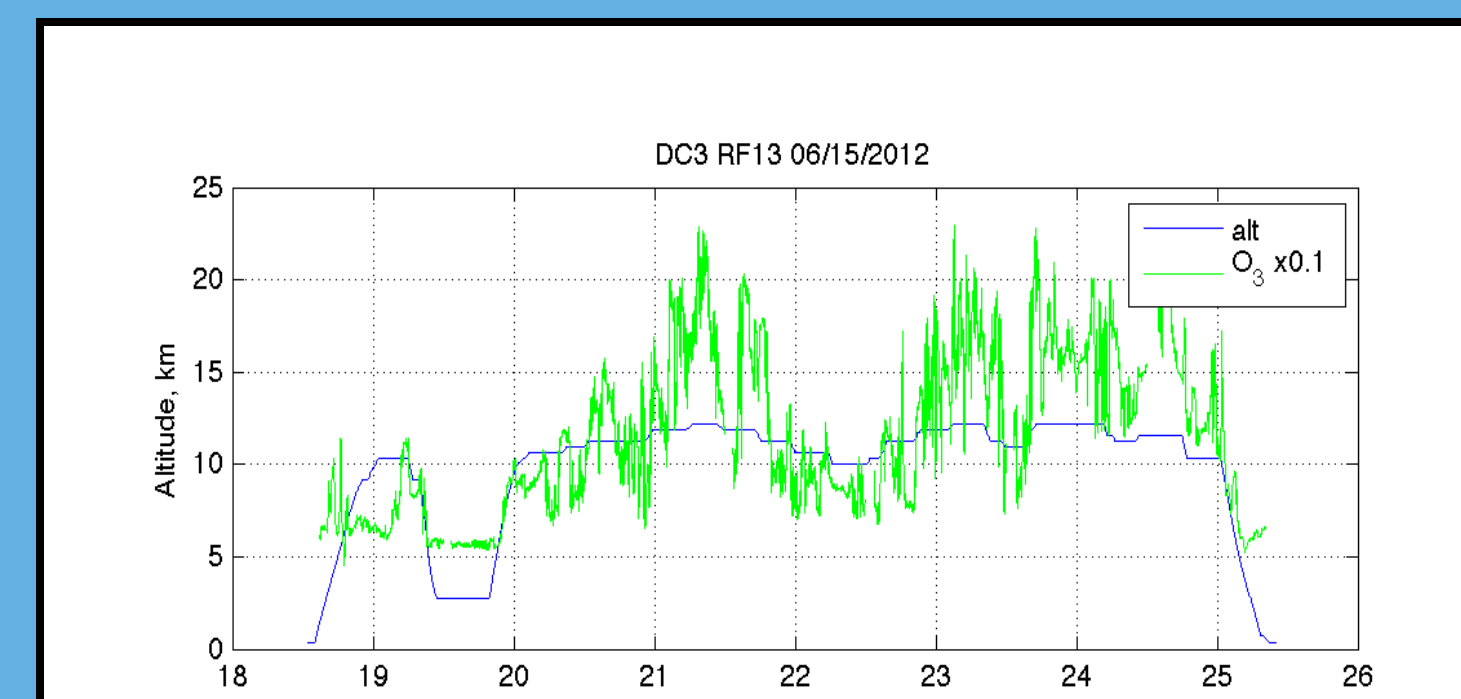


High Altitude Portion of Flight, 9-12 km

Ex. 2: Upper Level Wall Outflow

GV RF13 June 6, 2013

Higher Altitude Outflow Wall Sections



Lower altitude portion to left of figure

Subtle shifts in peroxide ratios at altitude:
RF13 more O_3 with $H_2O_2 > CH_3OOH$,
RF06 more NO_x with $CH_3OOH > H_2O_2$

more convective influence less