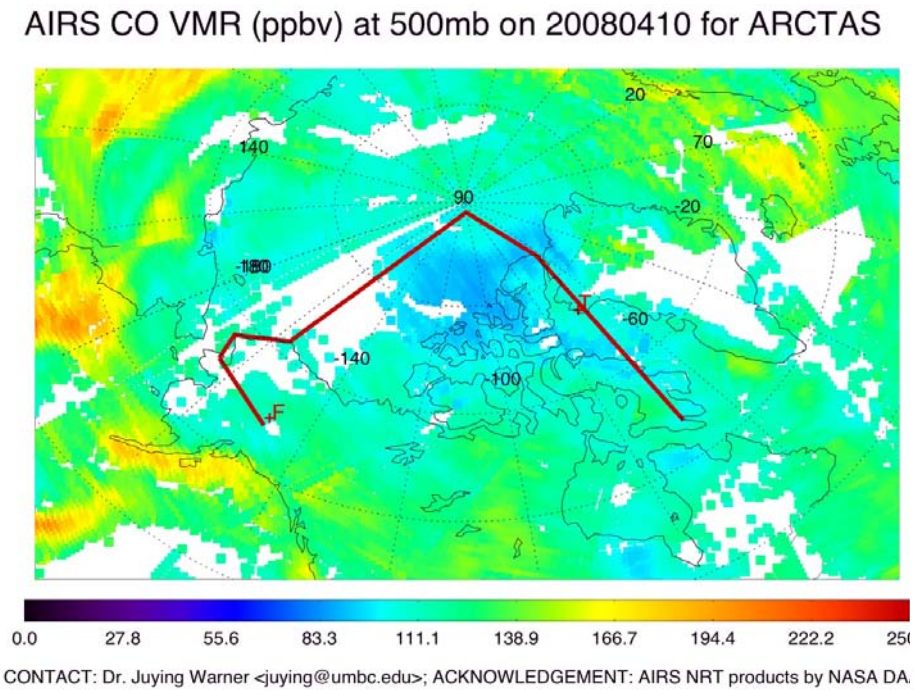
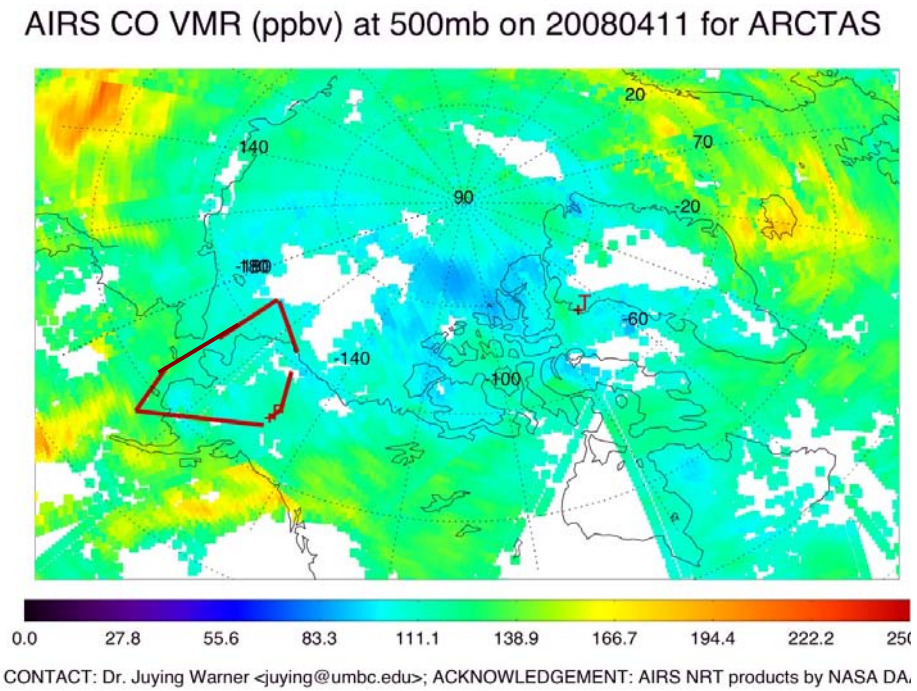
AIRS NRT ARCTAS Support: Latest AIRS CO

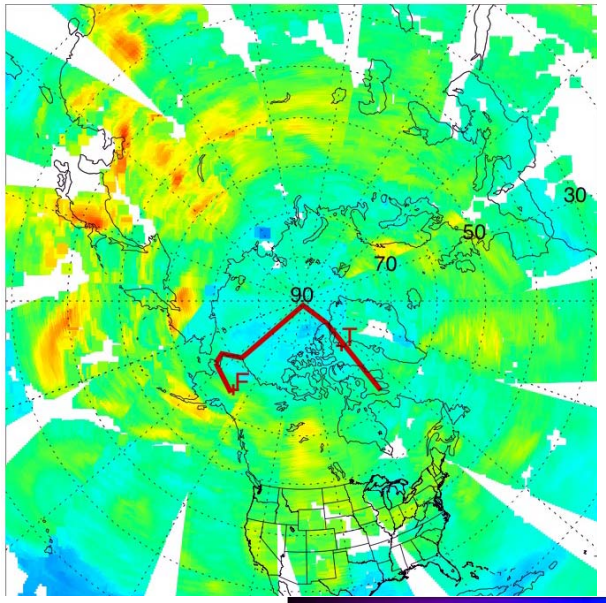




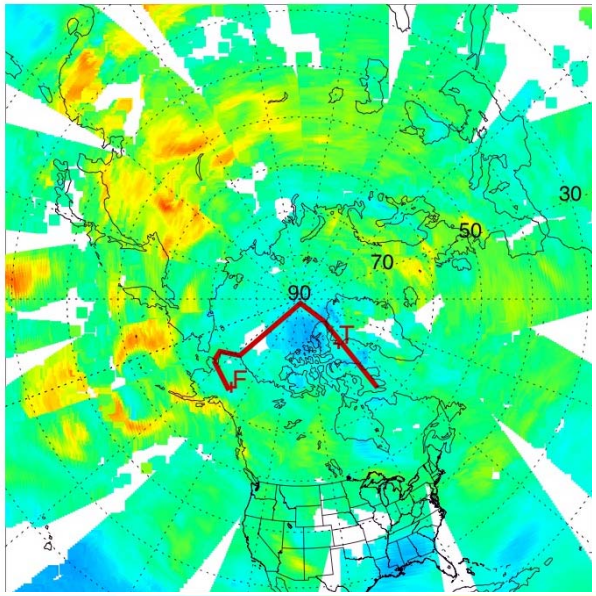
- Major transport features are going by us today

AIRS NRT ARCTAS Support:

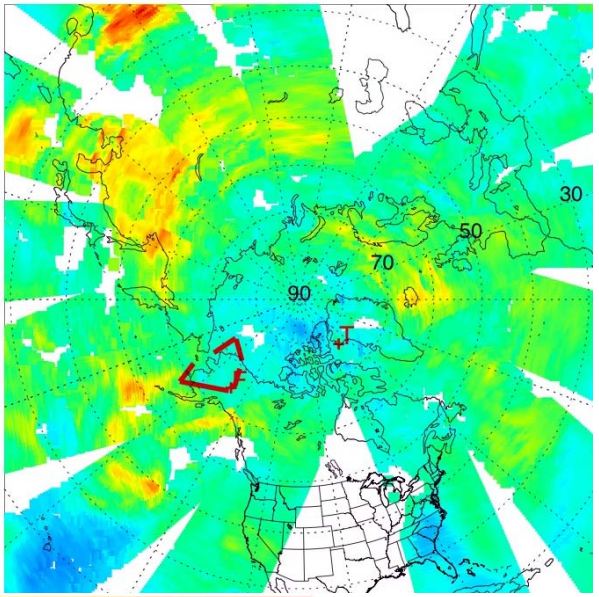
CO 500mb 20080409 day



CO 500mb 20080410 day



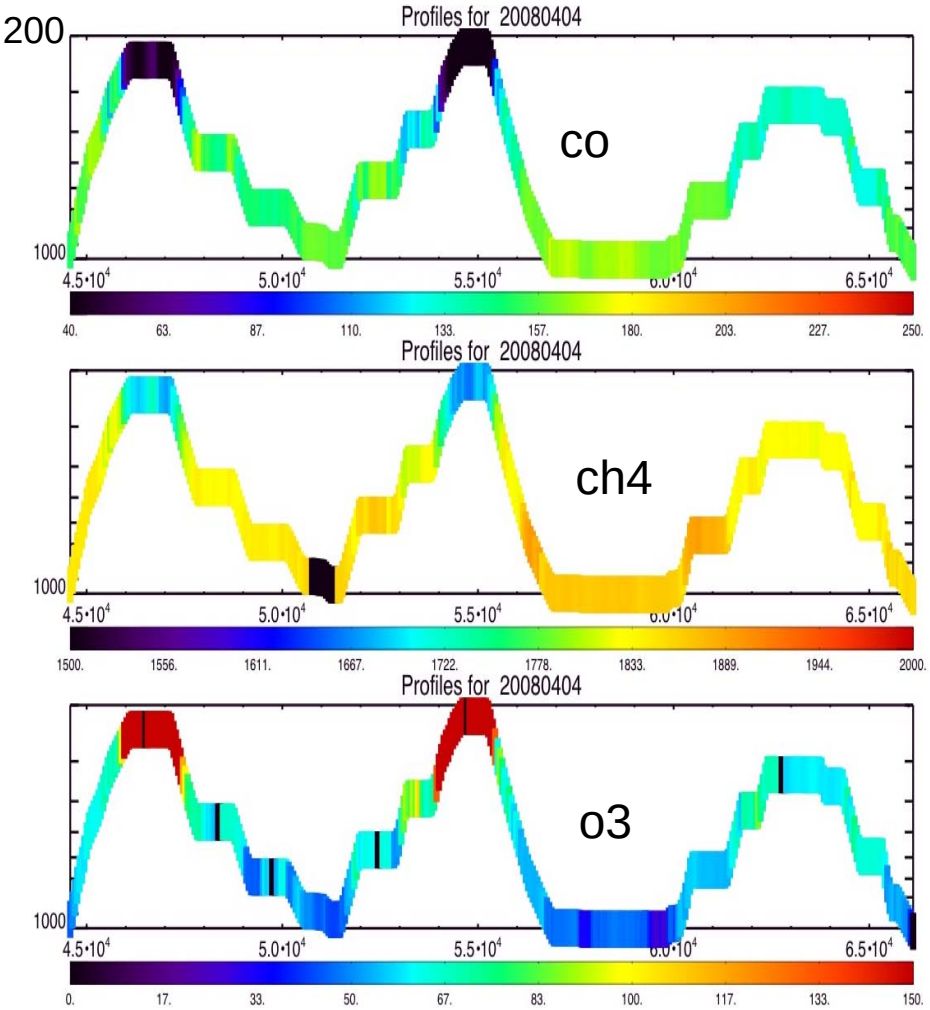
CO 500mb 20080411 Full

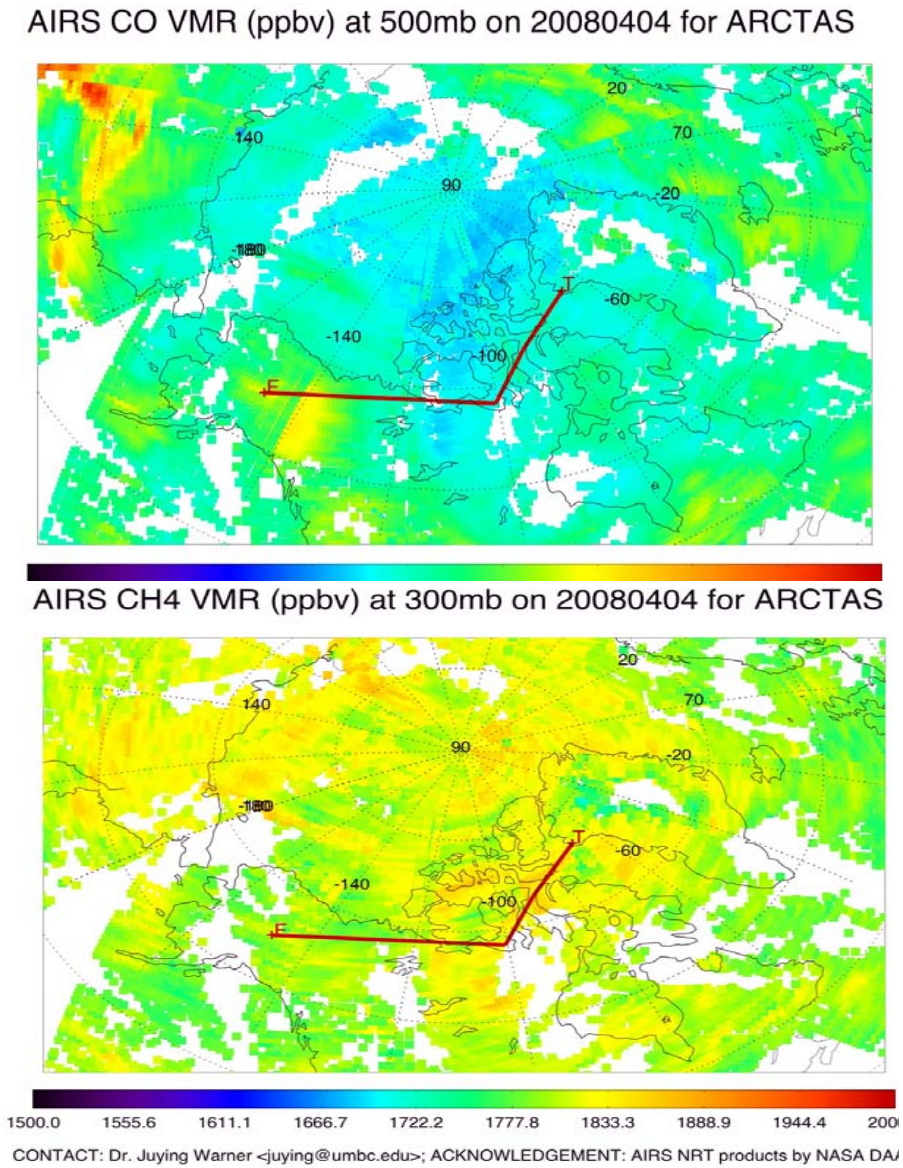


CONTACT: Dr. Juying Warner <juying@umbc.edu>; ACKNOWLEDGEMENT: AIRS NRT products by NASA DAAC

•Asian Transport Continues, but doesn't seem to enter the Arctic circle in large amounts

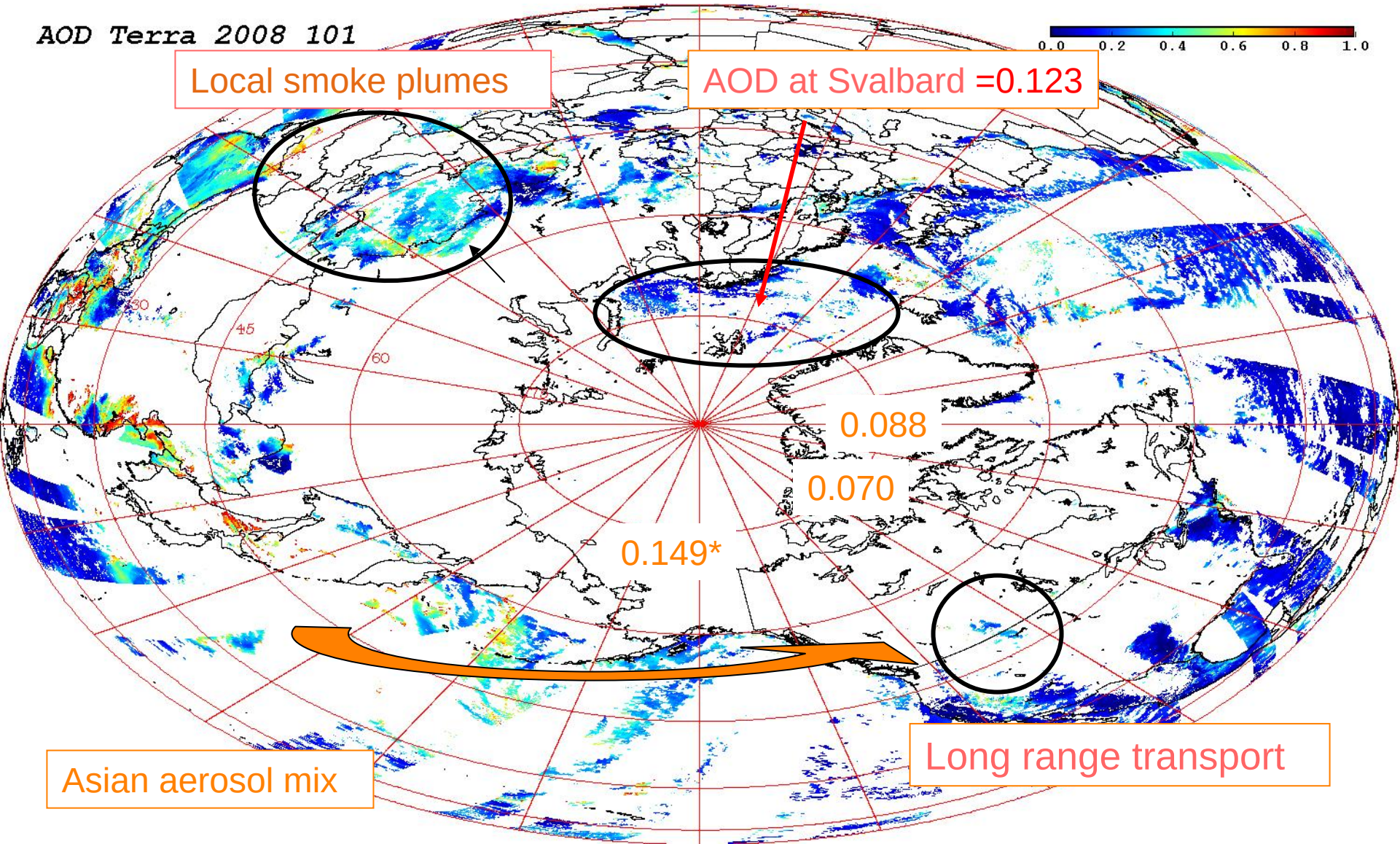
AIRS NRT ARCTAS Support: compared with DC-8 April 4 measurements

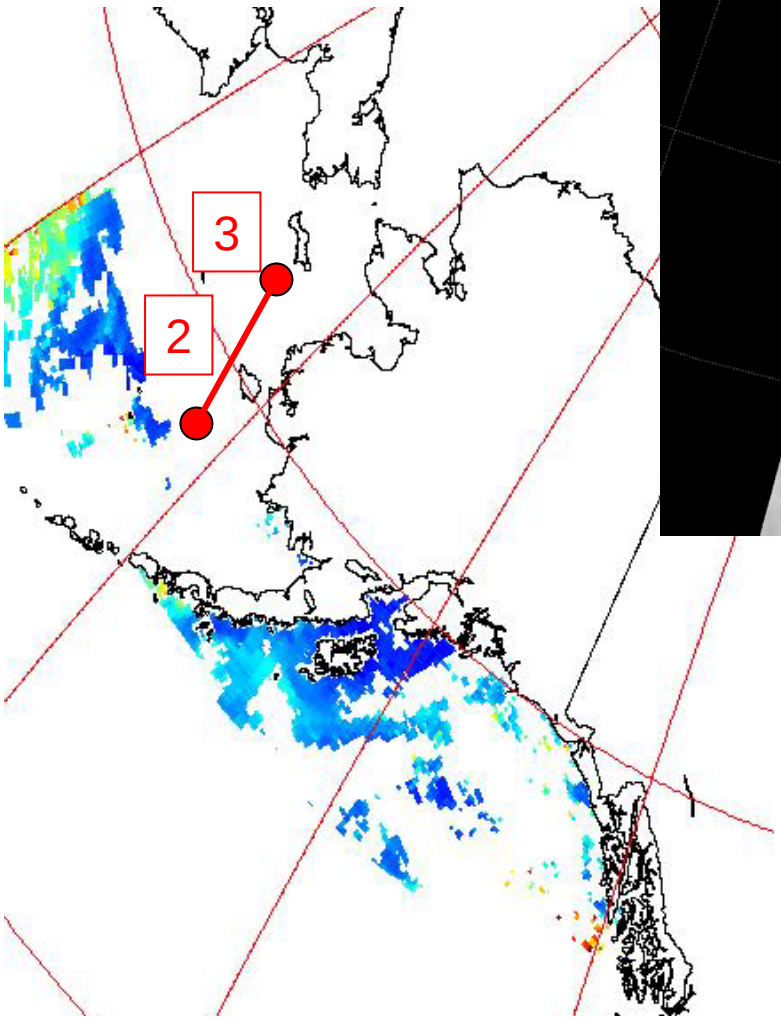




Thursday April 10

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





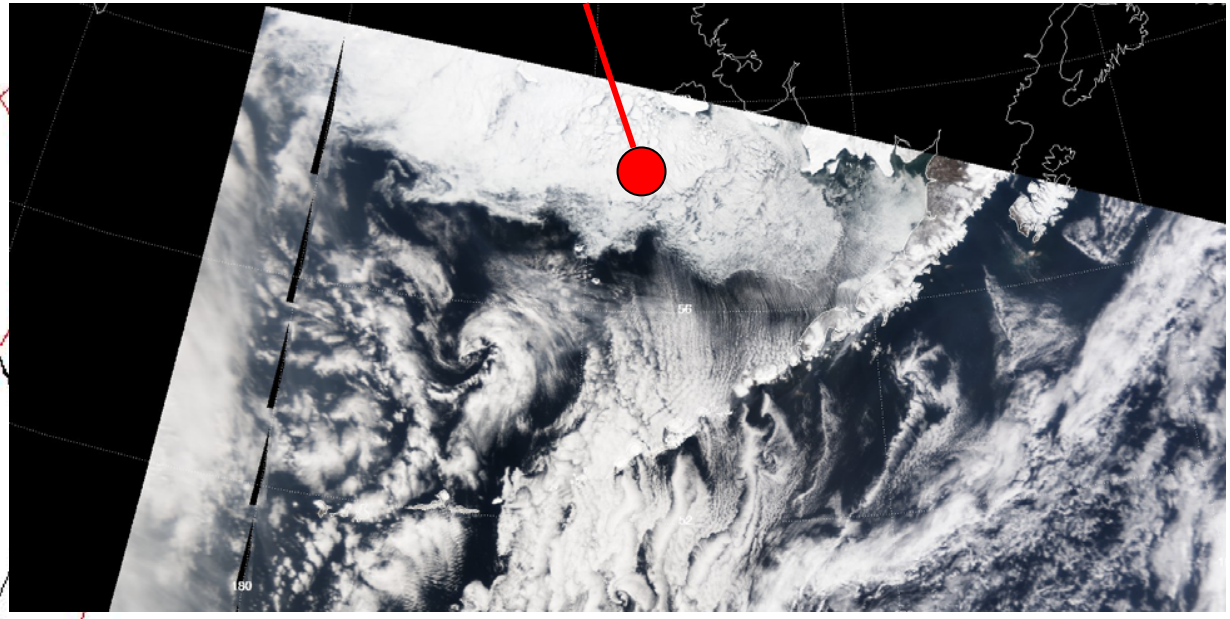
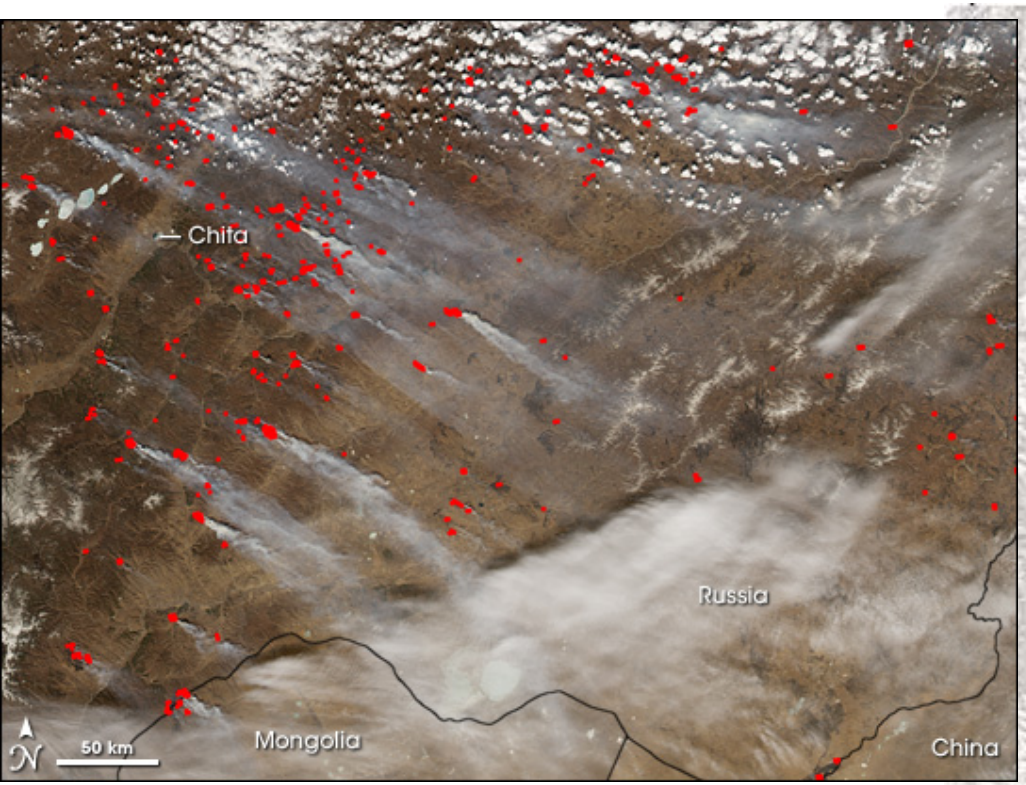


Image and retrieval from Thursday April 10

DC8 flight plan Point 2 on Calipso track, still over sea ice, but close to open ocean



April 7, 2008

Biomass burnining
In southern Russian Siberia

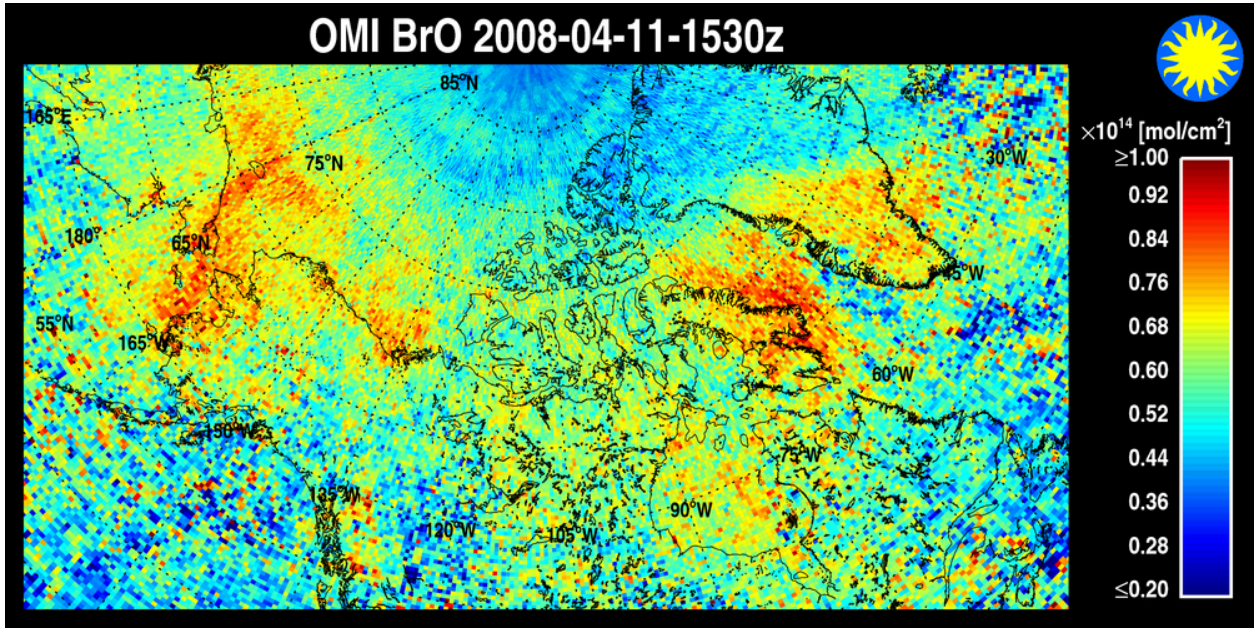
April 7, 2008

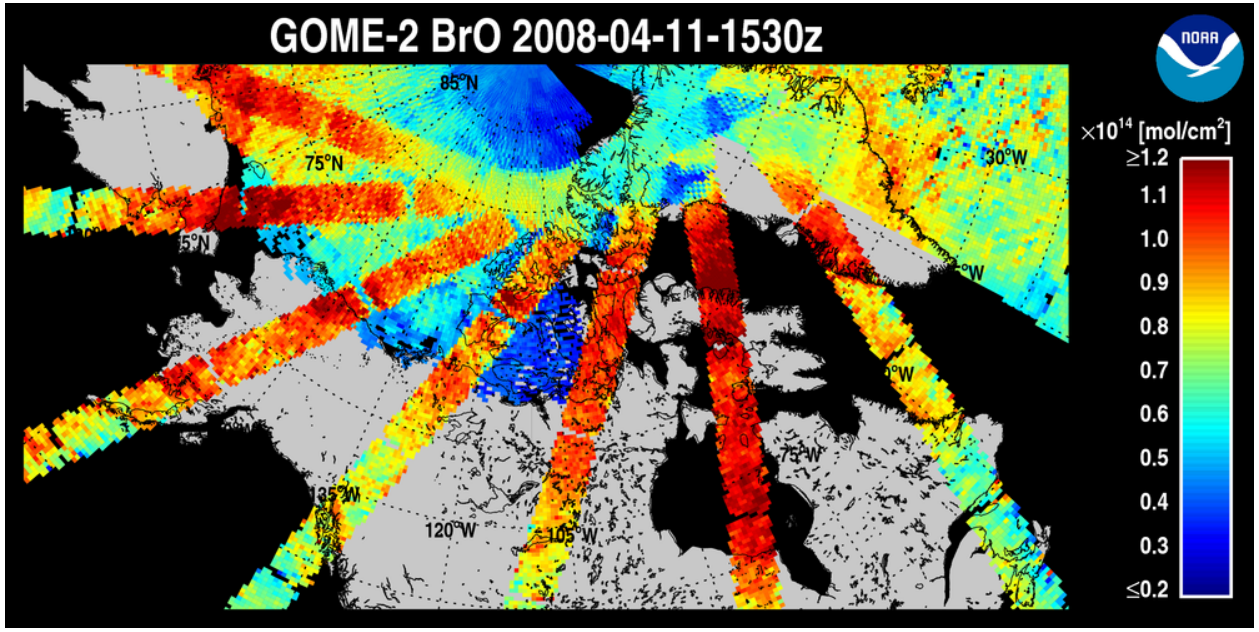
Karymsky Volcano
on Russia's Kamchatka Peninsula

http://modis.gsfc.nasa.gov/gallery/

http://earthobservatory.nasa.gov/NaturalHazards/

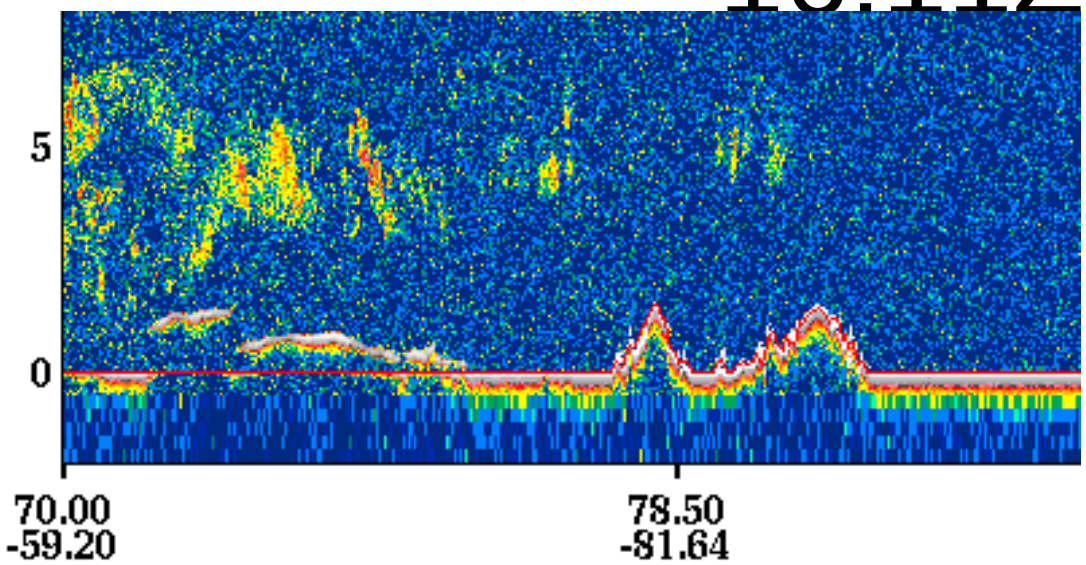
OMI and GOME-2 BrO: 11 April 2008

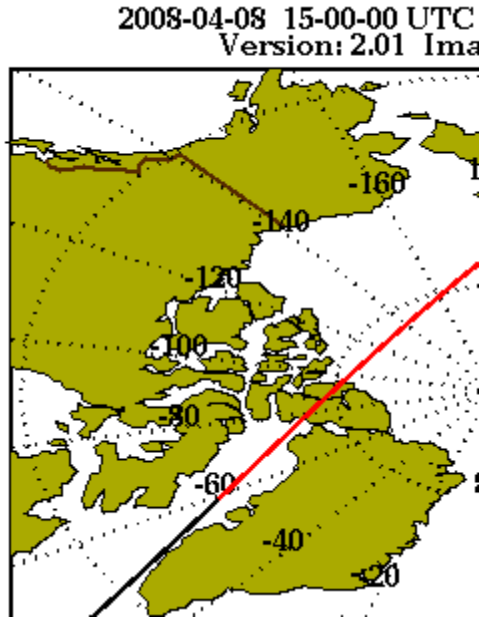


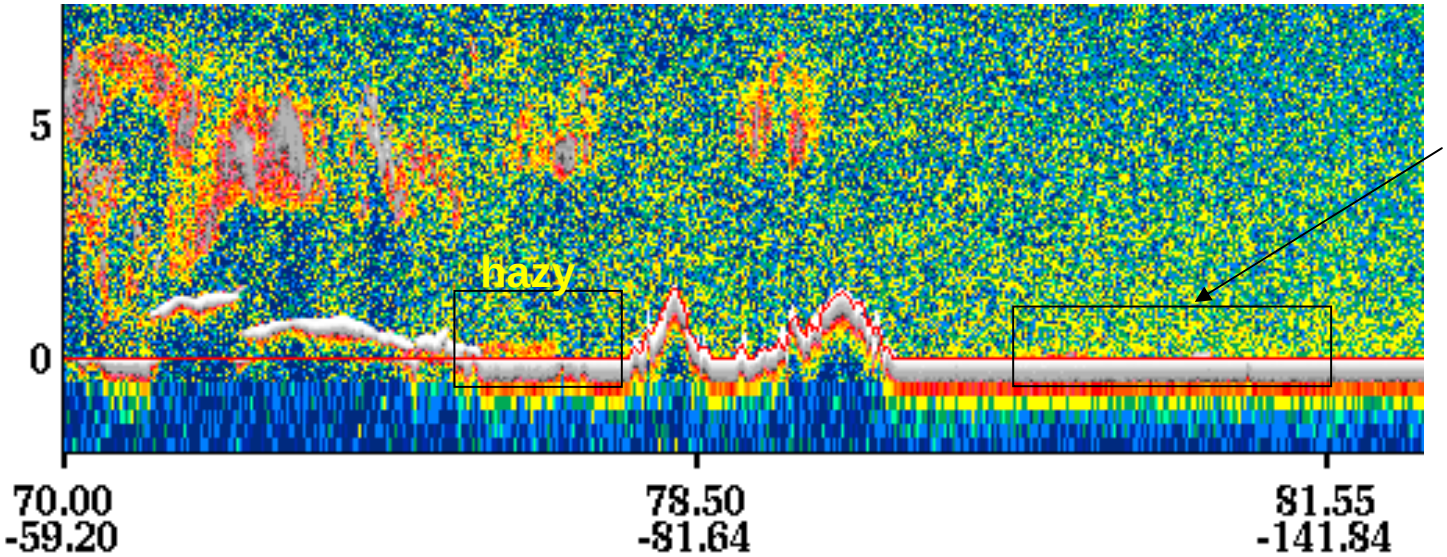


CALIPSO Observations
9/10 April 2008

Eureka P3 underflight: 8 April, 16:11Z





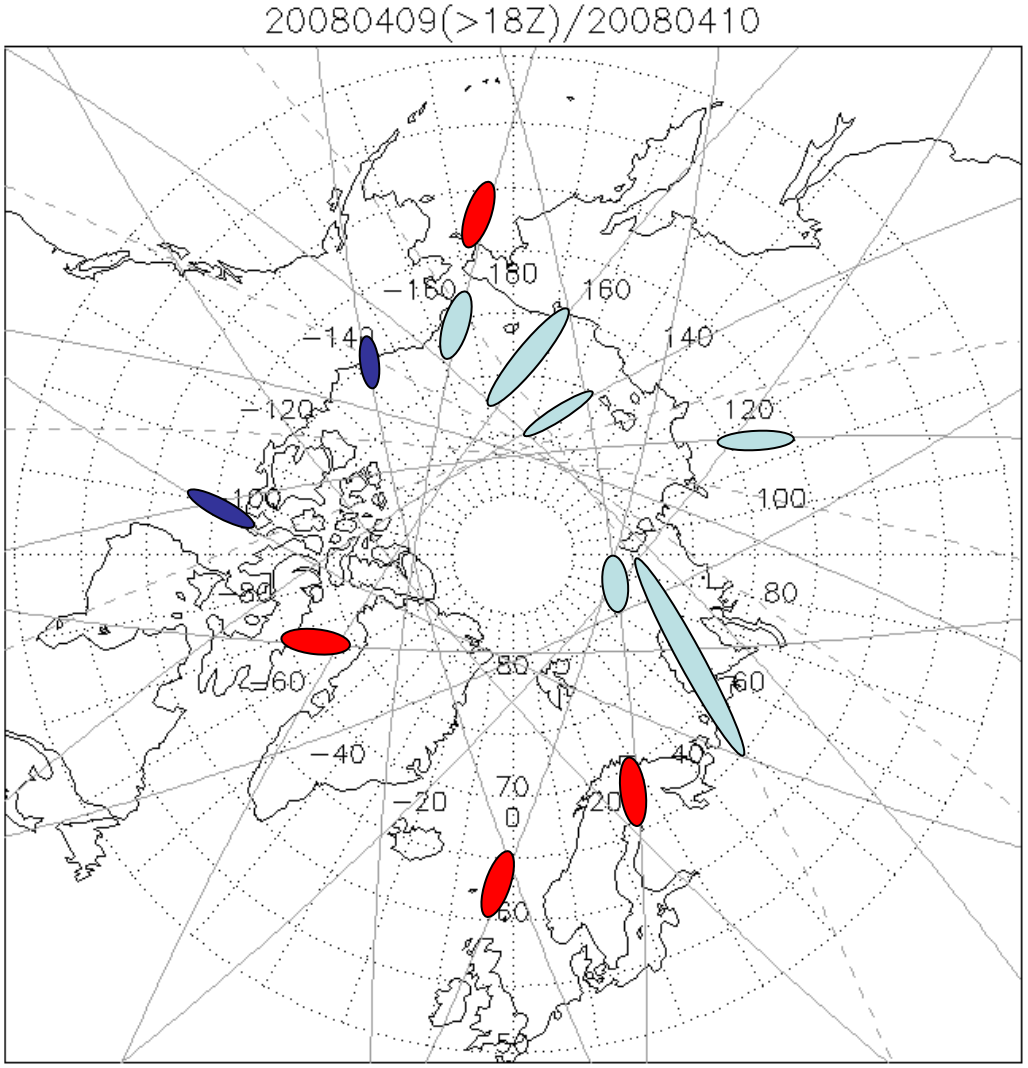


Eureka, AOD ~ 0.08

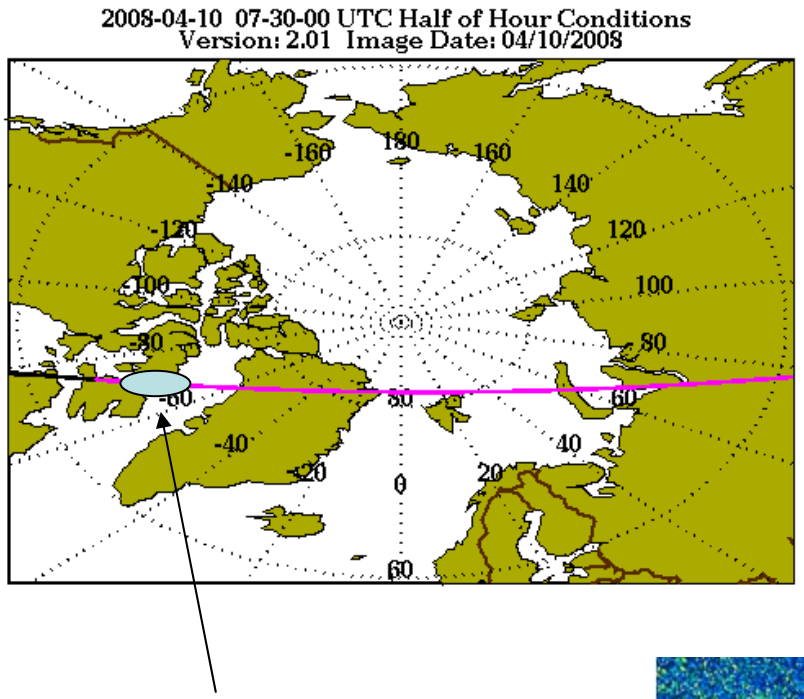
CALIPSO Hot Spots – 9/10 April

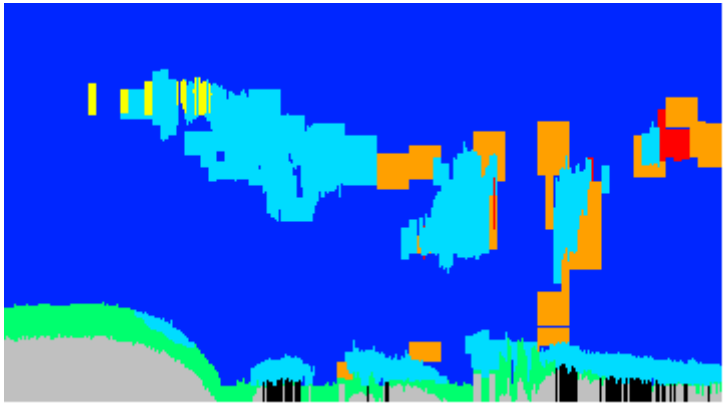
Color key

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

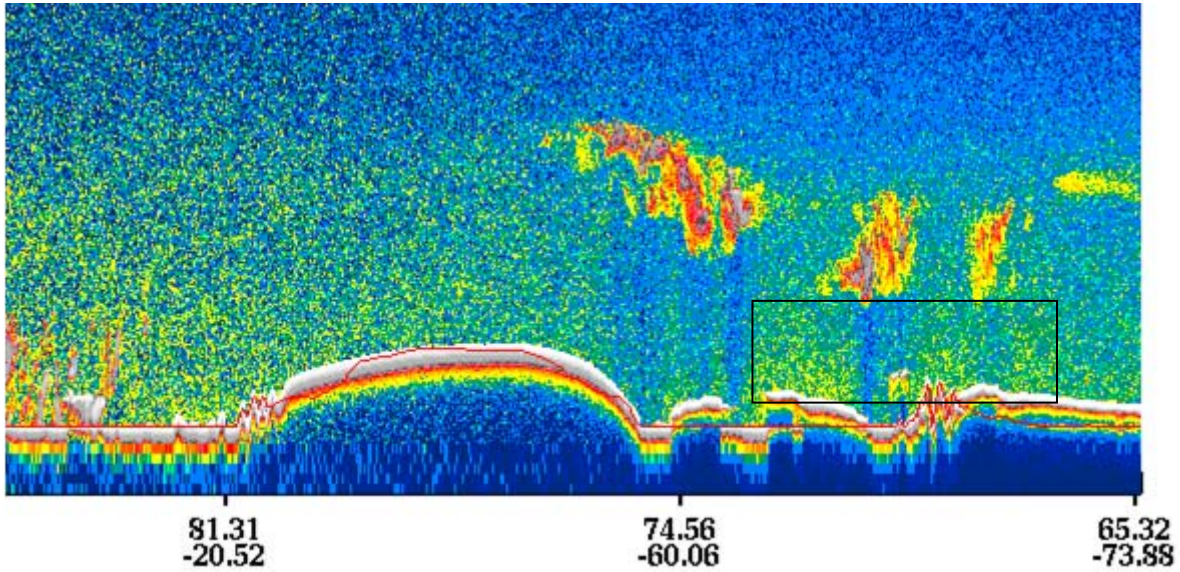


10 April 0730Z

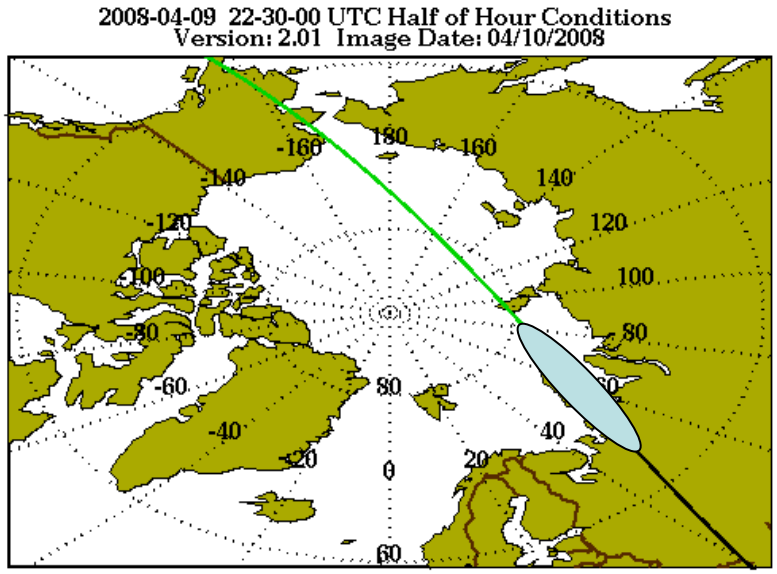


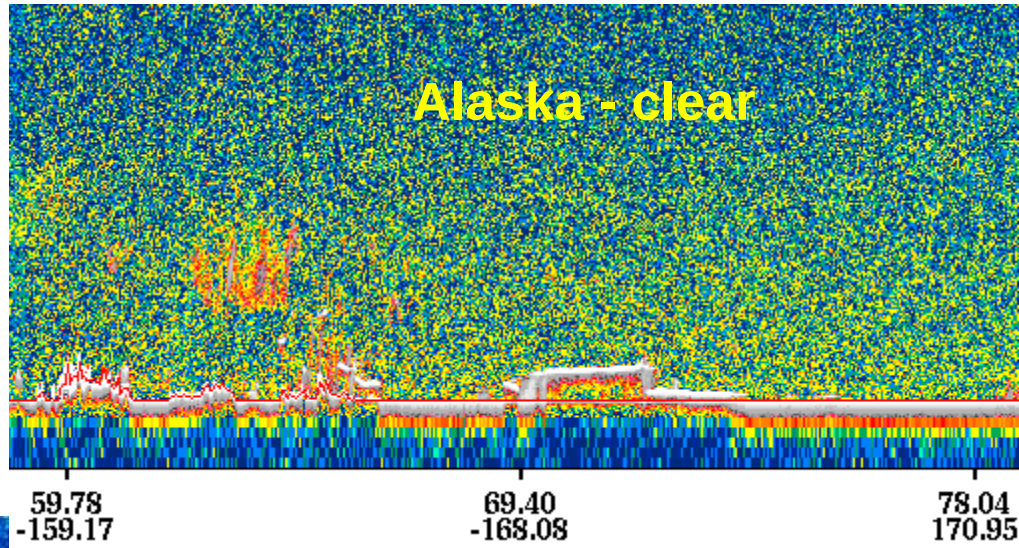


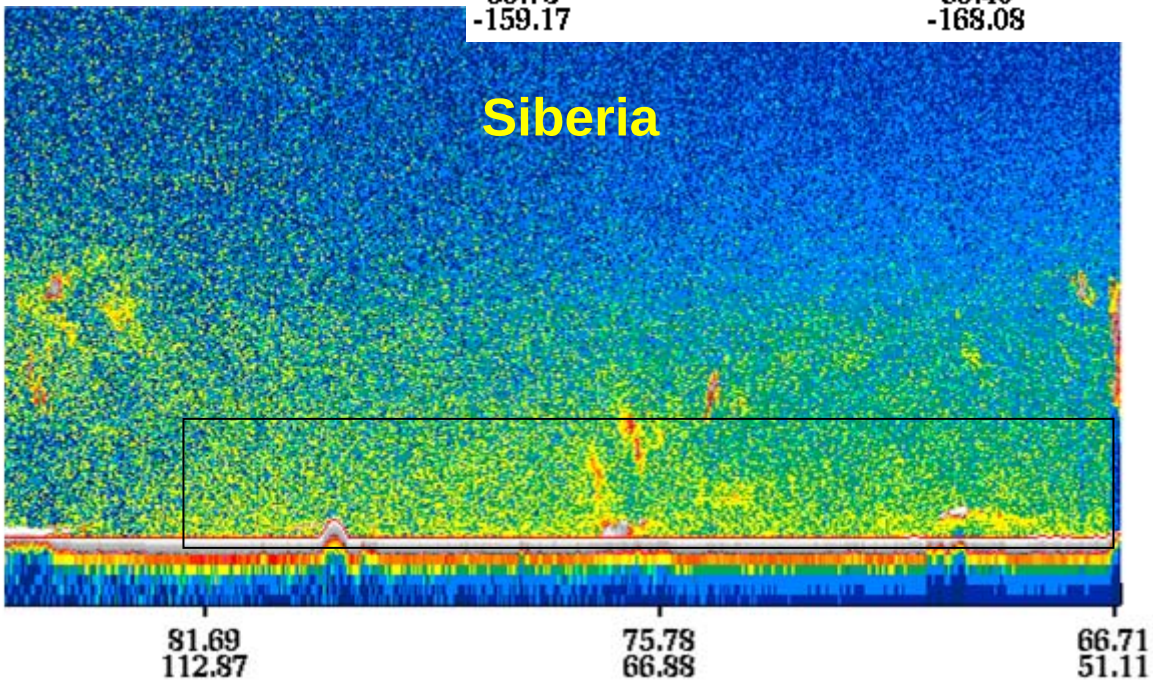
very weak haze



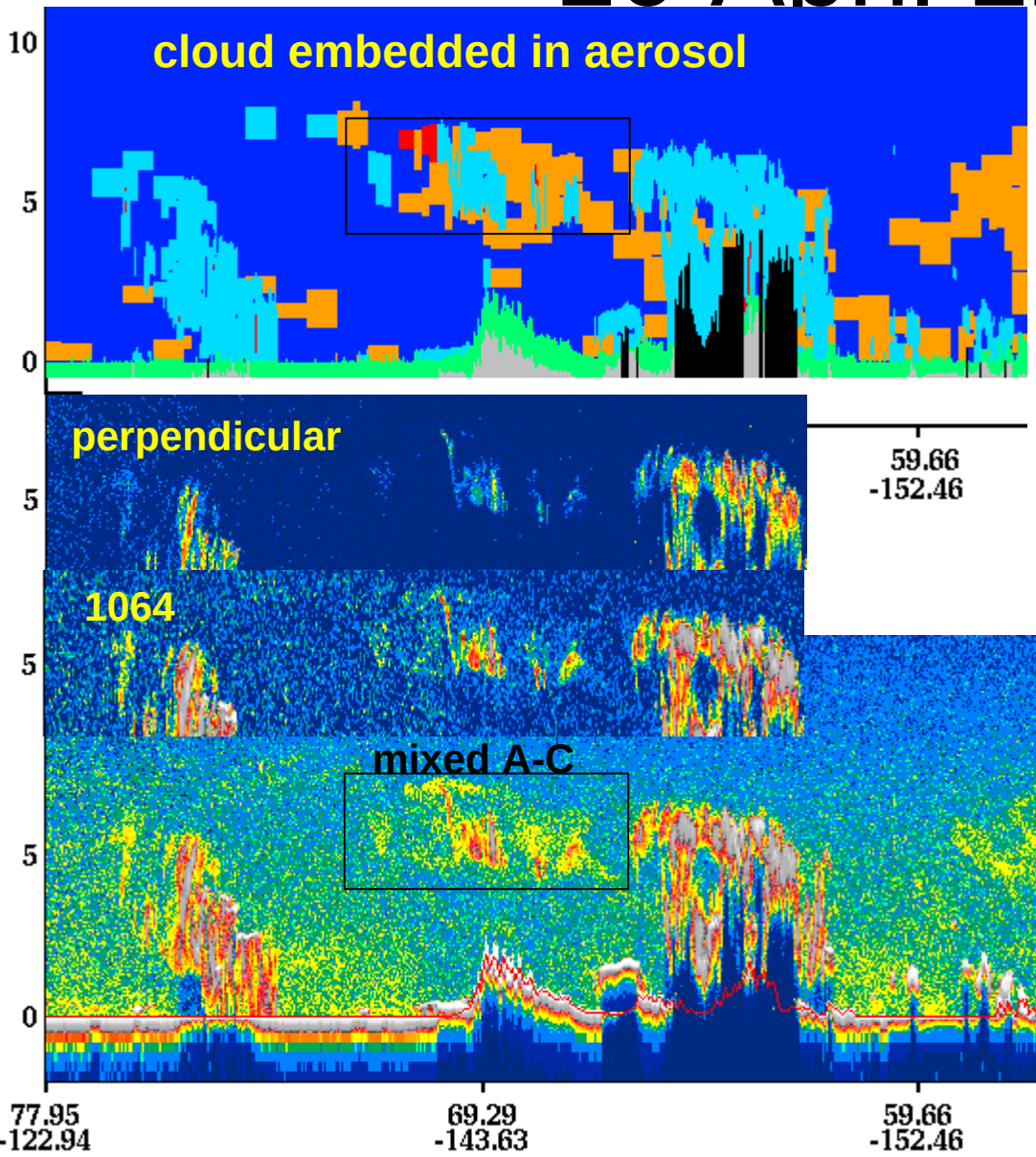
9 April 2230Z

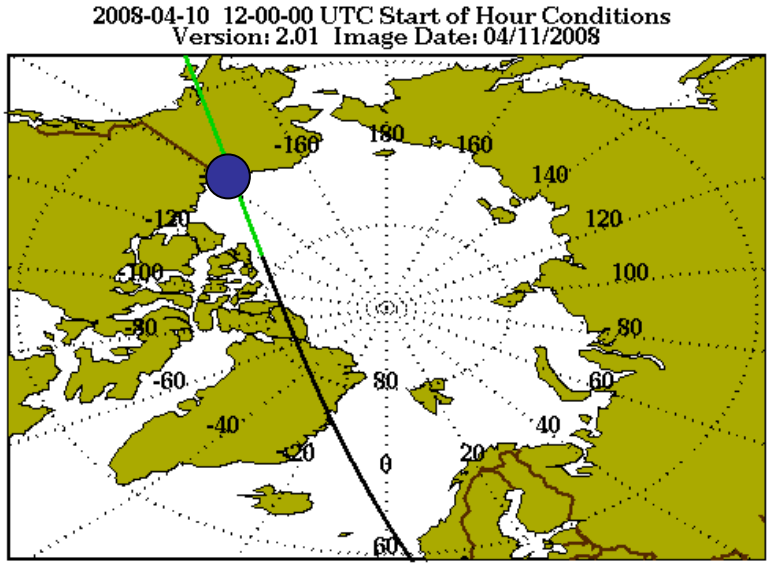




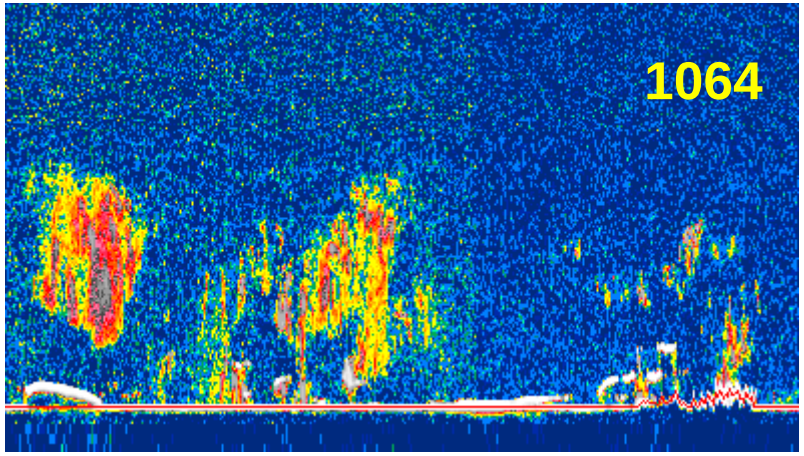


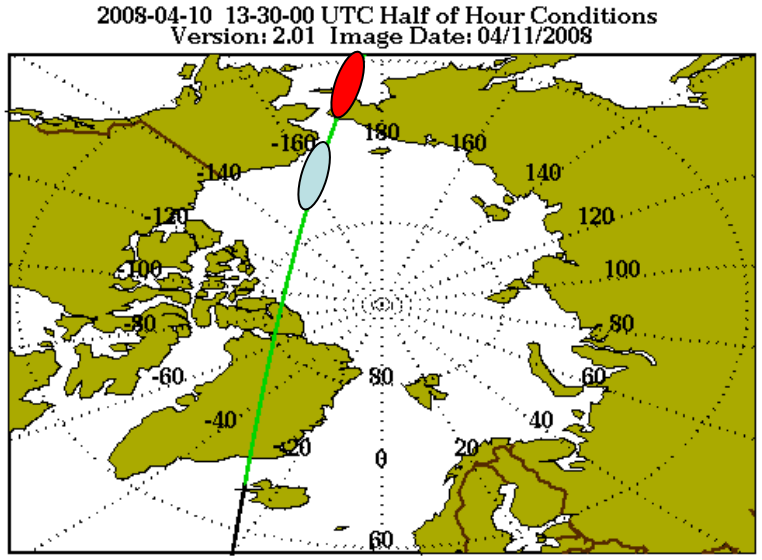
10 April 1200Z

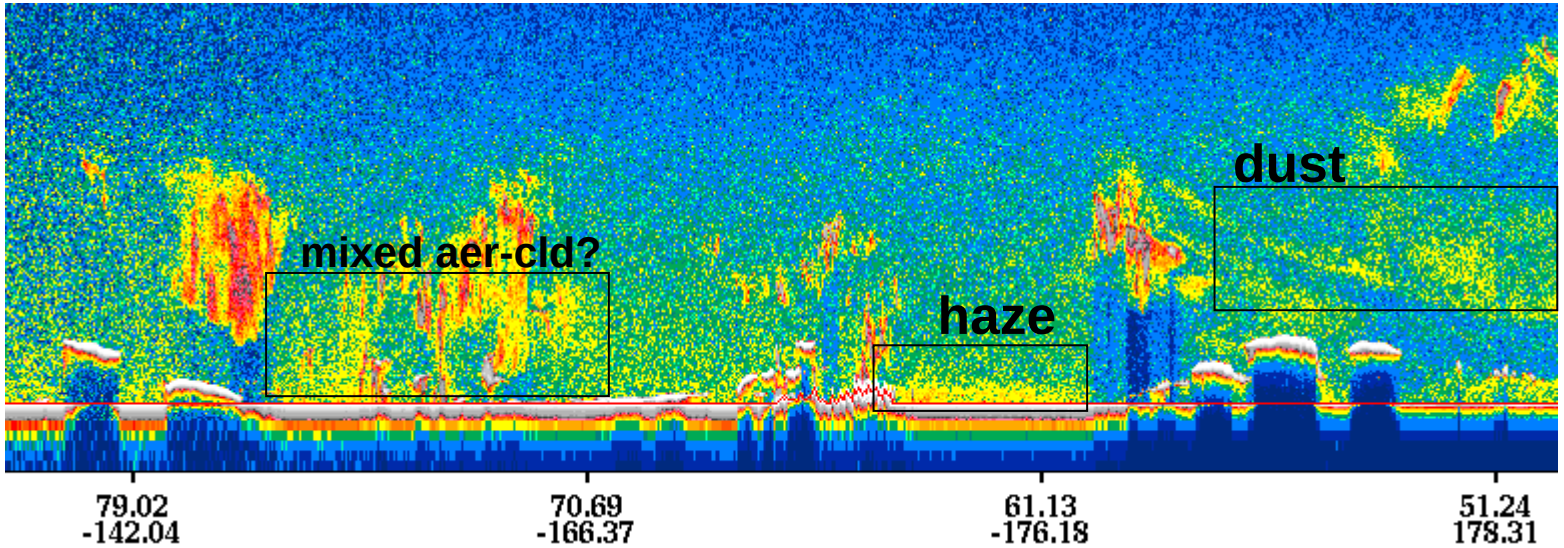


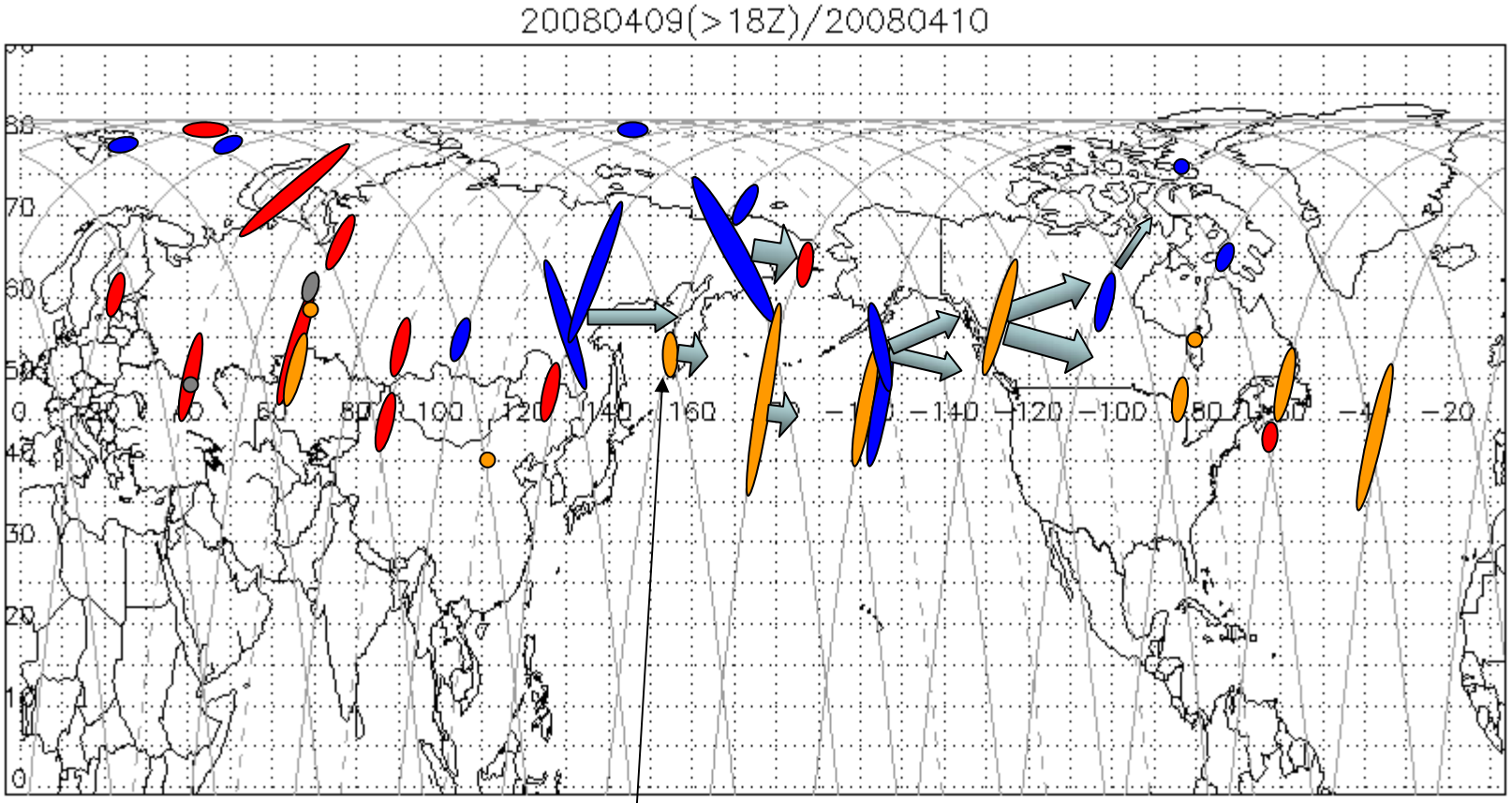


10 April 1330Z





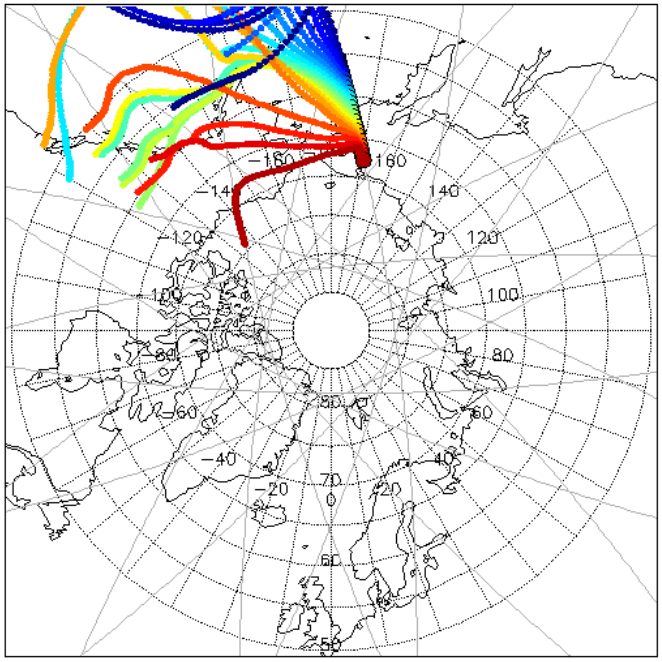




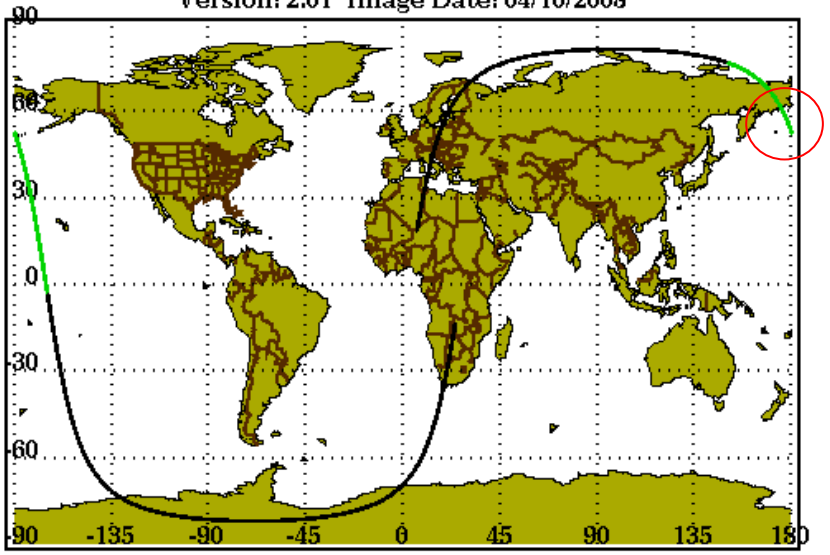
Thick dust plume at 5-10km at 15Z

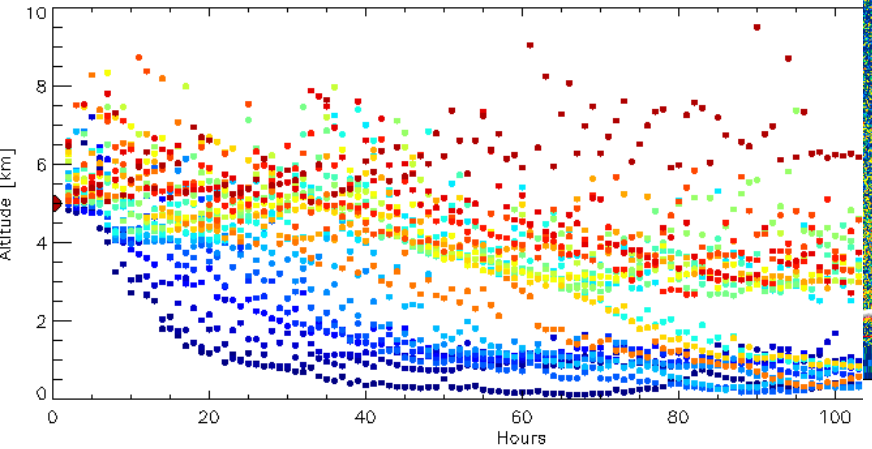
108hr CALIPSO Trajectories Initialized 2008041000 Valid 200

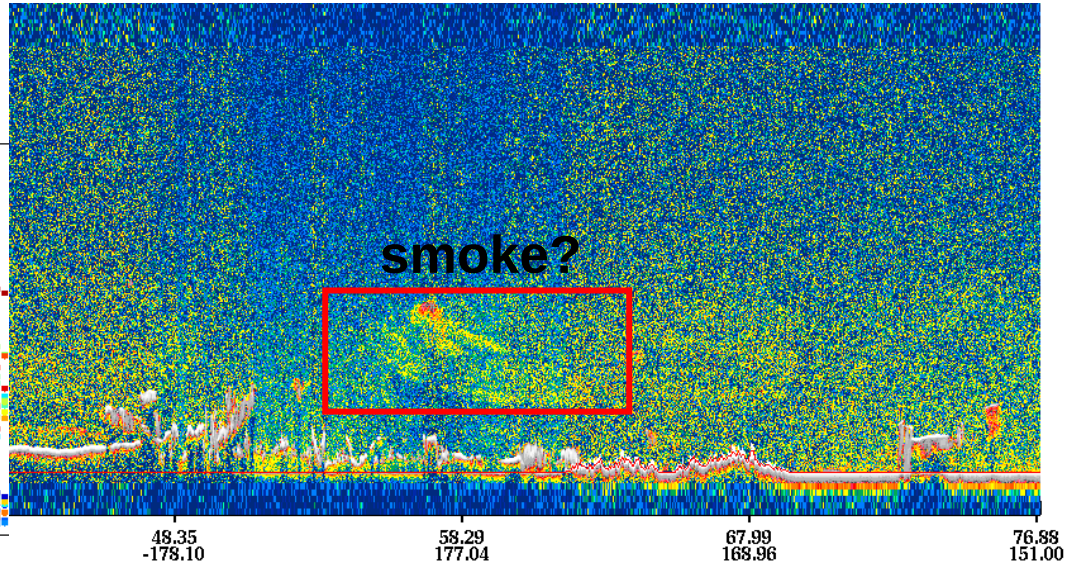
Initial Altitude: 5000m

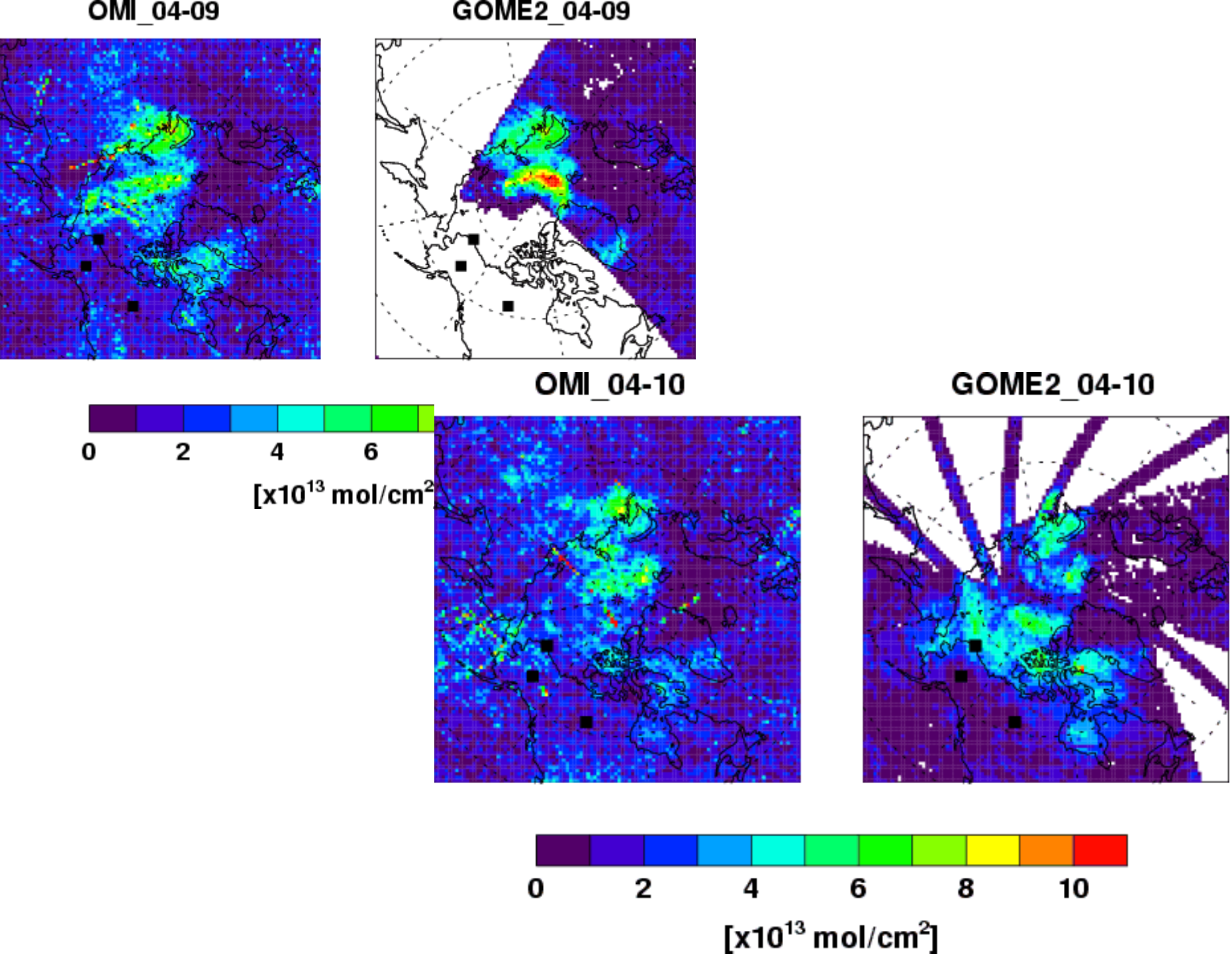


2008-04-10 00-00-00 UTC Start of Hour Conditions
Version: 2.01 Image Date: 04/10/2008



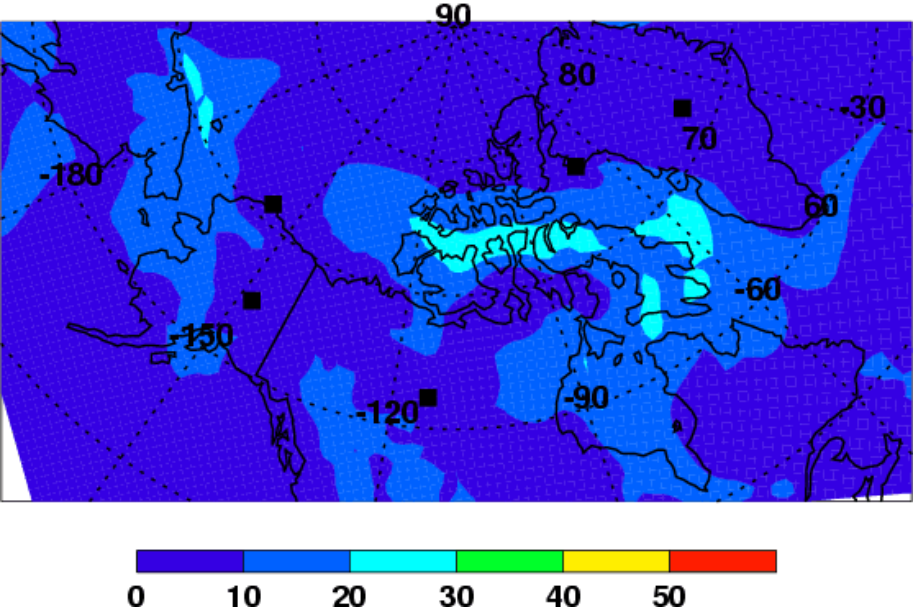




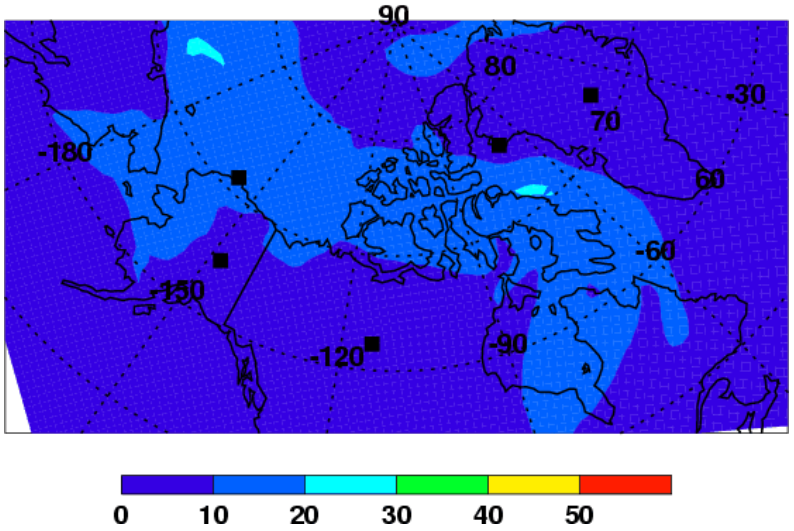

OMI_04-09
GOME2_04-09
OMI_04-10
GOME2_04-10
0
2
4
6
[x10^13 mol/cm^2]
0
2
4
6
8
10
[x10^13 mol/cm^2]

Initialization

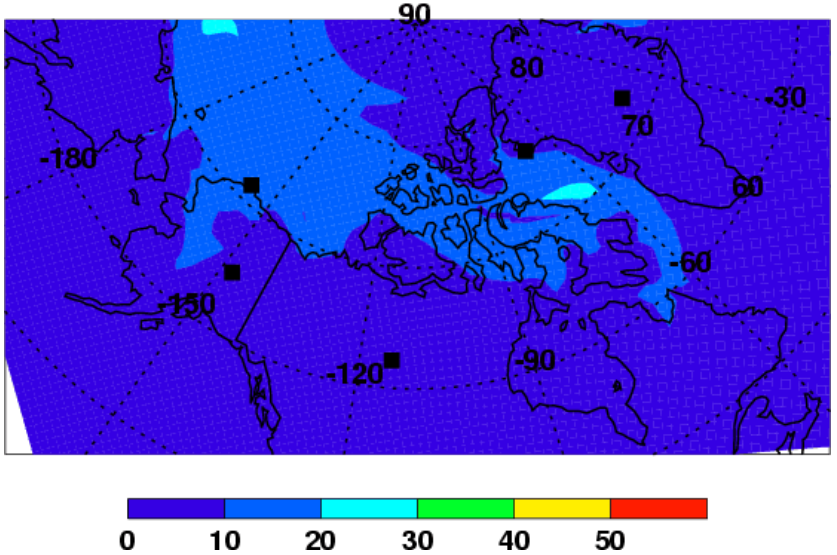
BrOx5 (pptv) at surface,Apr-11_0000 UTC



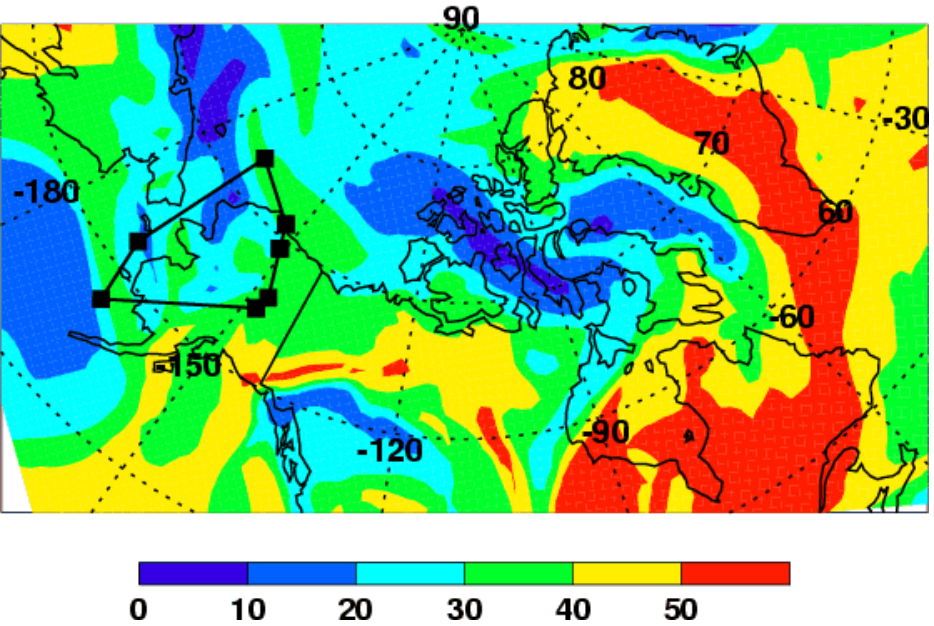
BrOx5 (pptv) at surface,Apr-12_2000 UTC



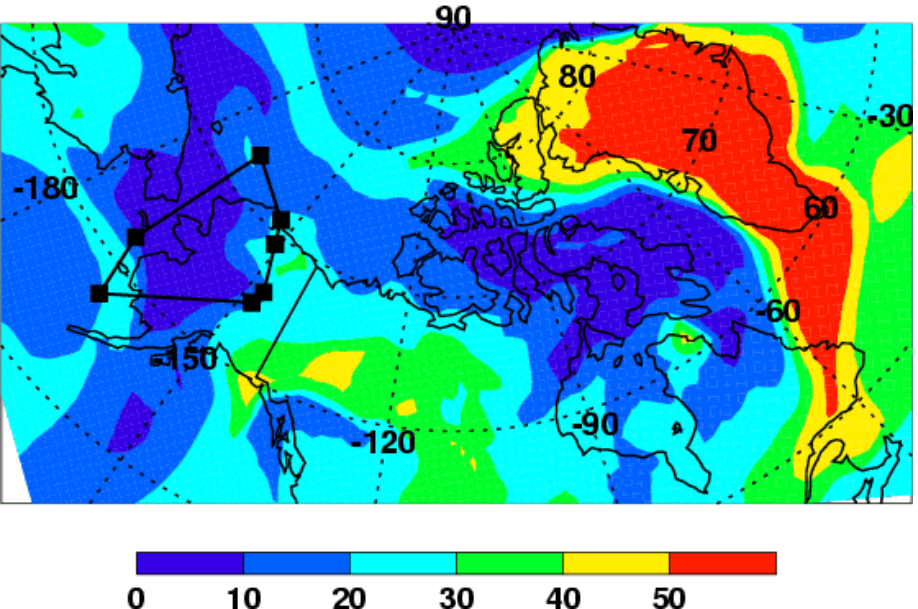
BrOx5 (pptv) at 300m,Apr-12_2000 UTC

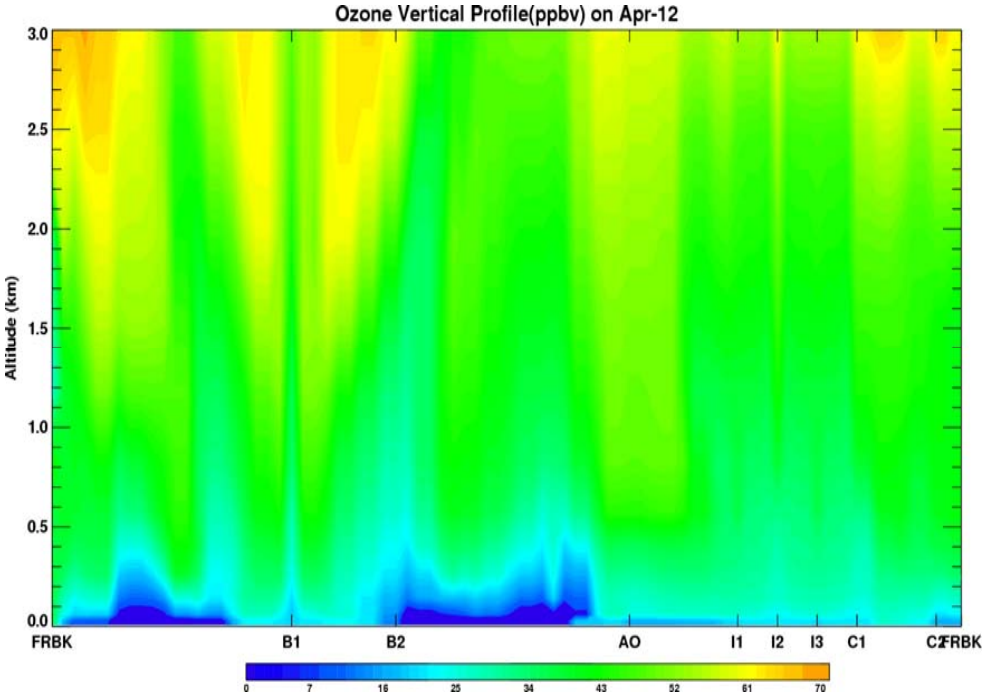


O_3 (ppbv) at 300m,Apr-12_2000 UTC



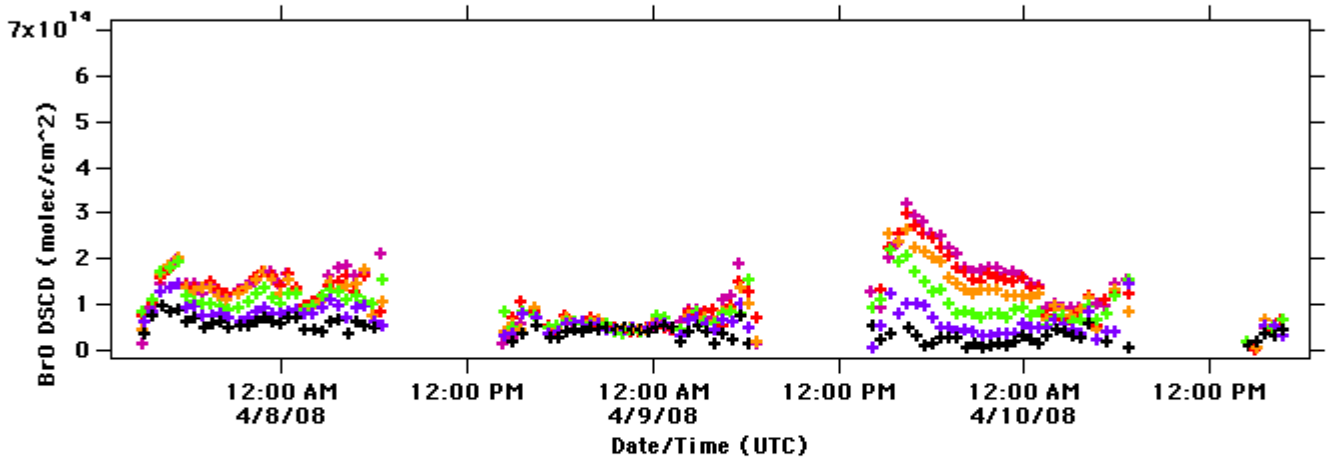
O_3 (ppbv) at surface,Apr-12_2000 UTC

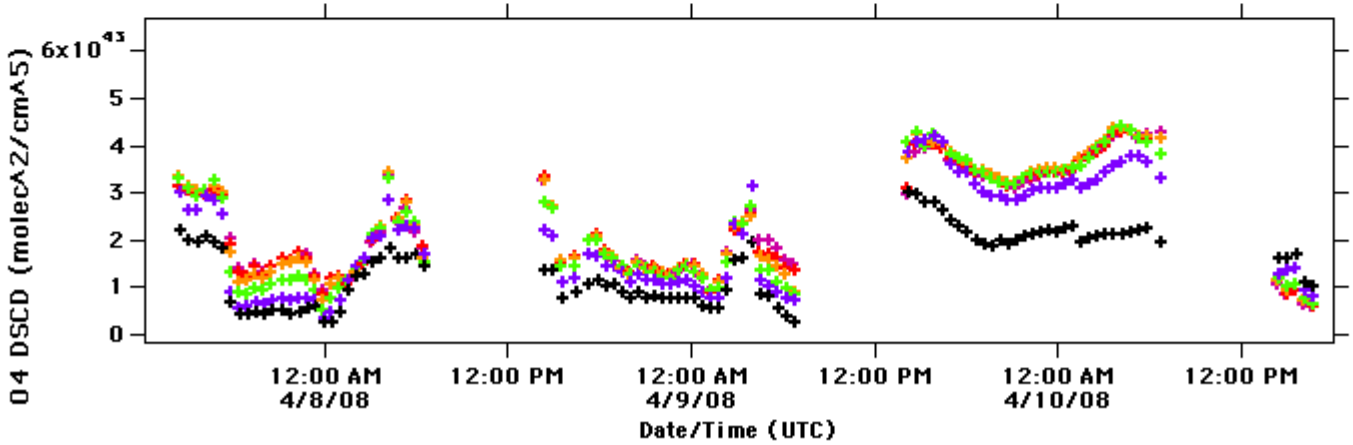




ear Real Time MAXDOAS Quicklook - Windows Internet Explorer
http://ozone.gi.alaska.edu/maxdoas/
Google
Go Bookmarks 65 blocked Check Look for Map AutoFill Settings
UAF Near Real Time MAXDOAS Quicklook
Page Tools

Visibility Limitations	Instrument visibility was very good April 9-10 UTC. Visibility is extremely limited around 15:00 UTC on April 10
Satellite comparison	OMI and GOME-2 show moderate levels of BrO

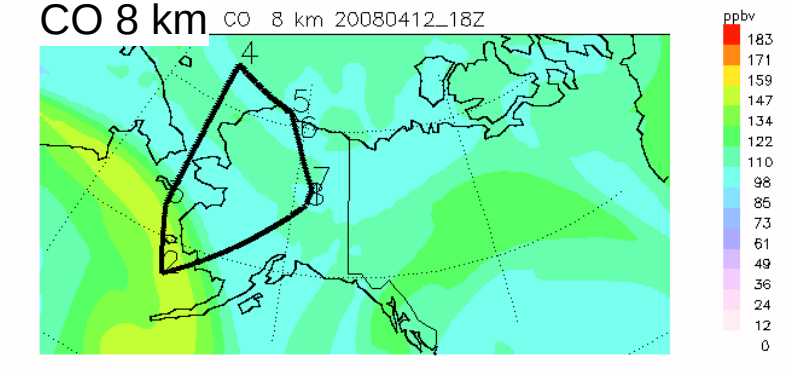




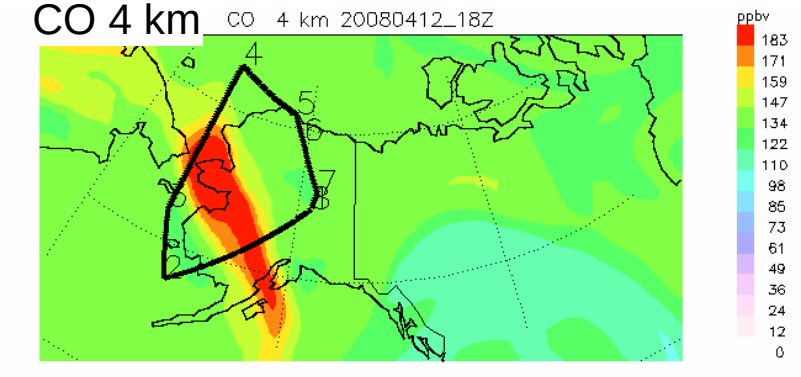
Internet | Protected Mode: Off
100%

MZ4/GFS forecast from Apr 10 for Apr 12 – DC8

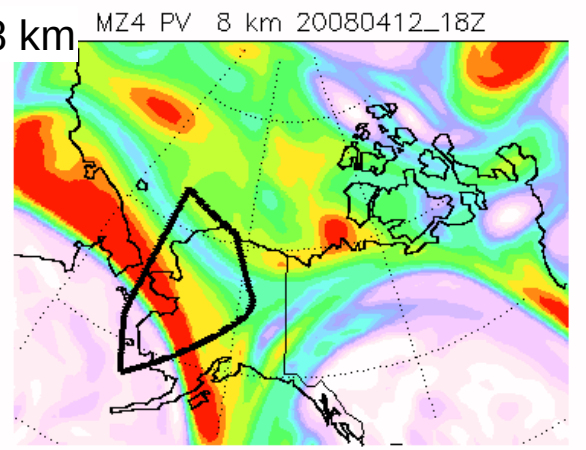
CO 8 km



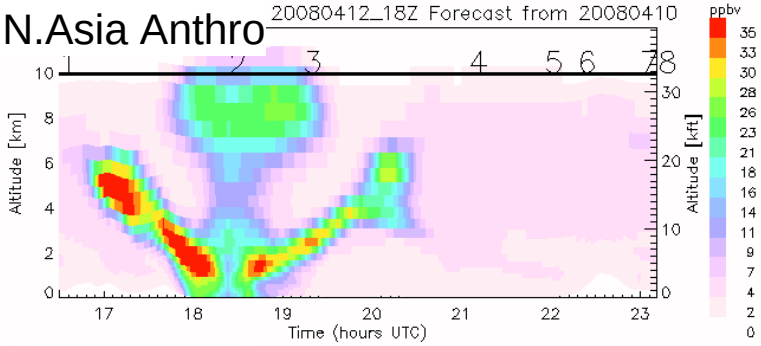
CO 4 km



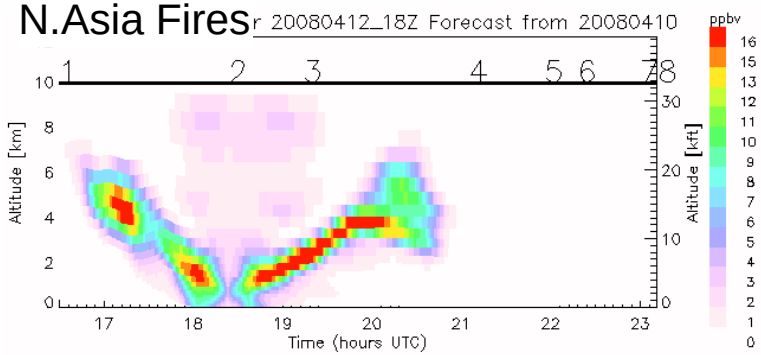
PV 8 km



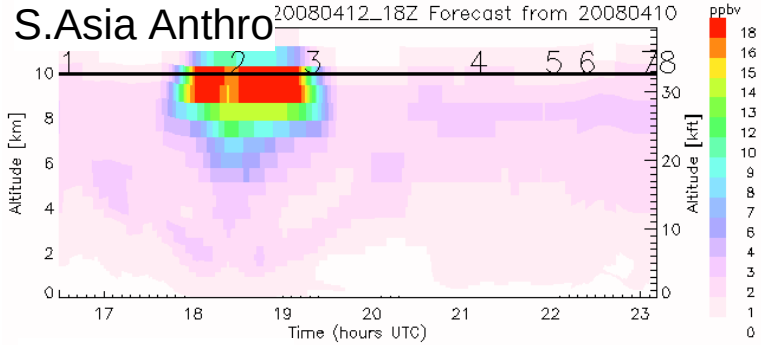
N.Asia Anthro



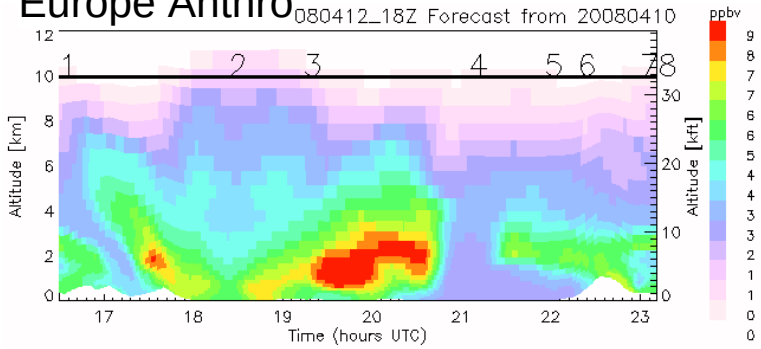
N.Asia Fires



S.Asia Anthro



Europe Anthro



MZ4/GFS forecast from Apr 10 for Apr 12

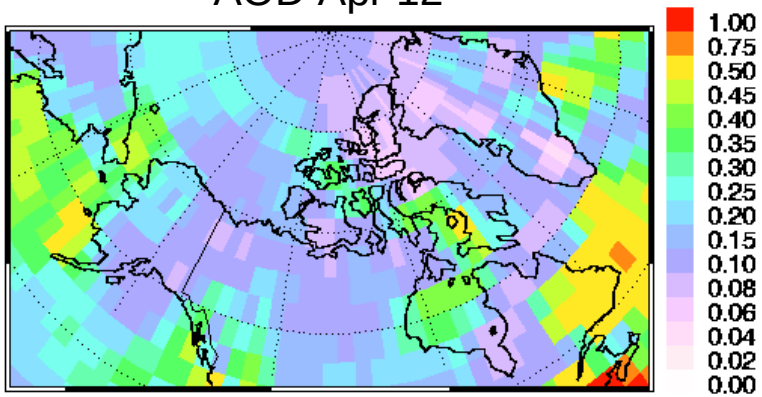
N.Asia Anthro

S.Asia Anthro

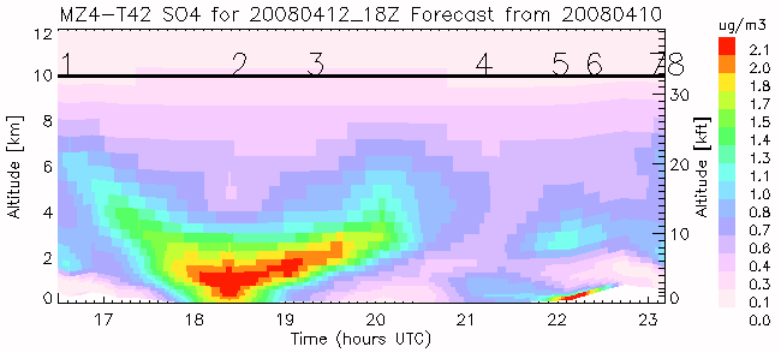
N.Asia Fires

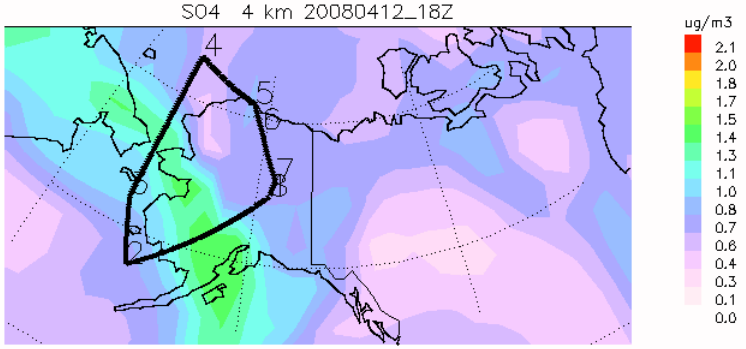
Europe Anthro

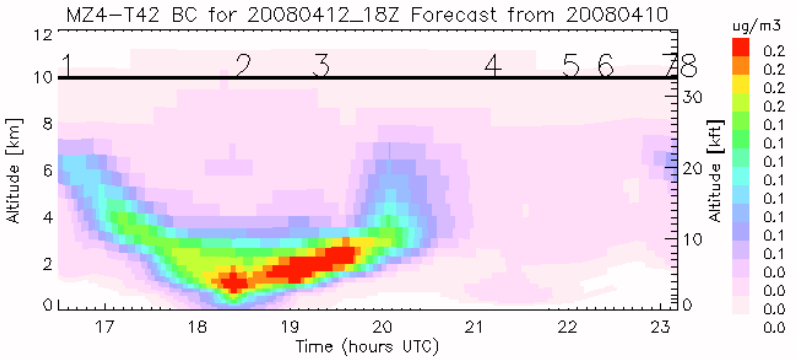
AOD Apr 12

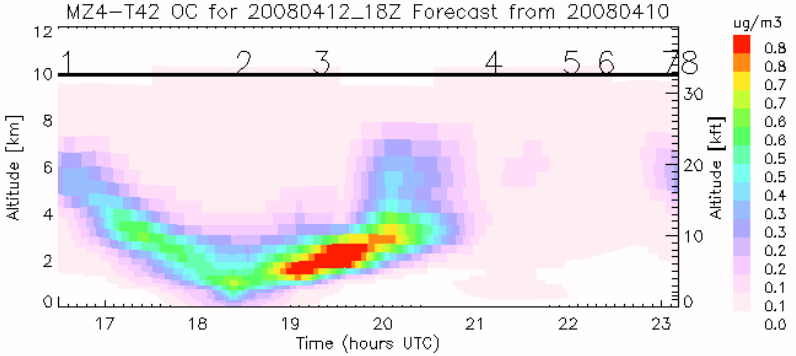


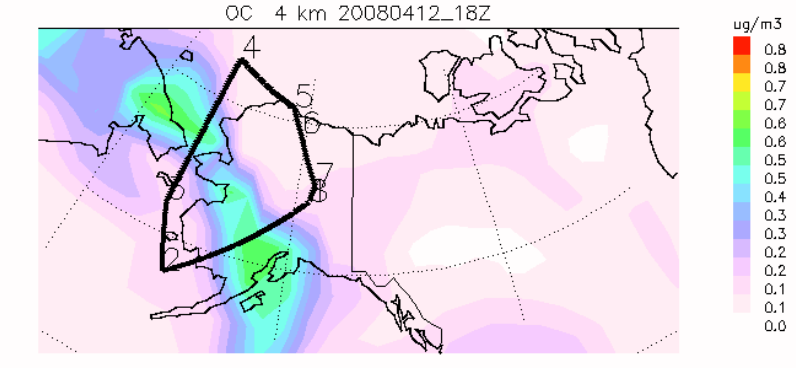
MOZART Forecast from 20080410





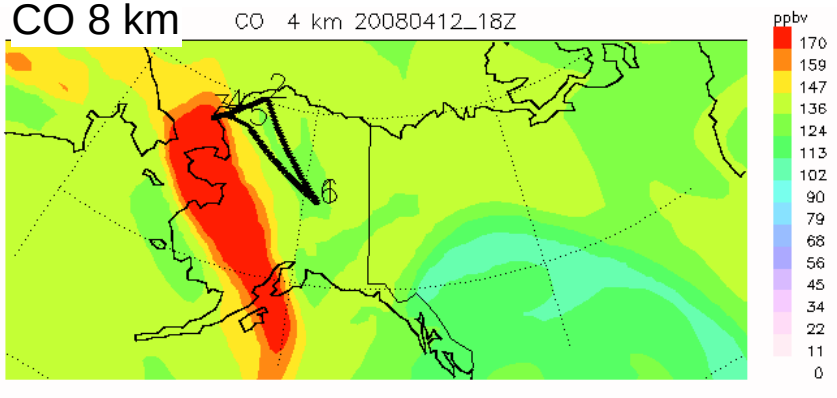




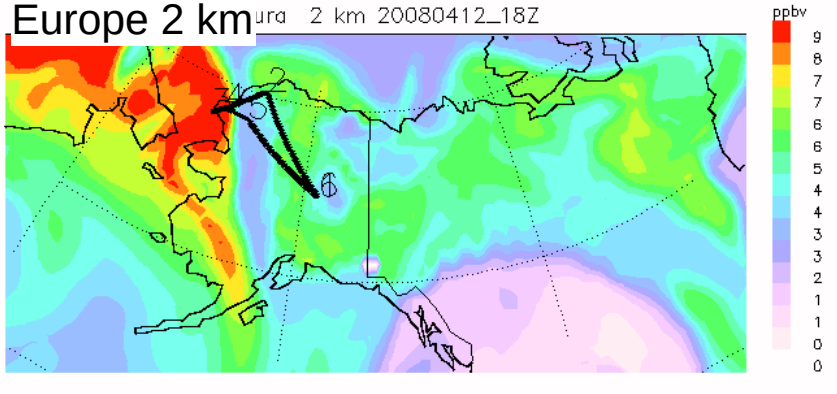


MZ4/GFS forecast from Apr 10 for Apr 12 – P3

CO 8 km



Europe 2 km



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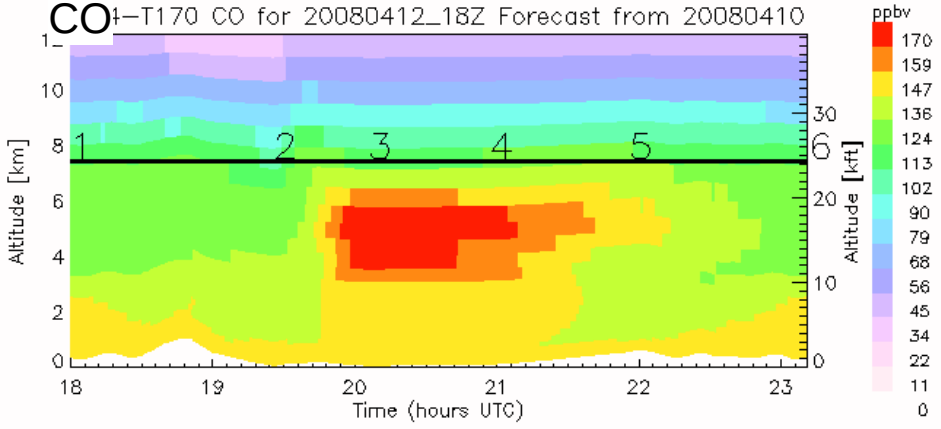
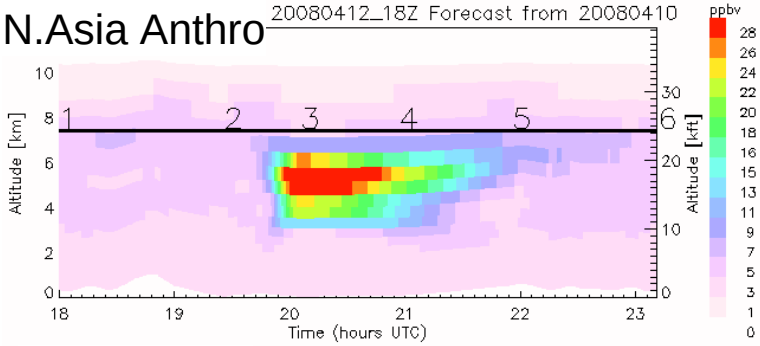
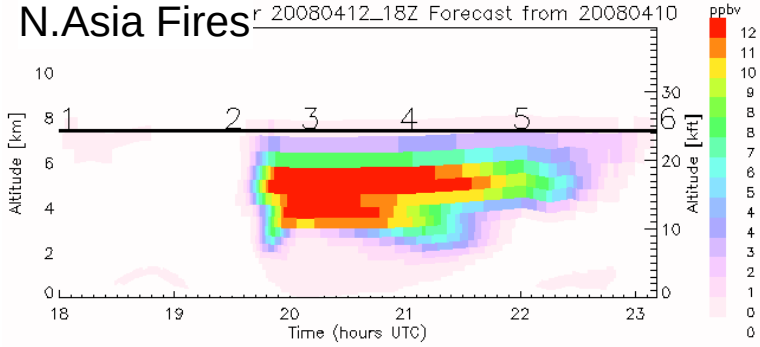


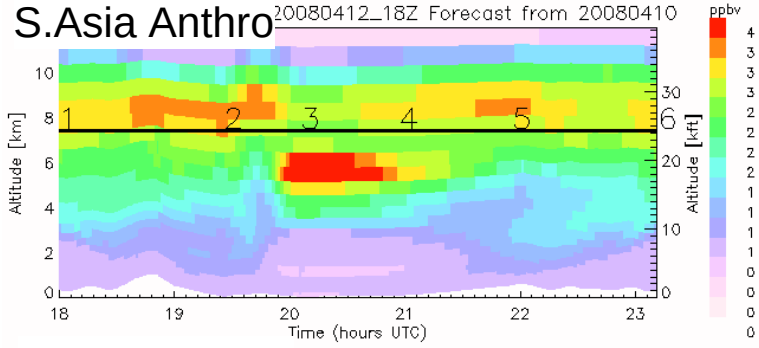
N.Asia Anthro



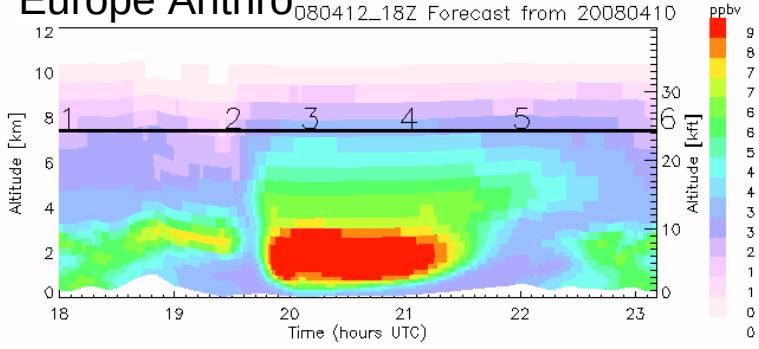
N.Asia Fires



S.Asia Anthro

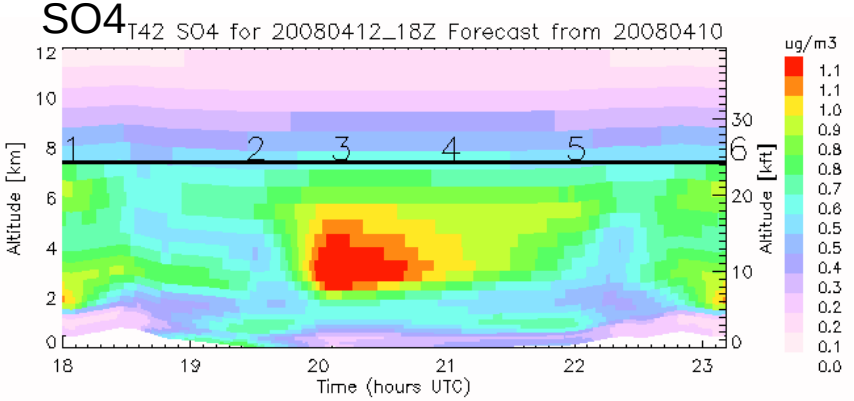


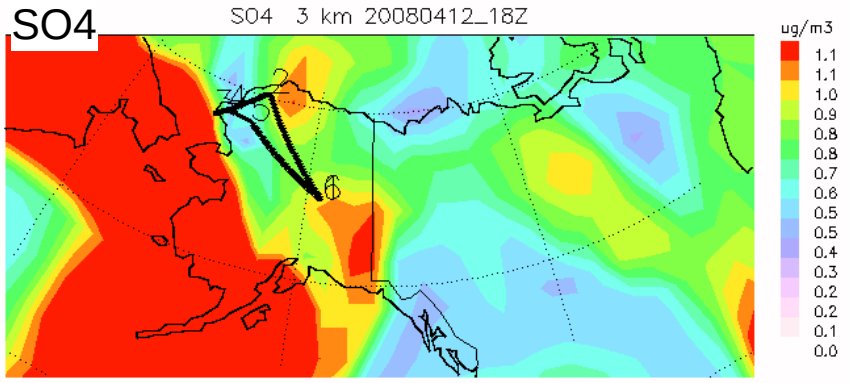
Europe Anthro



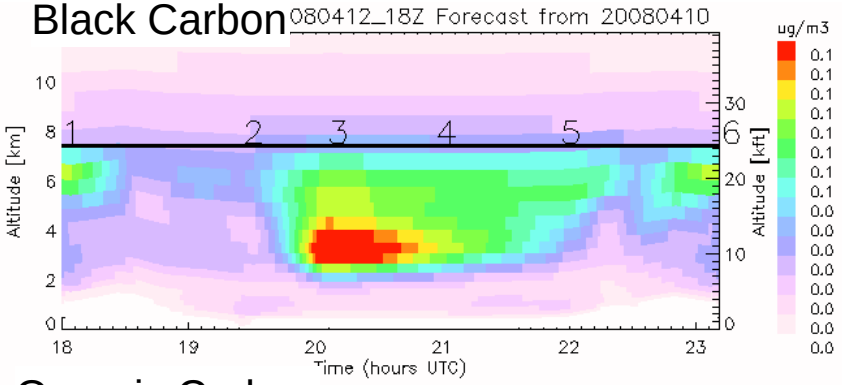
MZ4/GFS forecast from Apr 10 for Apr 12 – P3

SO4

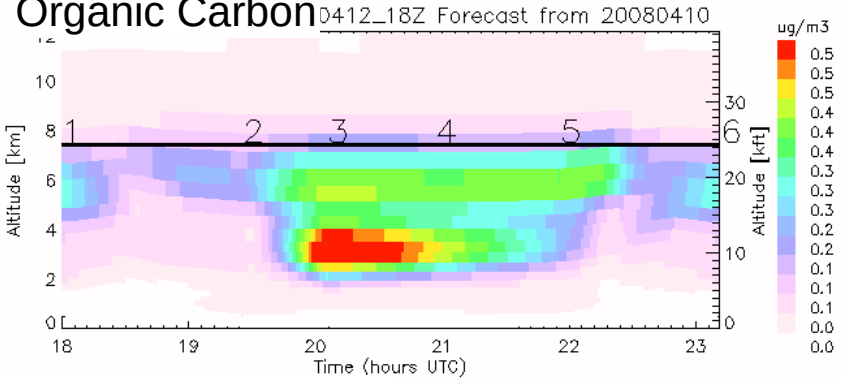




Black Carbon



Organic Carbon



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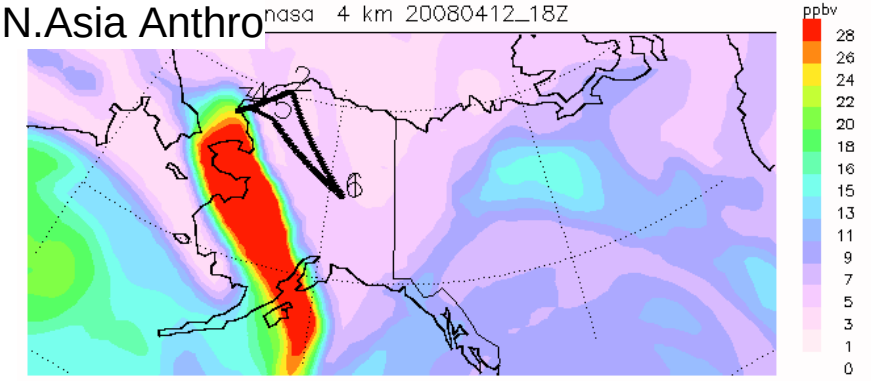
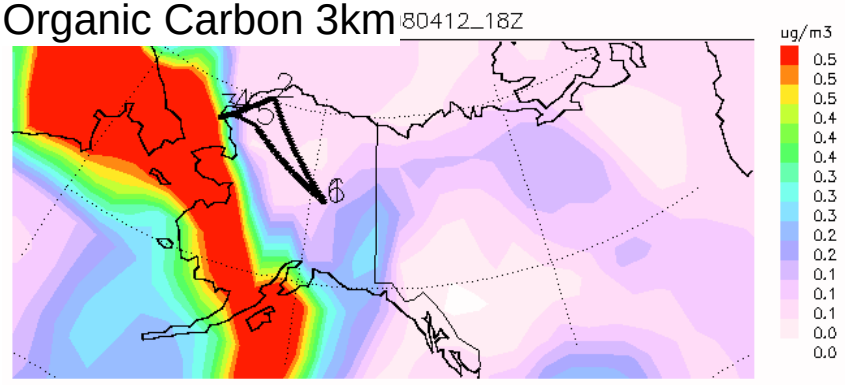
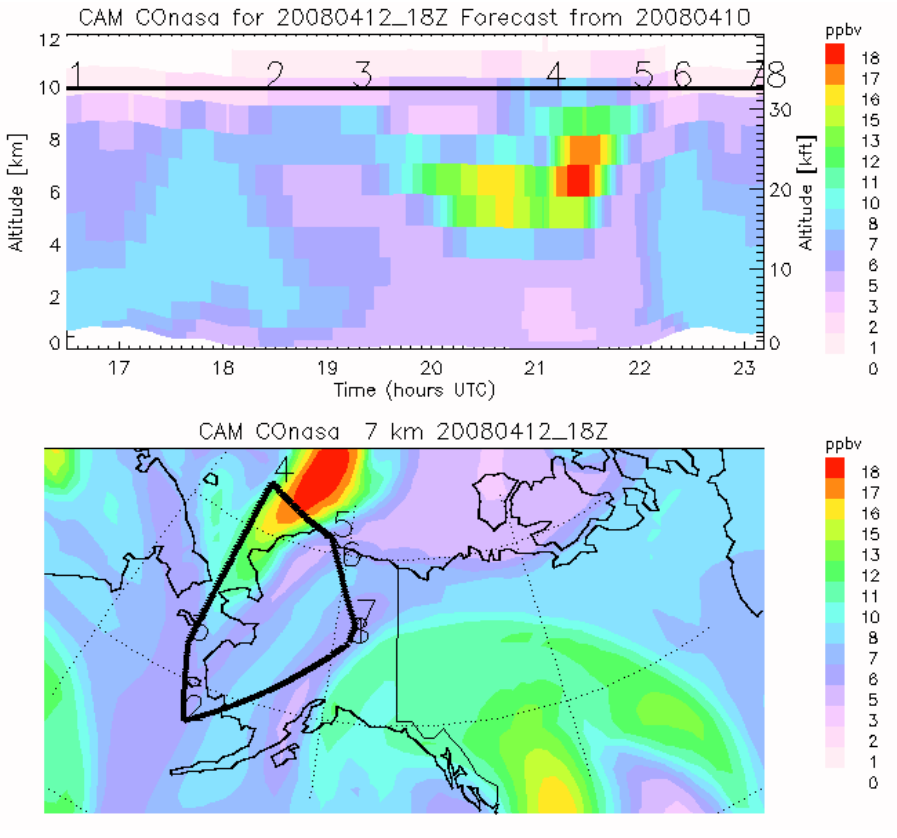


Organic Carbon 3km

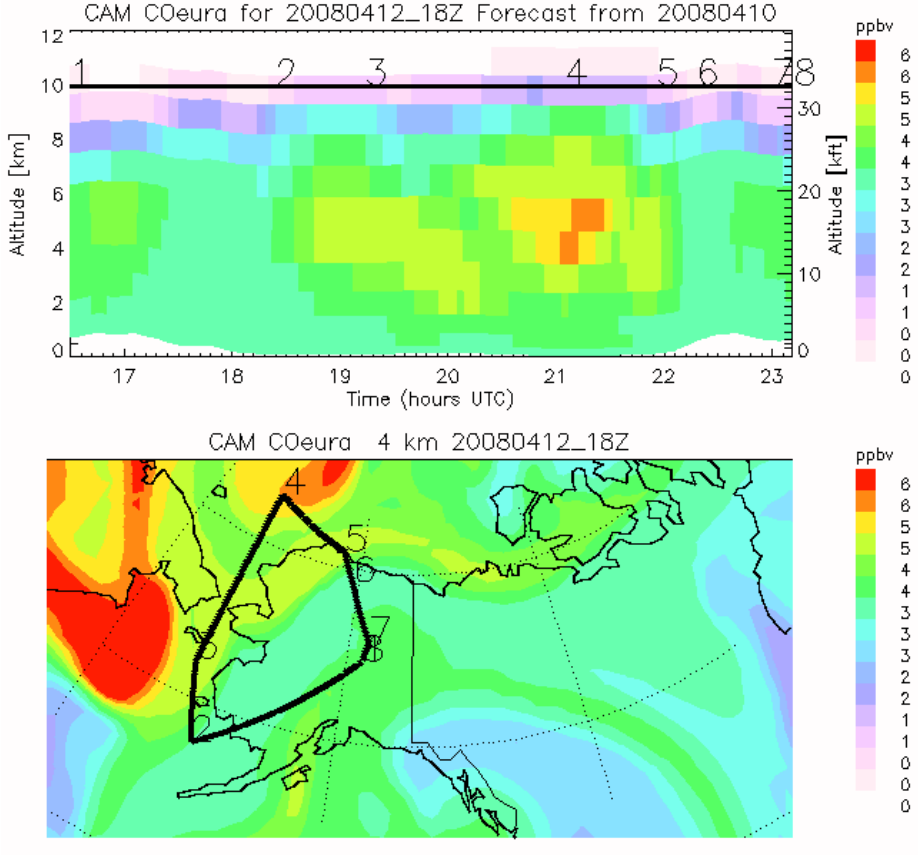


CAM/DART forecast
from Apr 10 for Apr 12

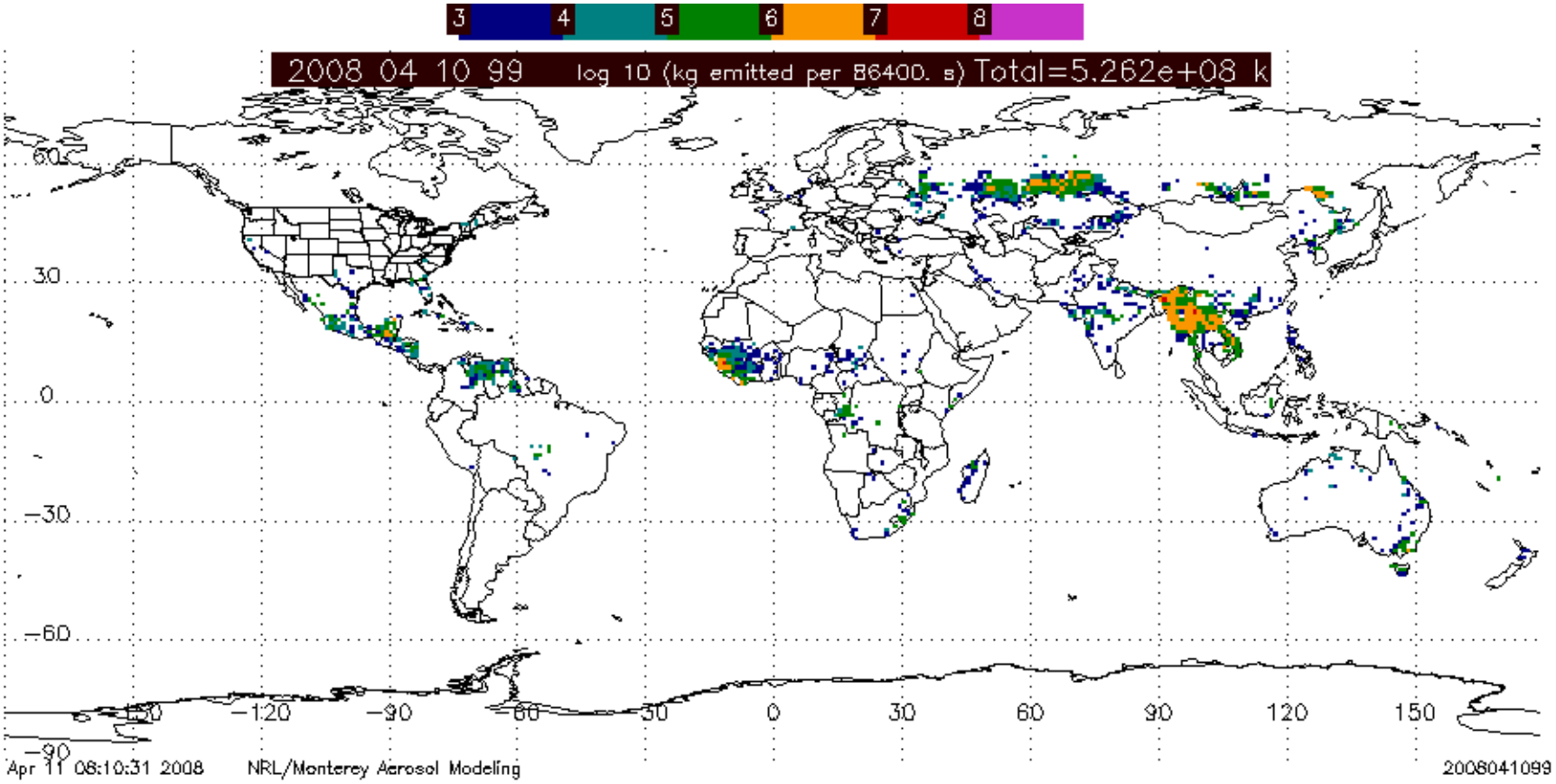
N.Asia Anthro



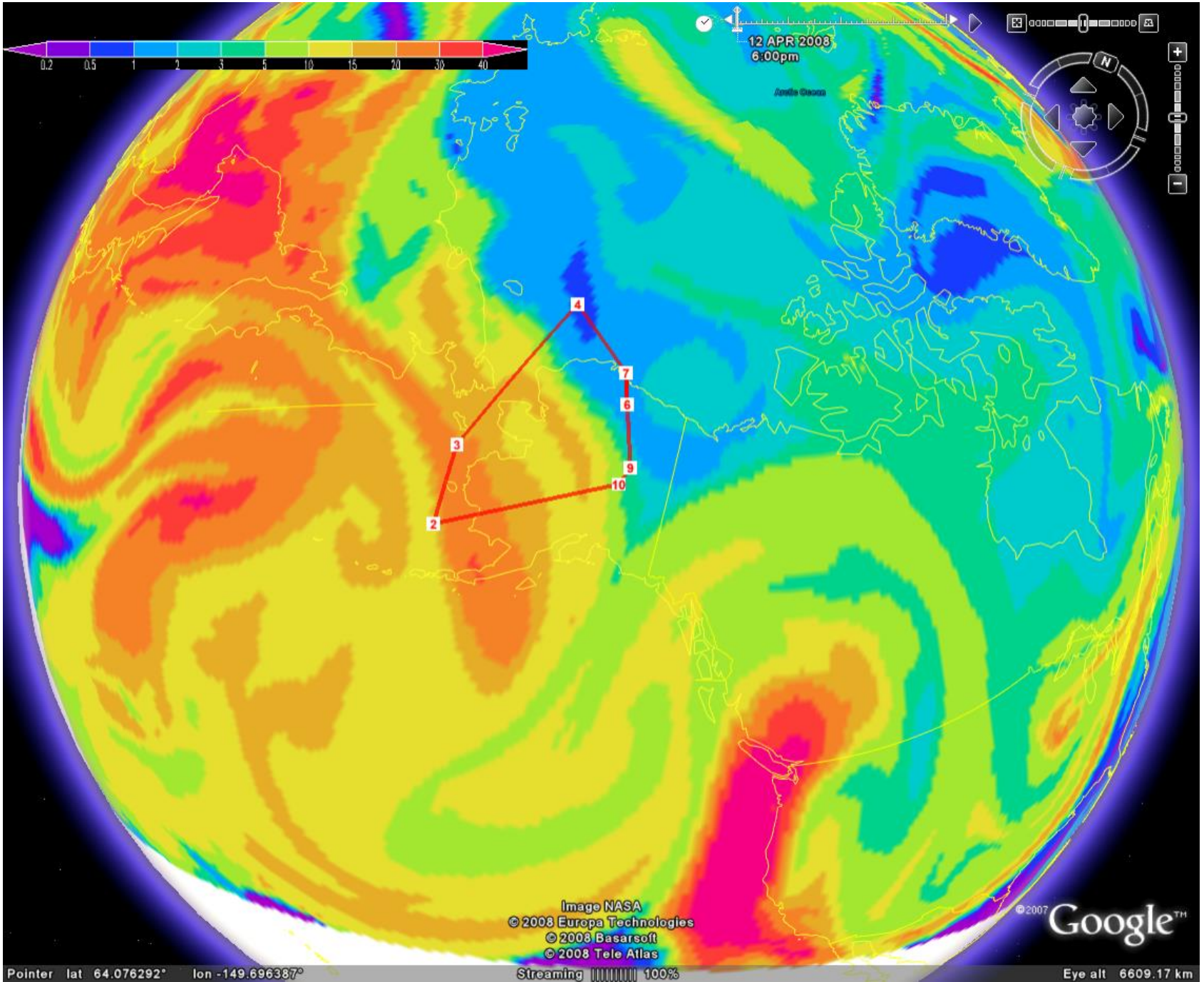
Europe Anthro



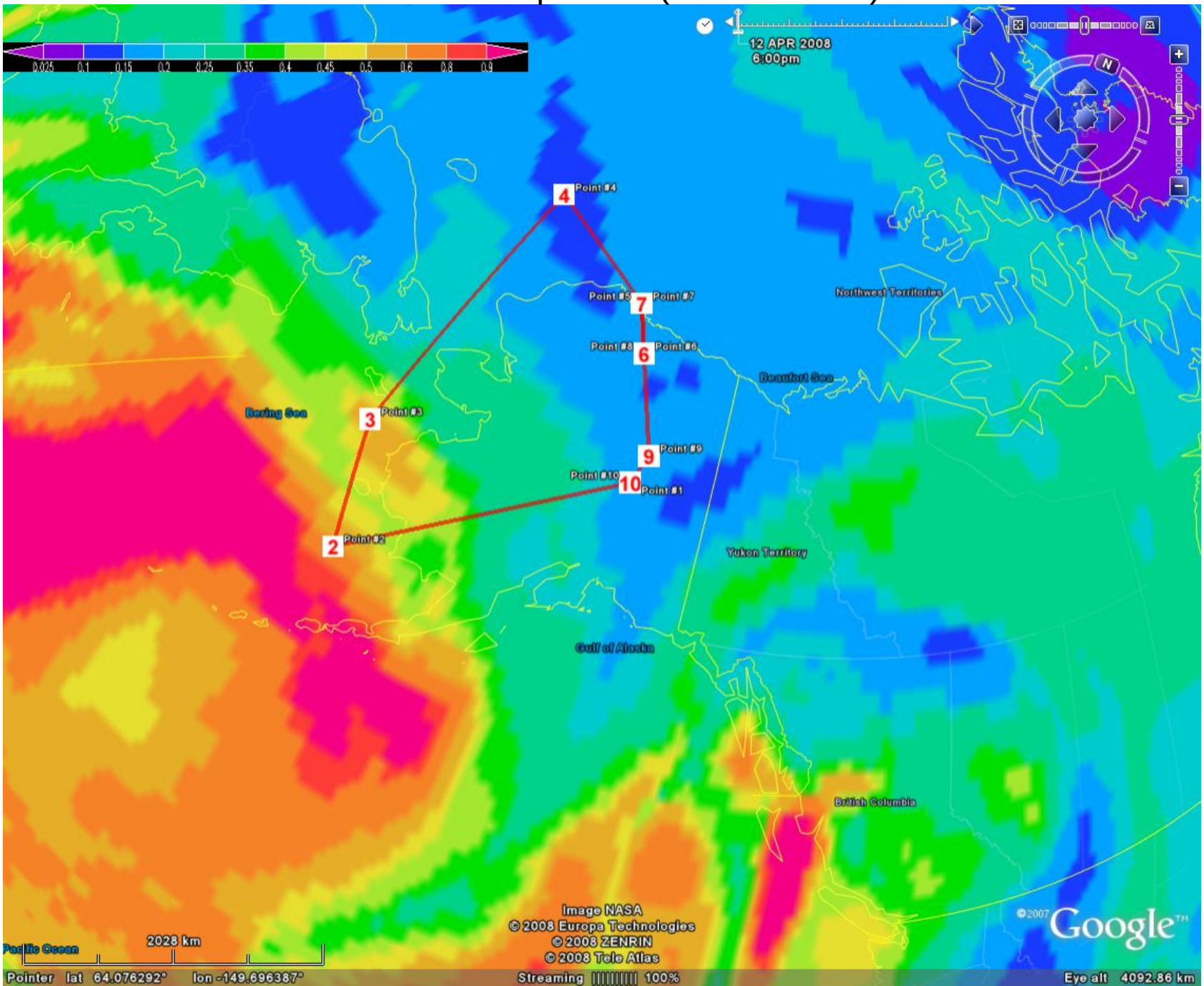
Biomass Emissions

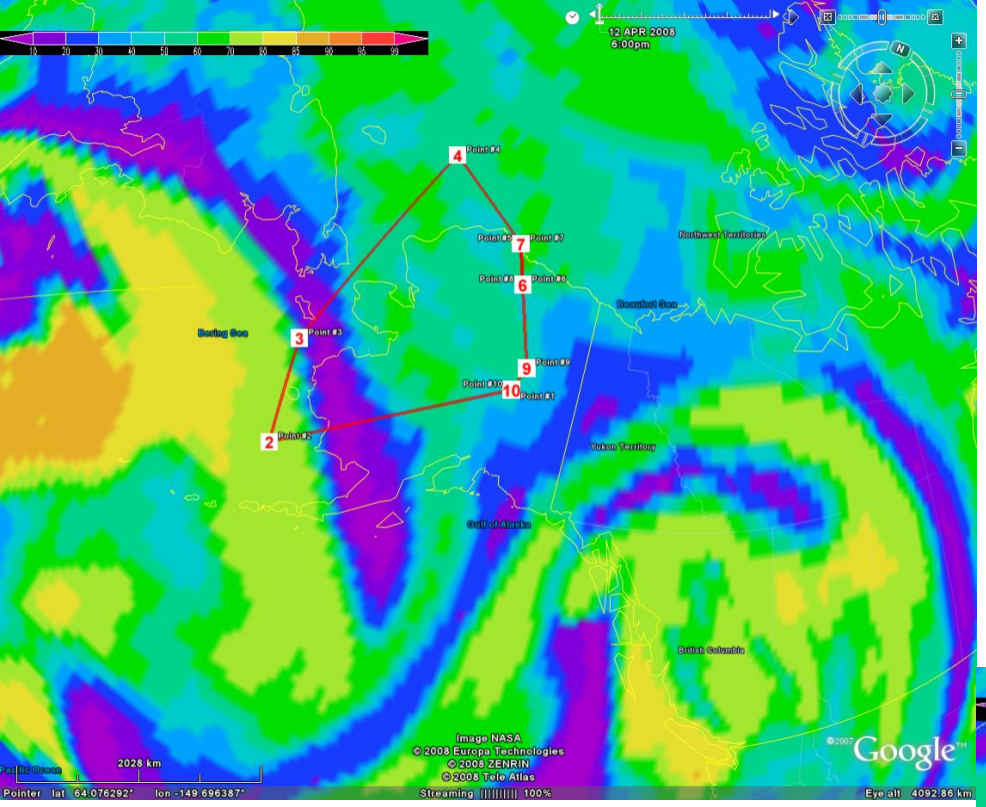


DC8-5.5 km Biomass CO, 42 hour forecast



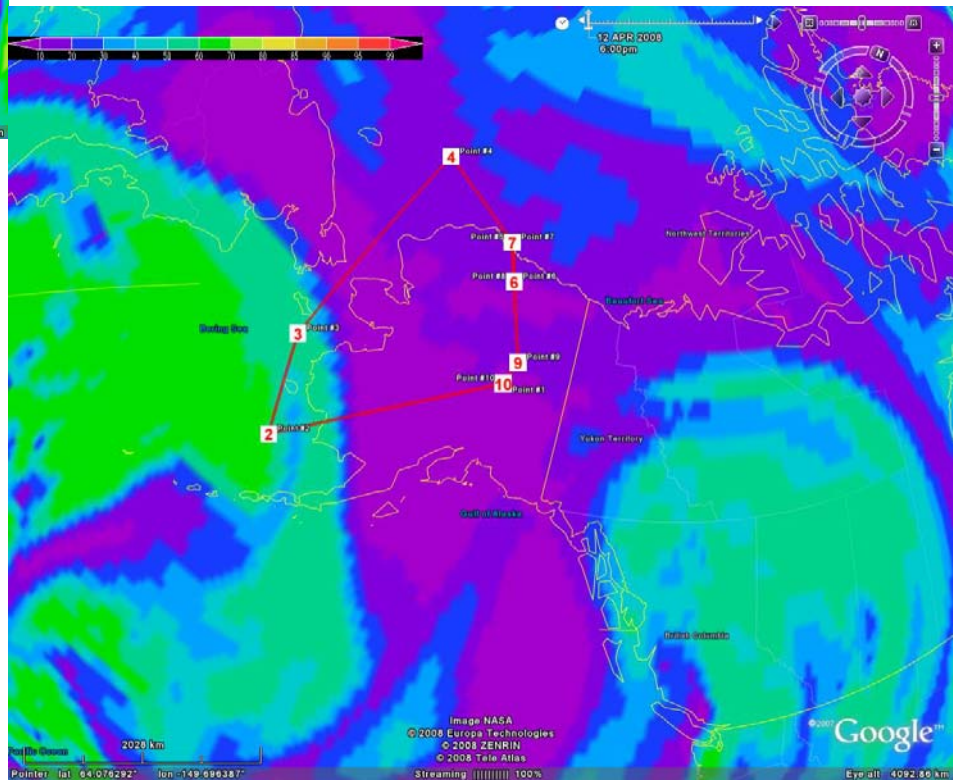
DC8- AOD for April 12th (42hr forecast)

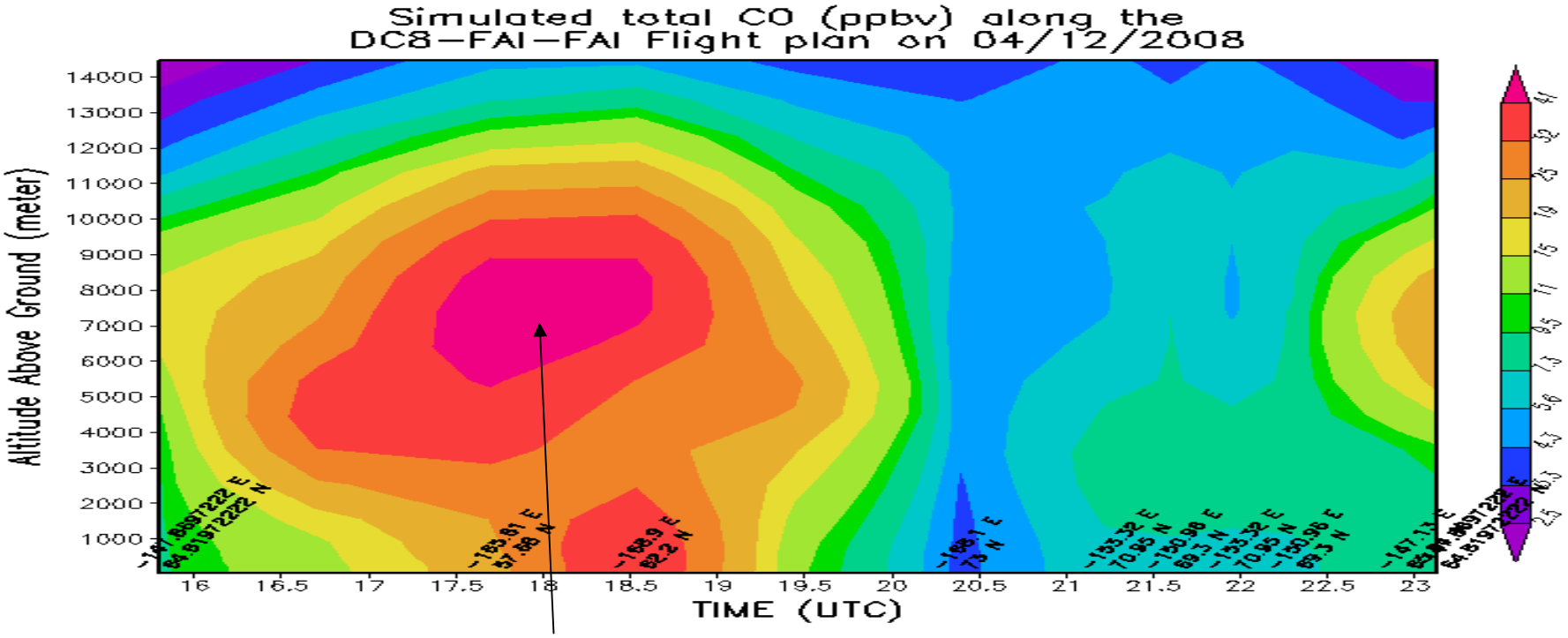




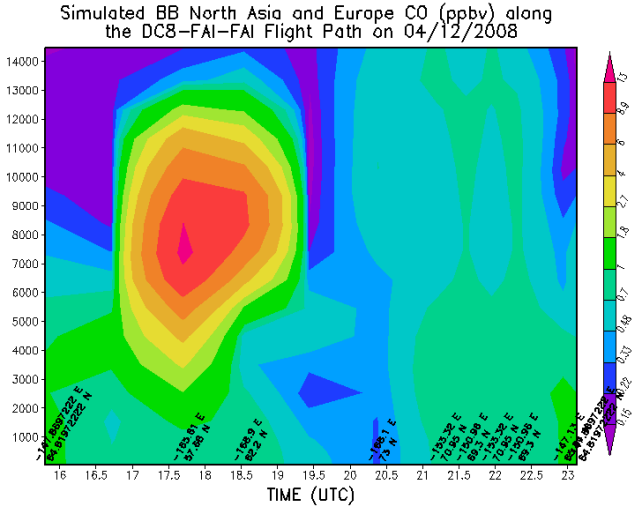
RH at 5.5 km (42 hr forecast)

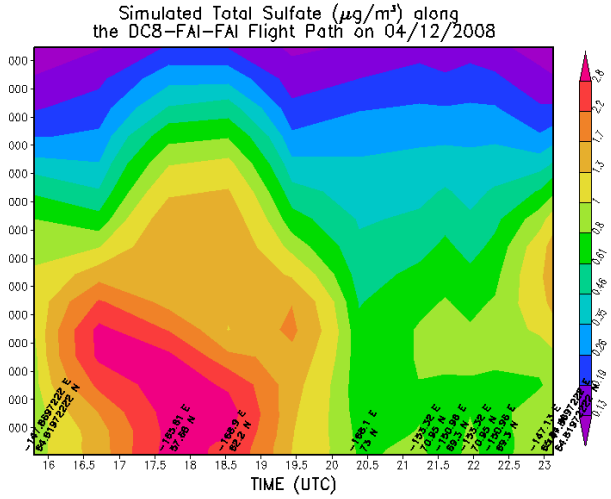
RH 8.4 km (42 hr)

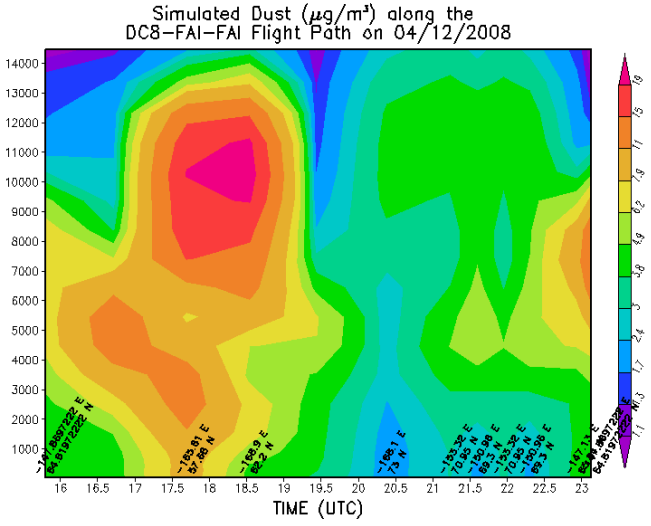



Simulated total CO (ppbv) along the
DC8-FAI-FAI Flight plan on 04/12/2008
Altitude Above Ground (meter)
TIME (UTC)

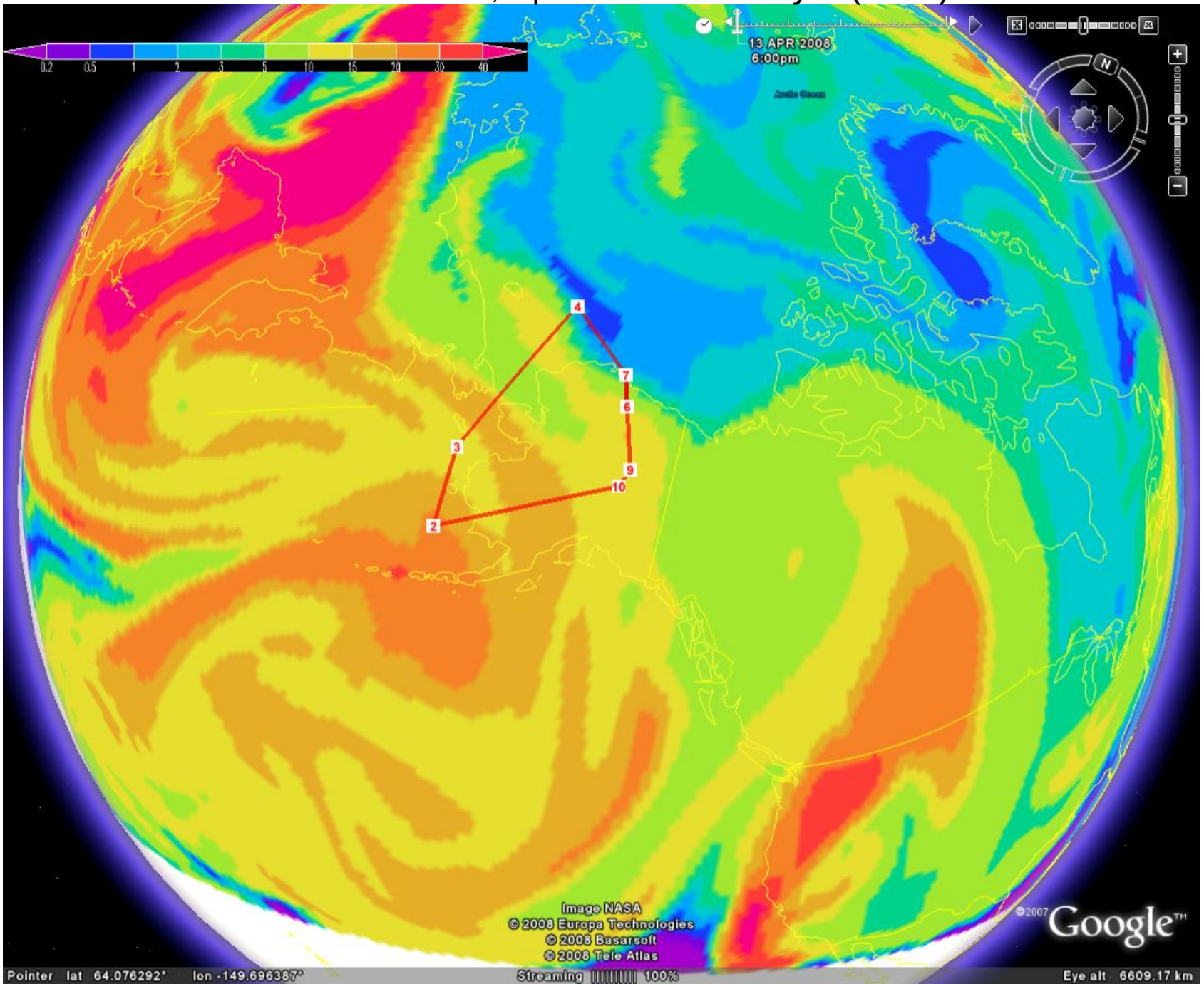
Asian CO/BB


Simulated BB North Asia and Europe CO (ppbv) along
the DC8-FAI-FAI Flight Path on 04/12/2008
TIME (UTC)

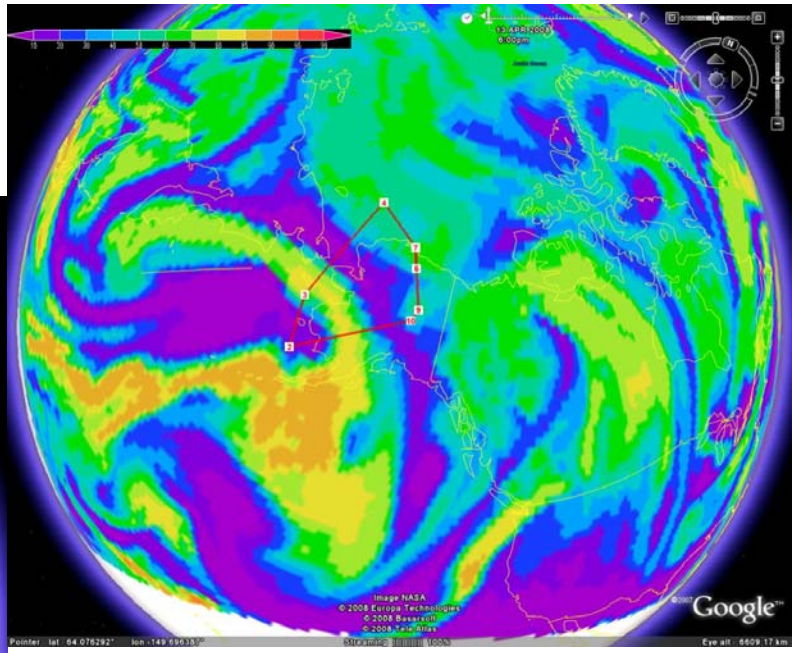

Simulated Total Sulfate (μg/m³) along
the DC8-FAI-FAI Flight Path on 04/12/2008
TIME (UTC)


Simulated Dust (μg/m³) along the
DC8-FAI-FAI Flight Path on 04/12/2008
TIME (UTC)

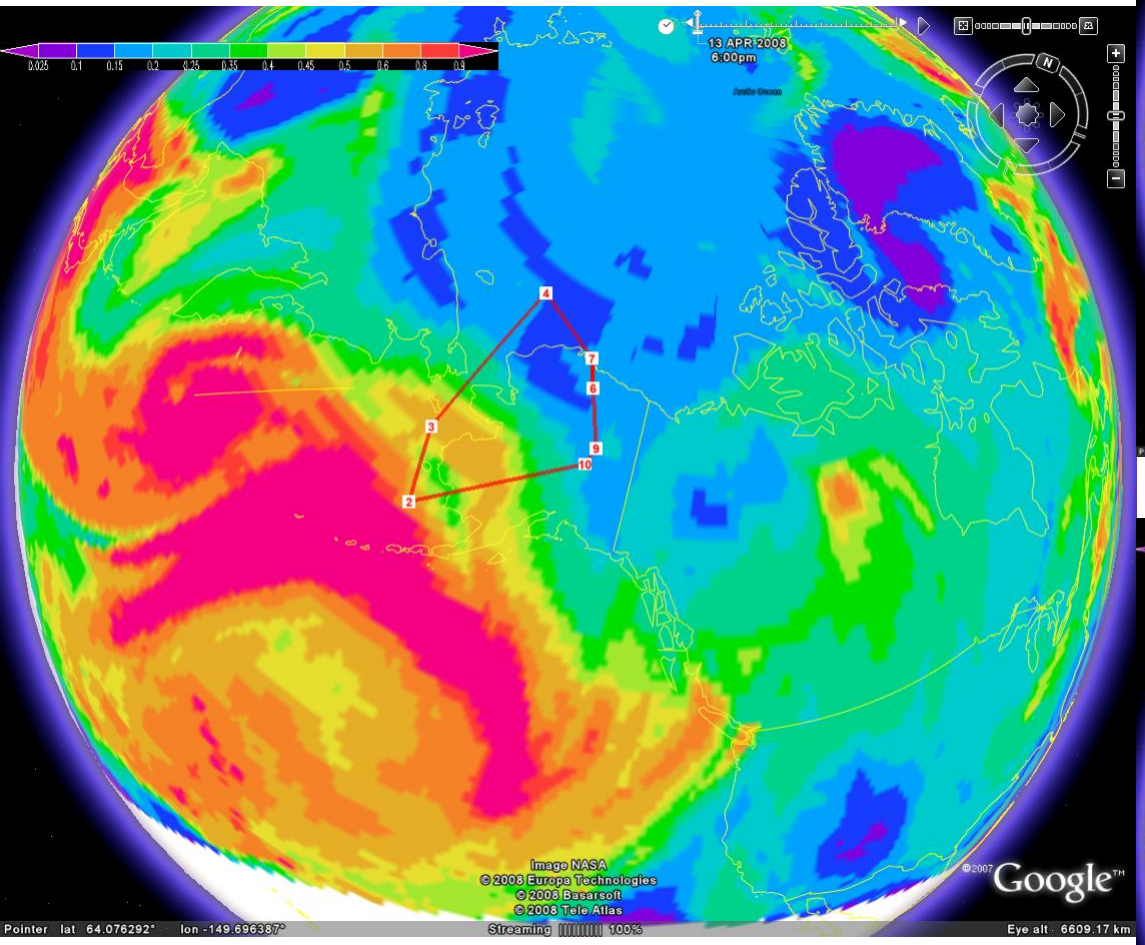
DC 8 Biomass CO, April 13th 5.5 km layer (66 hr)



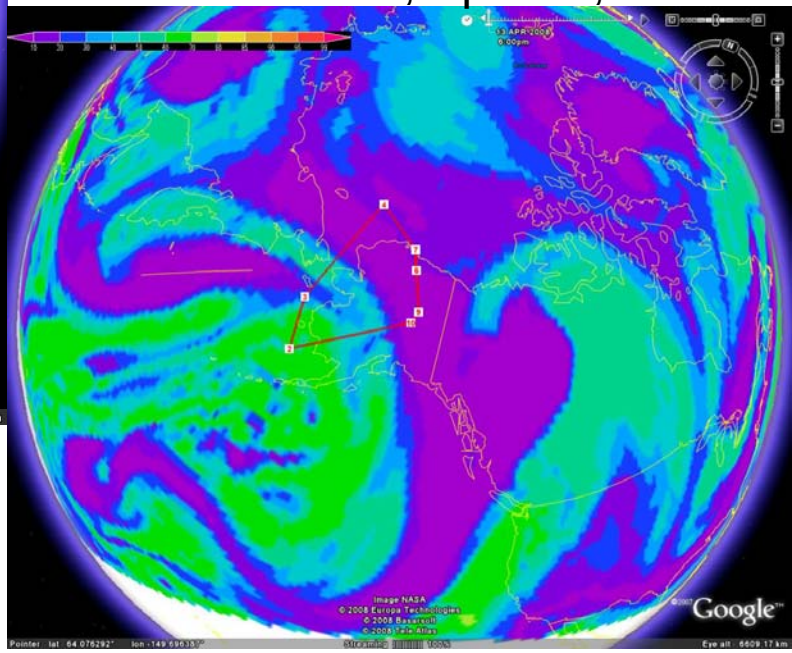
RH at 5.5 km, April 13, 18Z

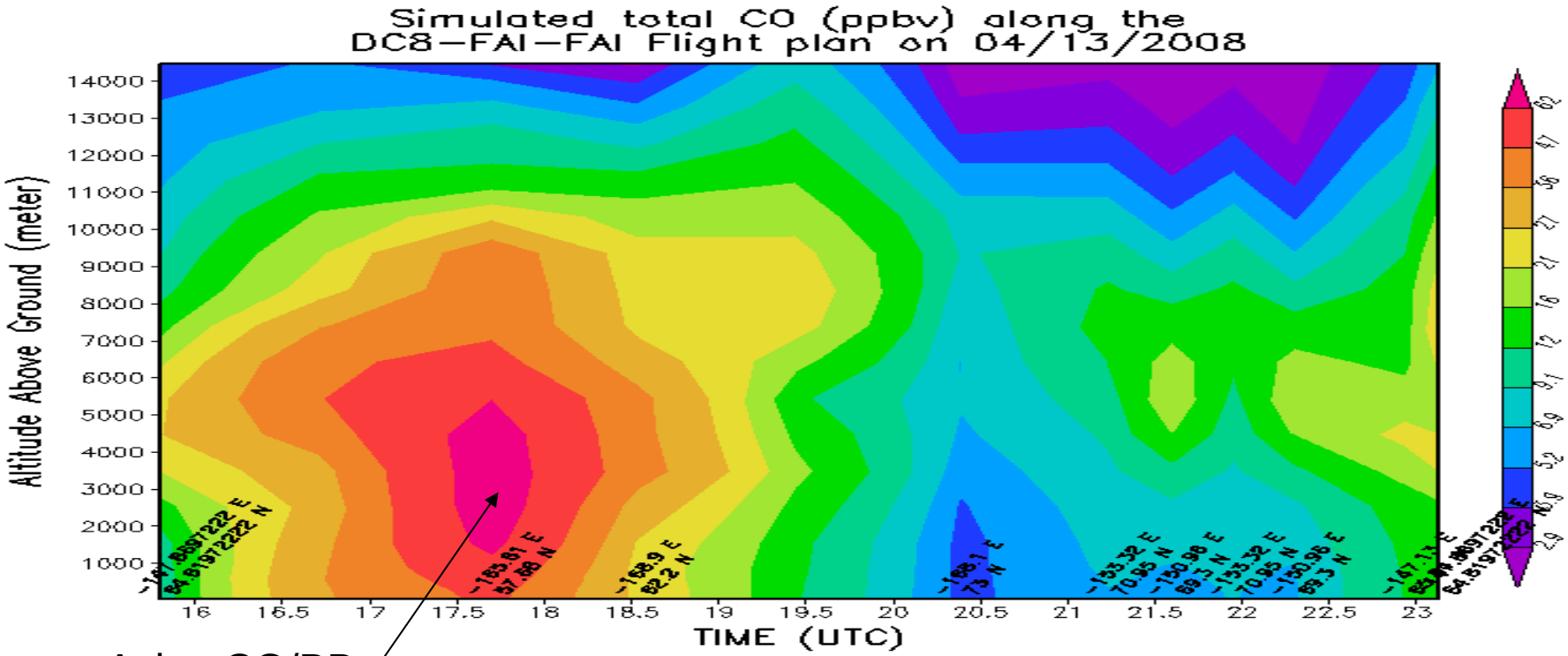


DC 8 AOD 66 hr forecast

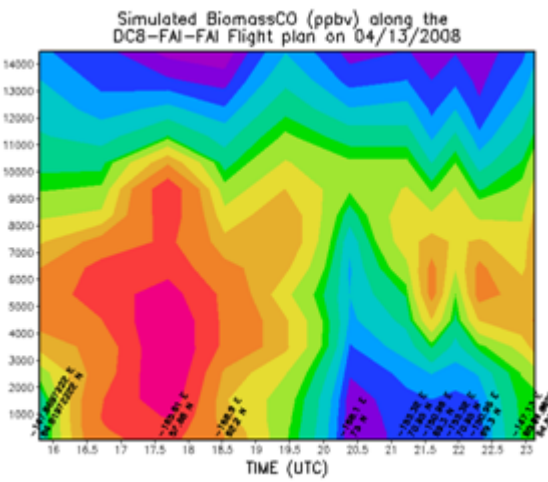


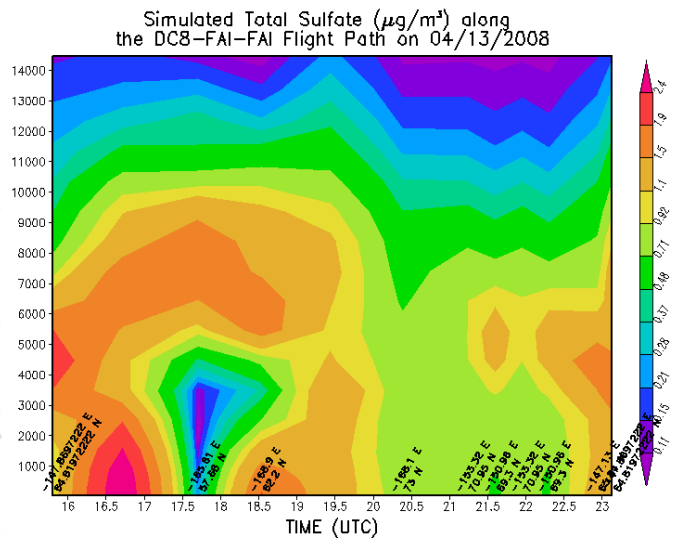
RH at 8.4 km, April 13, 18Z

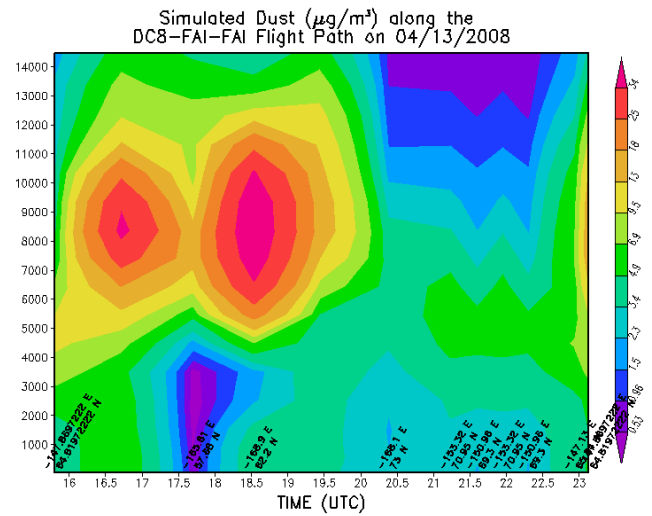



Simulated total CO (ppbv) along the
DC8–FAI–FAI Flight plan on 04/13/2008
Altitude Above Ground (meter)
TIME (UTC)

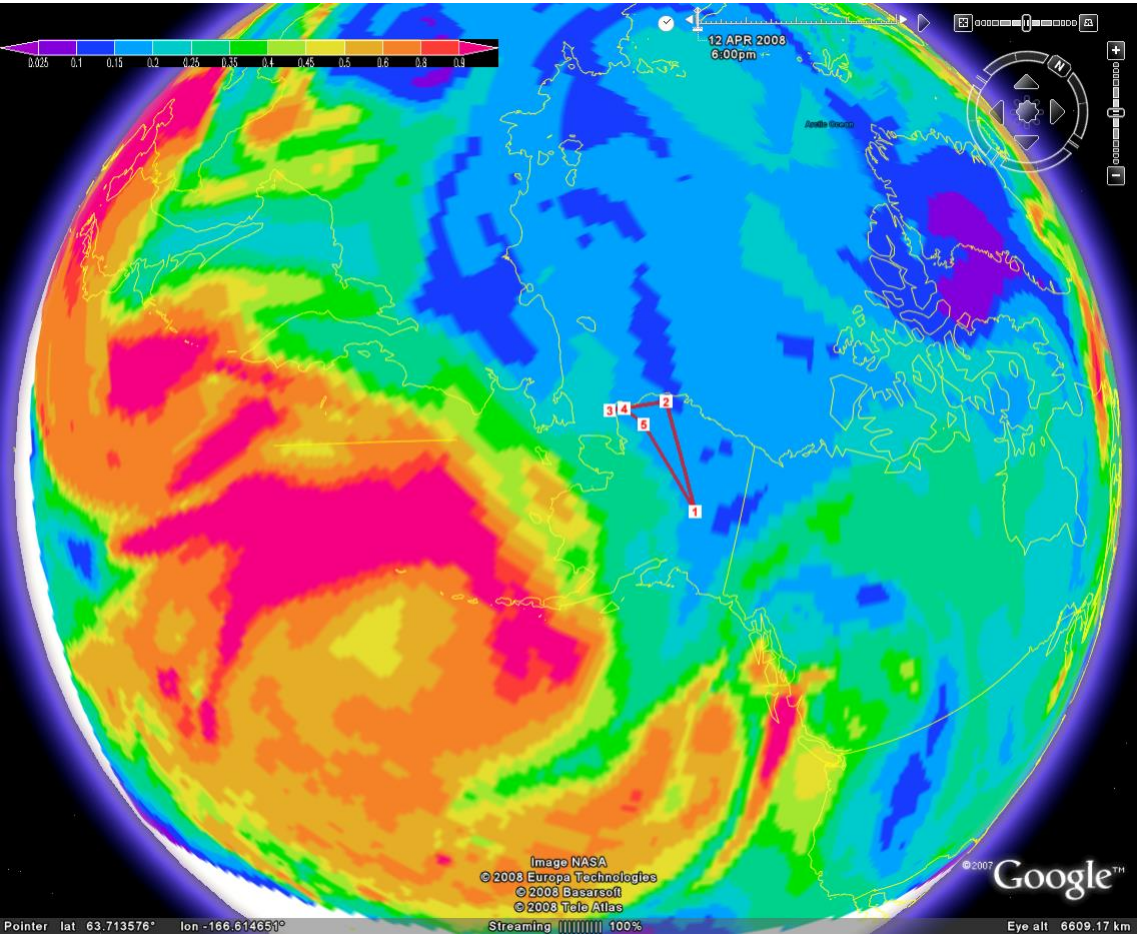
Asian CO/BB


Simulated BiomassCO (ppbv) along the
DC8–FAI–FAI Flight plan on 04/13/2008
TIME (UTC)

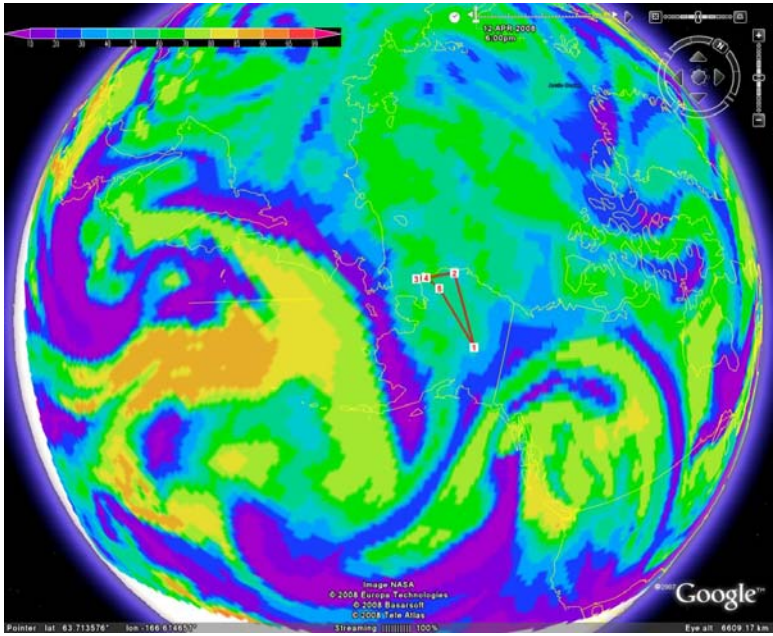

Simulated Total Sulfate (μg/m³) along
the DC8–FAI–FAI Flight Path on 04/13/2008
TIME (UTC)


Simulated Dust (μg/m³) along the
DC8–FAI–FAI Flight Path on 04/13/2008
TIME (UTC)

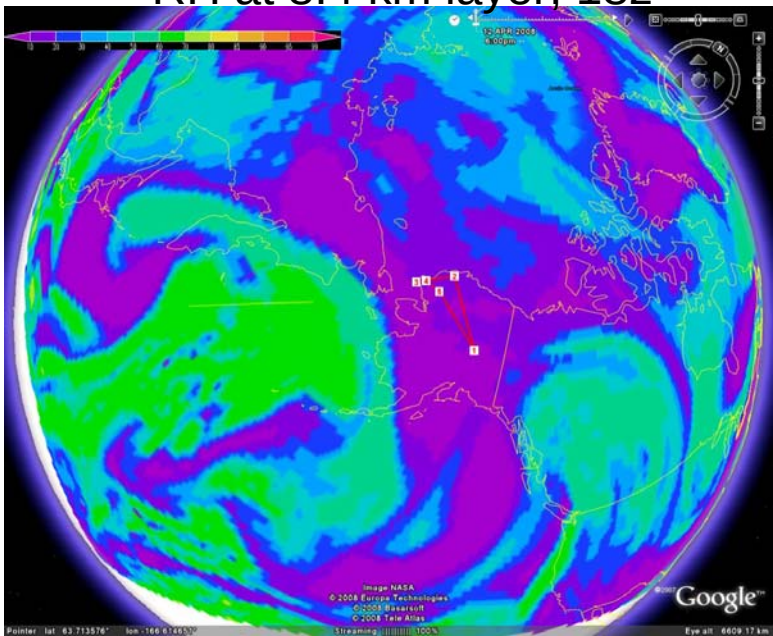
P3 April 12-18Z, 42 hr forecast

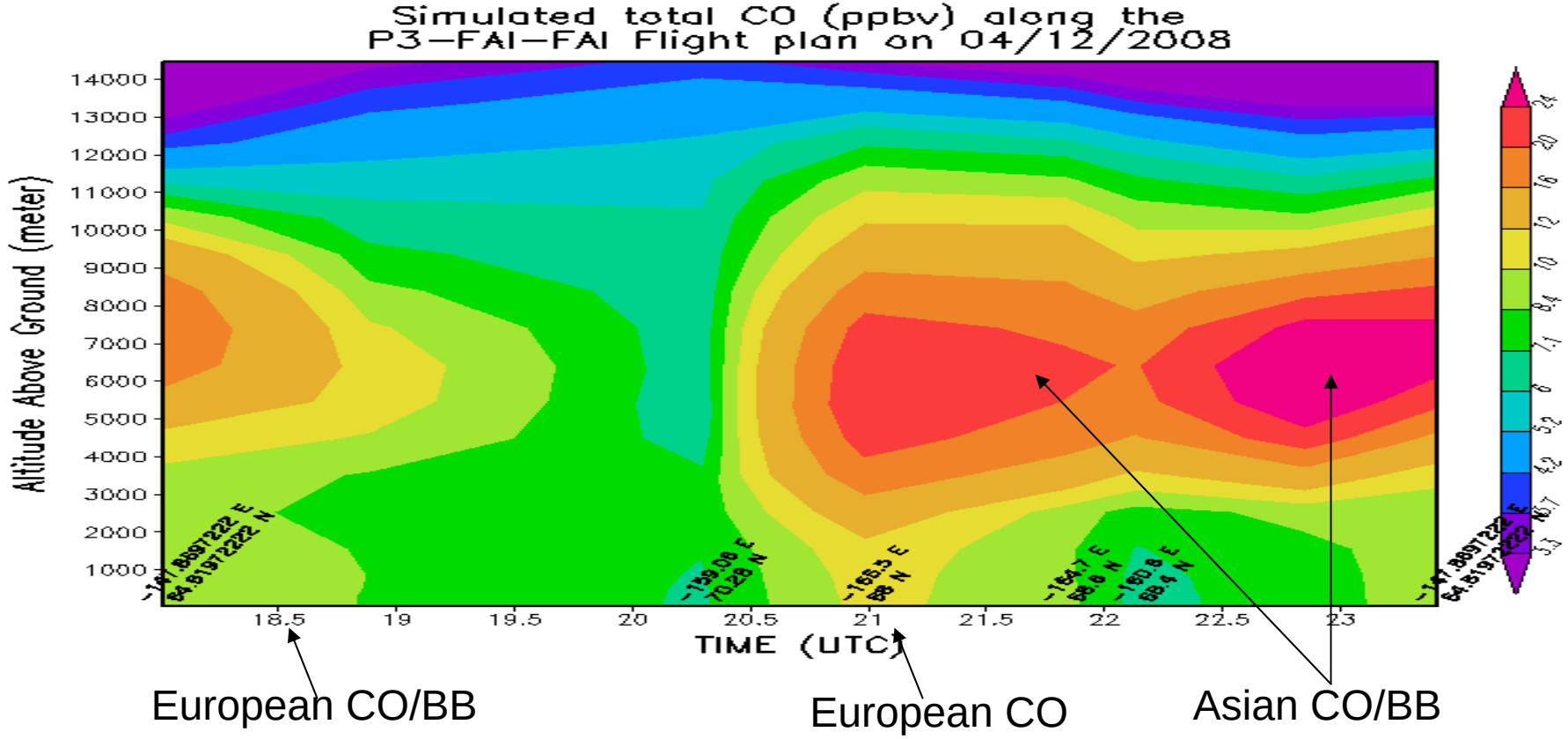


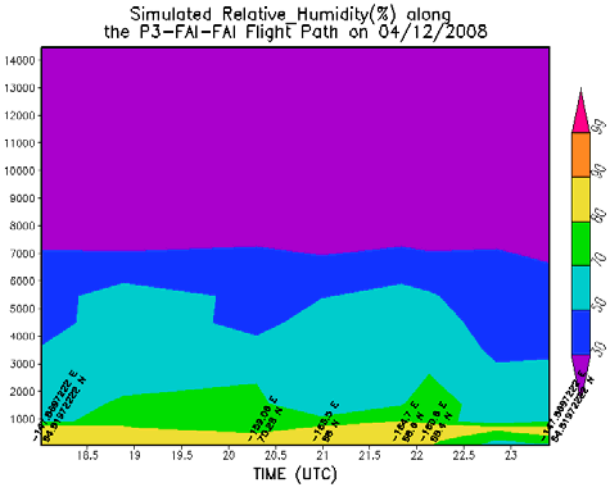
RH at 5.5 km layer, 18Z

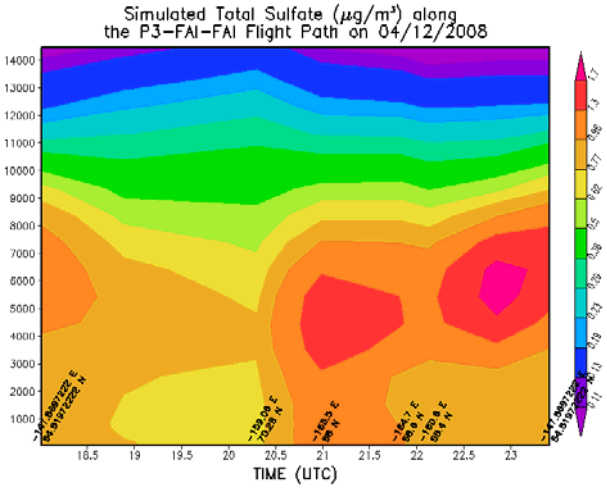


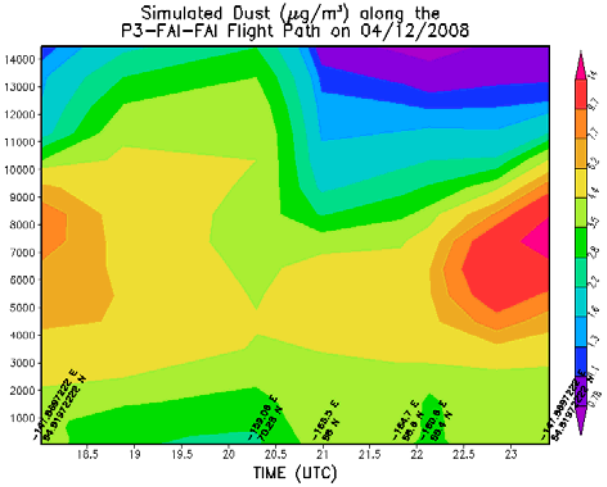
RH at 8.4 km layer, 18z



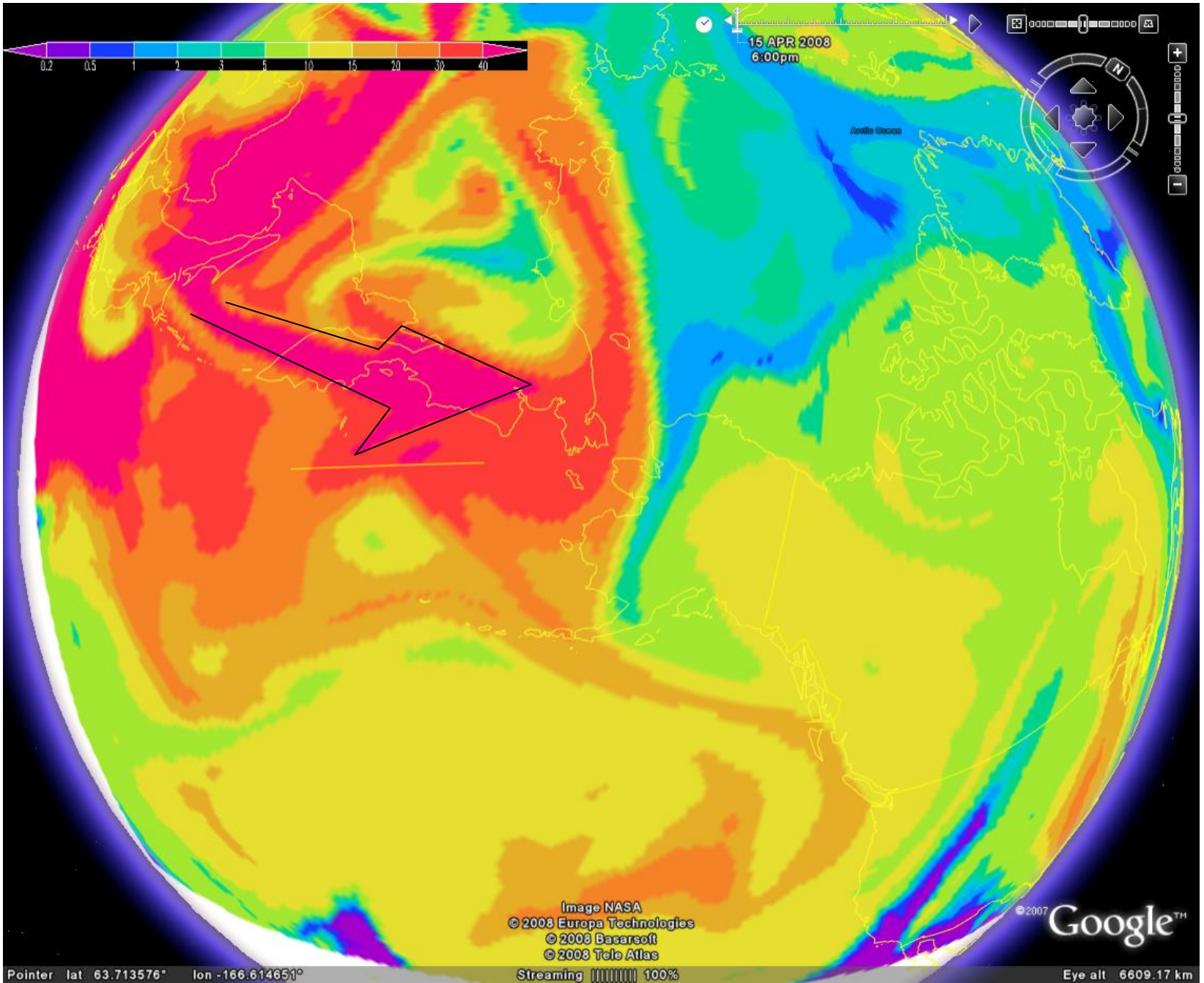

Simulated total CO (ppbv) along the
P3-FAI-FAI Flight plan on 04/12/2008
Altitude Above Ground (meter)
TIME (UTC)
European CO/BB
European CO
Asian CO/BB


Simulated Relative Humidity(%) along
the P3-FAI-FAI Flight Path on 04/12/2008
TIME (UTC)


Simulated Total Sulfate (μg/m³) along
the P3-FAI-FAI Flight Path on 04/12/2008
TIME (UTC)


Simulated Dust (μg/m³) along the
P3-FAI-FAI Flight Path on 04/12/2008
TIME (UTC)

April 15th, 18Z Biomass CO at 5.5 km layer, 114 hr



Flight Day Flexpart

April 12-13, 2008

Andy Latto
Henry Fuelberg

"Your Eyes to the Skies"

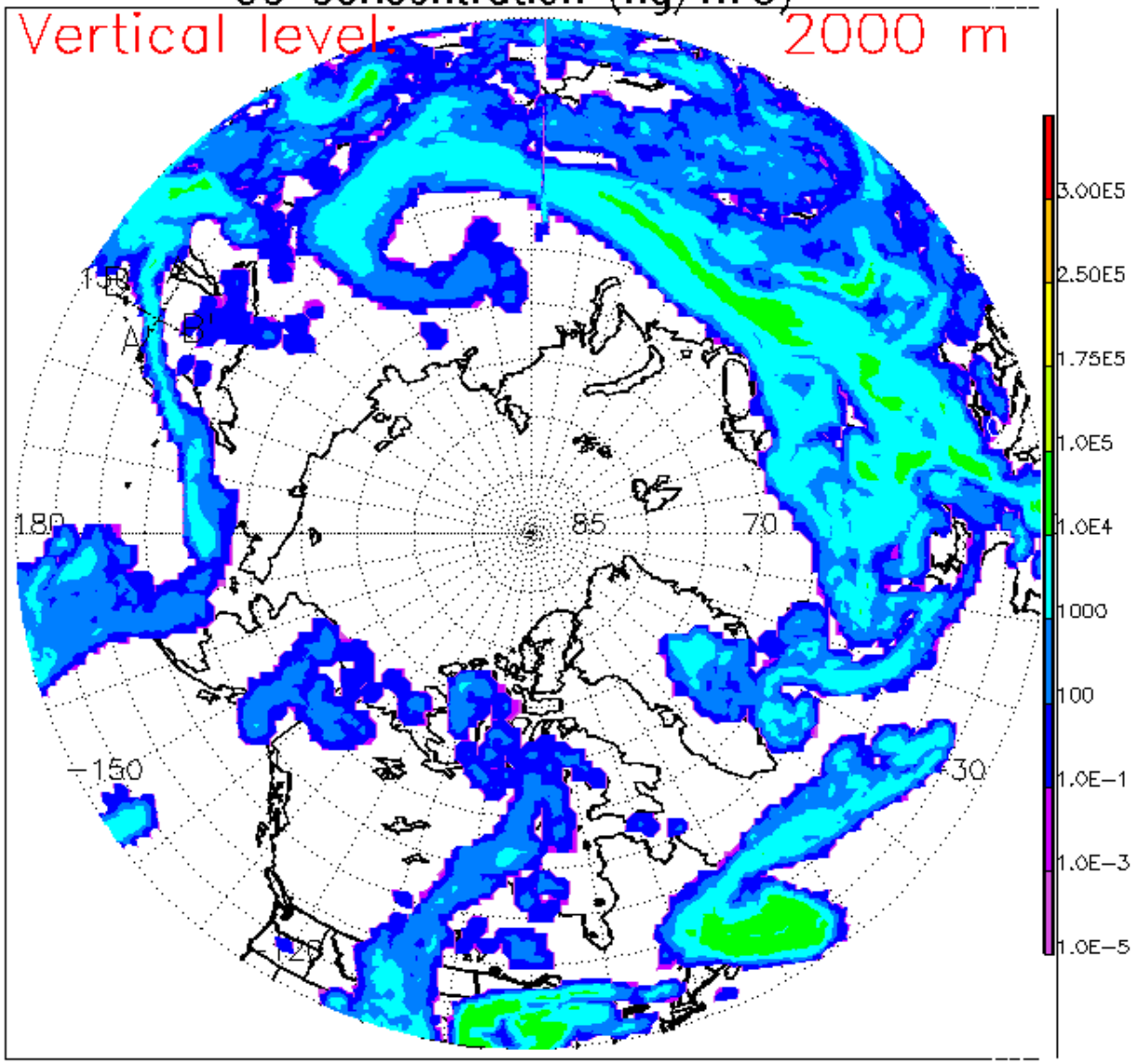
FSU Runs Flexpart

- Met data from FSU WRF run (25 km grid)
- Top10% of emissions are tracked
- 7 day runs through fly day (April 13)
- Color coded by concentration
- Fire Data Not Included

AdGIF UNREGISTERED - www.gif-animator.com

2200 April 11, 2008

CO Concentration (ng/m^3)

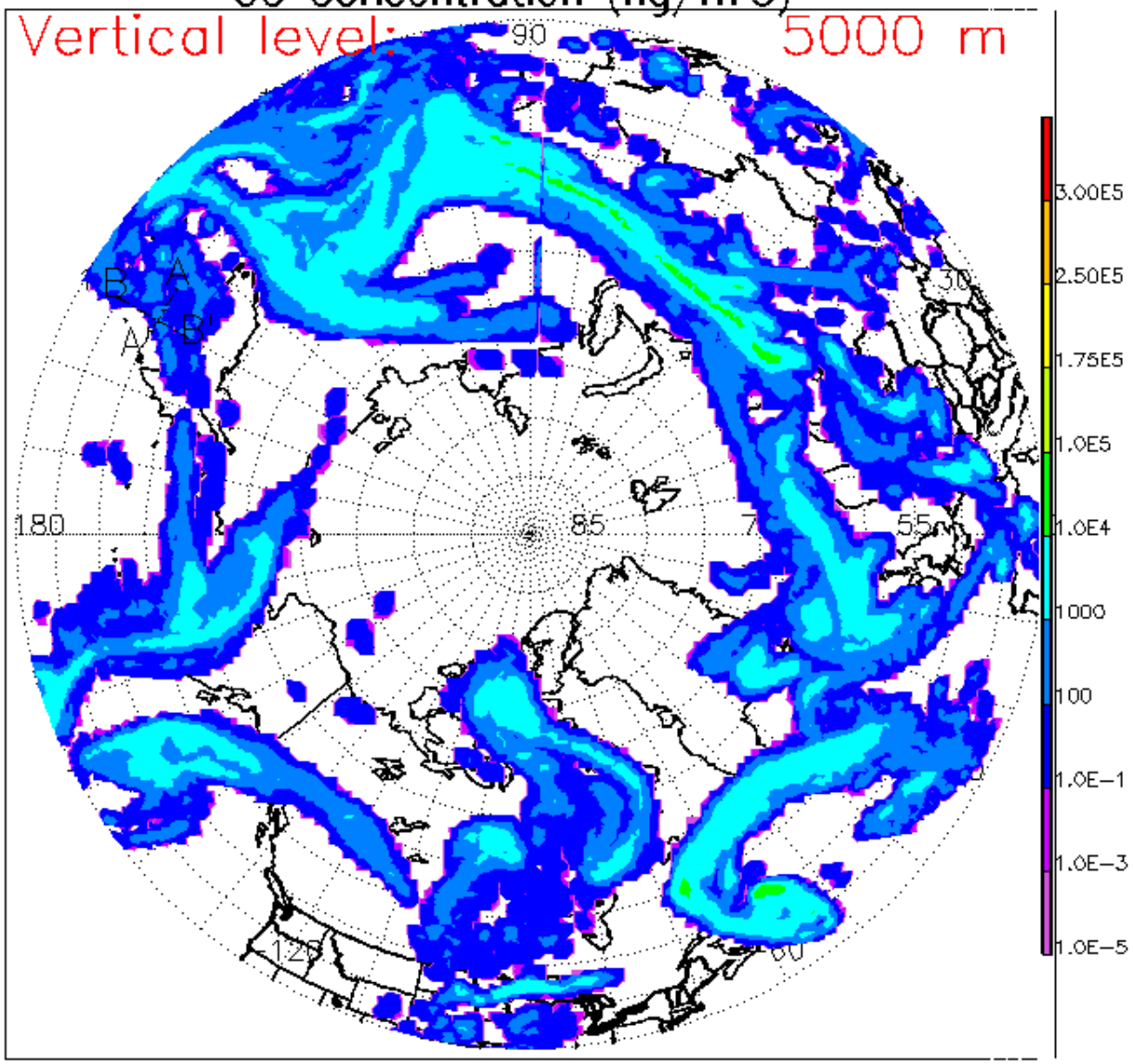


Florida State University Meteorology

AdGIF UNREGISTERED - www.gif-animator.com

2200 April 11, 2008

CO Concentration (ng/m^3)

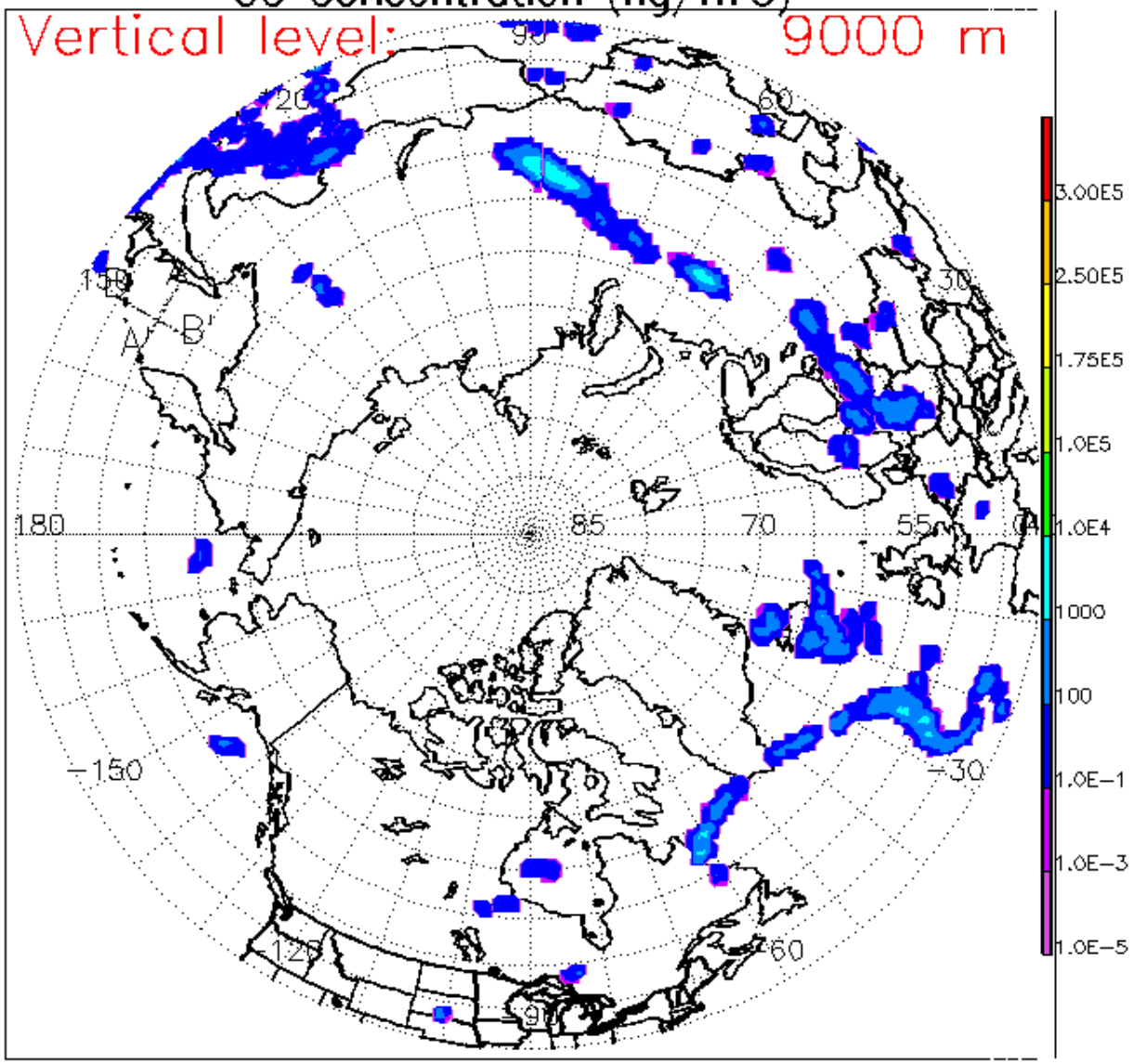


Florida State University Meteorology

AdGIF UNREGISTERED - www.gif-animator.com

2200 April 11, 2008

CO Concentration (ng/m^3)



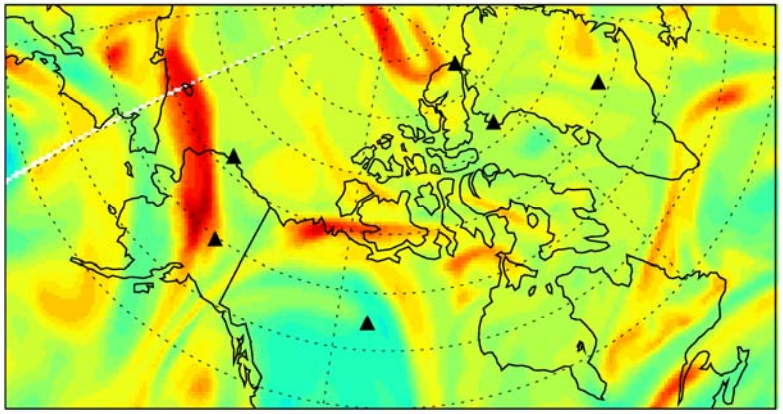
Florida State University Meteorology

GEOS Total CO 500 hPa

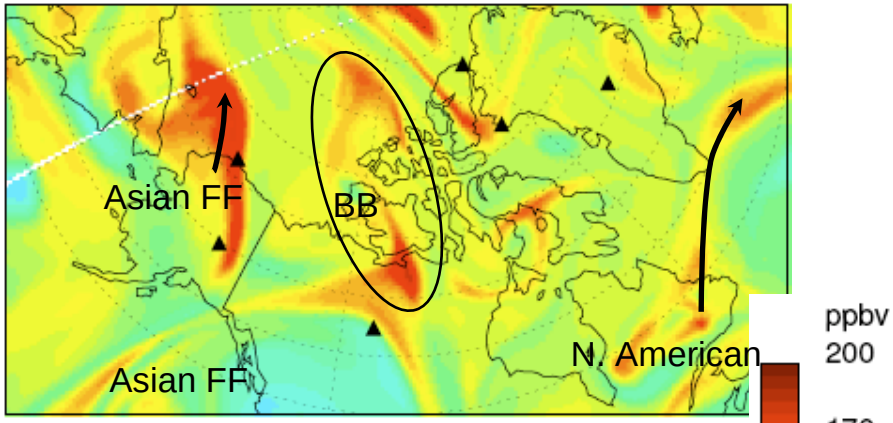
Initialized 04/ **11** /2008 – 06z

04/ **10** /2008 – 06z

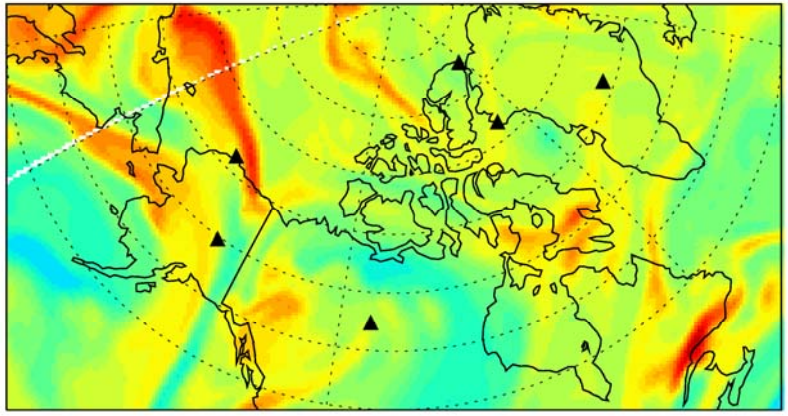
4/12



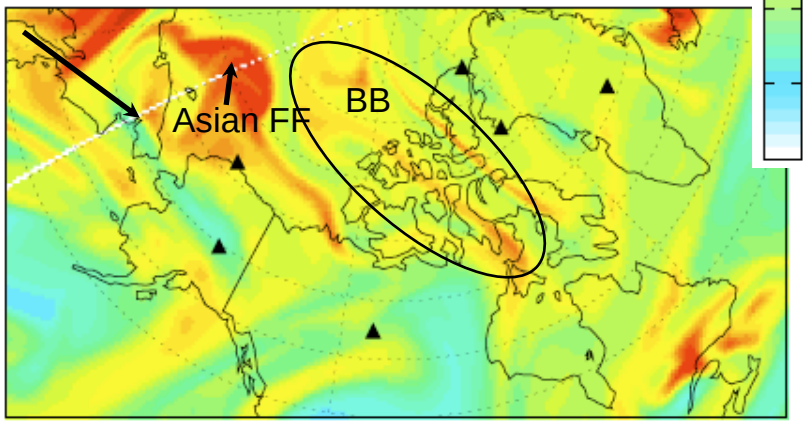
4/12



4/13



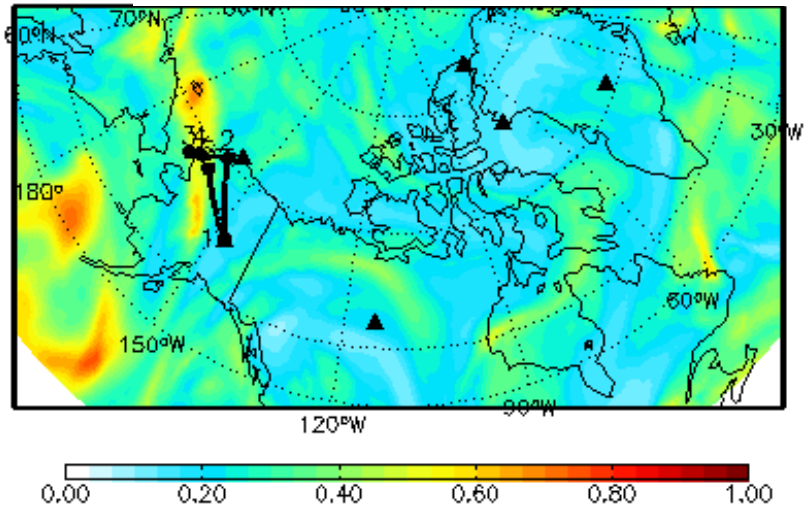
4/13



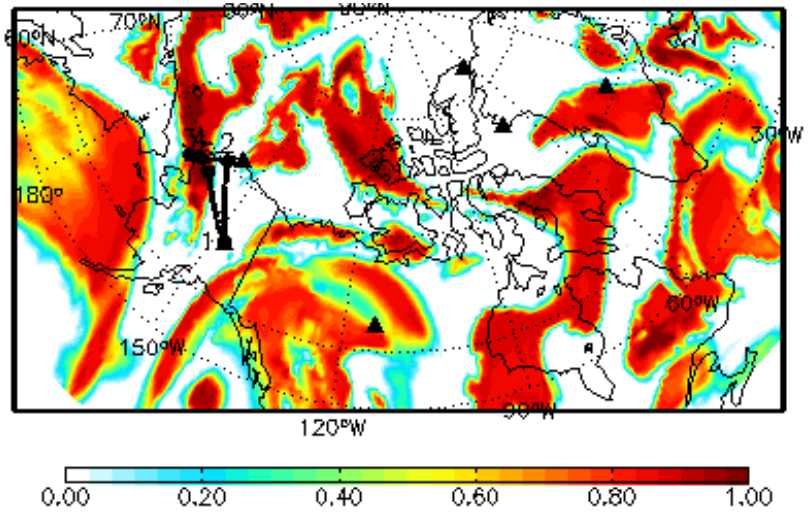
P3 April 12

GEOS-5 forecast: 20080411_06z

Total AOT (550nm)

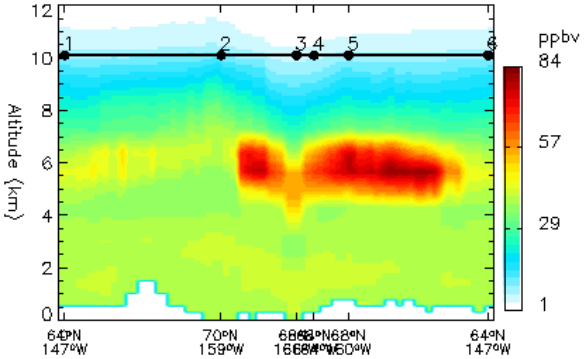


Cloud area fraction (middle)

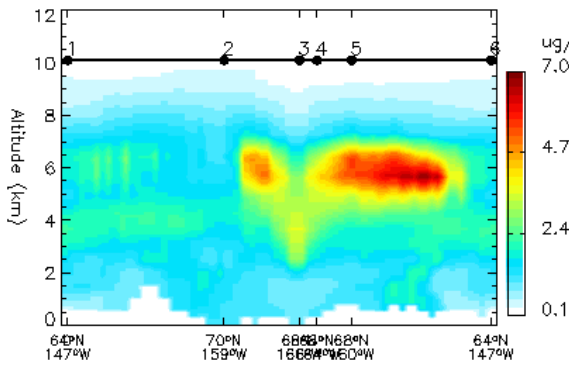


P3 April 12

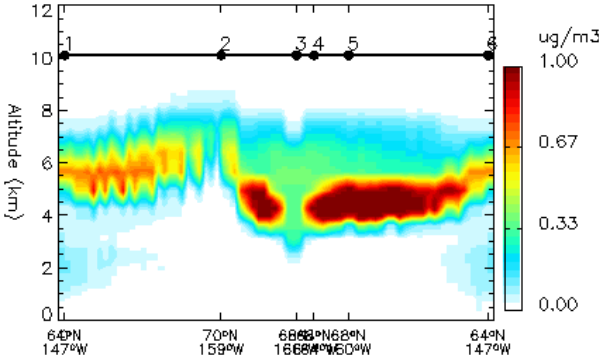
CO-Anthopogenic (Asia)



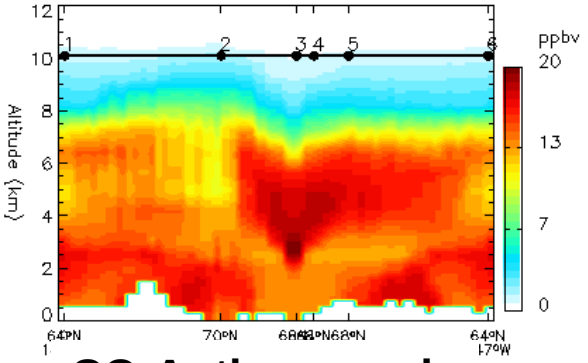
Sulfate (ug/m3)



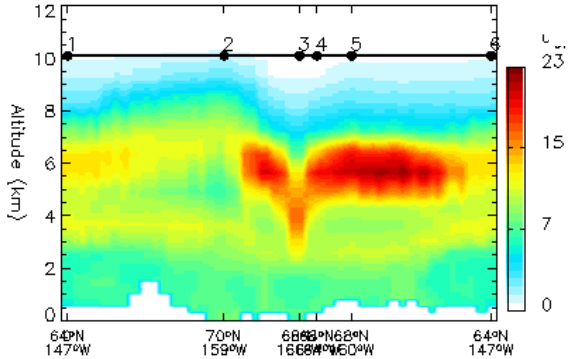
boreal biomass OC (ug/m3)



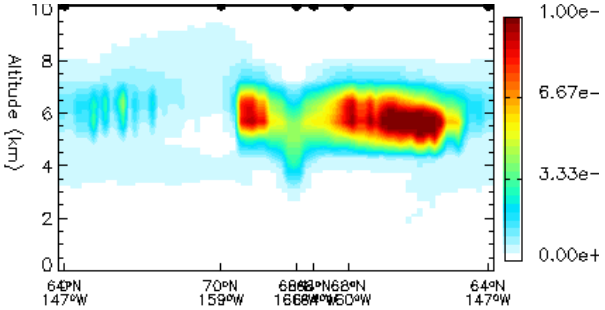
CO-Anthopogenic (Europe)



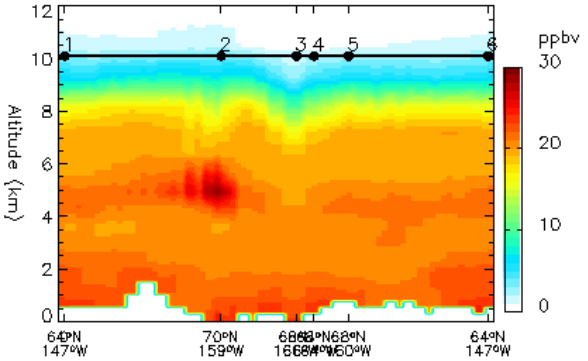
Dust (ug/m3)



Non-boreal biomass OC (ug/m3)

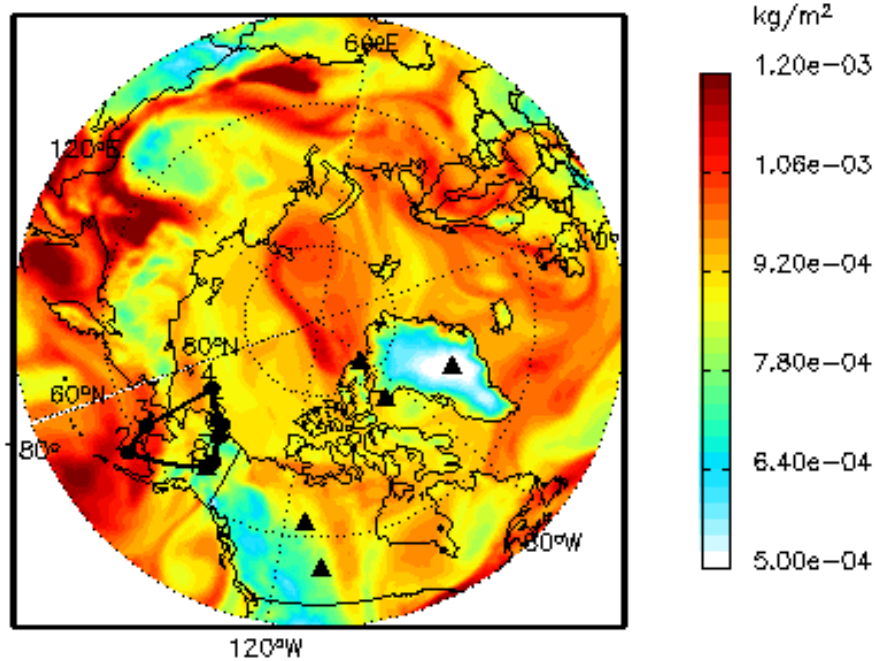


CO-Anthopogenic (N-America)

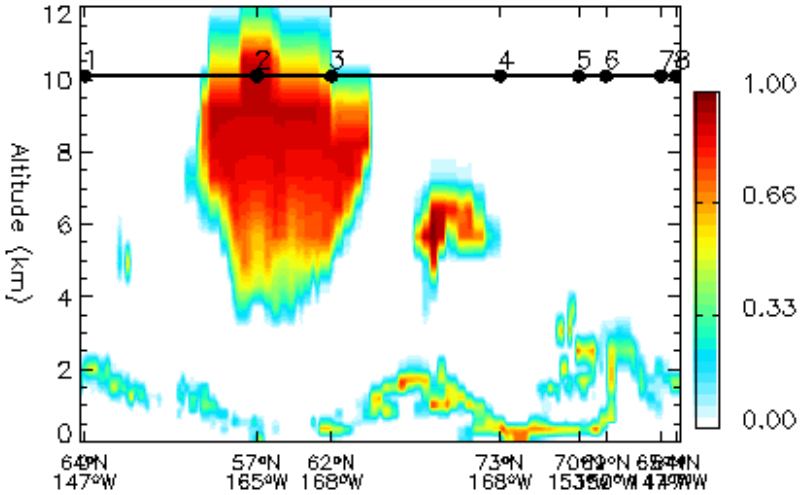


DC8 April 12

Total CO Column



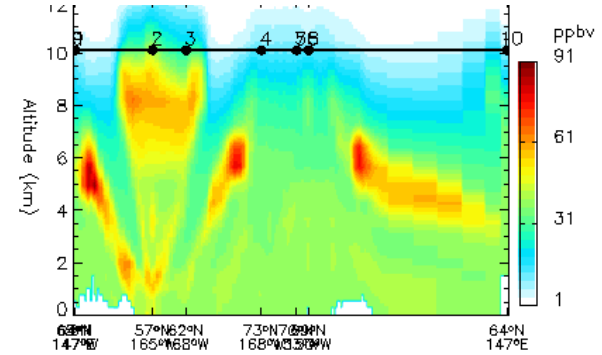
Total Cloud Area Fraction



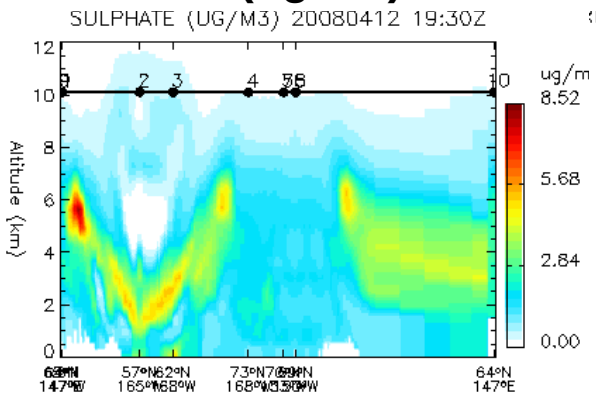
DC8 April 12

GEOS-5 forecast: 20080411_06z

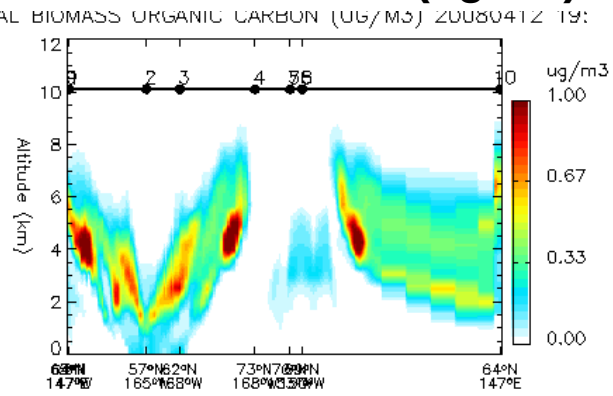
CO-Anthopogenic (Asia)



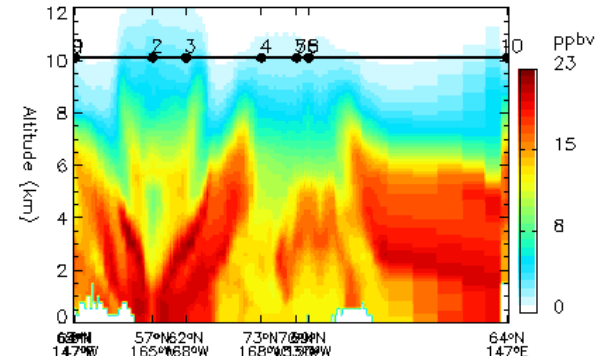
Sulfate (ug/m3)



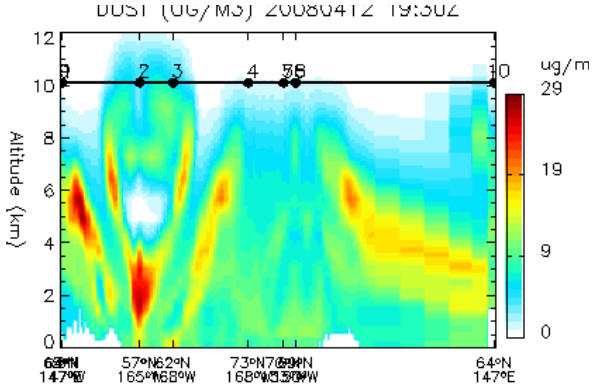
boreal biomass OC (ug/m3)



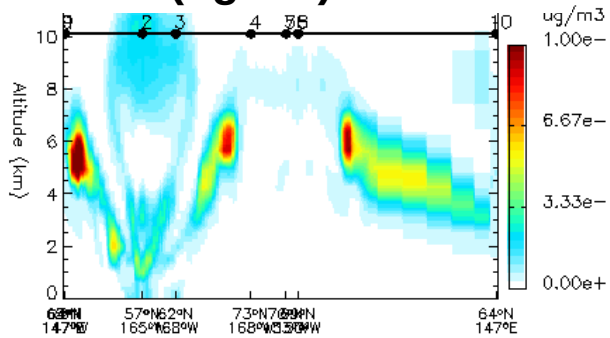
CO-Anthopogenic (Europe)



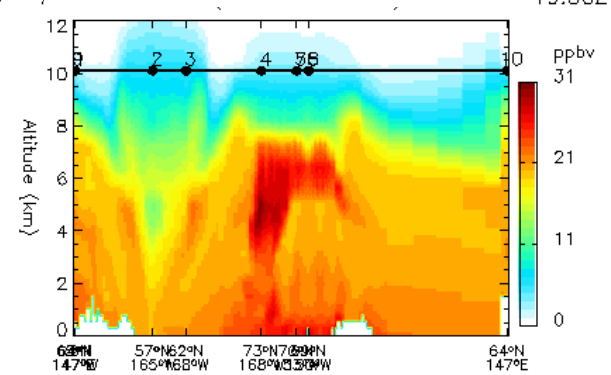
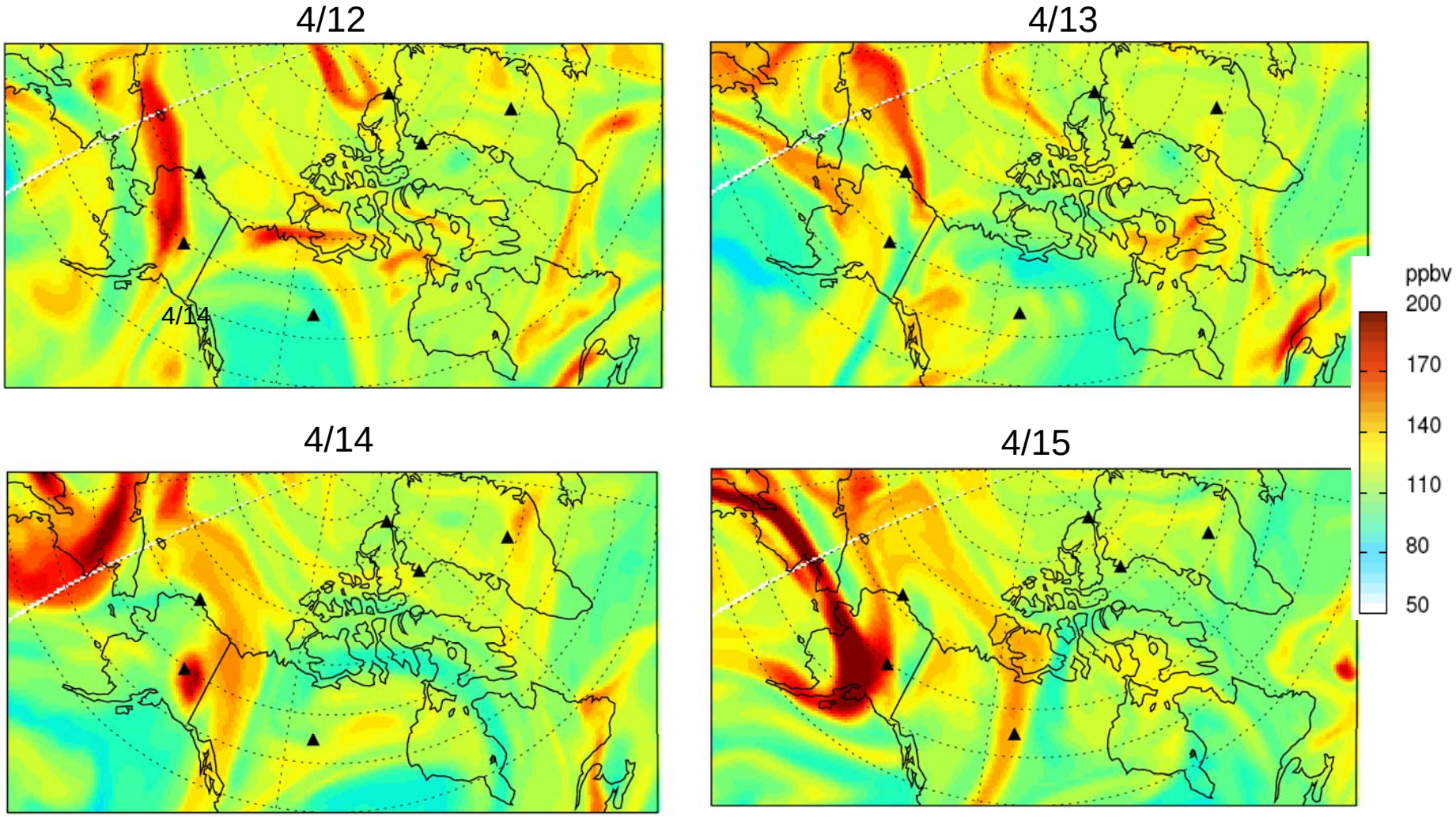
Dust (ug/m3)



Non-boreal biomass OC (ug/m3)



CO-Anthopogenic (N-America)



GEOS Total CO 500 hPa