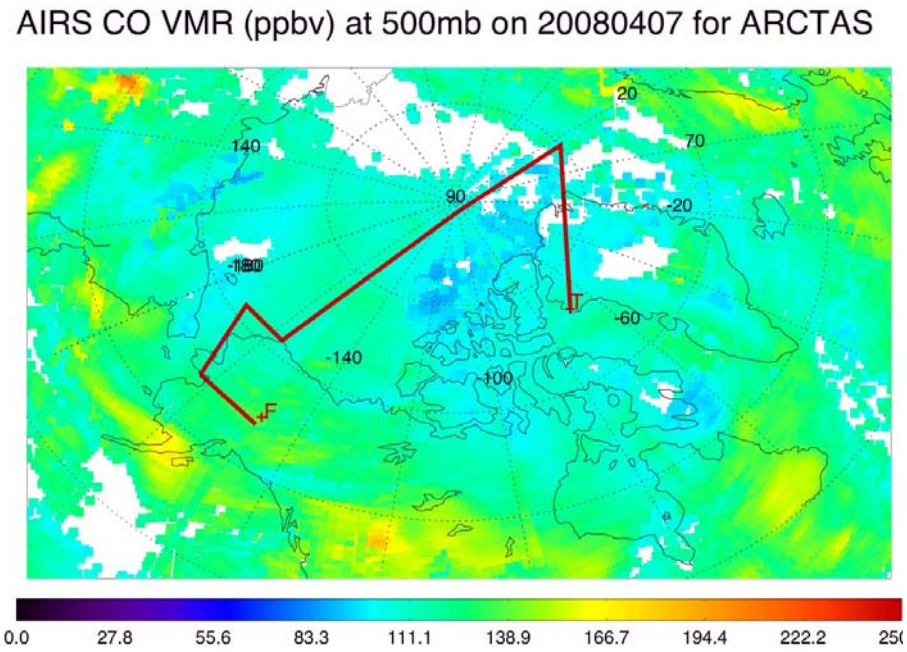
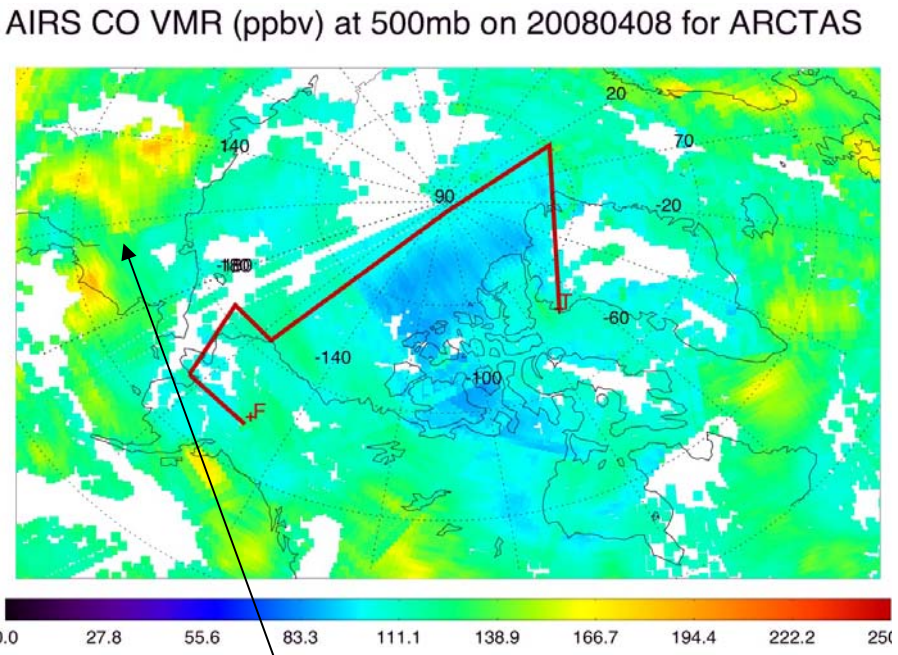
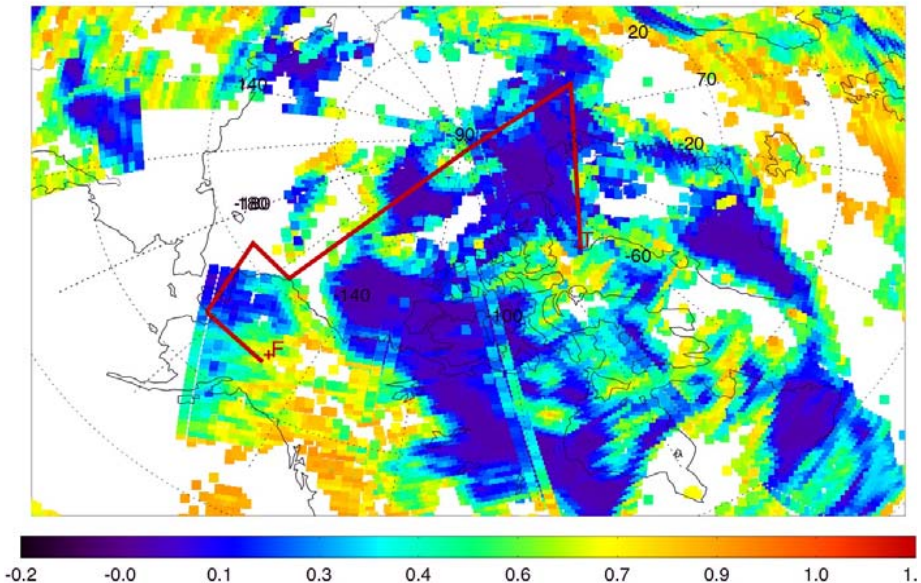
AIRS NRT ARCTAS Support: Latest AIRS CO







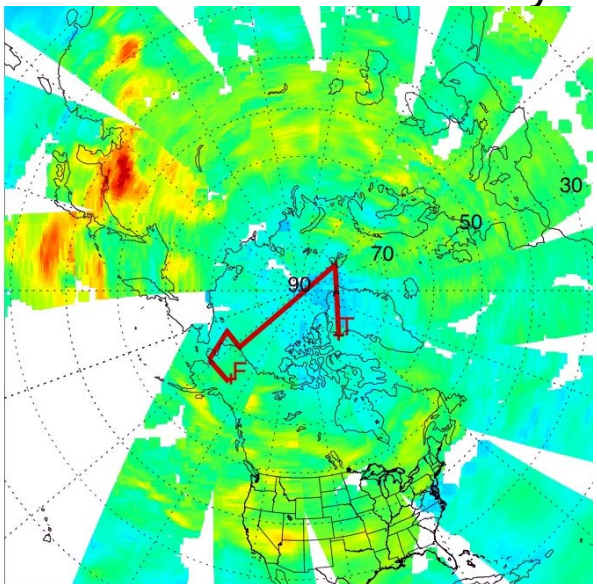
CONTACT: Dr. Juying Warner <juying@umbc.edu>; ACKNOWLEDGEMENT: AIRS NRT products by NASA DA

- High CO features surrounding to study area
- MODIS cloud mask shows yesterday's cloud ratios <0.9

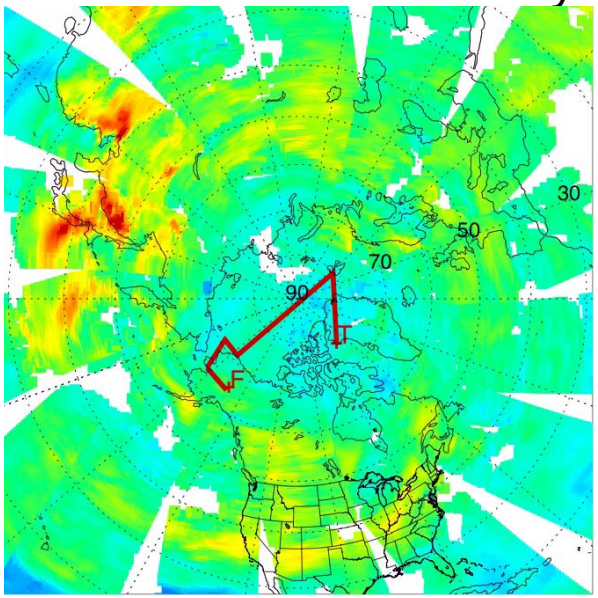
AIRS NRT ARCTAS Support:

Asian Transport Continues, slowly

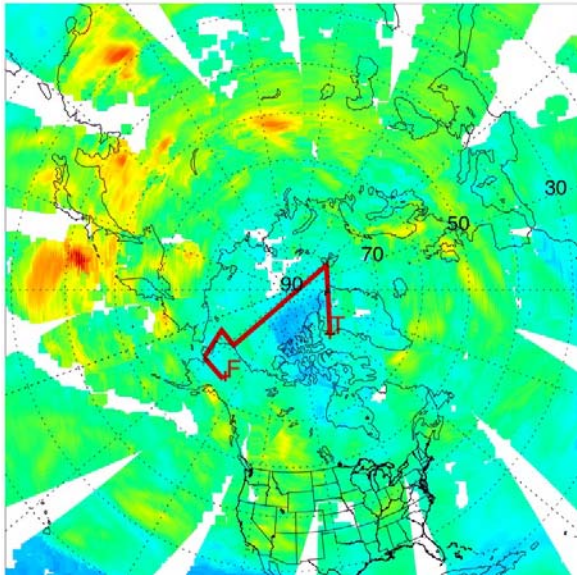
CO 500mb 20080406 day

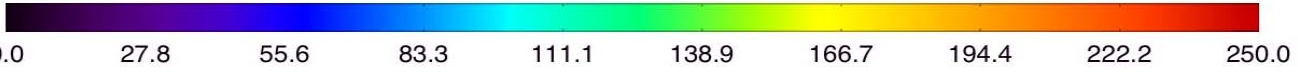


CO 500mb 20080407 day



CO 500mb 20080408 Full

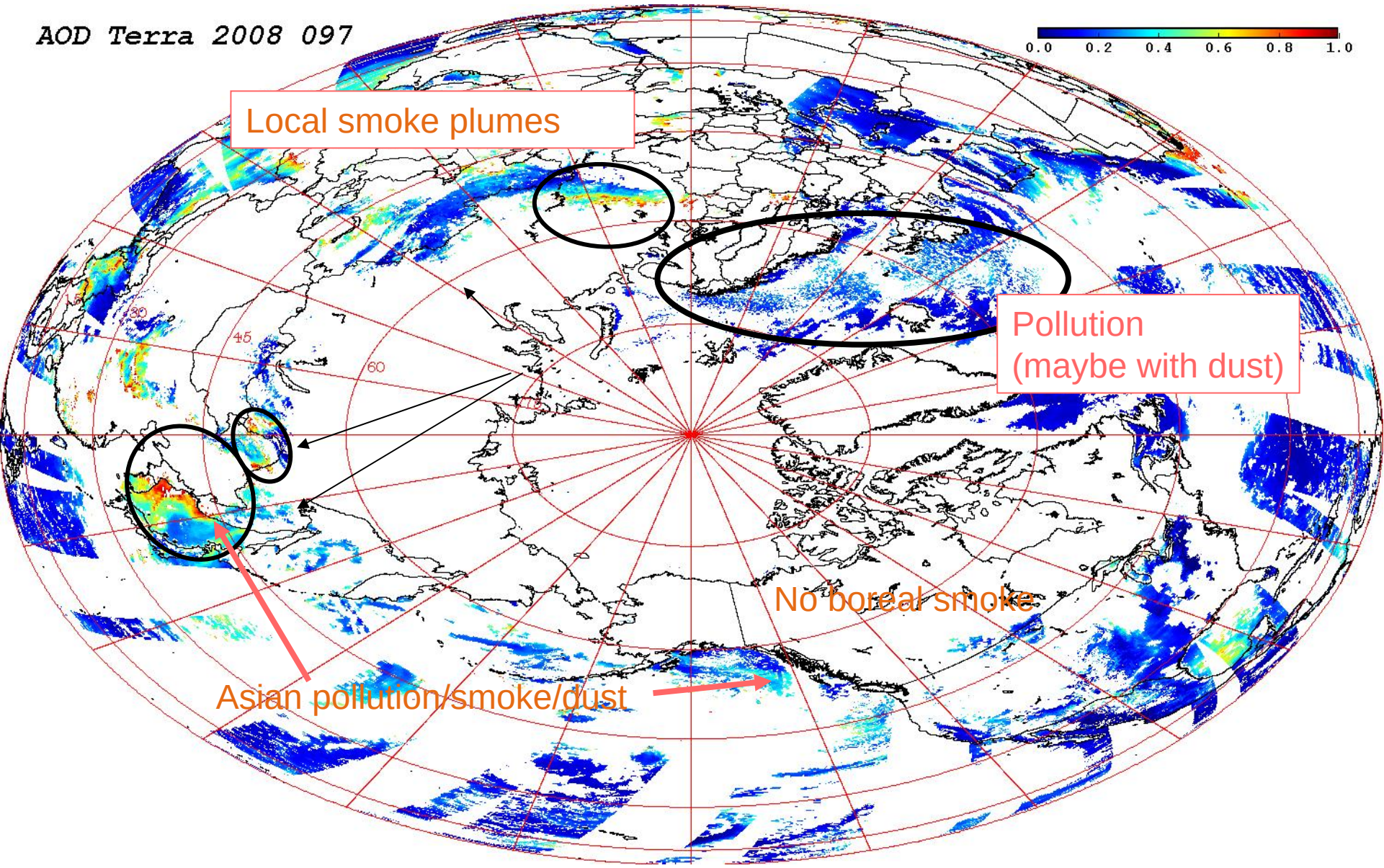




CONTACT: Dr. Juying Warner <juying@umbc.edu>; ACKNOWLEDGEMENT: AIRS NRT products by NASA DAAC

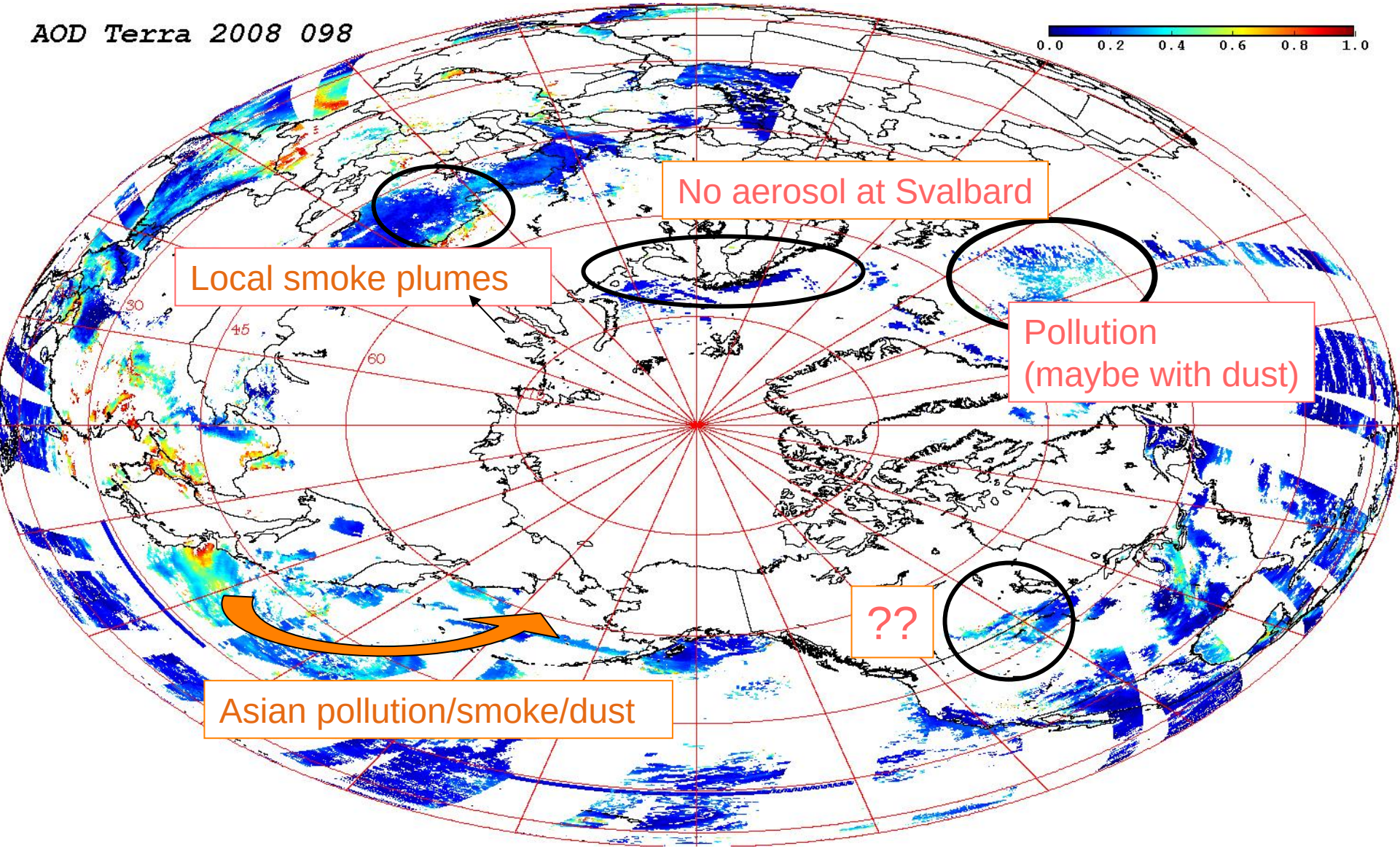
April 6, Sunday

MODIS AOD Hot Spots in Northern Hemisphere (0° - 90°N)

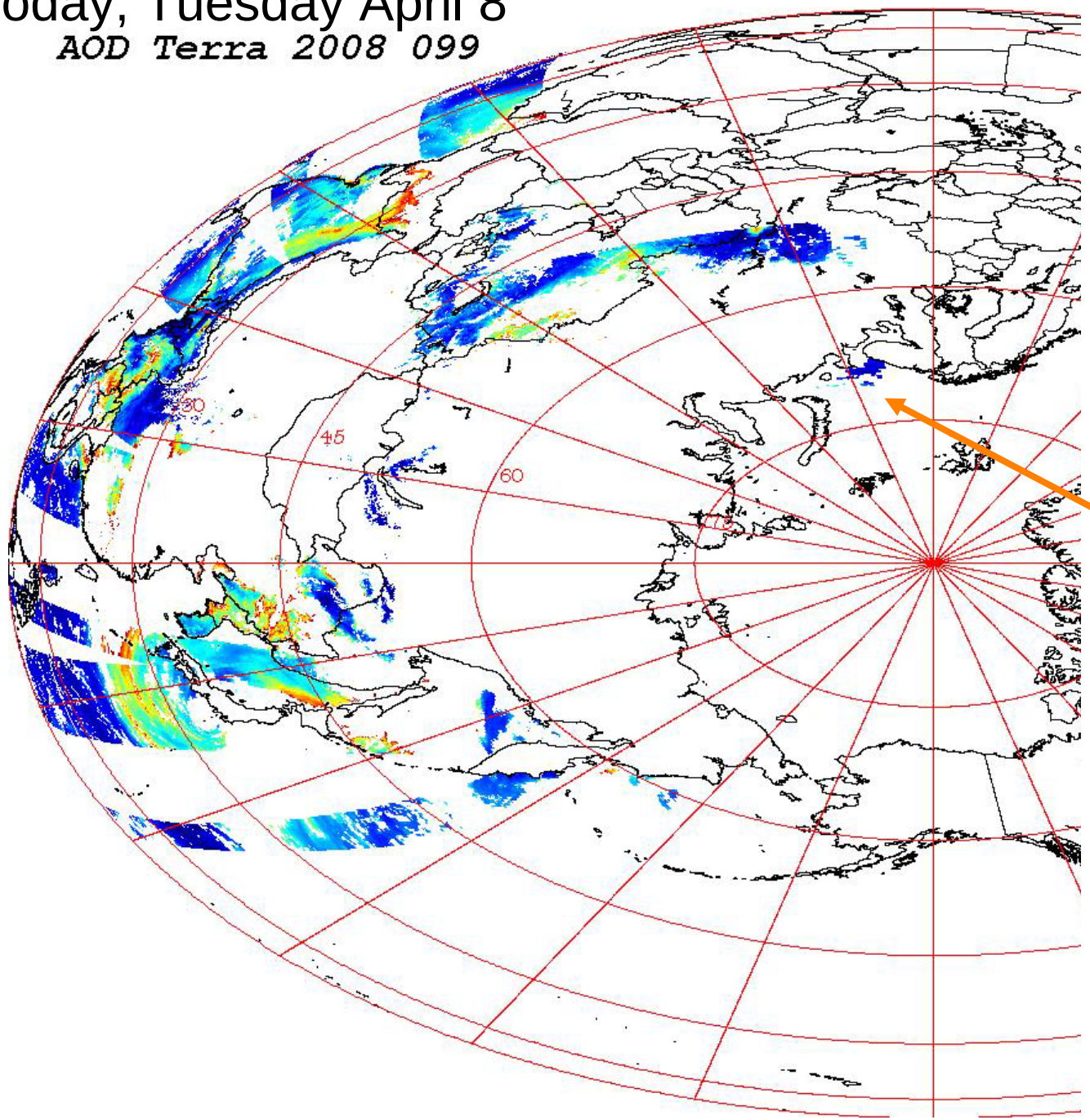


Monday April 7

MODIS AOD Hot Spots in Northern Hemisphere (0° - 90°N)

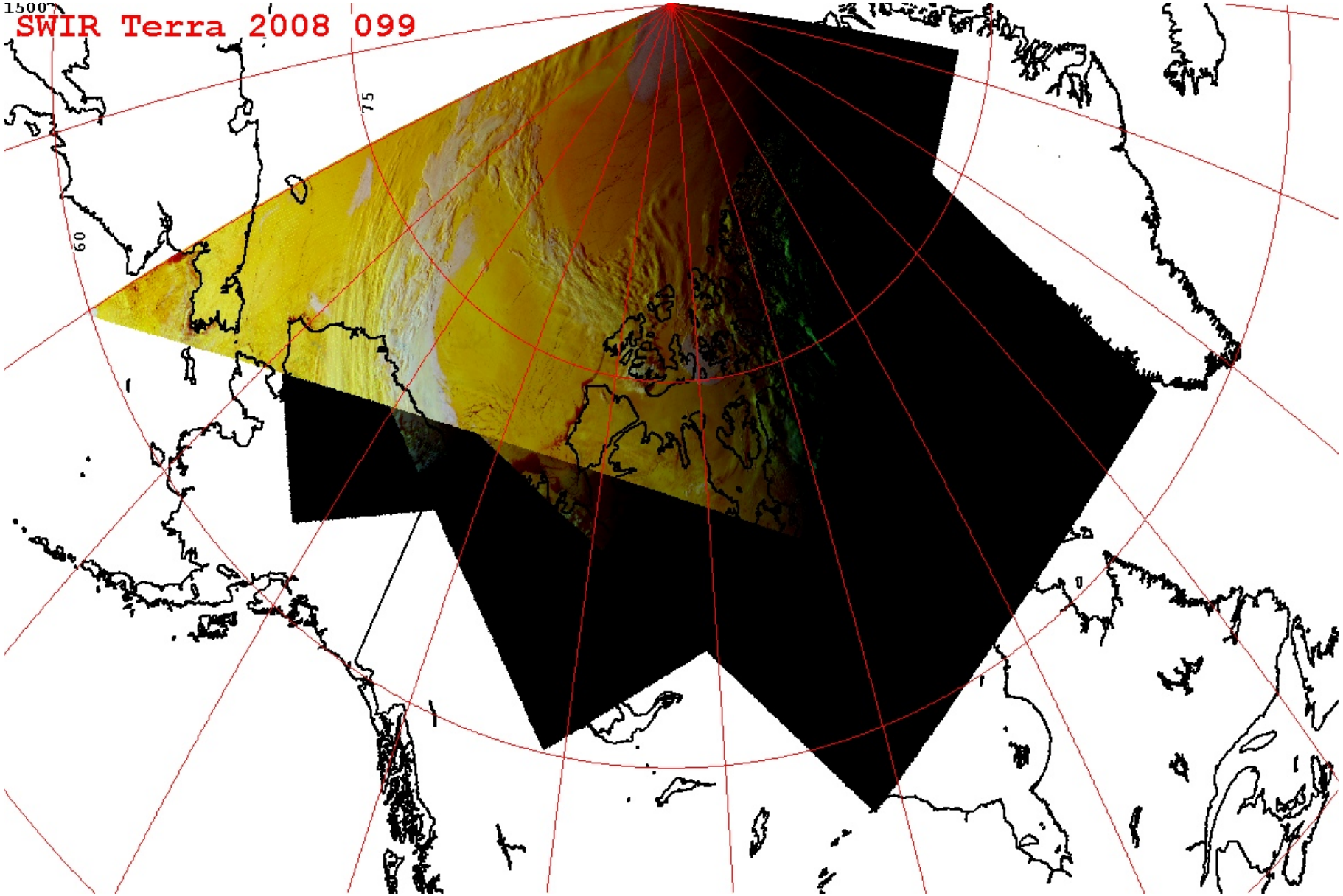


Today, Tuesday April 8



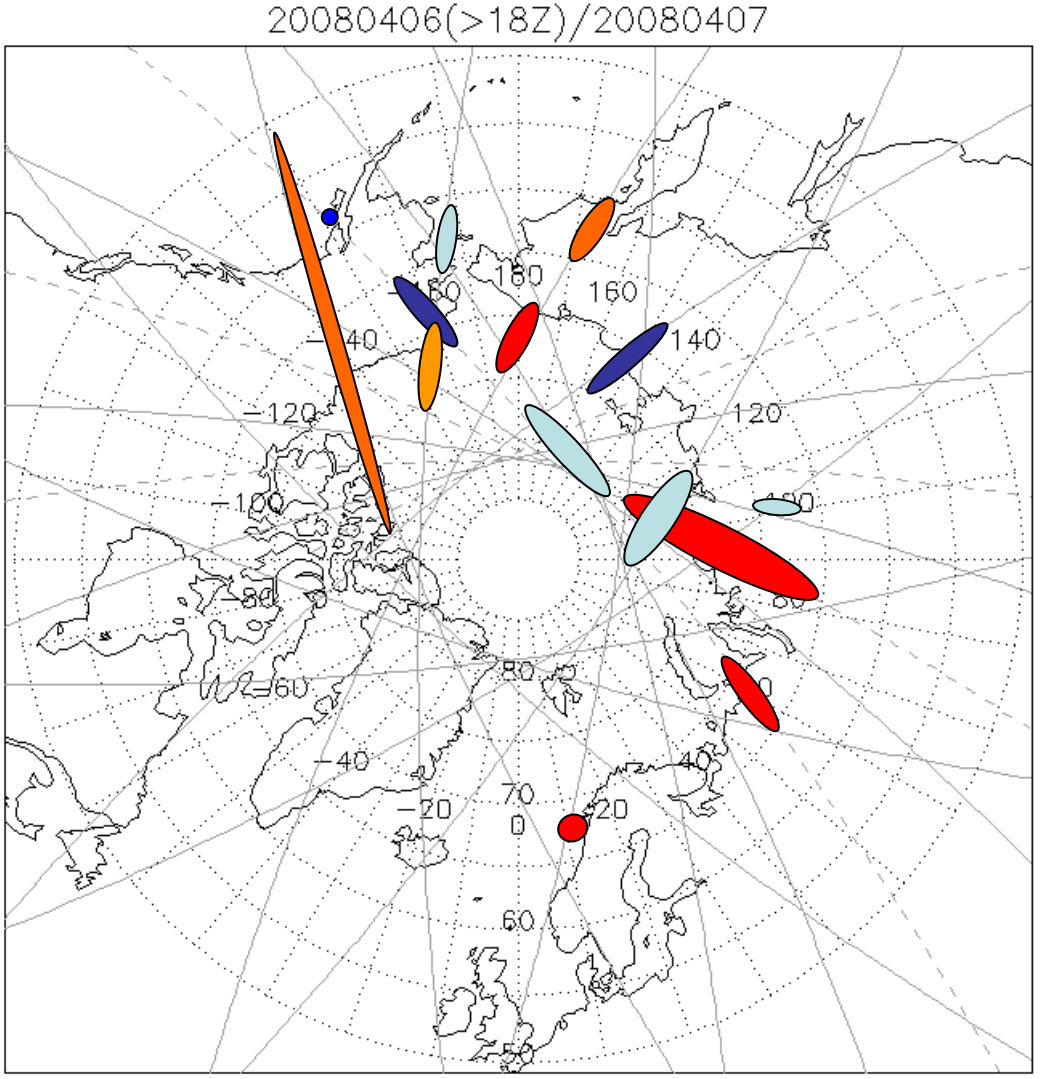
Today's AOD in Arctic is very clean

Today Tuesday April 8



CALIPSO Observations
6/7 April 2008

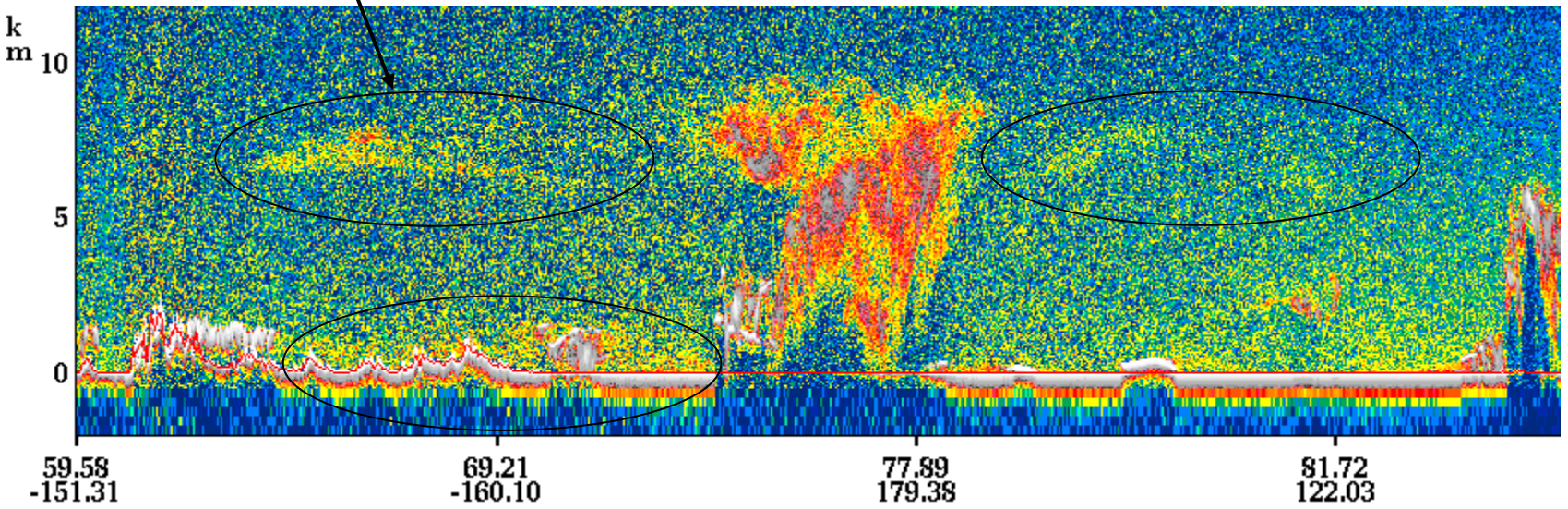
CALIPSO Hot Spots - 6/7 April

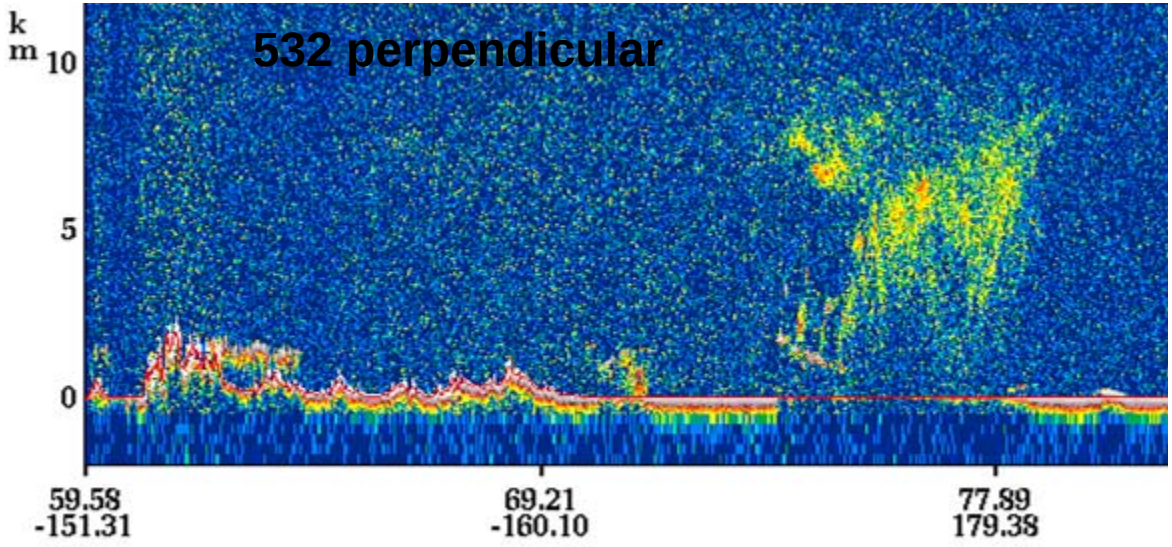


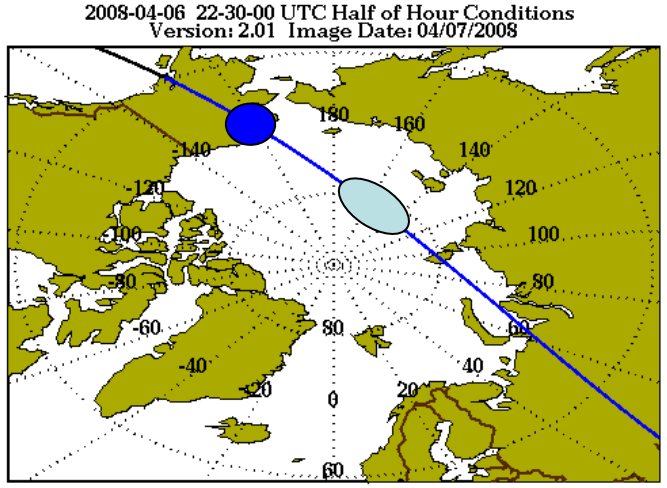
Color key

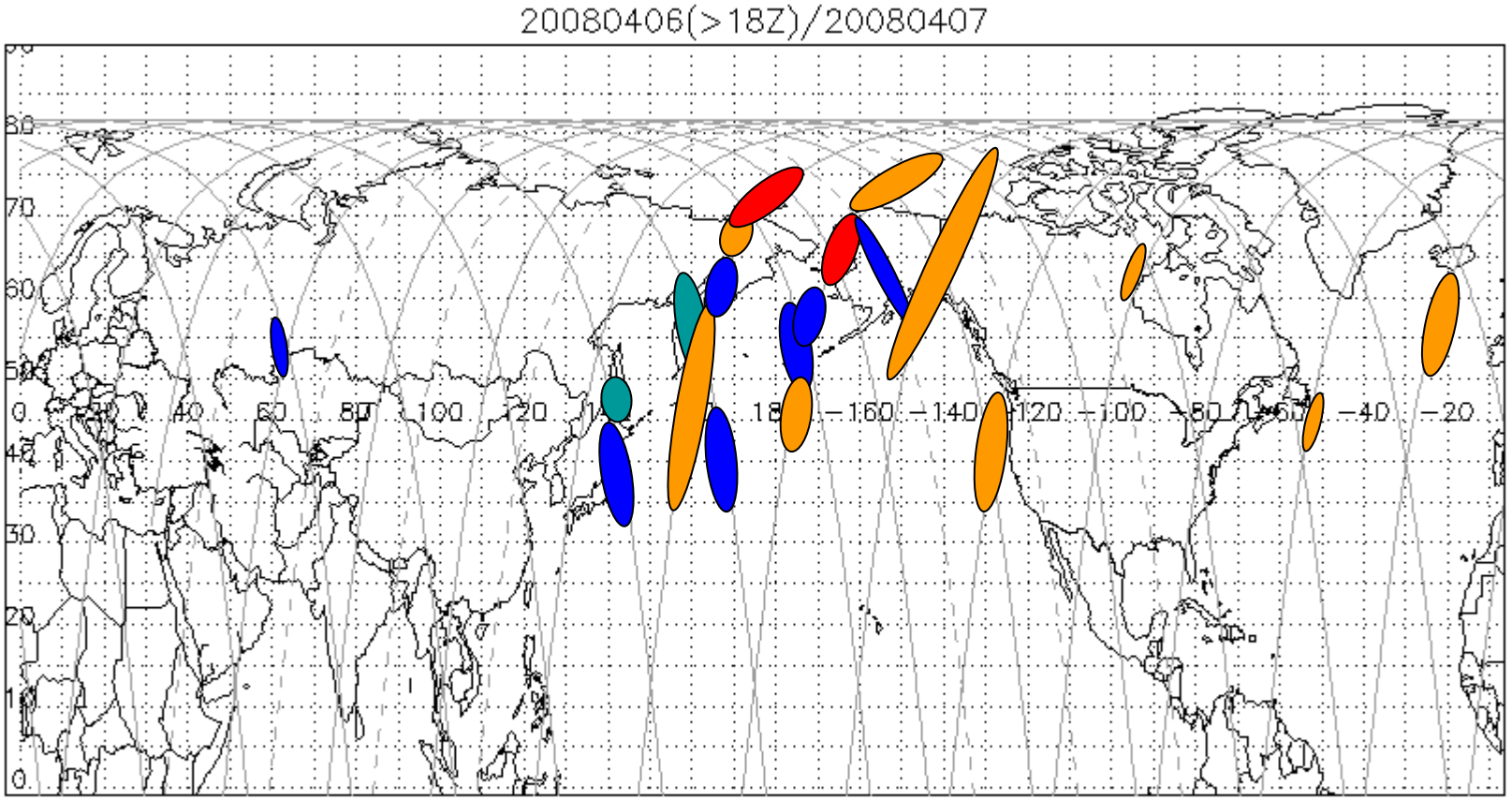
- **distinct layer at surface**
- **distinct layer aloft**
- **weak aerosol**
- **high depol (dust)**
- **cloudy**

6 April, 2230Z





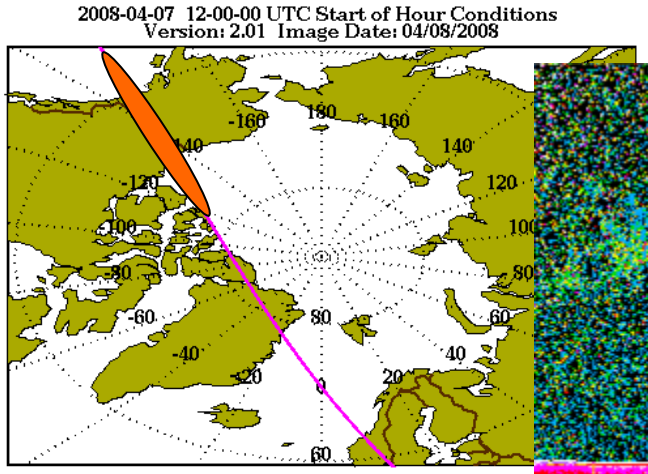


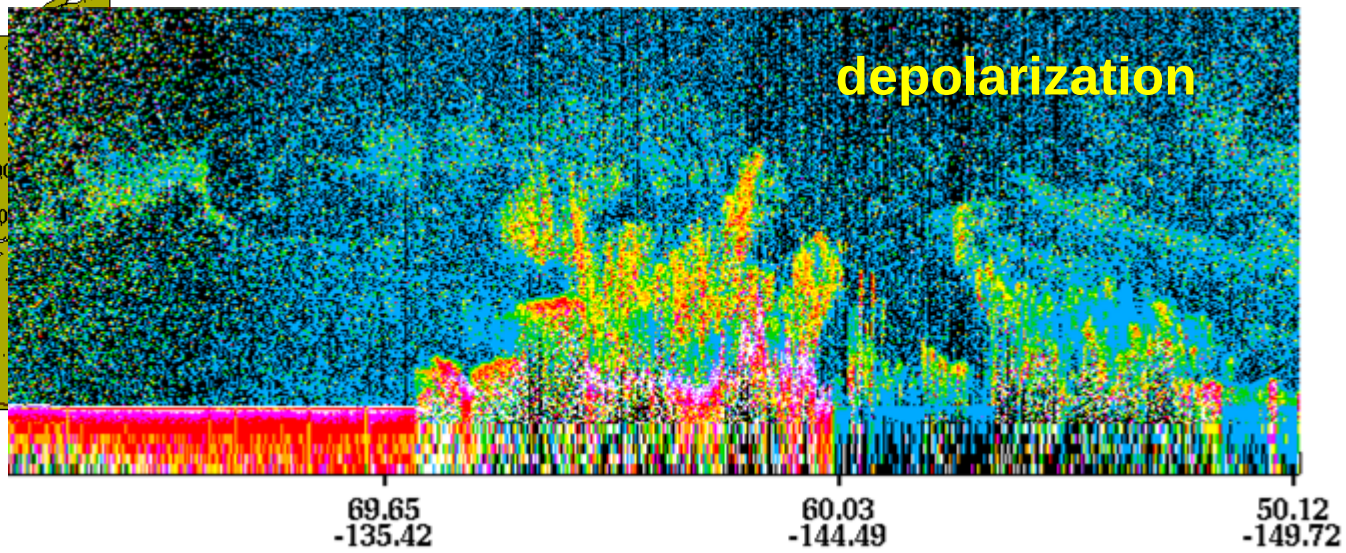


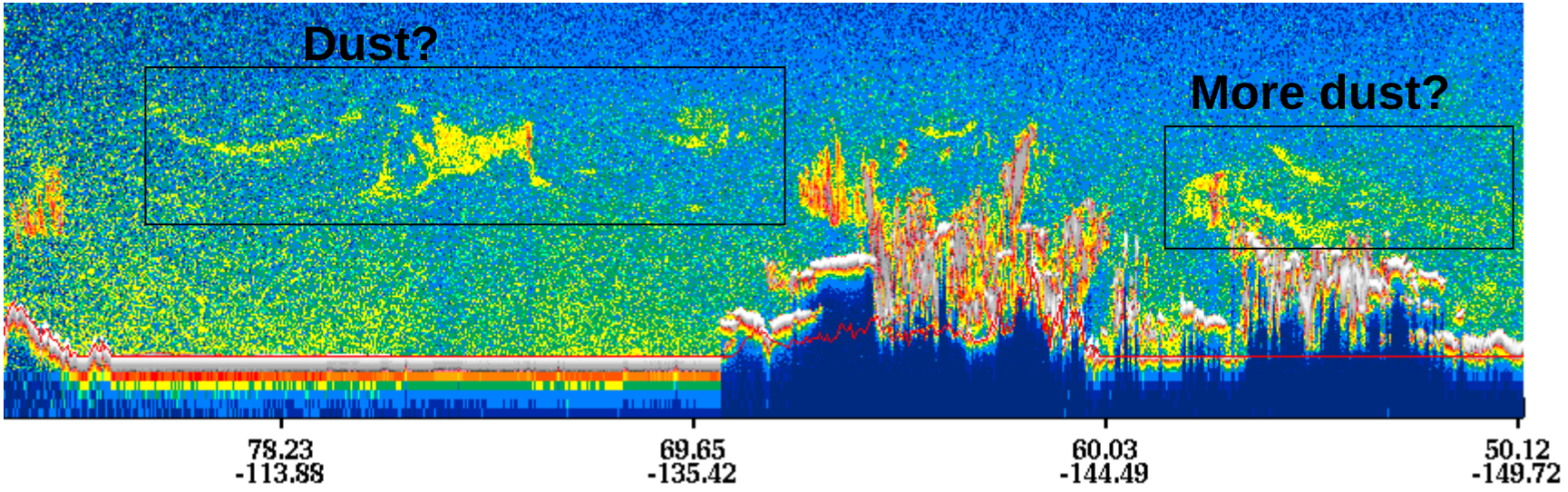
Color key

- distinct layer at surface
- distinct layer aloft
- weak aerosol
- high depol (dust)
- cloudy

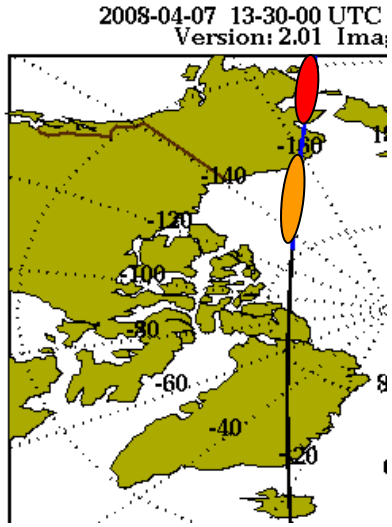
7 April, 1200Z

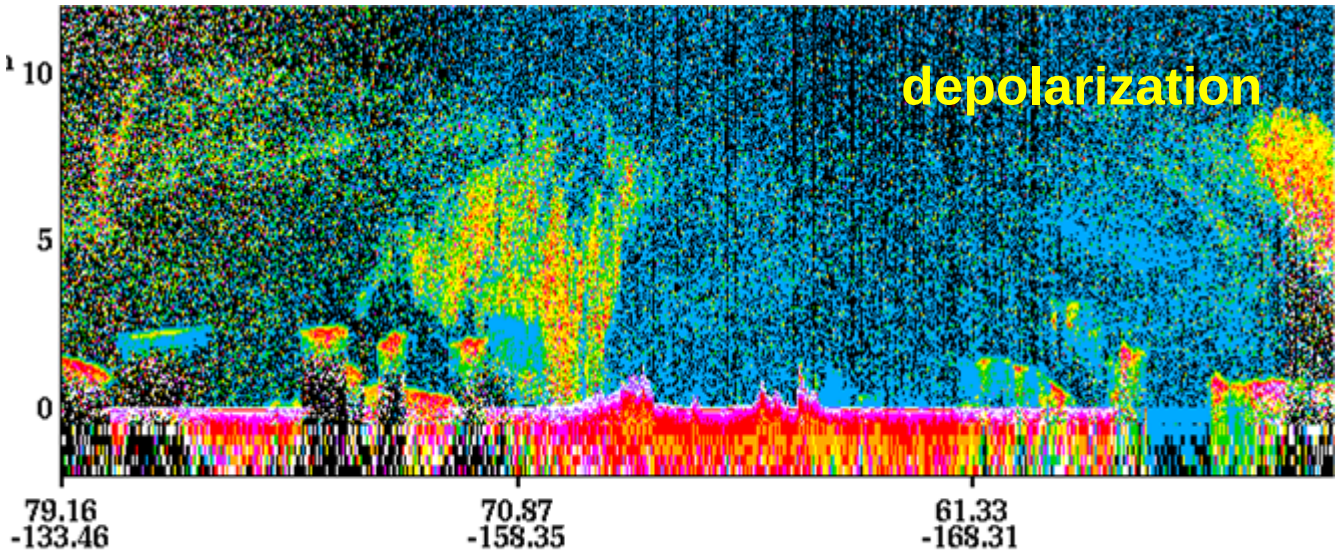


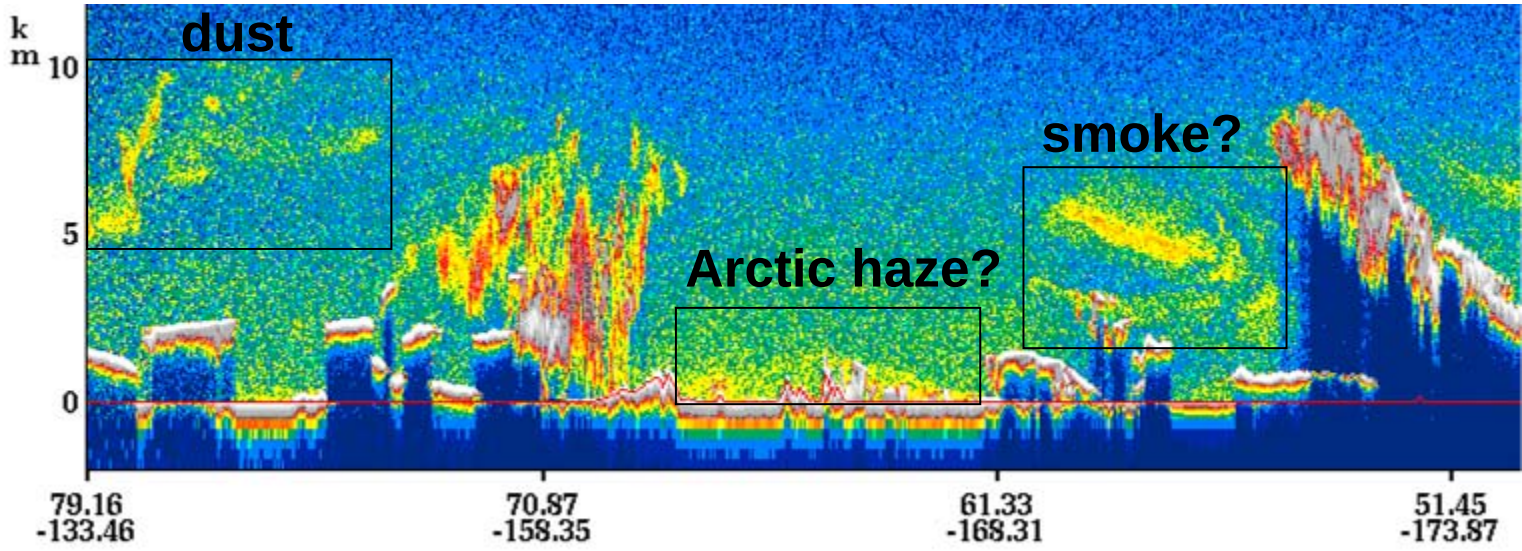




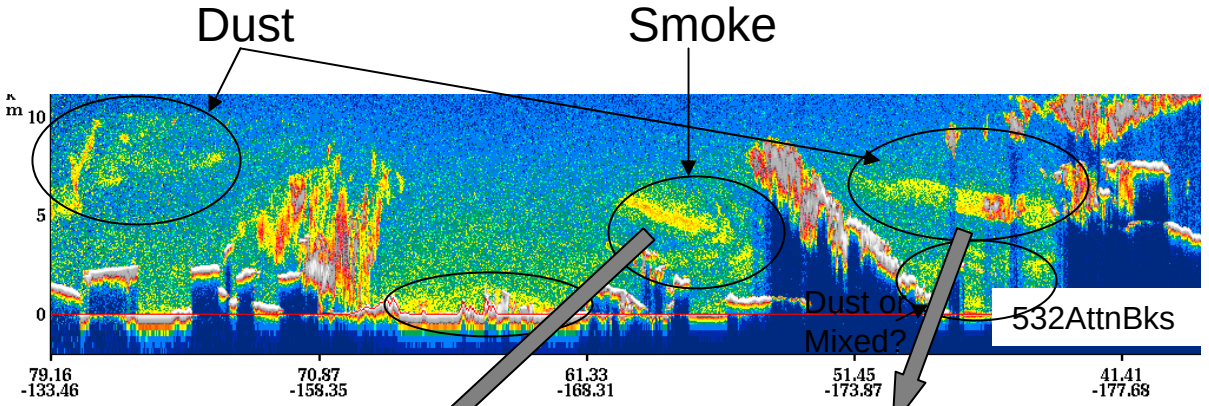
7 April, 1330Z





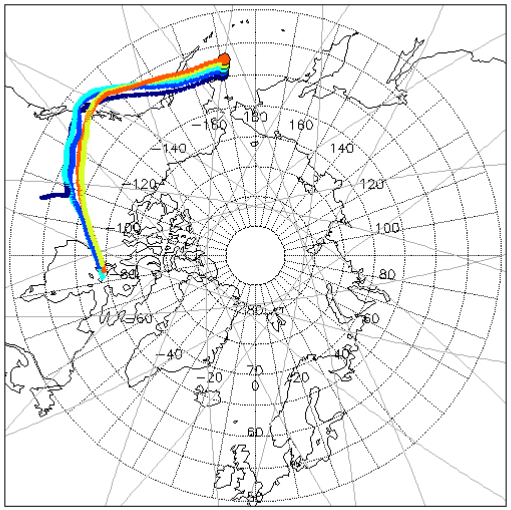


5-day Forward Trajectory Analysis



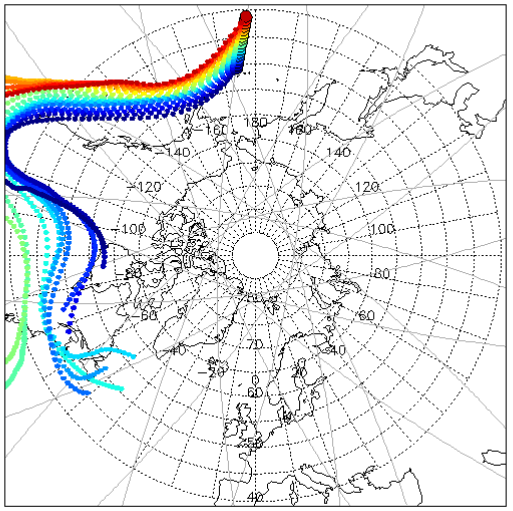
120hr CALIPSO Trajectories Initialized 2008040700 Valid 2008041200

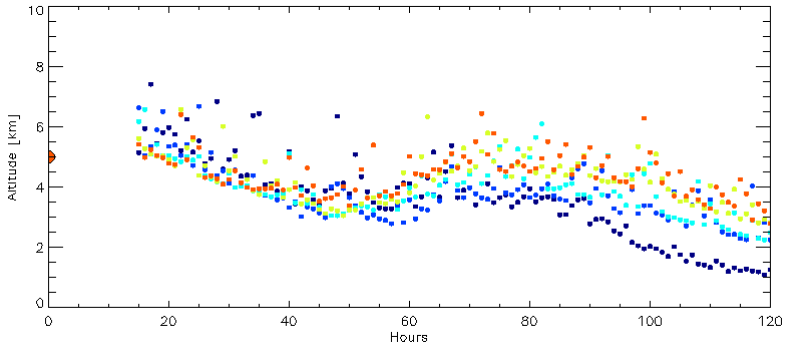
Initial Altitude: 5000m

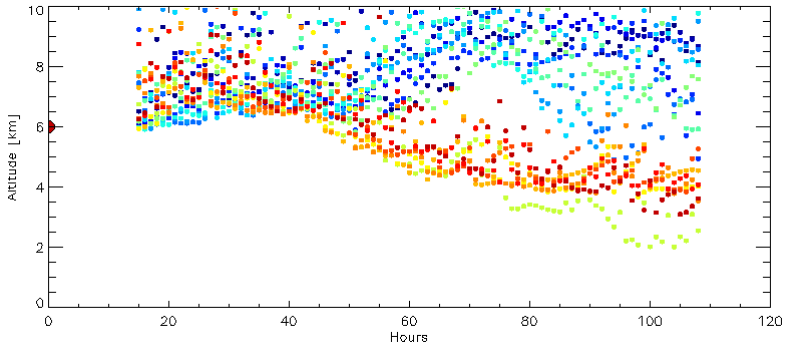


108hr CALIPSO Trajectories Initialized 2008040700 Valid 2008041112

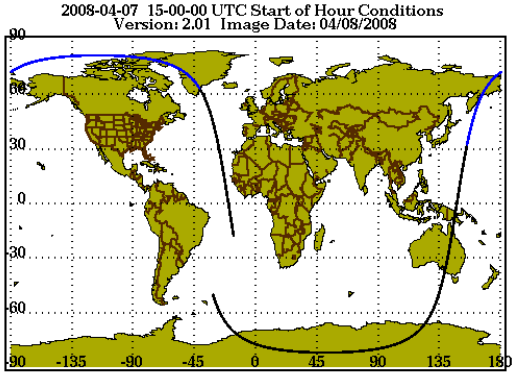
Initial Altitude: 6000m

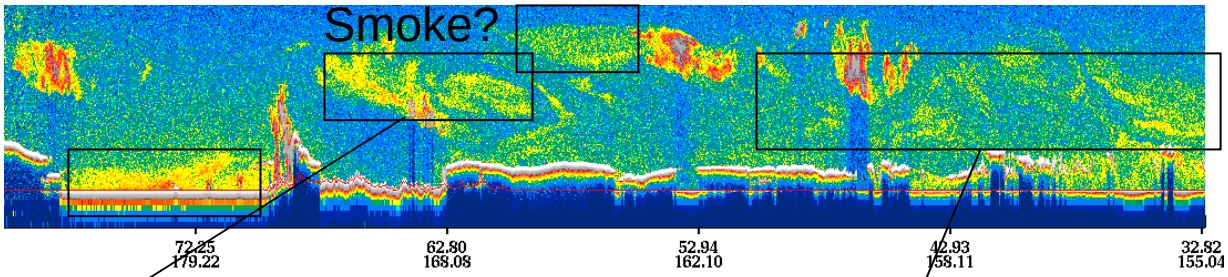


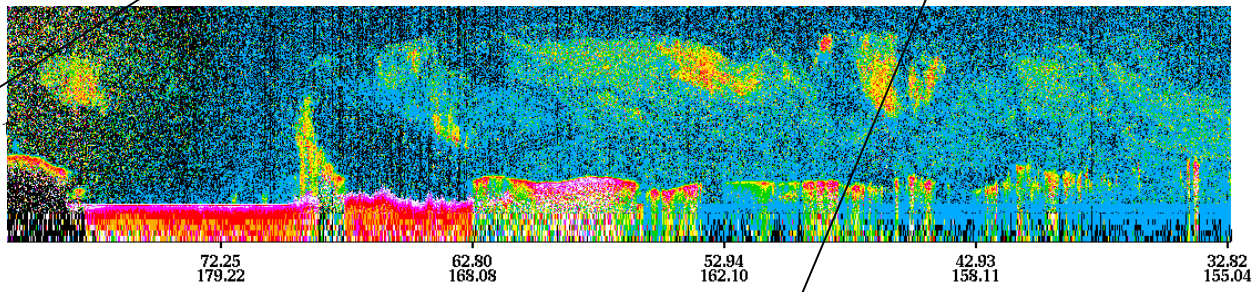




Trajectory analysis provided by Brad Pierce (NOAA/NESDIS)

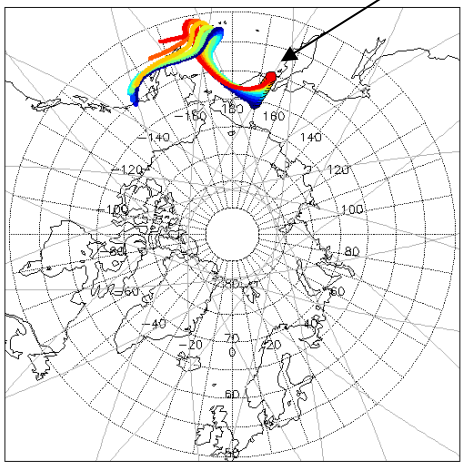






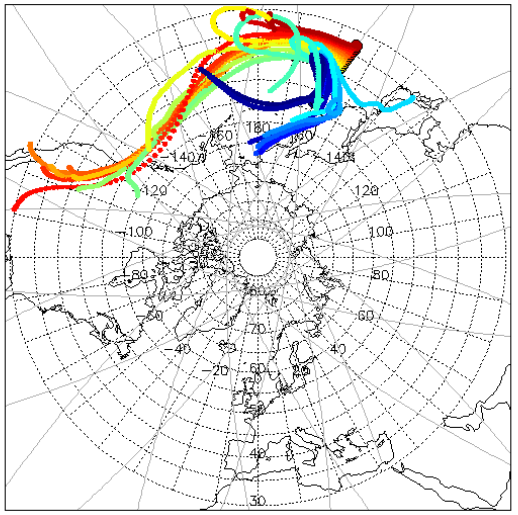
108hr CALIPSO Trajectories Initialized 2008040700 Valid 2008041

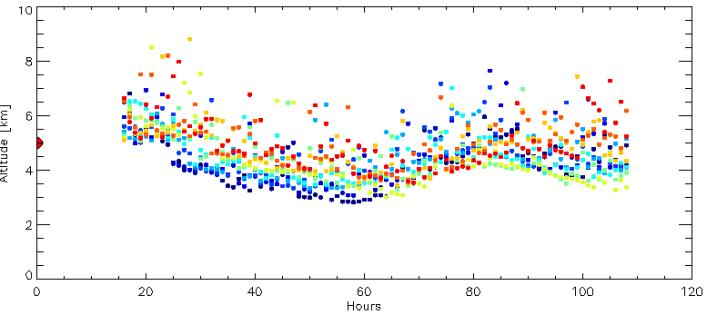
Initial Altitude: 5000m



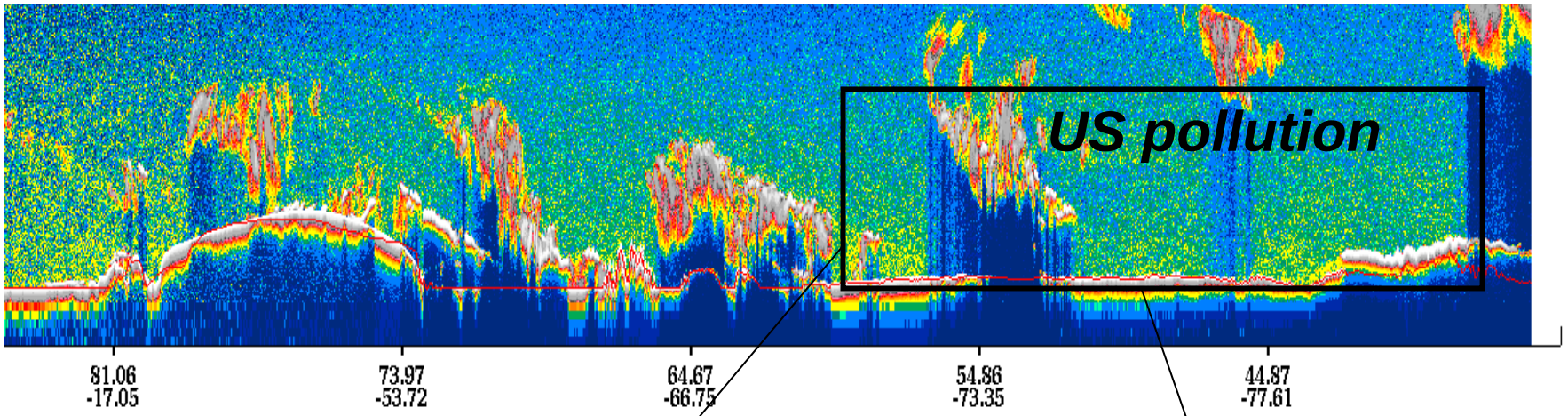
120hr CALIPSO Trajectories Initialized 2008040700 Valid 2008041200

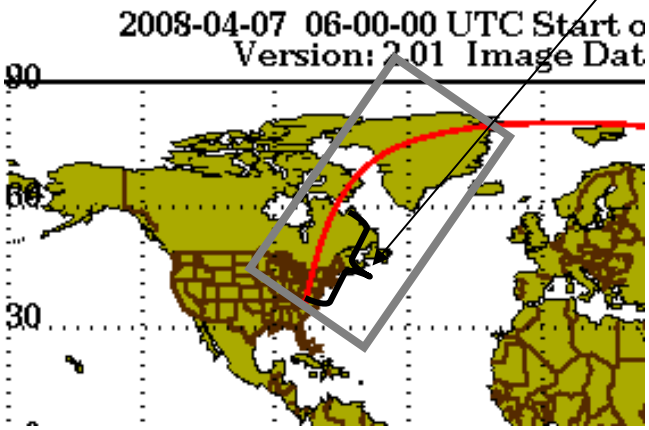
Initial Altitude: 5000m

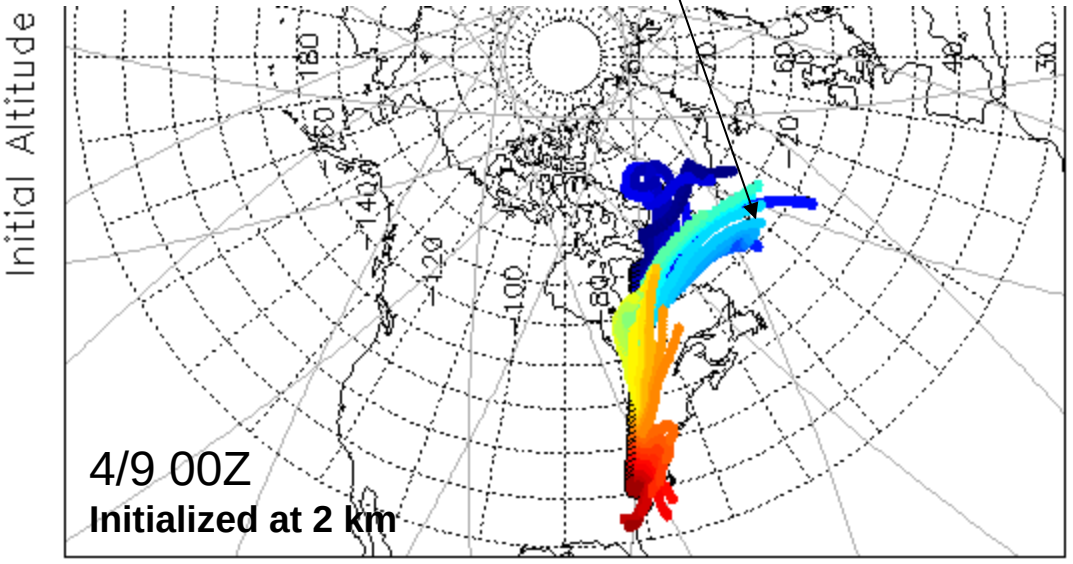




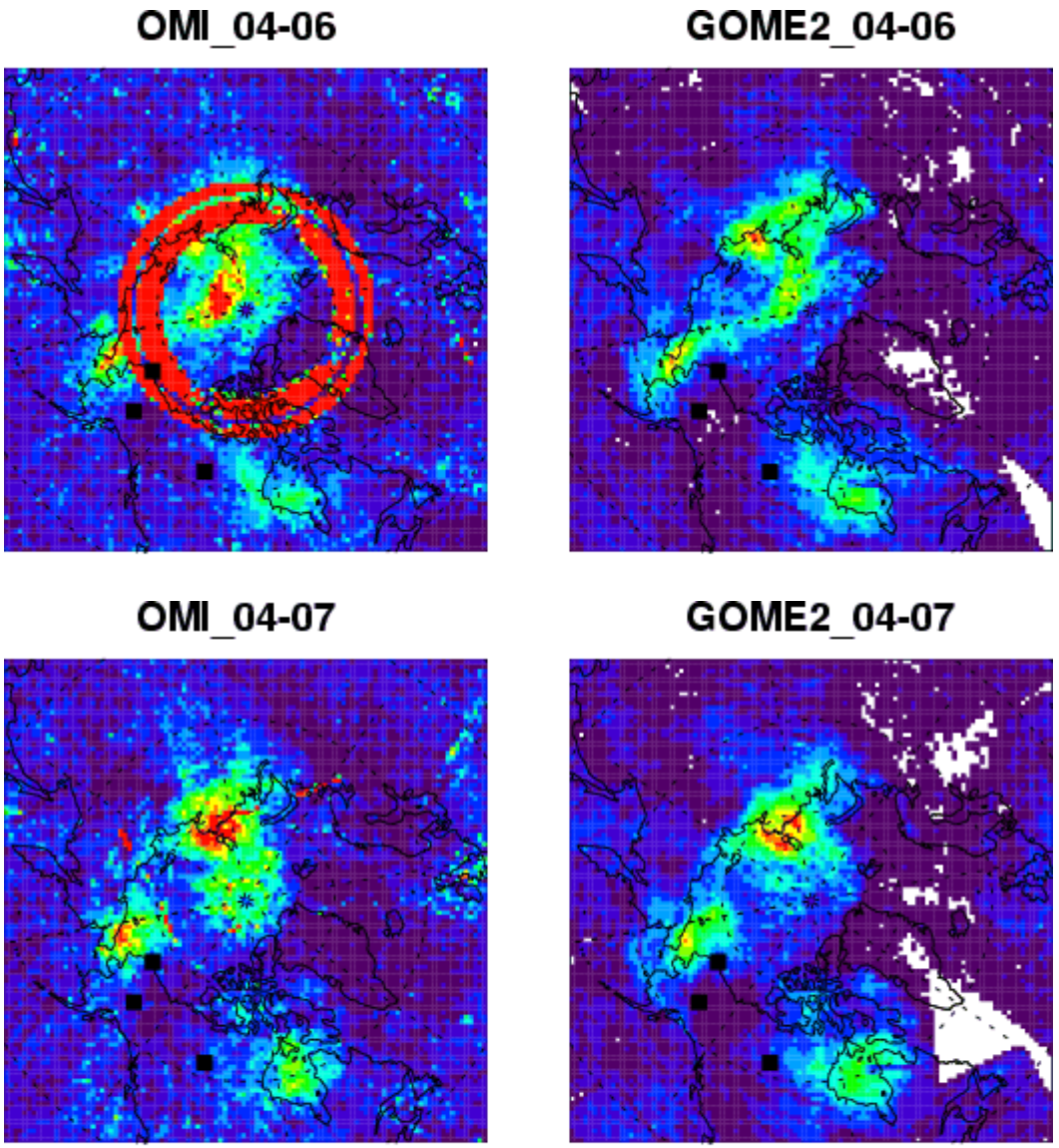
Trajectory analysis provided by Brad Pierce (NOAA/NESDIS)





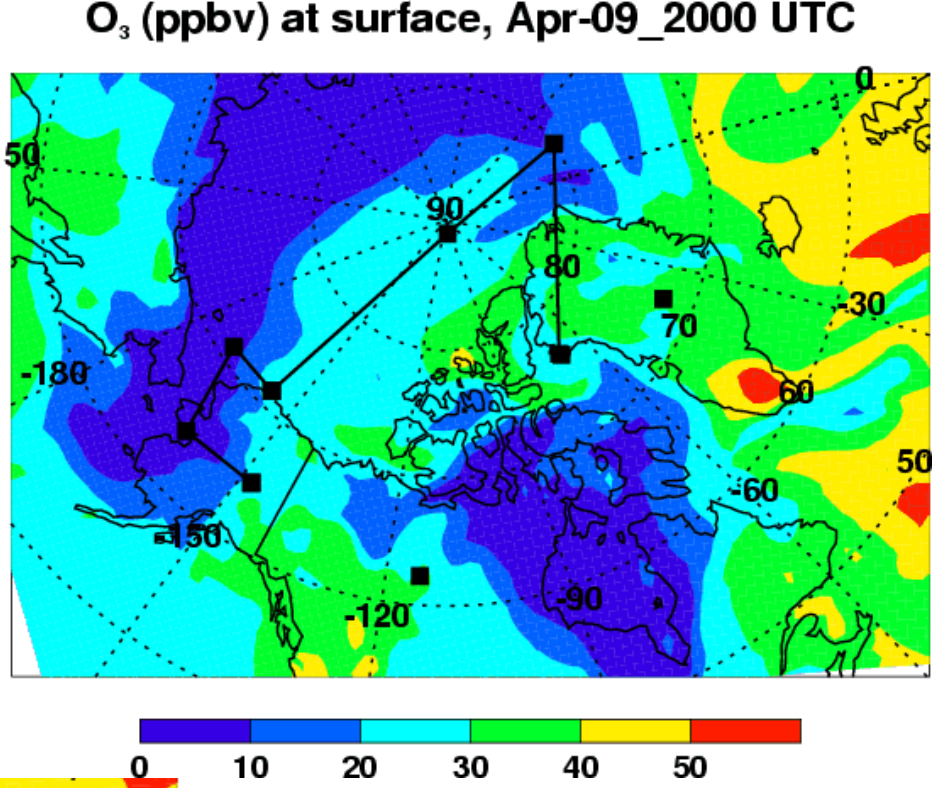


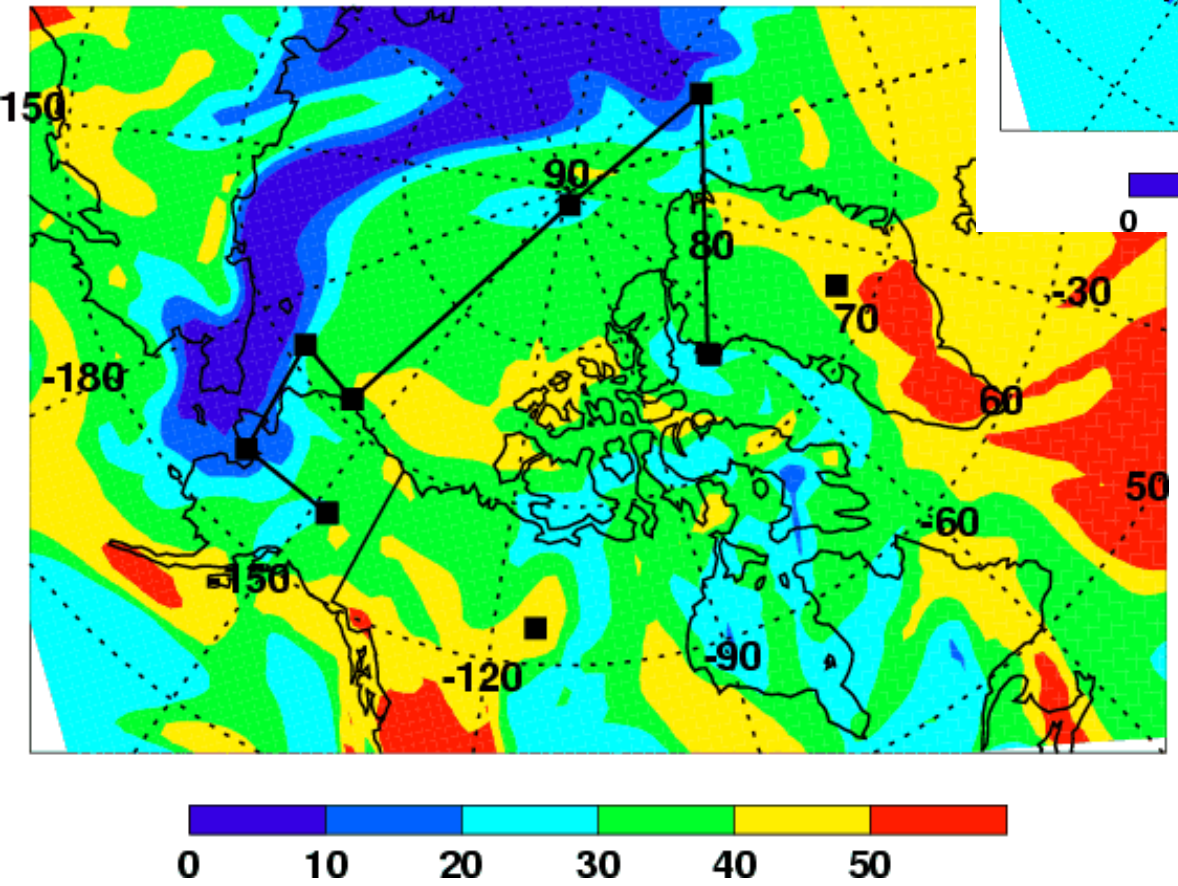
Trajectory analysis provided by
Brad Pierce (NOAA/NESDIS)

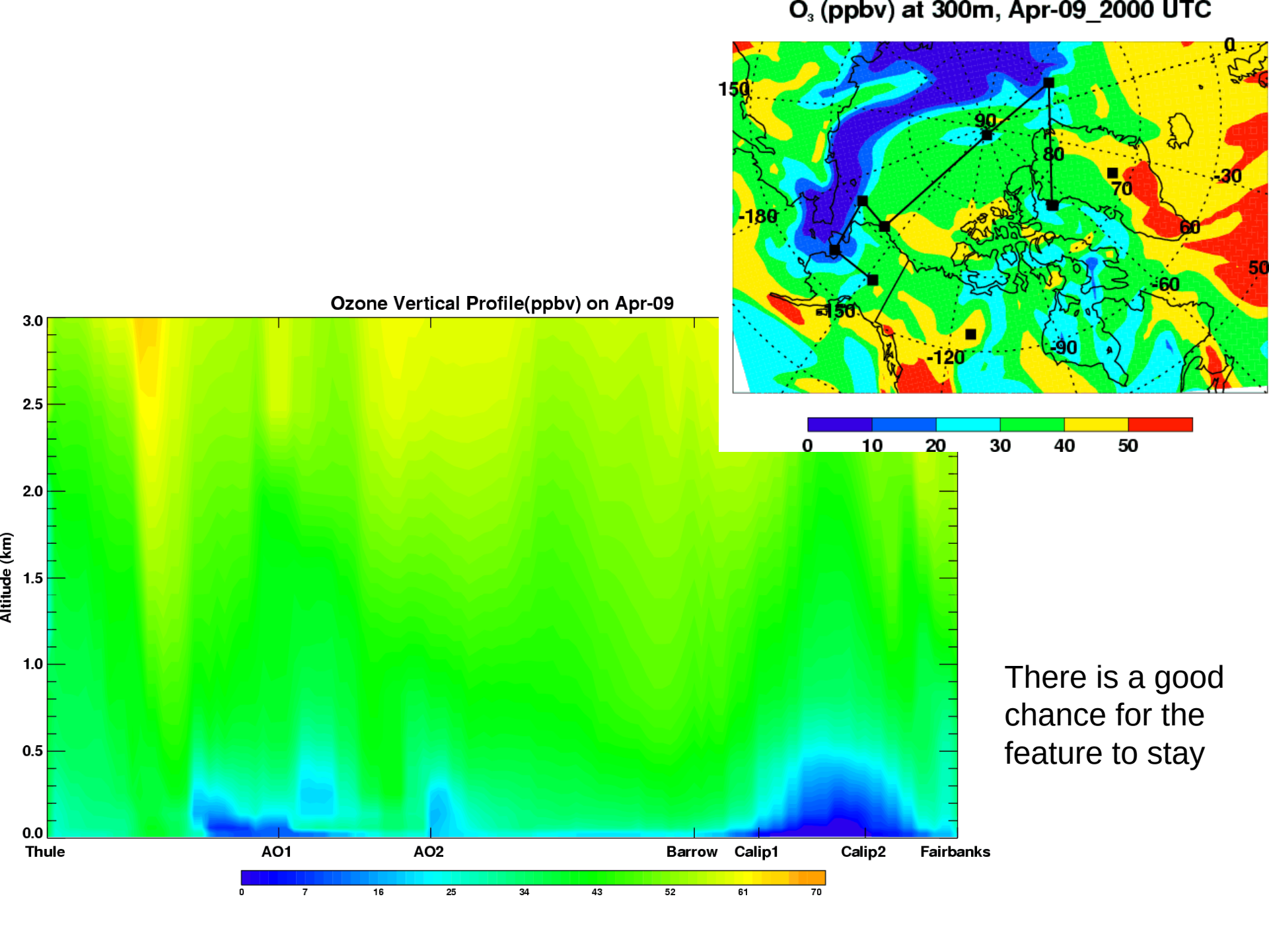


Bering Sea hotspot remains

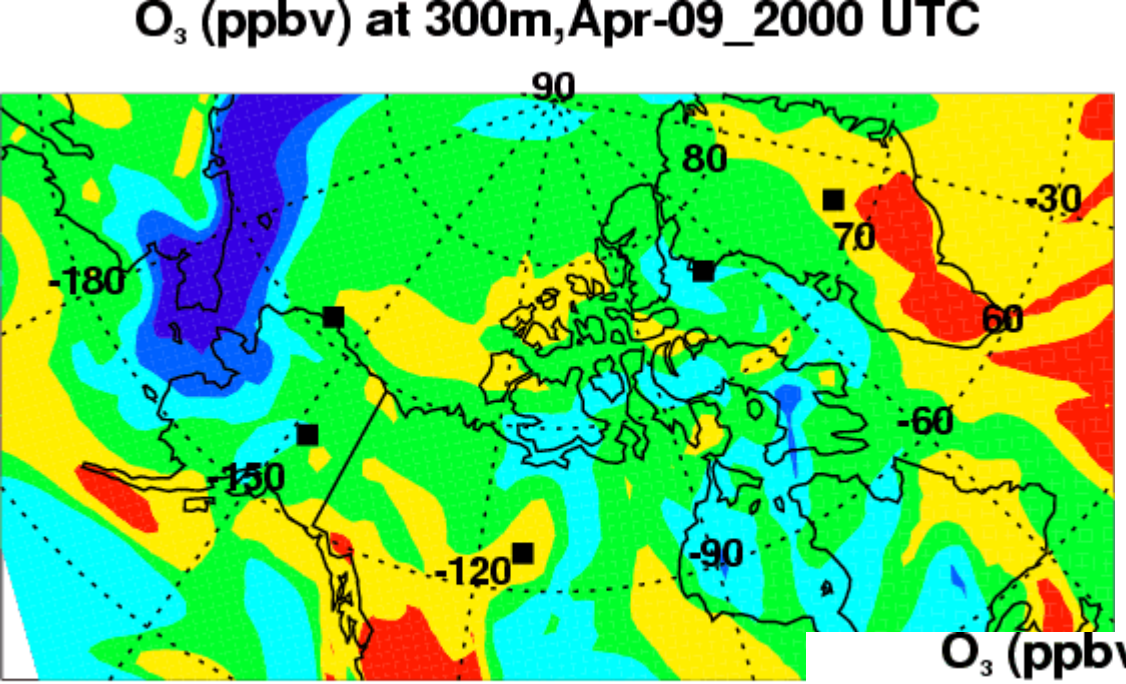
So far so good for tomorrow, although the track is just around the edge at 300 m



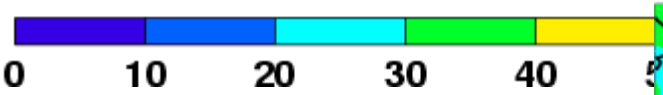


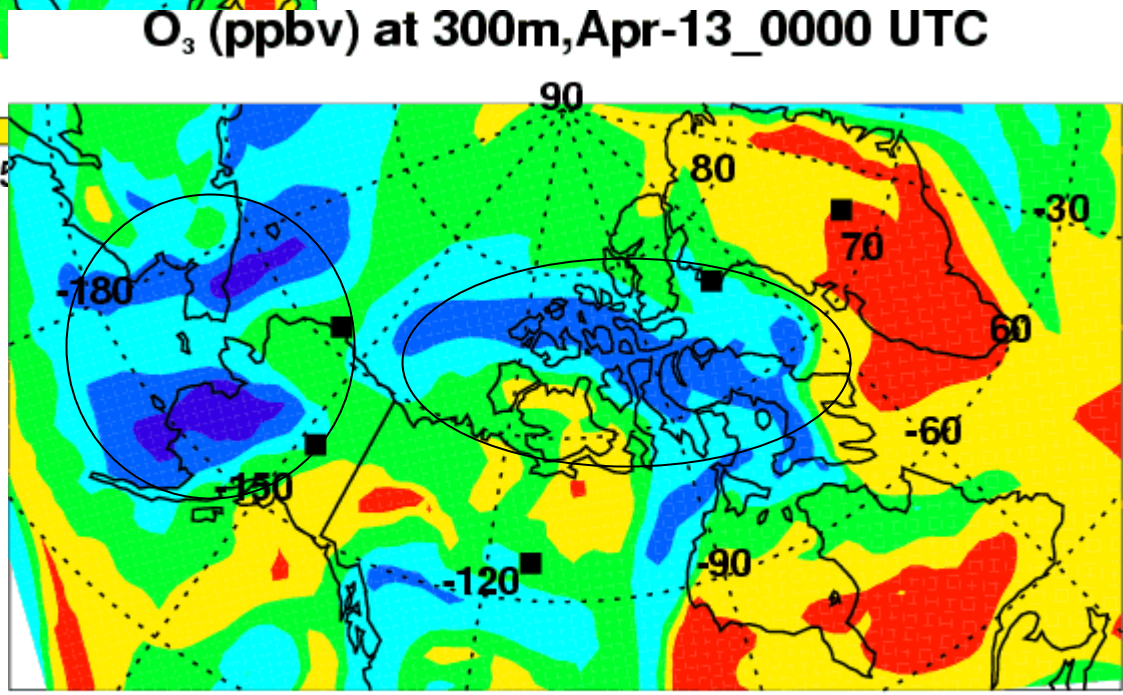


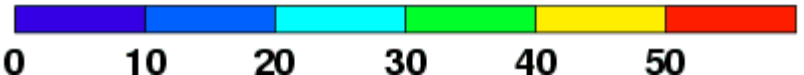
There is a good chance for the feature to stay


O3 (ppbv) at 300m,Apr-09_2000 UTC
90
80
70
-30
-180
60
-60
-150
-120
-90

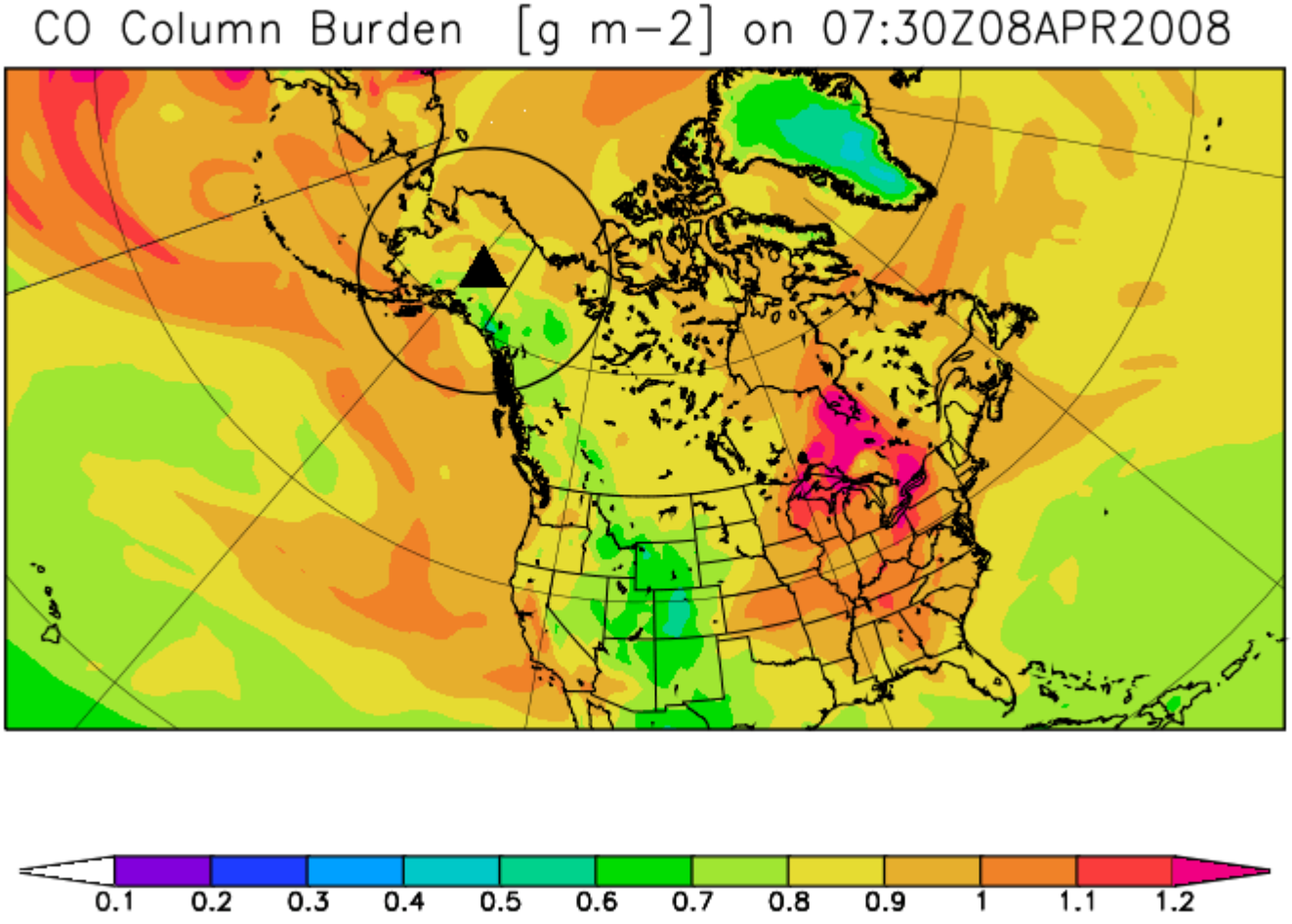
Outlook


0
10
20
30
40

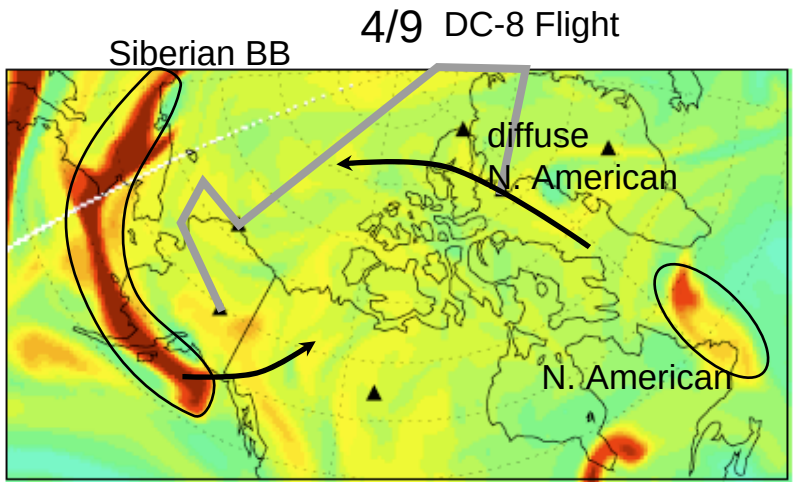

O3 (ppbv) at 300m,Apr-13_0000 UTC
90
80
70
-30
-180
60
-60
-150
-120
-90

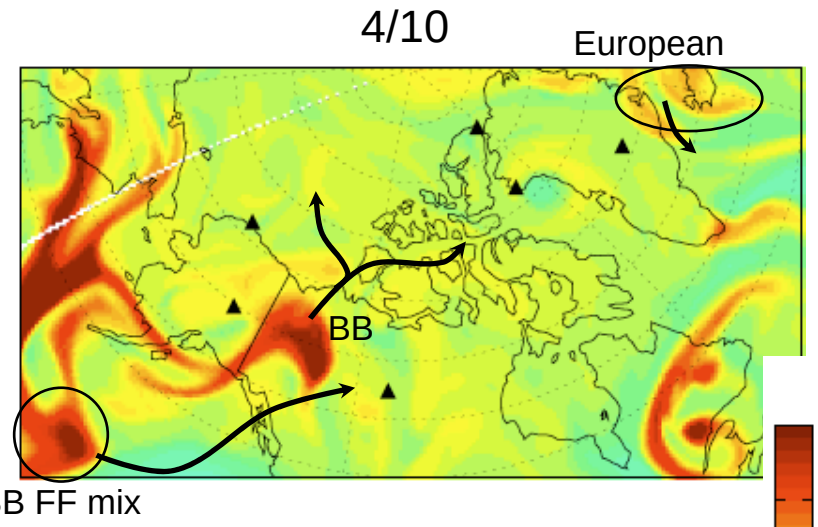

0
10
20
30
40
50

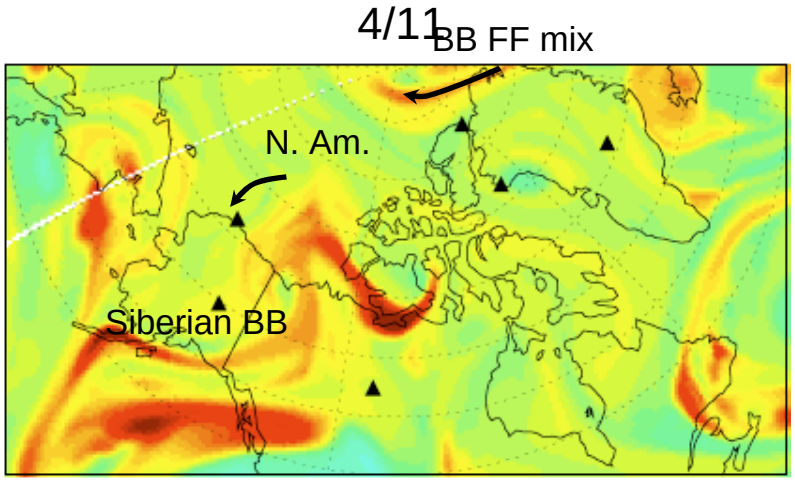
GEOS5 Fx 20080408_06Z:
CO column 4/8-4/12

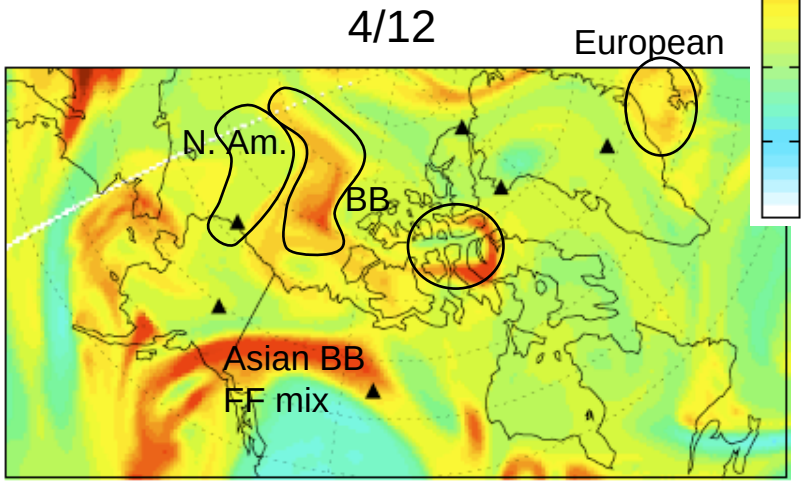


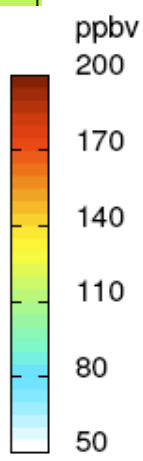
GEOS Total CO 500 hPa







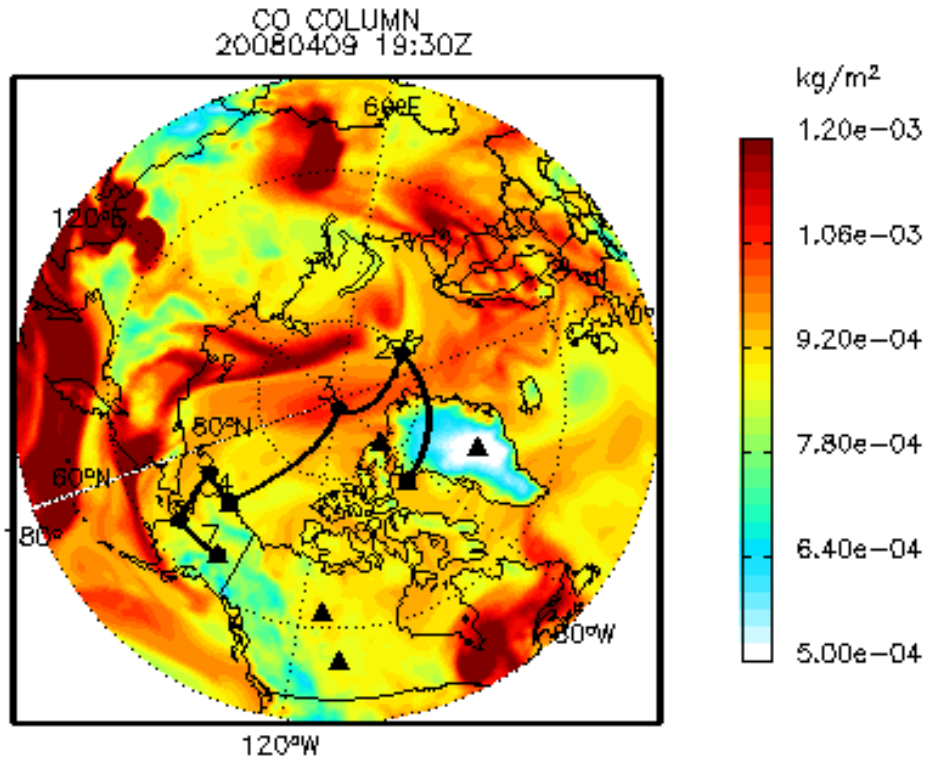




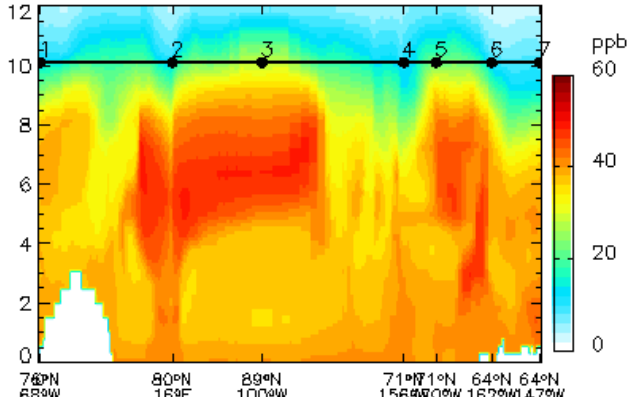
4/12 good for transects through many pollution sources

Initialized 04/08/2008 – 06z

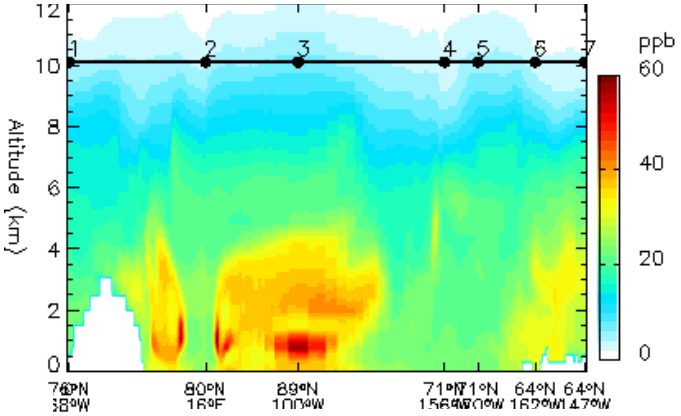
GEOS5 Fx 20080408_06Z: 04/09 Thule → Fairbanks



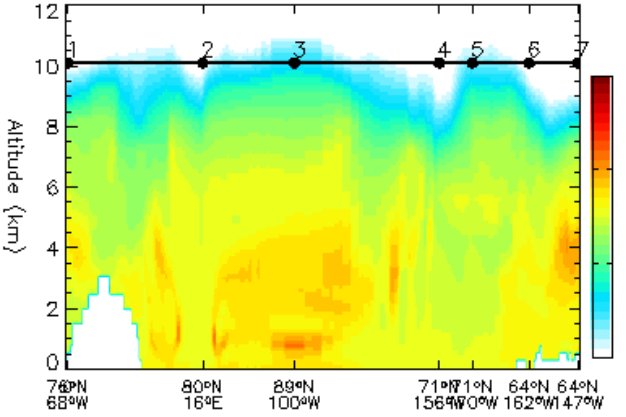
Asian CO



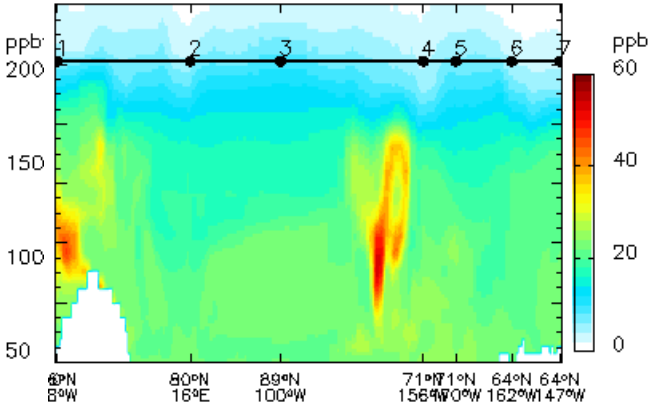
Europe+Russia CO



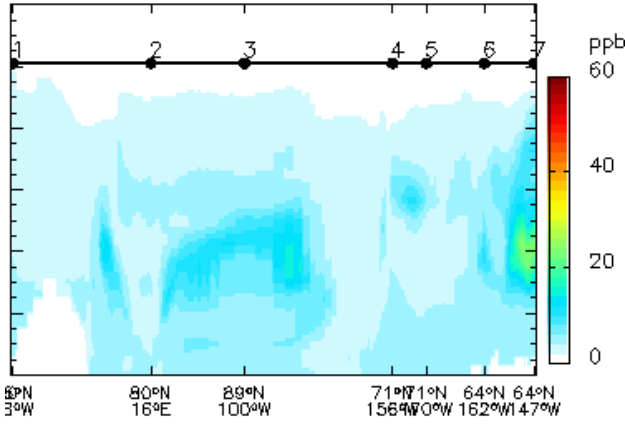
Total CO



N. American CO

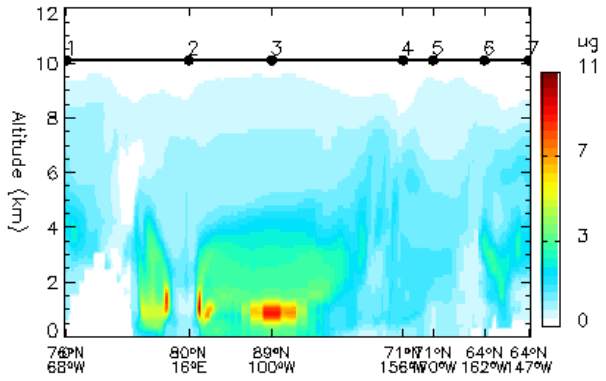


Boreal Biomass CO

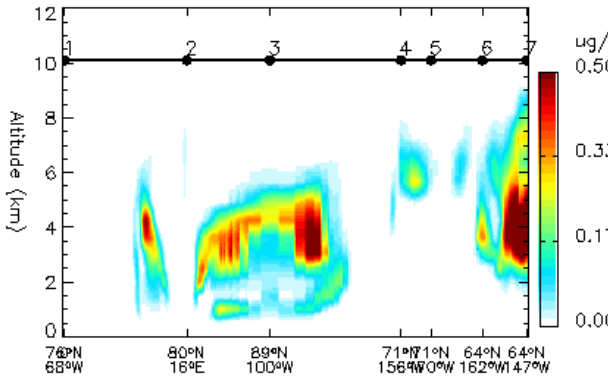


GEOS5 Fx 20080408_06Z:
04/09 Thule → Fairbanks

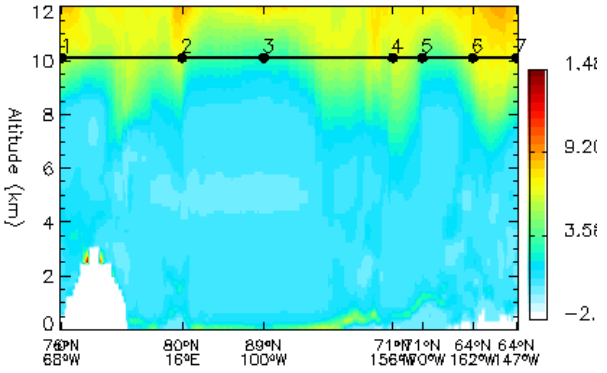
Sulphate



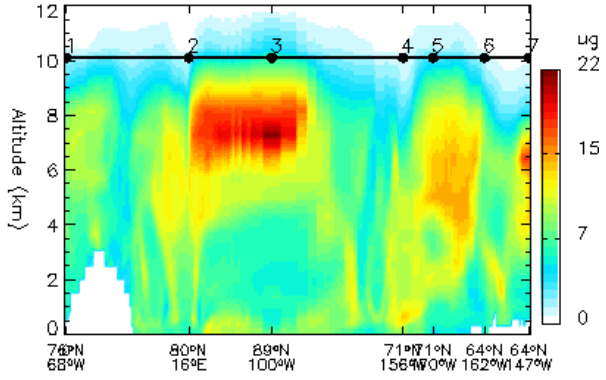
Boreal Biomass Organic Carbon



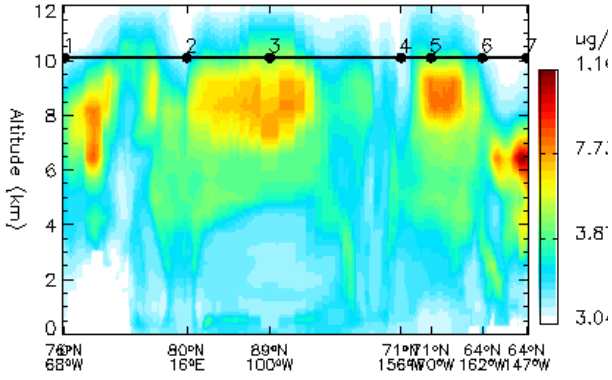
PV



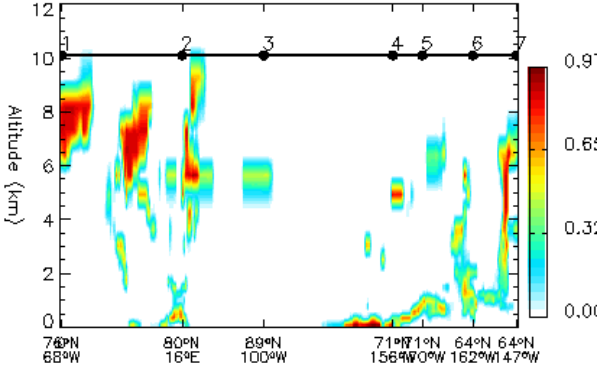
Dust



Nonboreal Biomass Organic Carbon

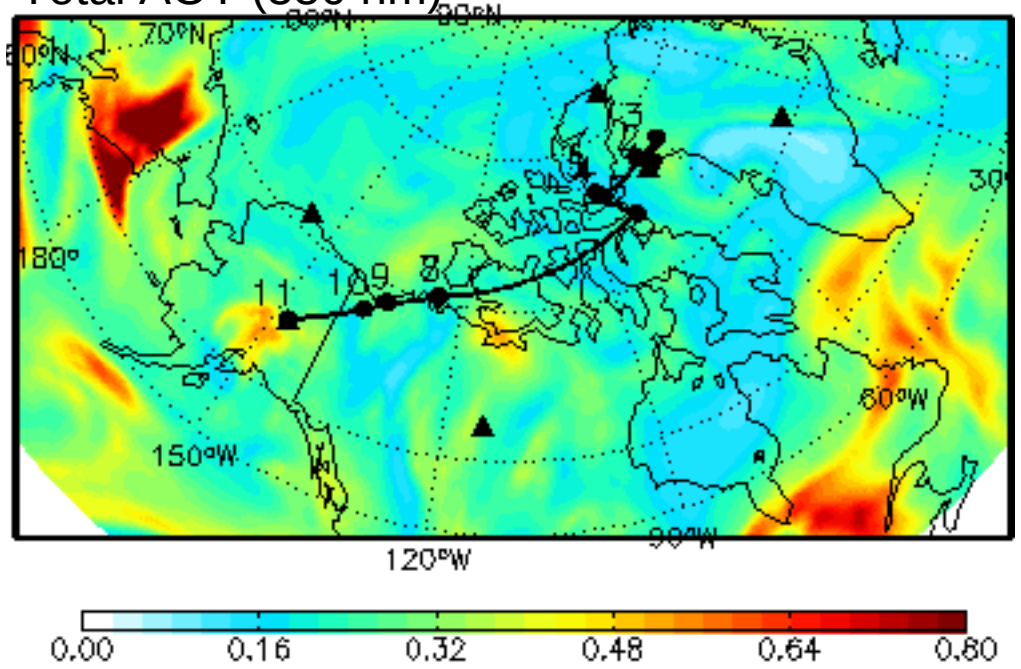


Cloud

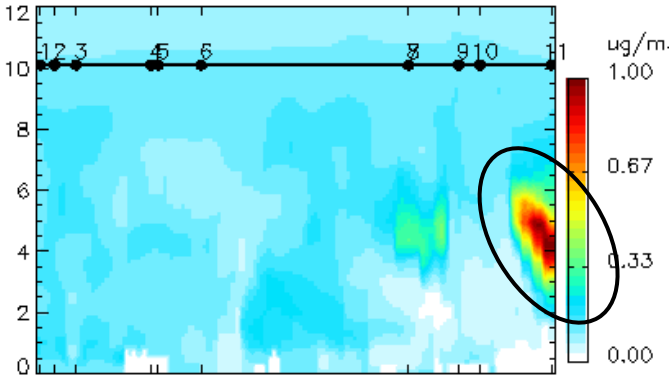


P3 Return – Interesting mix at Fairbanks

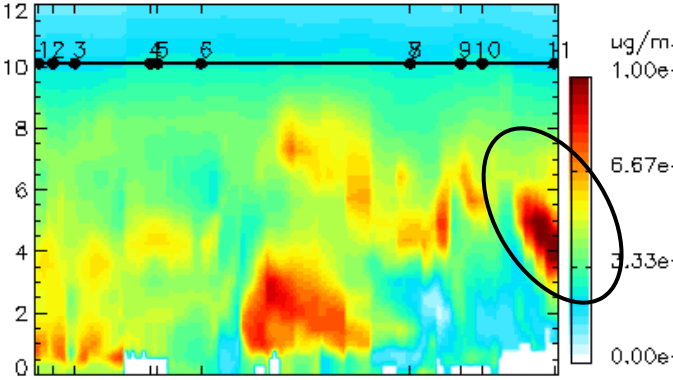
Total AOT (550 nm)



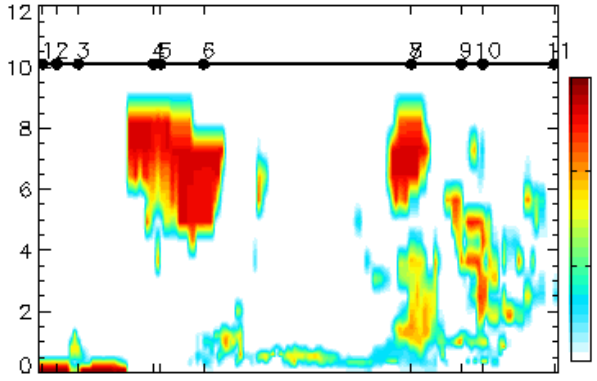
OC



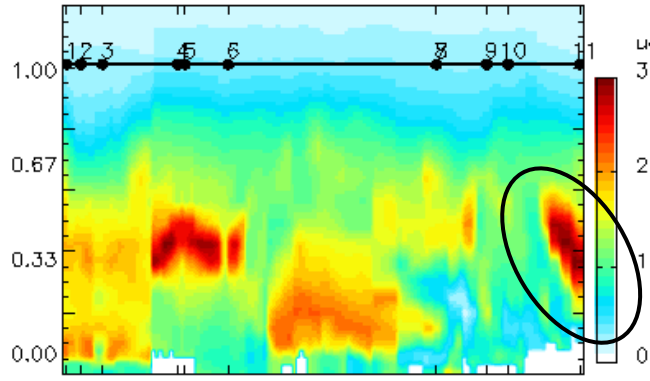
BC



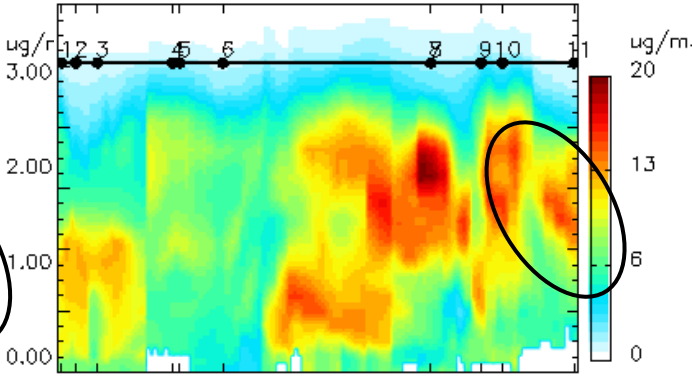
Cloud Fraction



Sulfate



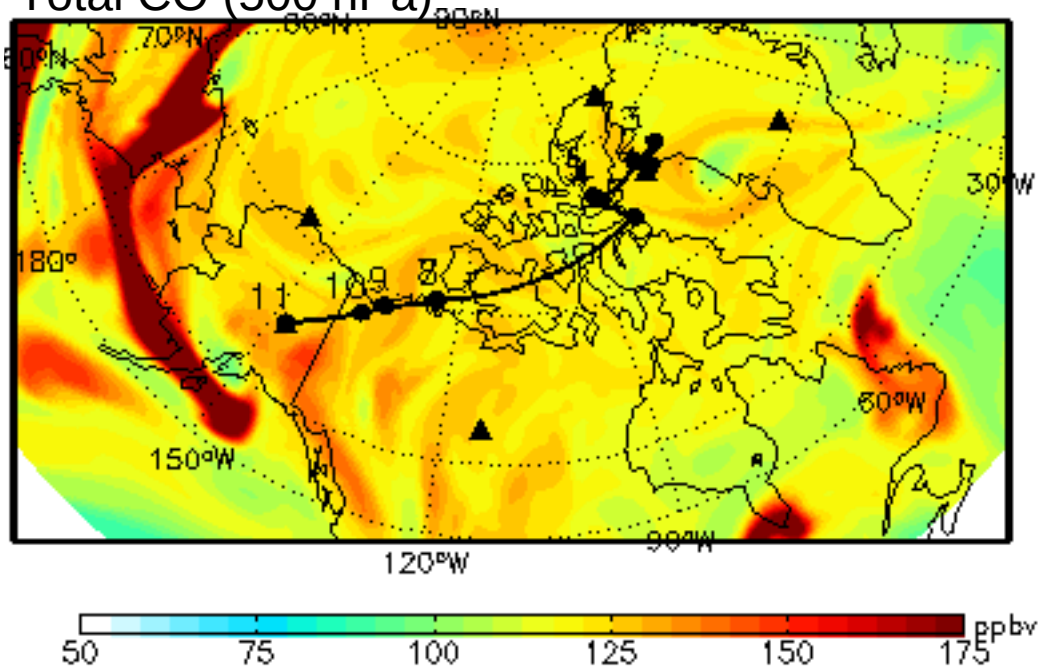
Dust



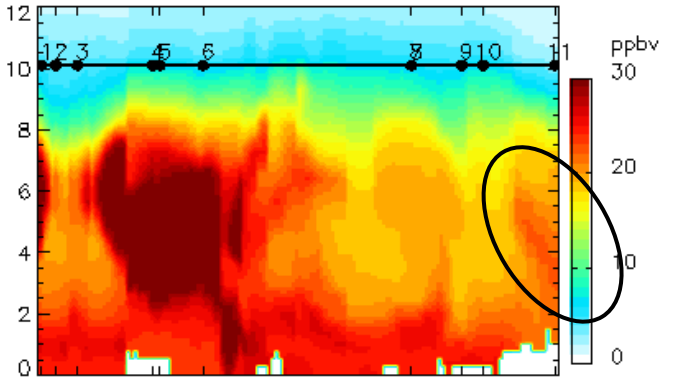
Initialized 04/08 06z: 16:30z

P3 Return – Interesting mix at Fairbanks

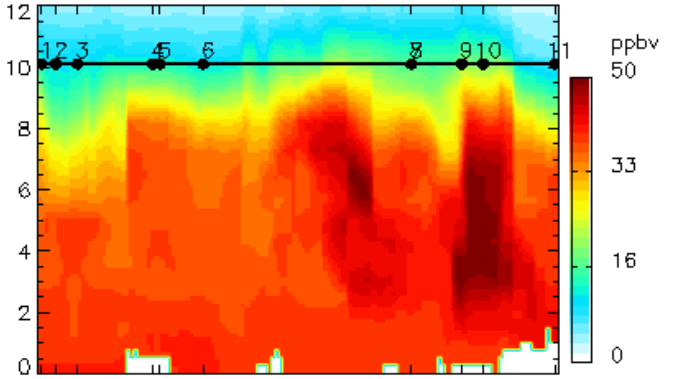
Total CO (500 hPa)



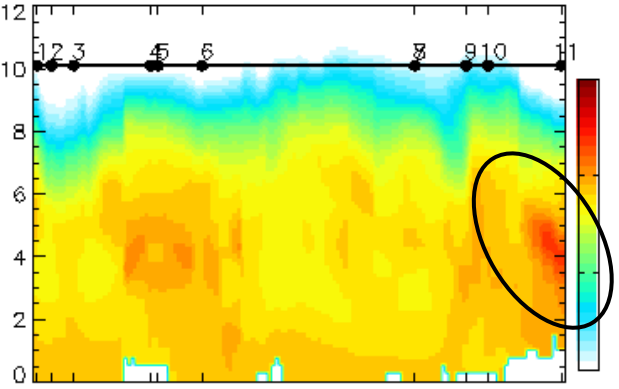
North American CO



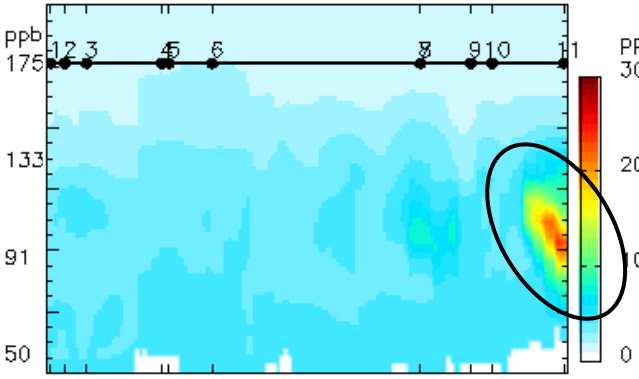
Asian CO



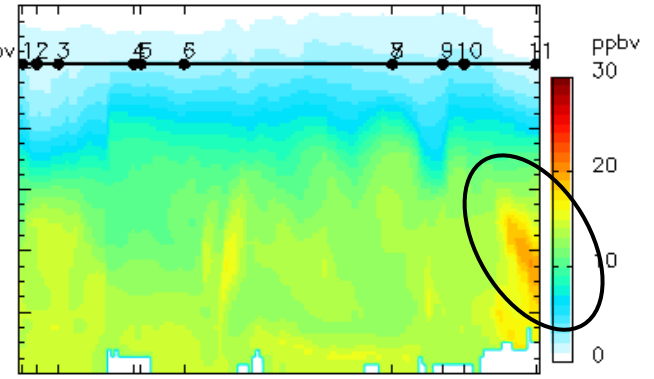
Total CO



Boreal burning CO

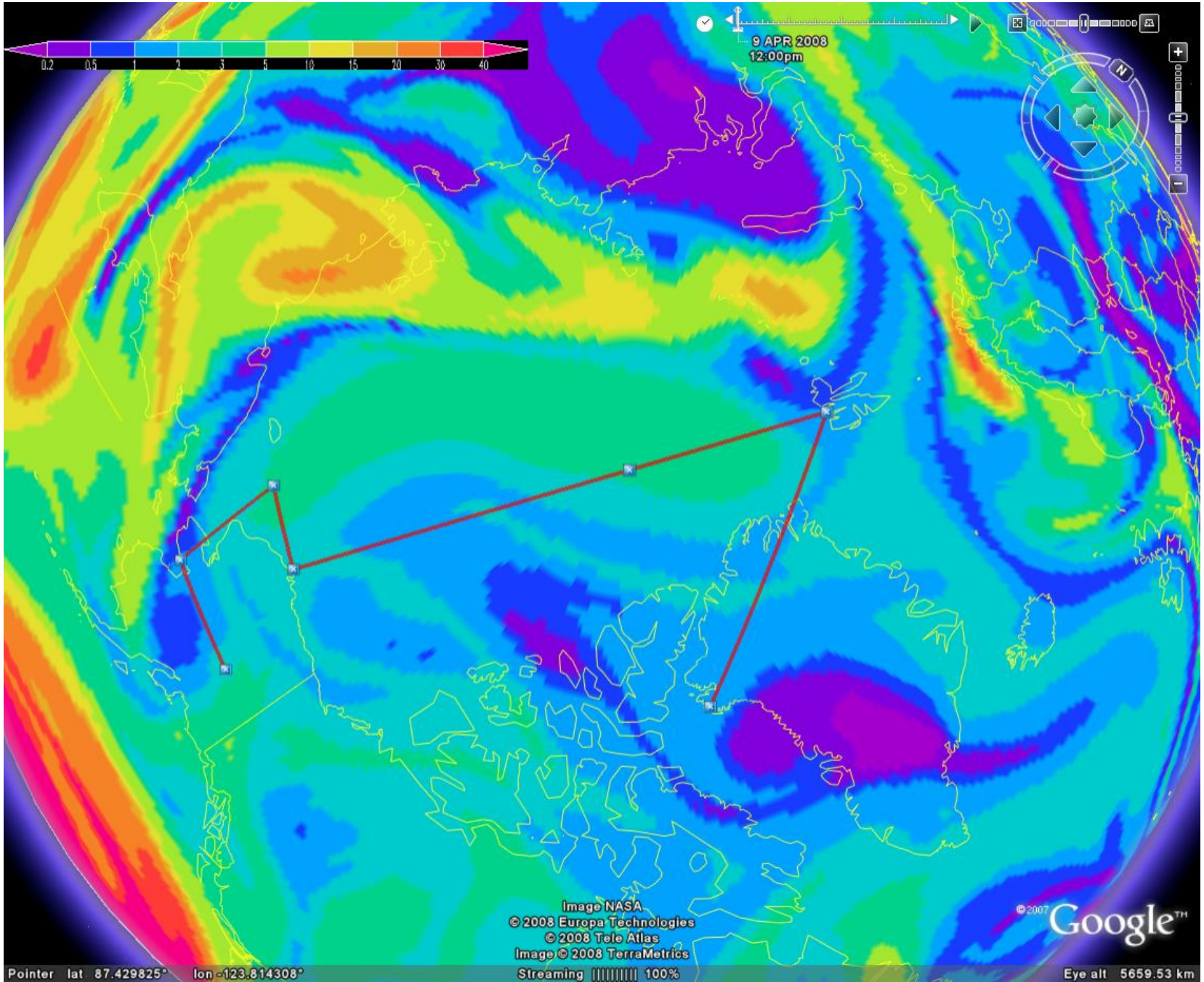


European CO

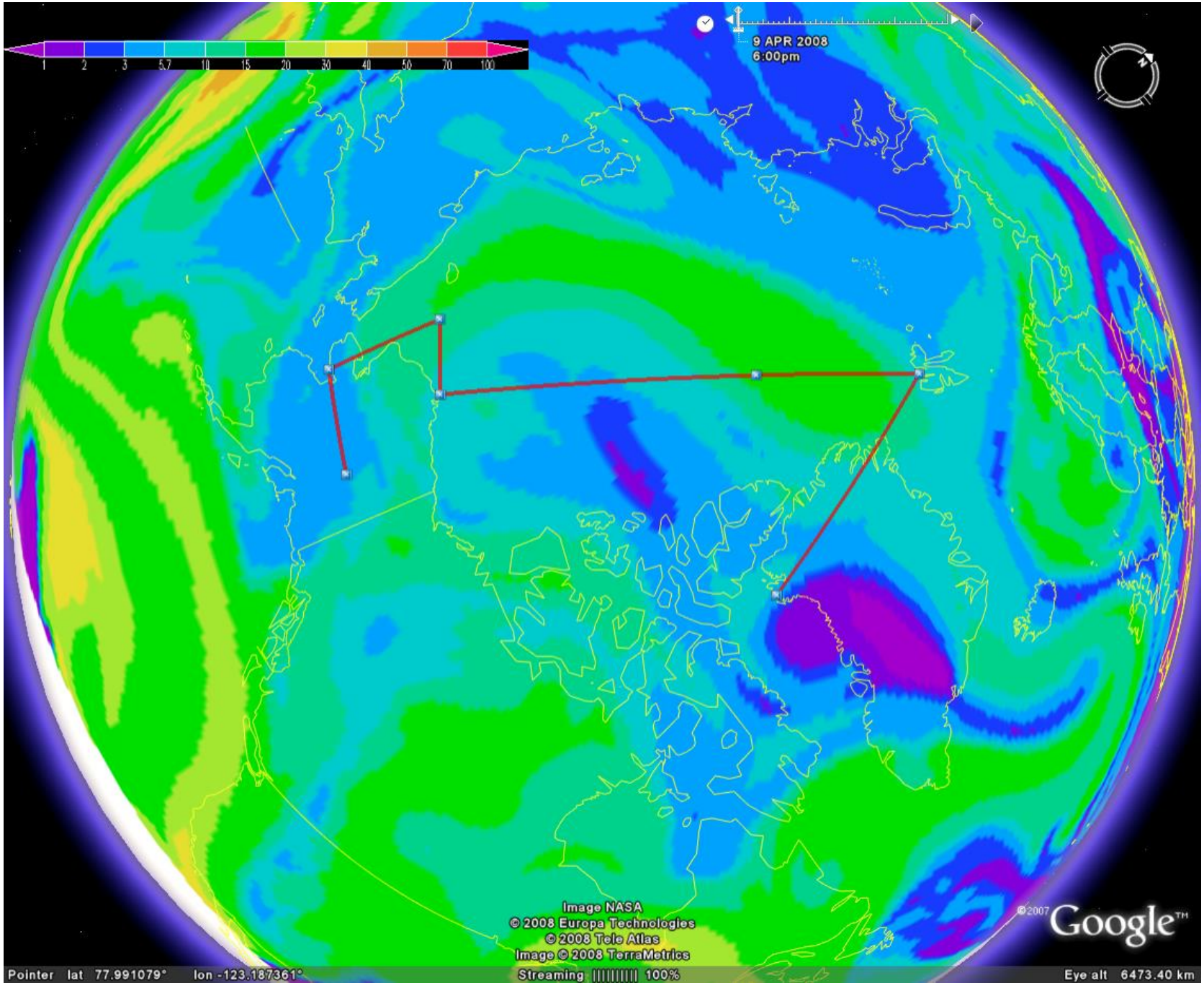


Initialized 04/08 06z: 16:30z

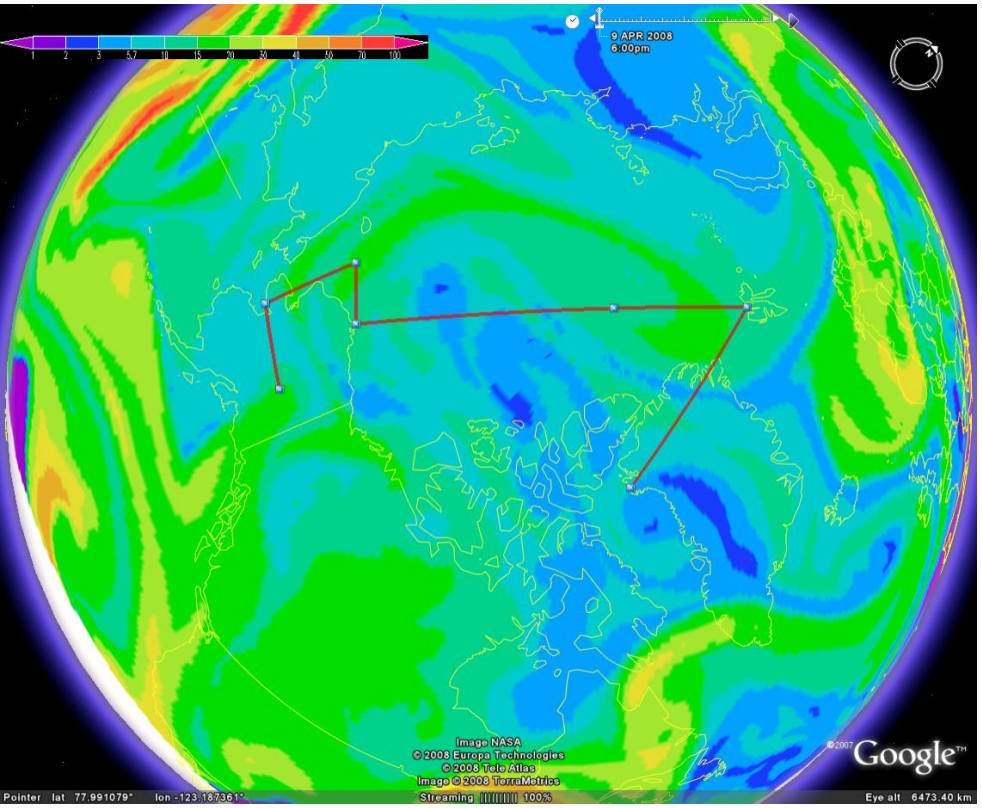
DC 8, April 9th, Biomass CO, 8.4 km, 36hr (12Z)



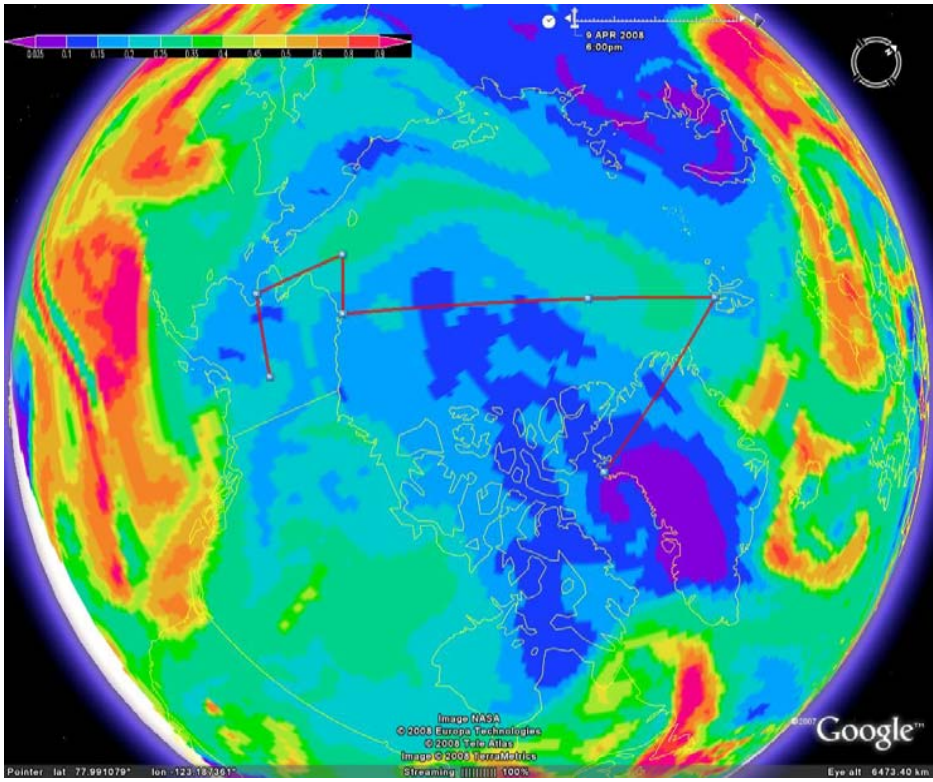
DC 8, April 9th, Anthropogenic CO, 8.4 km, 42hr (18Z)



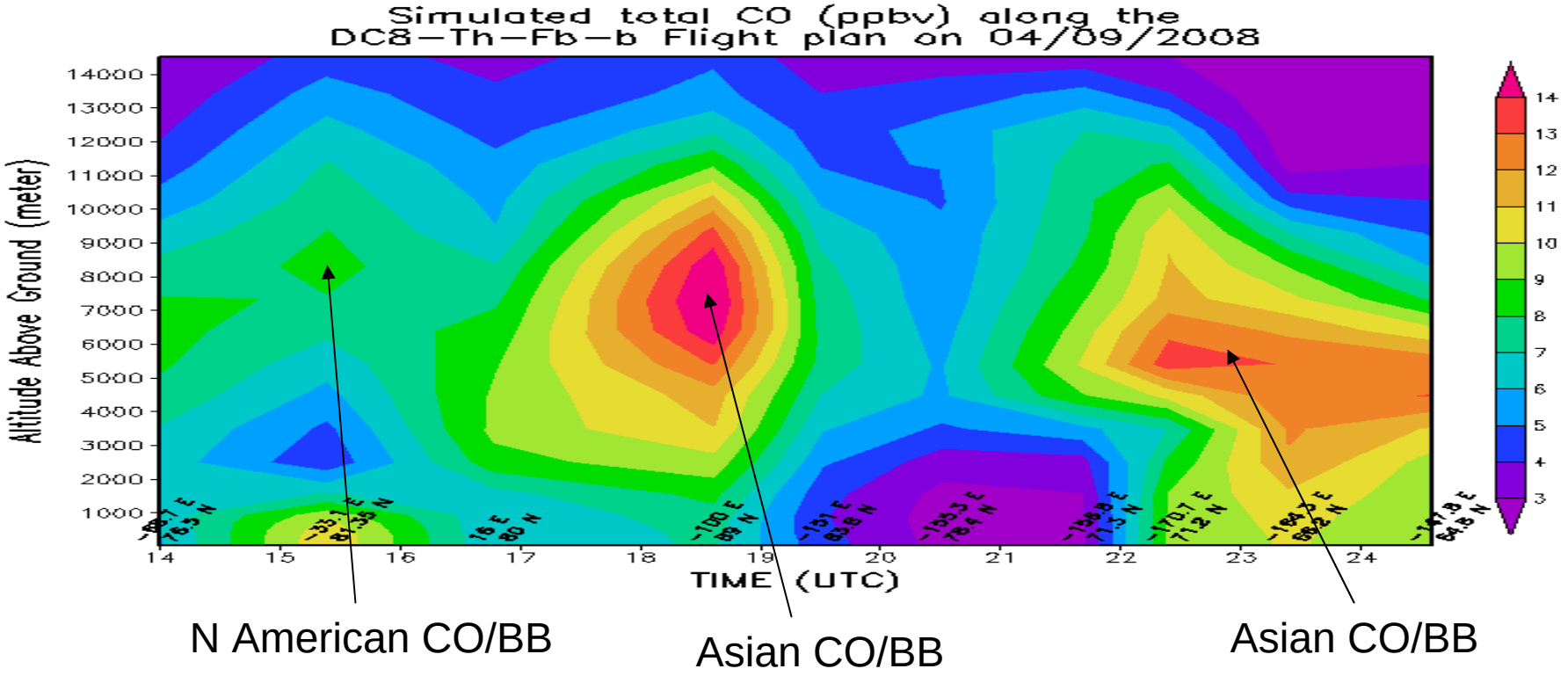
DC 8, April 9th, Anthropogenic CO,
5.5 km, 42hr forecast (18Z)



DC 8, April 9th, AOD,
42hr forecast (18Z)



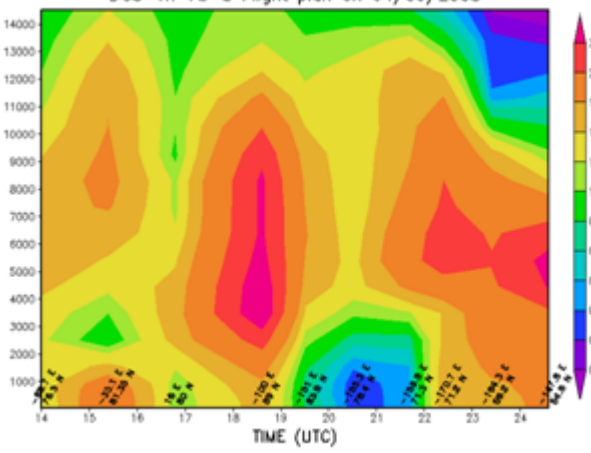
DC-8 April 9 Thule to FAI Flight Plan Curtains

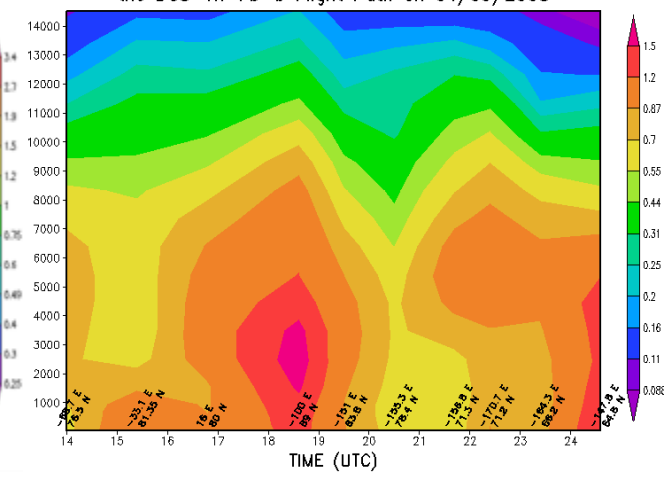


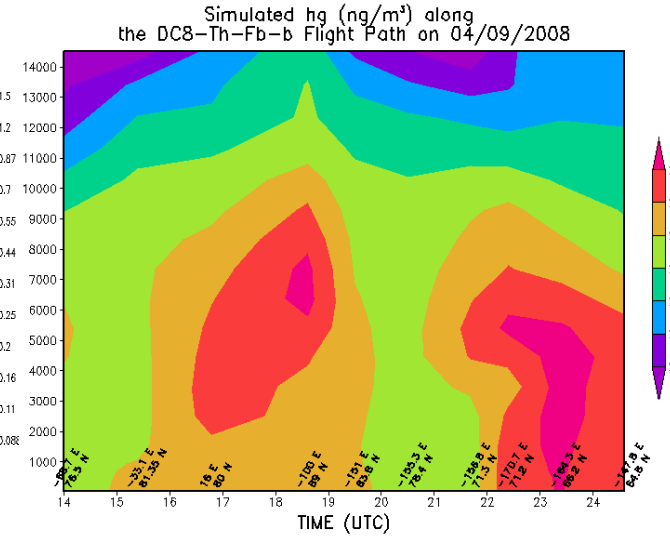
N American CO/BB

Asian CO/BB

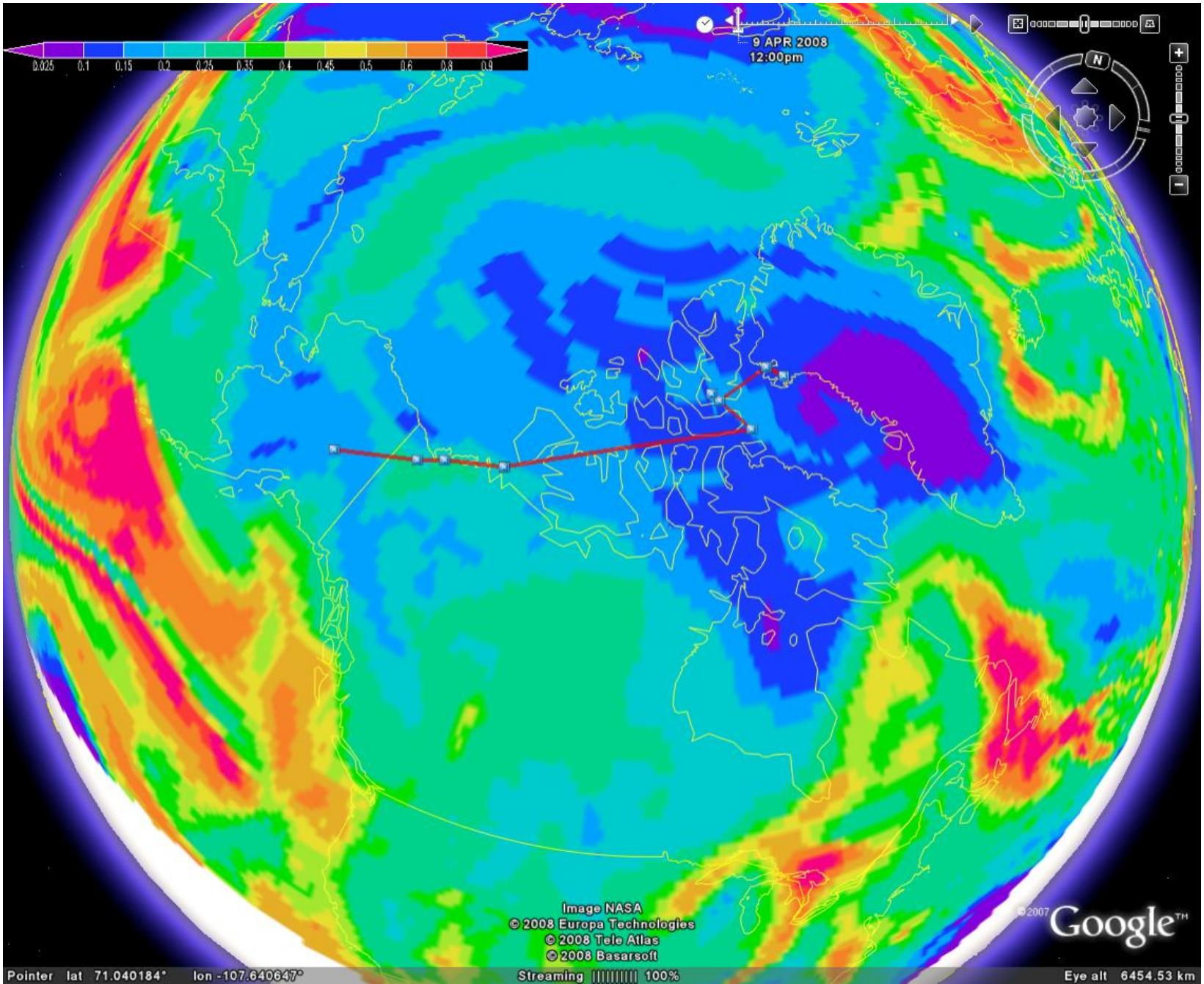
Asian CO/BB



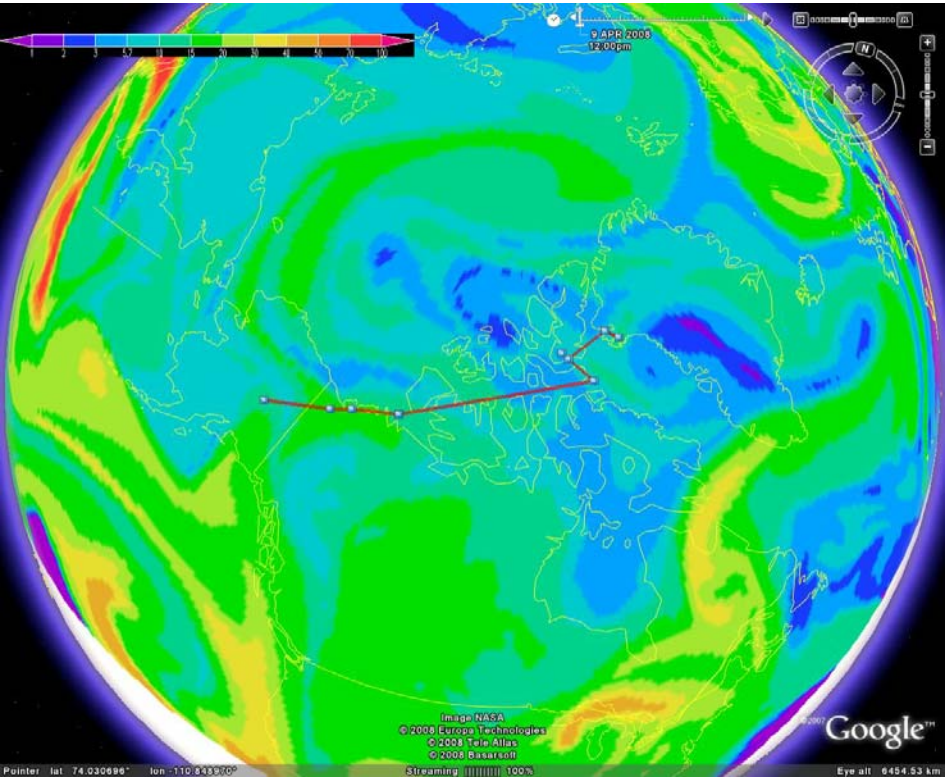




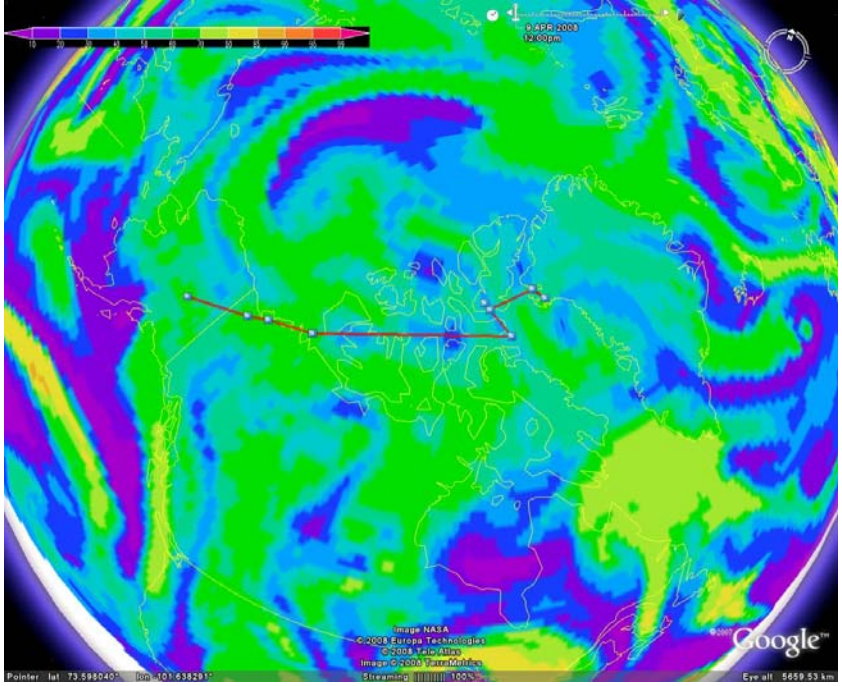
P3, April 9th, AOD, 36hr forecast (12Z)



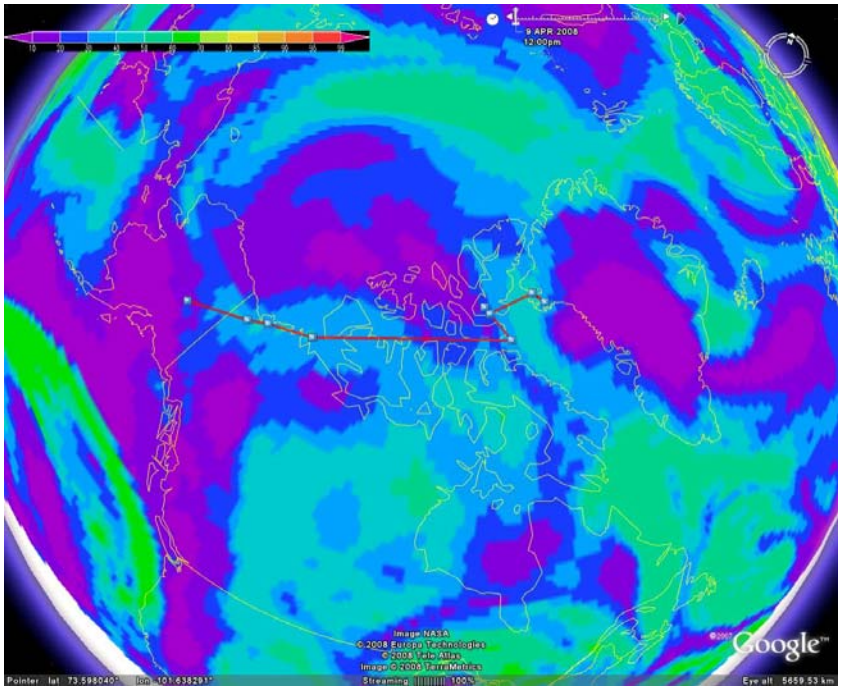
P3 Return to FAI



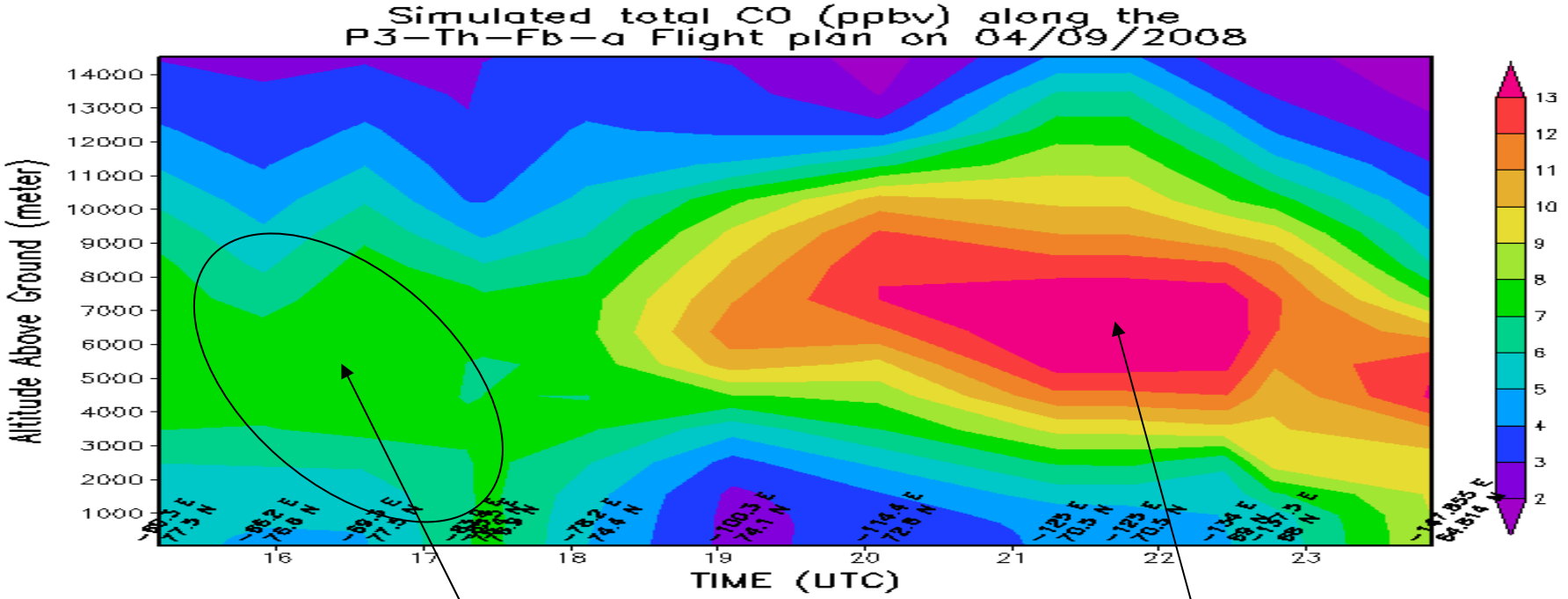
Anthropogenic CO, 5.4 km 12Z
36 hour forecast

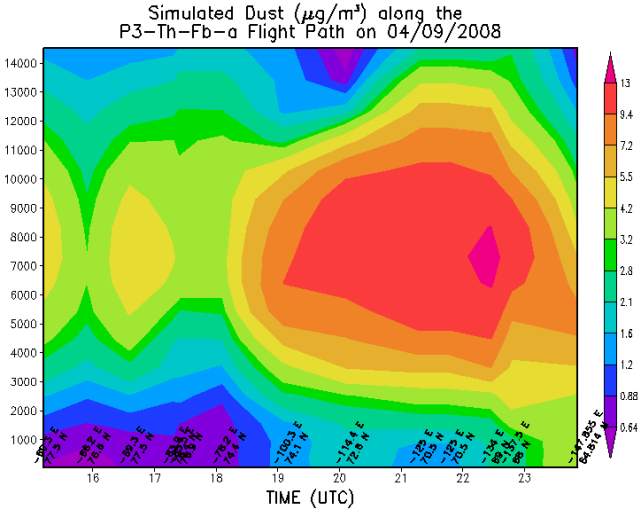


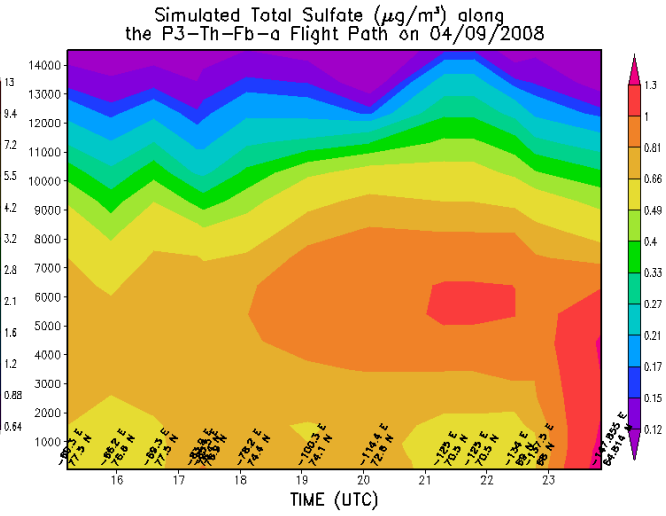
RH at 5.5km (top) and 8.4km (bottom)

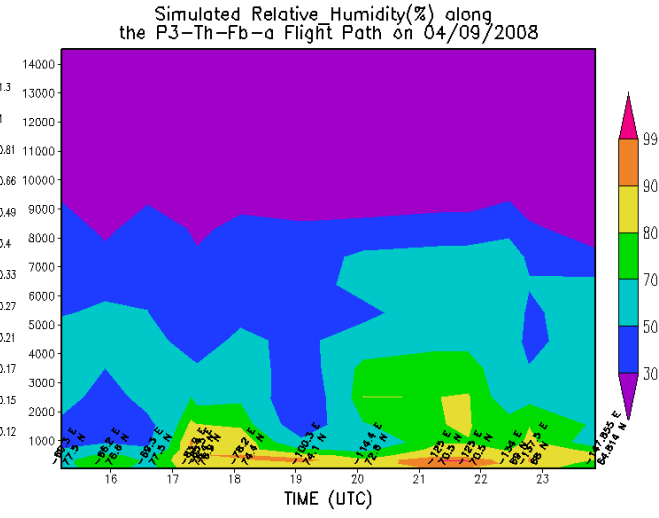


P-3 Thule to FAI Flight Track for April 9

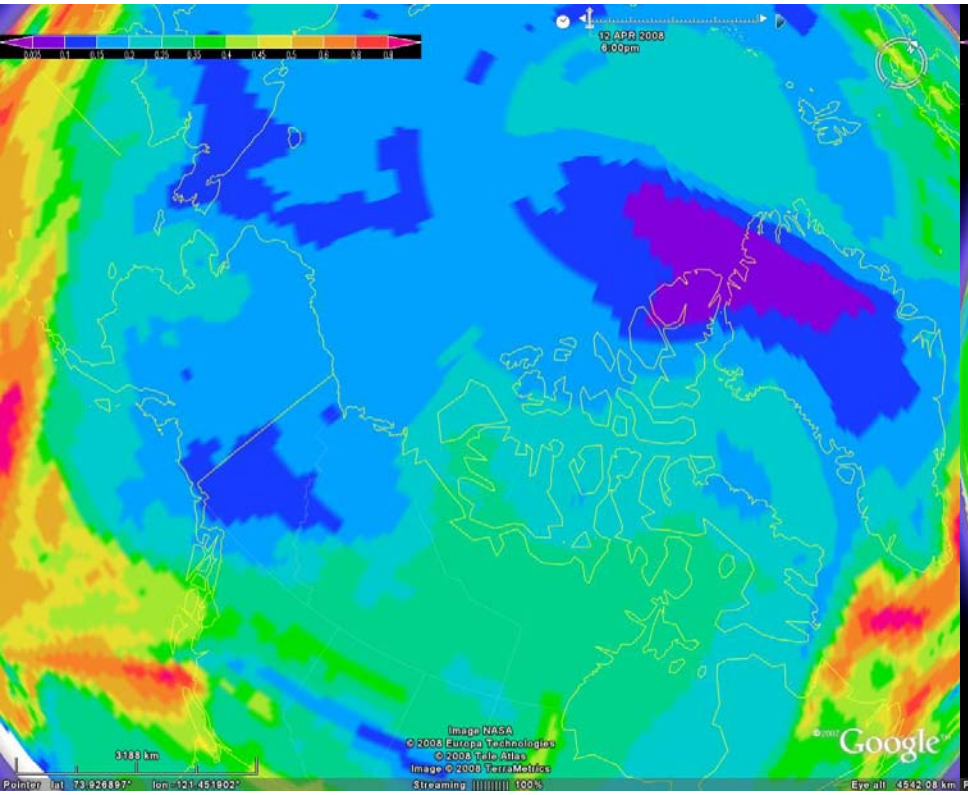




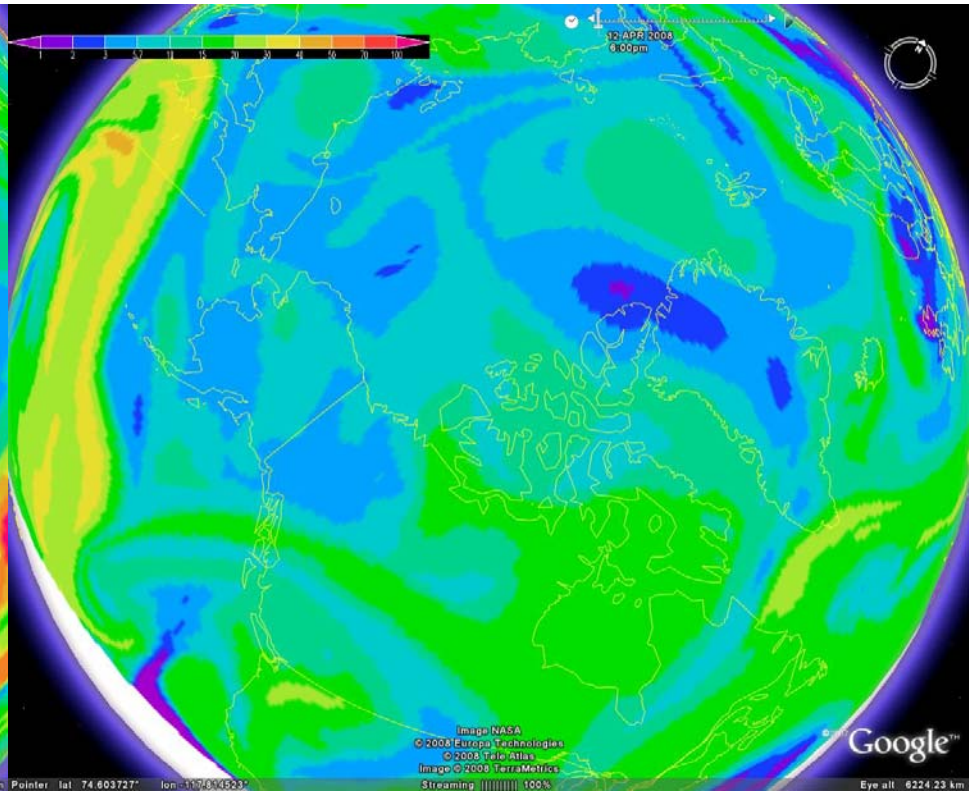




Later April 18Z 12th, 114 hr forecast



Column AOD

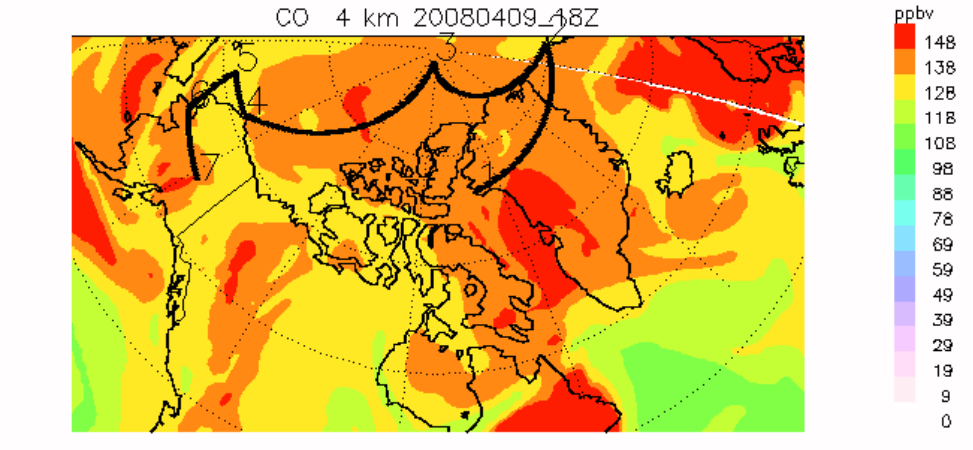


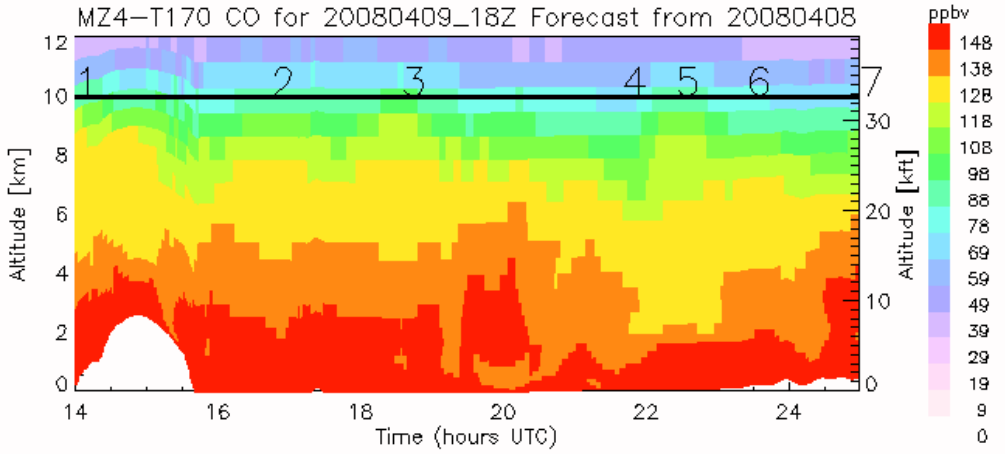
Anthropogenic CO at 8.4 km layer

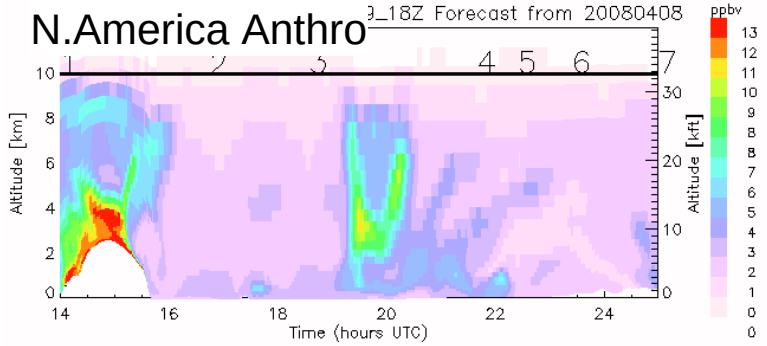
Apr 9 Thule-Svalbard-Fairbanks

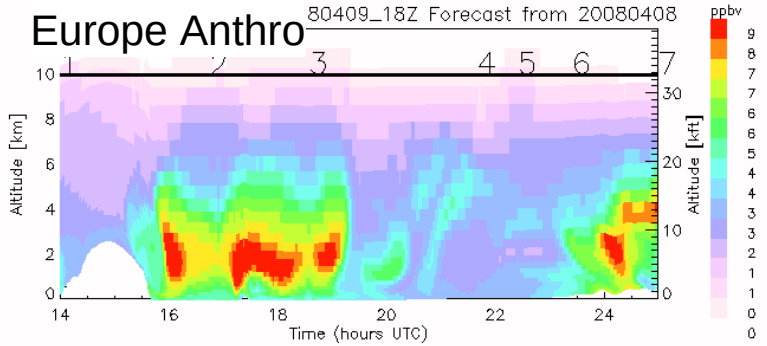
MZ4 forecast from Apr 8 for Apr 9 18Z

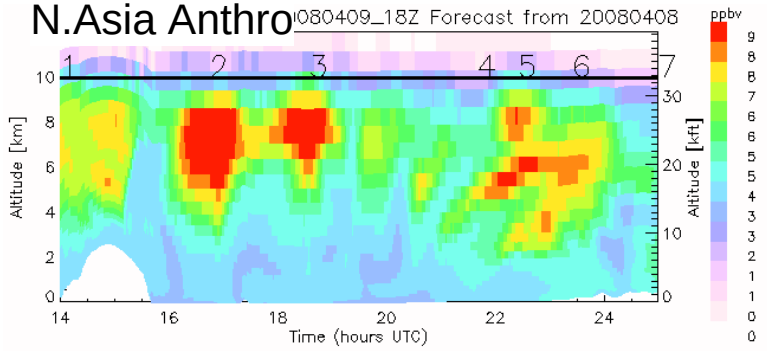
N.American pollution over Greenland and near Pole
European pollution in lower troposphere
Aged Asian pollution 6-10 km

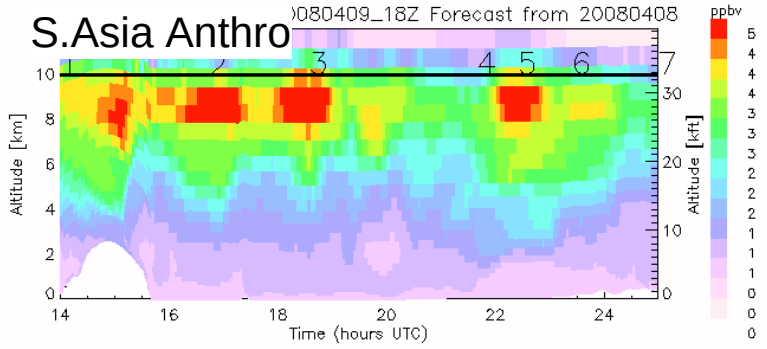








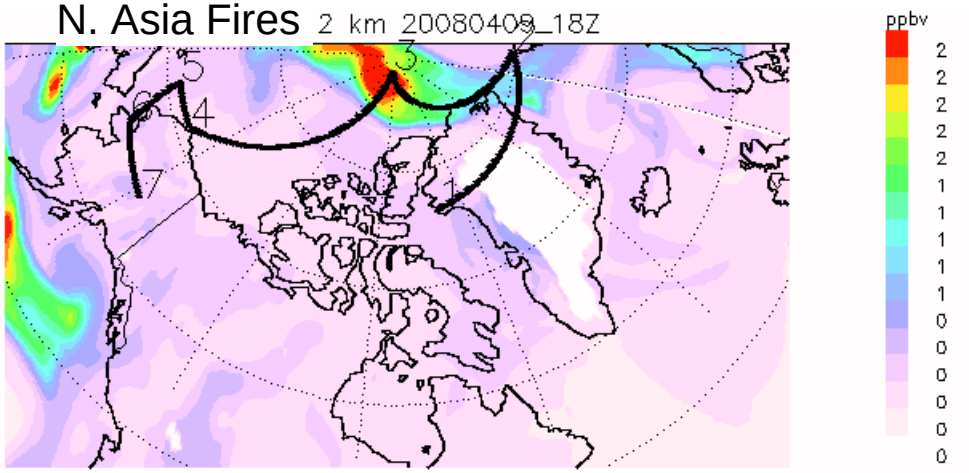


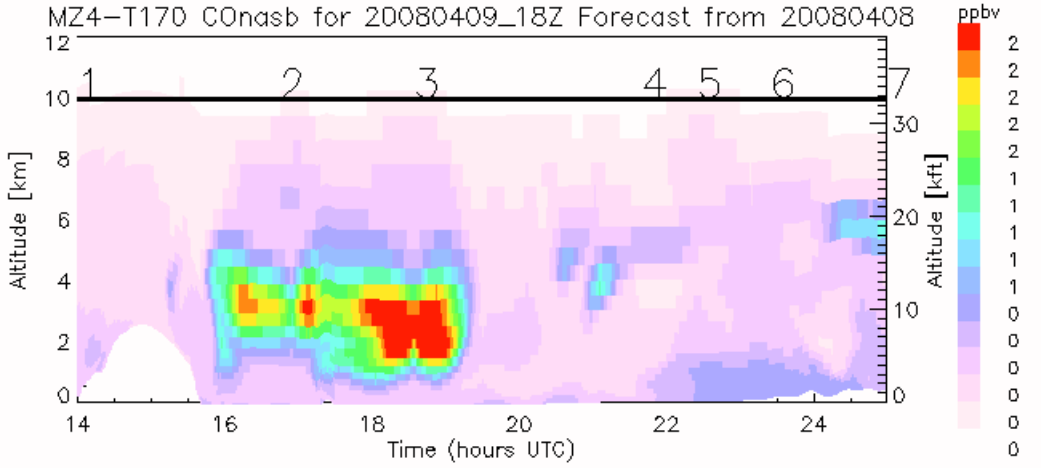


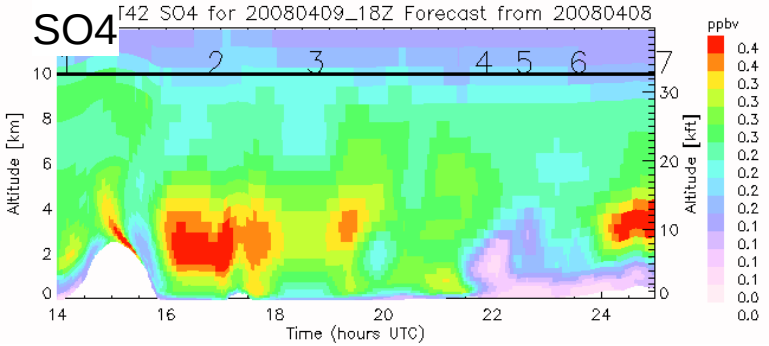
Apr 9 Thule-Svalbard-Fairbanks

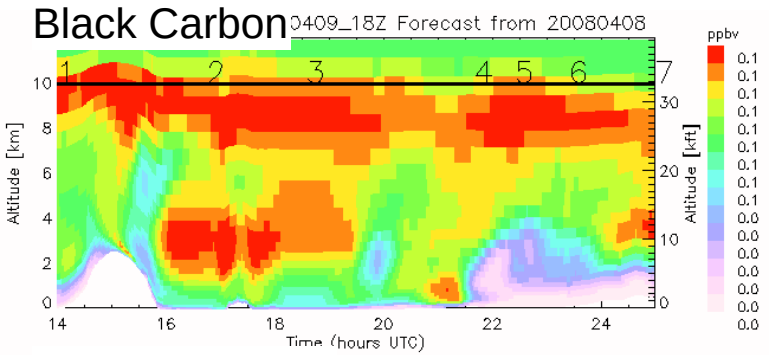
MZ4 forecast from Apr 8 for Apr 9 18Z

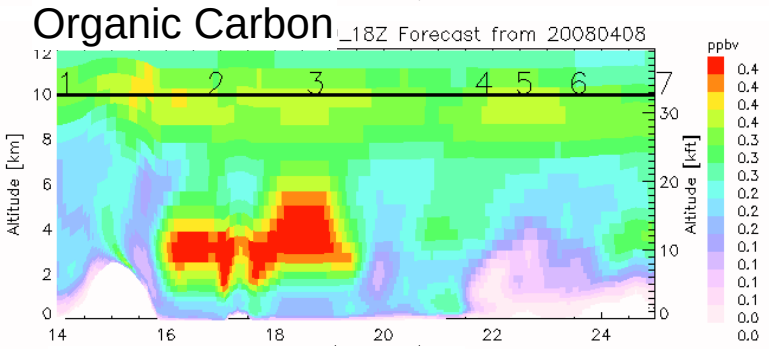
Weak fire plume near pole (pt 3)
– CO tracer and OC with less SO4

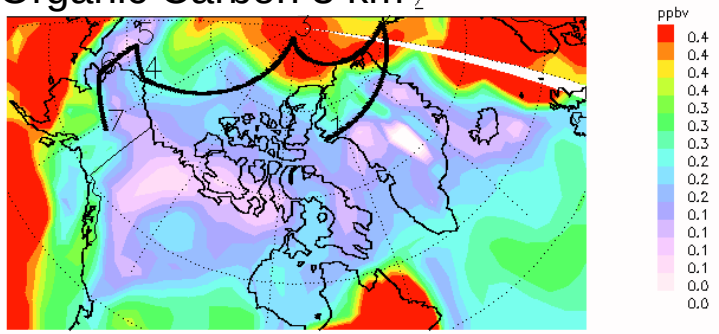








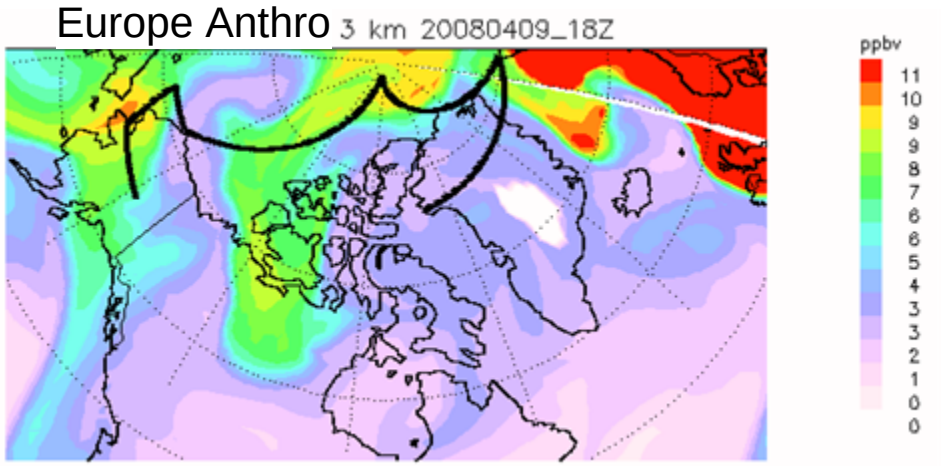


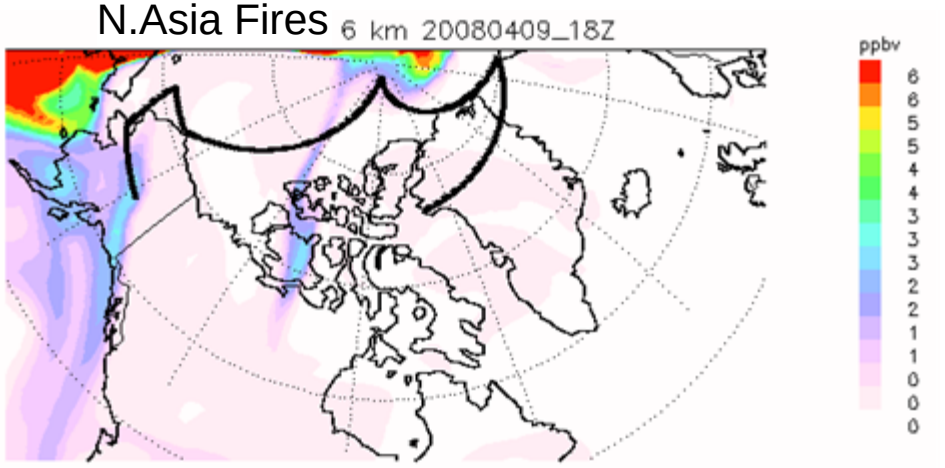


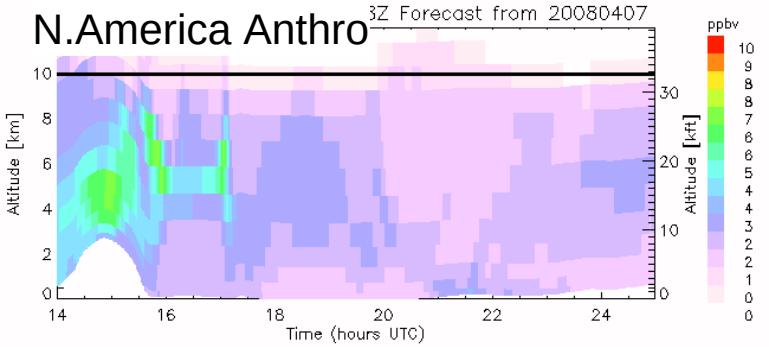
Apr 9 Thule-Svalbard-Fairbanks

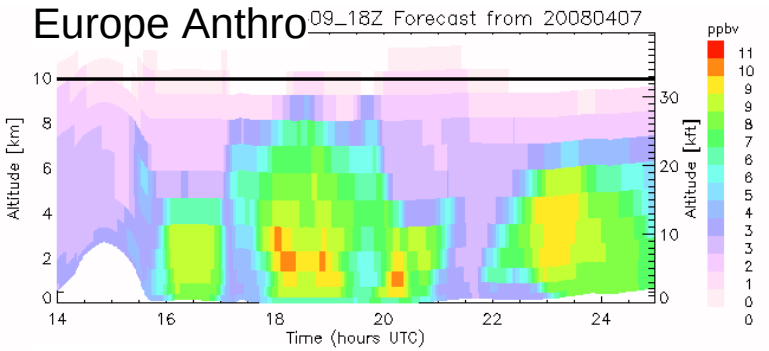
CAM forecast from Apr 8 for Apr 9 18Z

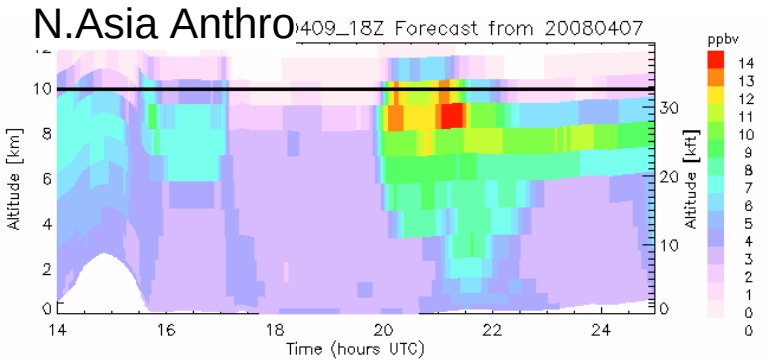
Generally same as MZ4, with some differences in altitudes of pollution

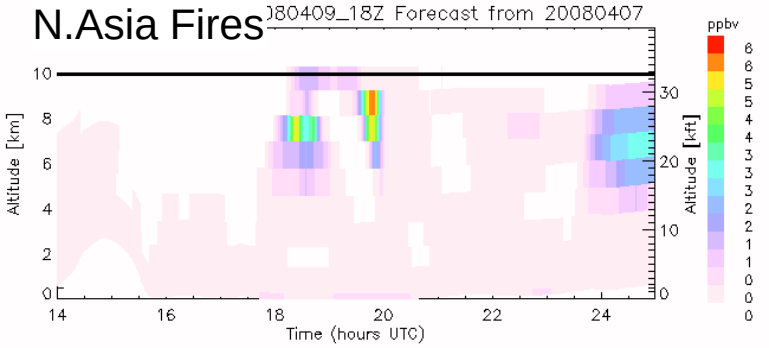






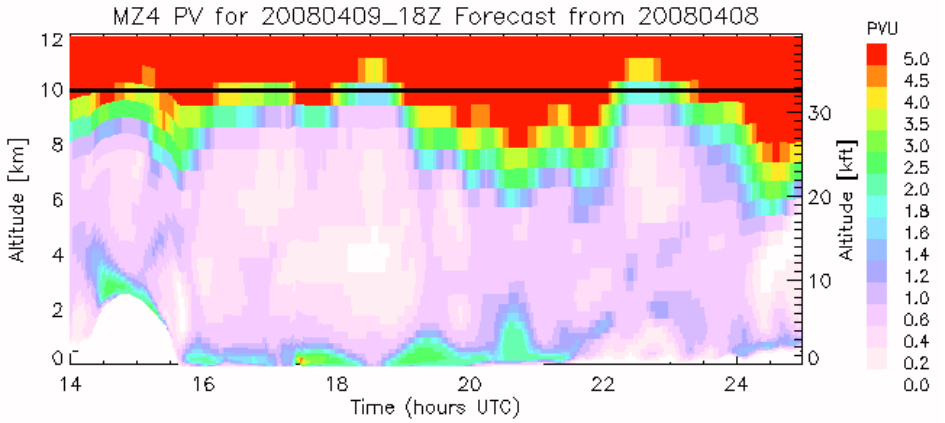


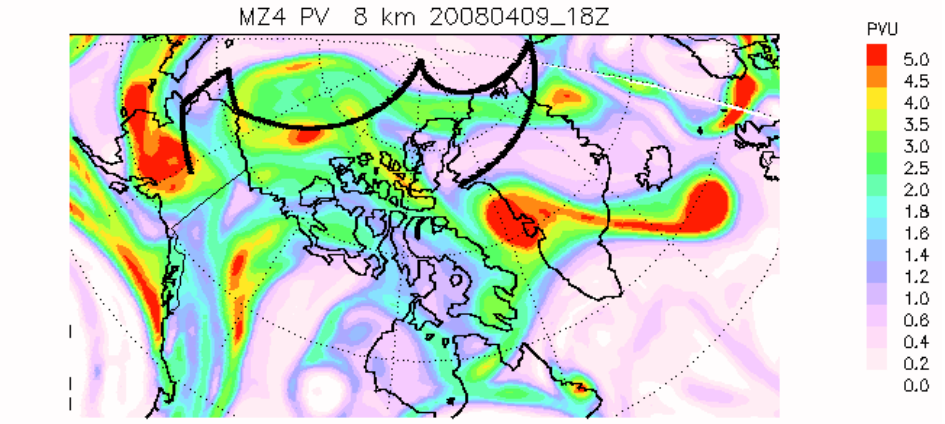




Apr 9 Thule-Svalbard-Fairbanks
Potential Vorticity

MZ4/GFS forecast from Apr 8 for Apr 9/18Z





CAM/DART forecast from Apr 7 for Apr 9/18Z