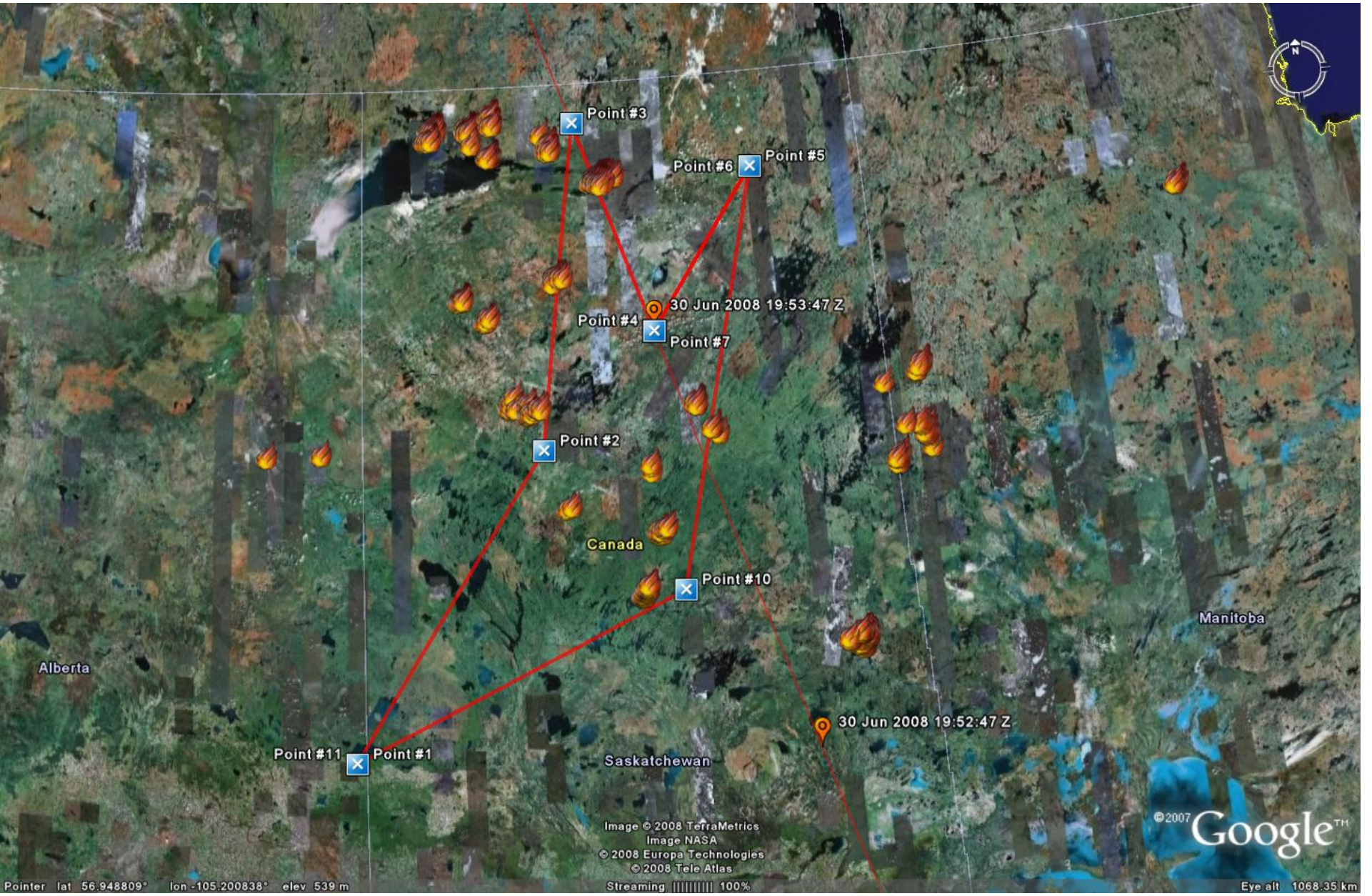
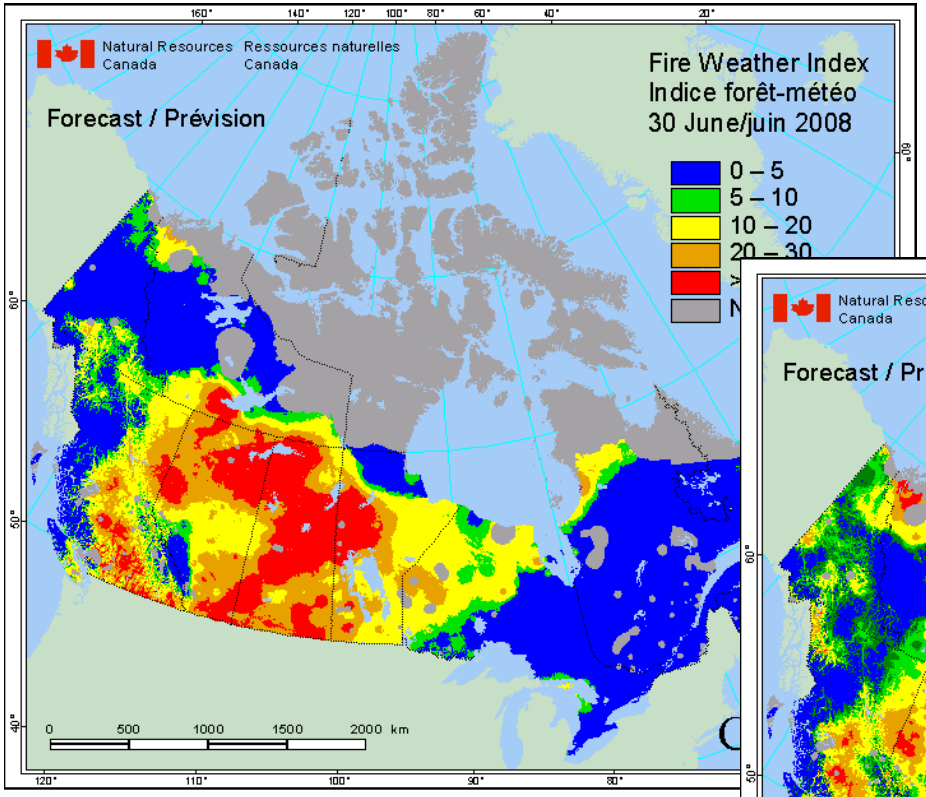
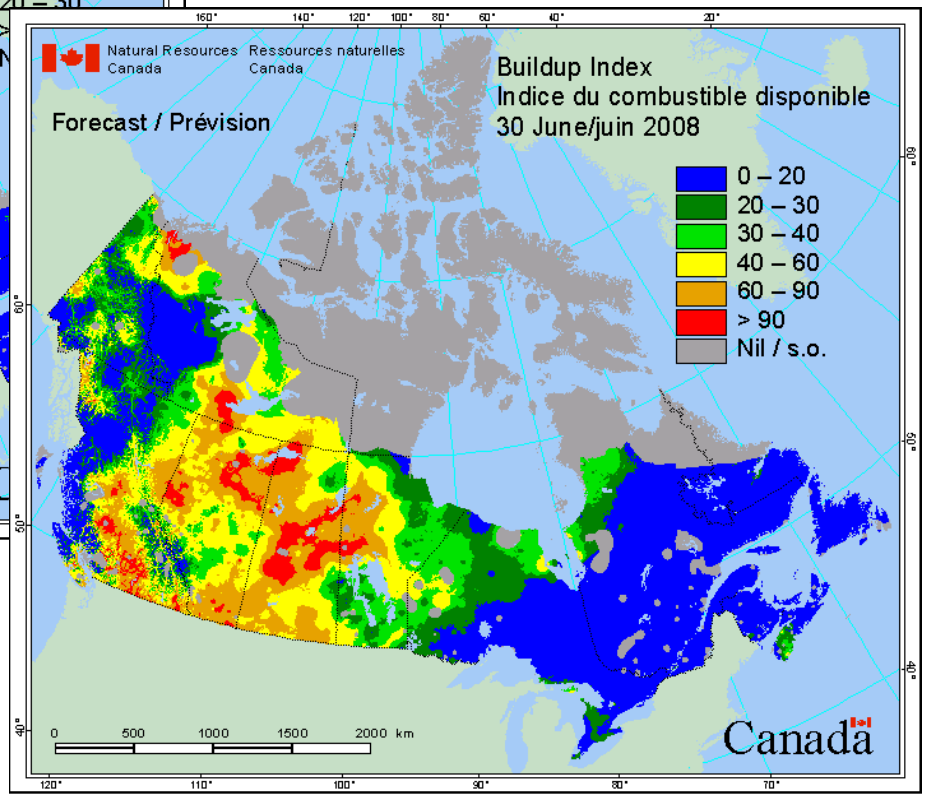

Point #3
Point #6
Point #5
30 Jun 2008 19:53:47 Z
Point #4
Point #7
Point #2
Canada
Point #10
Manitoba
Alberta
30 Jun 2008 19:52:47 Z
Point #11
Point #1
Saskatchewan
Image © 2008 TerraMetrics
Image NASA
© 2008 Europa Technologies
© 2008 Tele Atlas
©2007 Google™
Pointer lat 56.948809° lon -105.200838° elev 539 m
Streaming 100%
Eye alt 1068.35 km

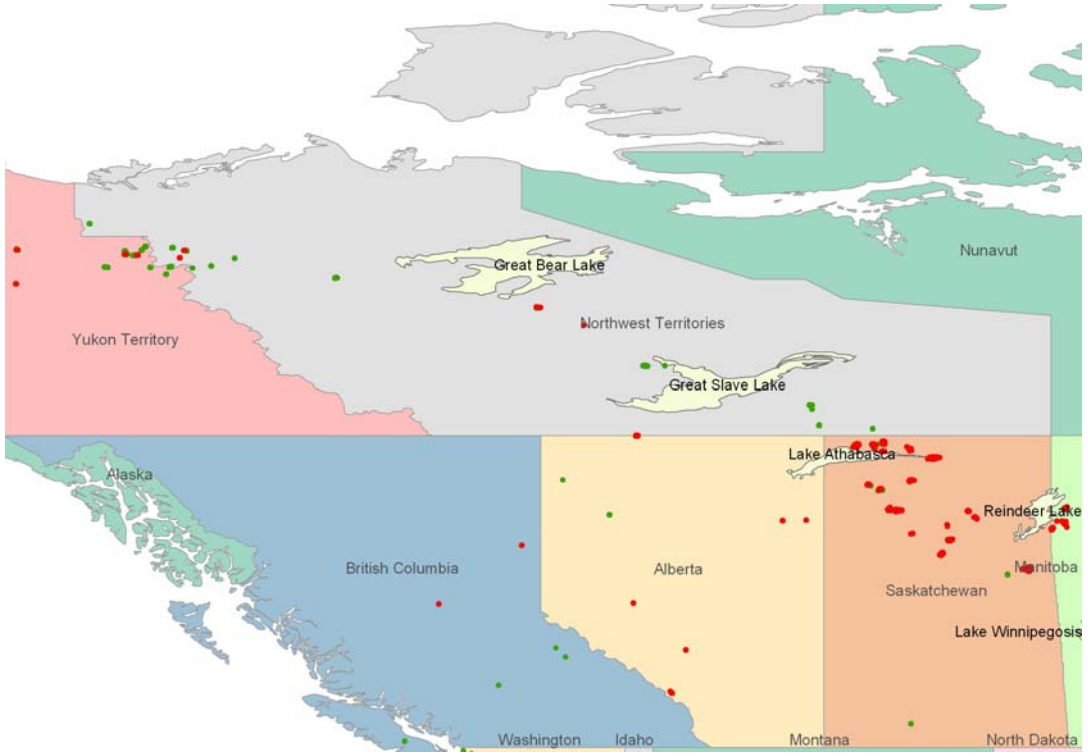
Fire Potential June 30, 2008

- Focus again on OBZ in northern SK
- 81 fires to date, 40 active in OBZ
- 254,000 hectares (2540 sq km) to date in OBZ
- Increasing fire danger conditions
- Evacuations around Lake Athabasca

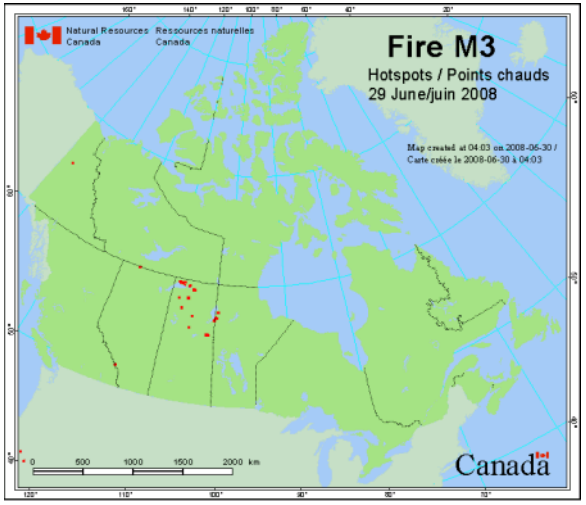
FWI/BUI building in Severity & areal extent

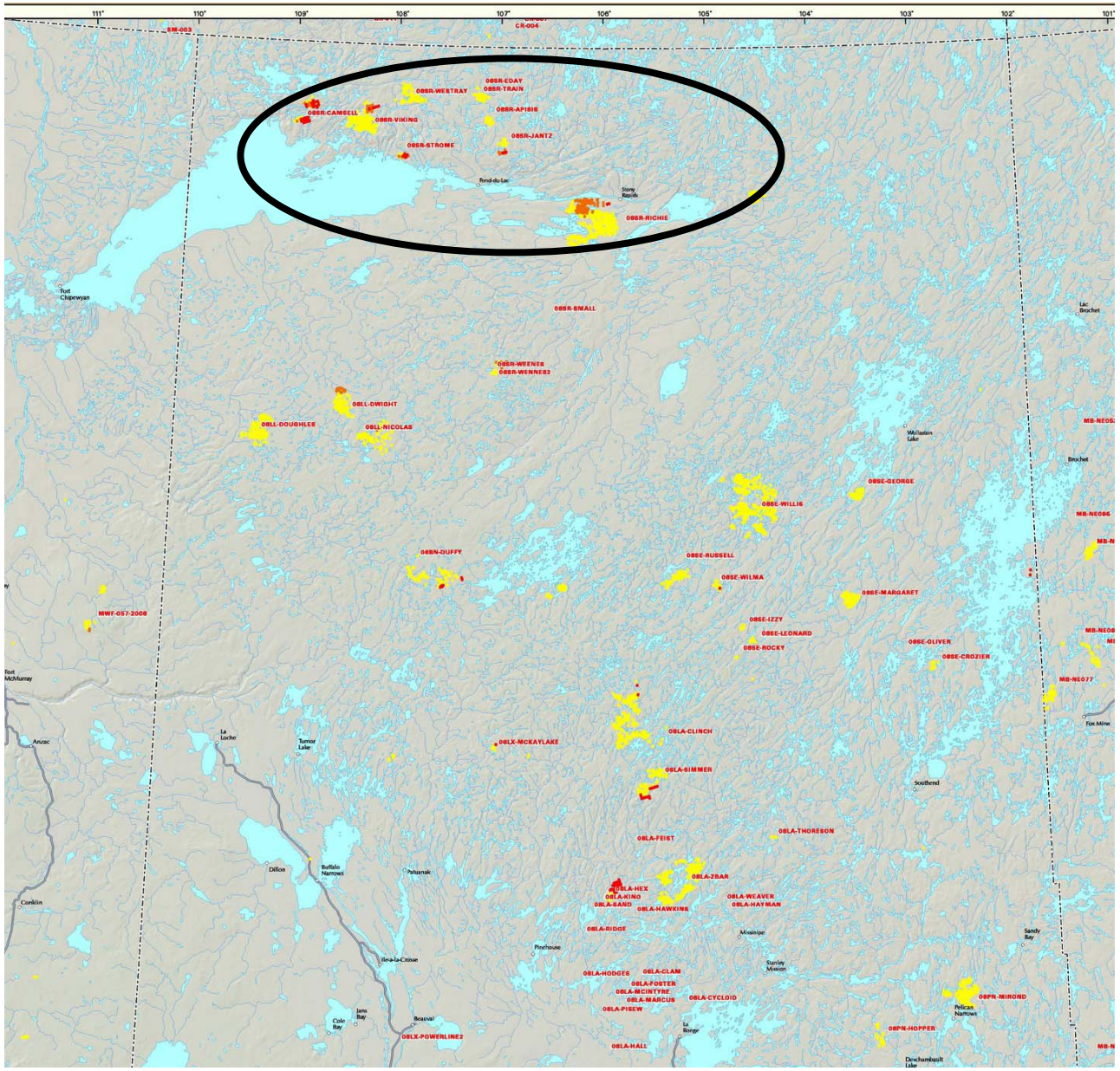


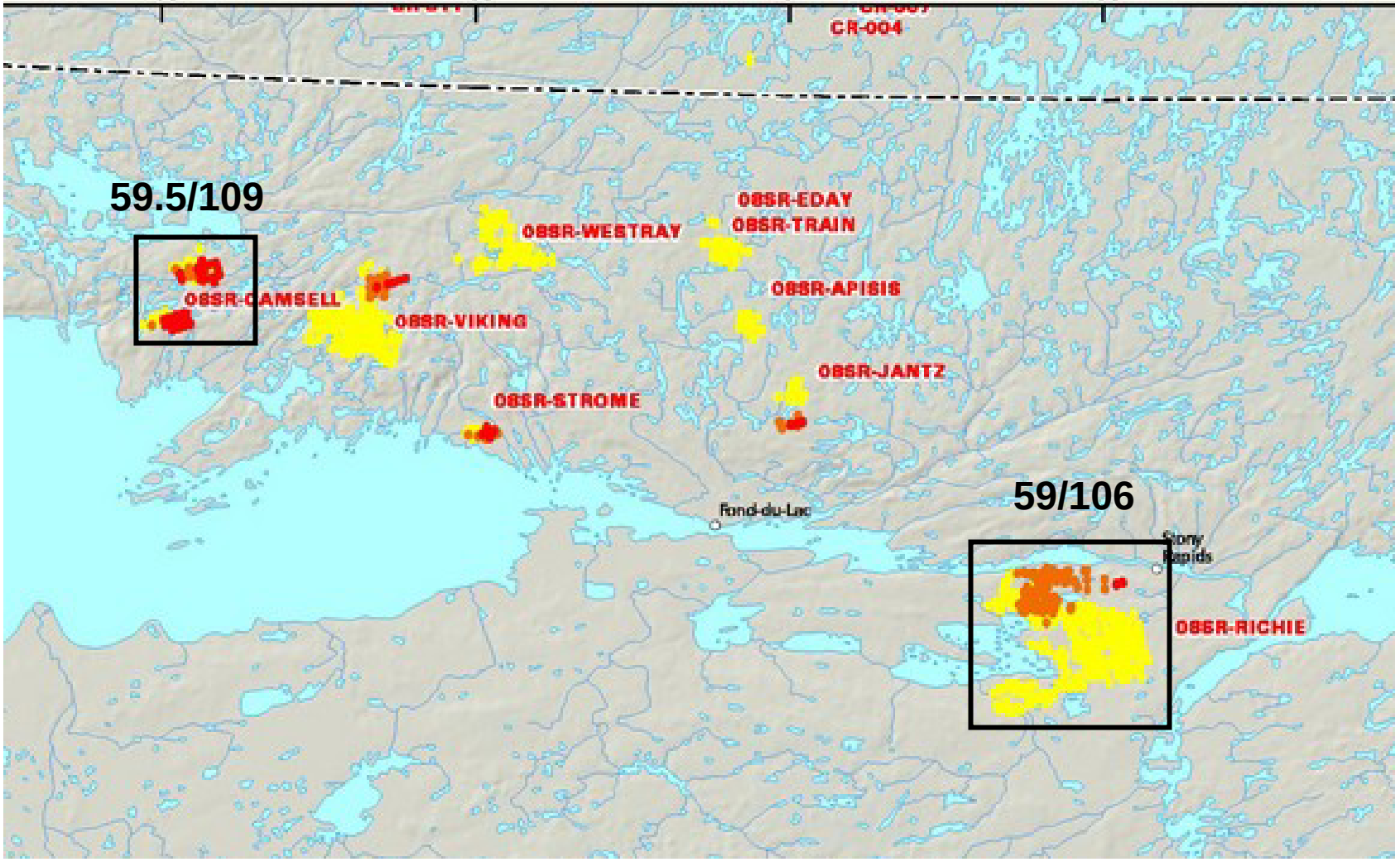


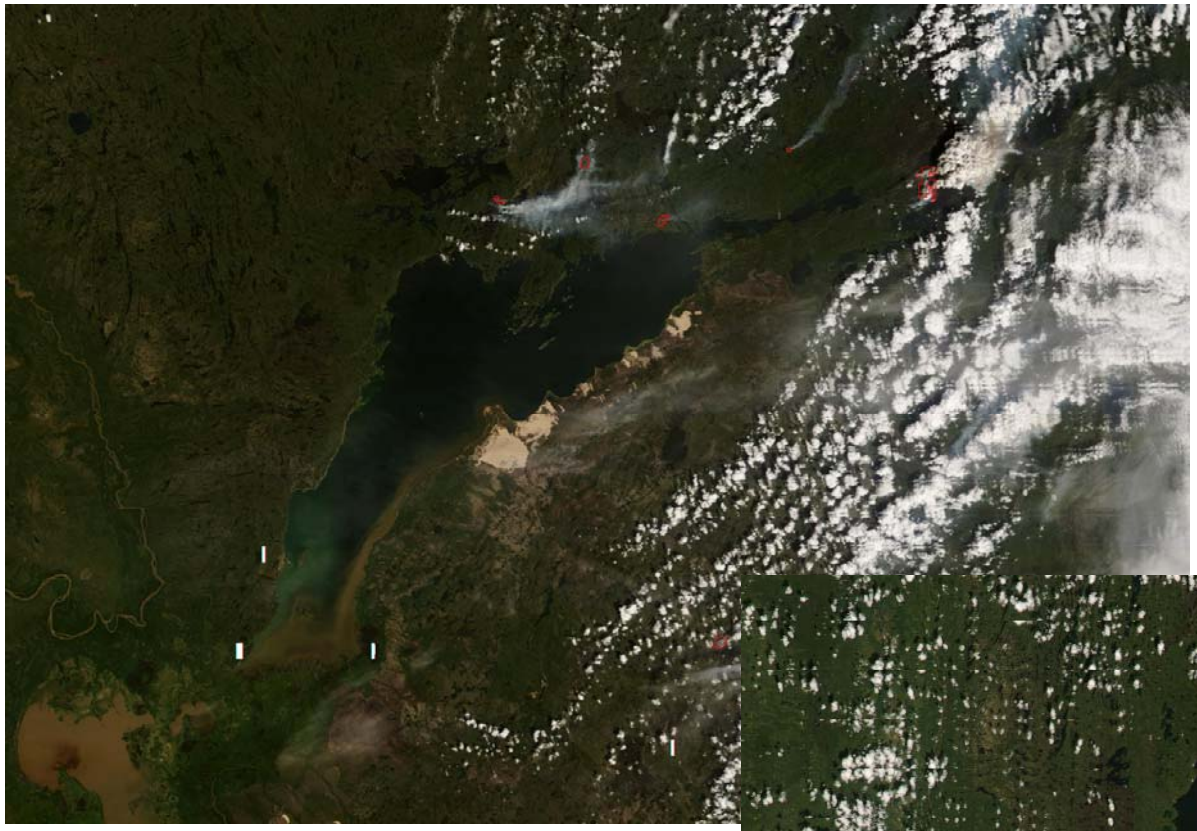


Northern SK is the place to be!!

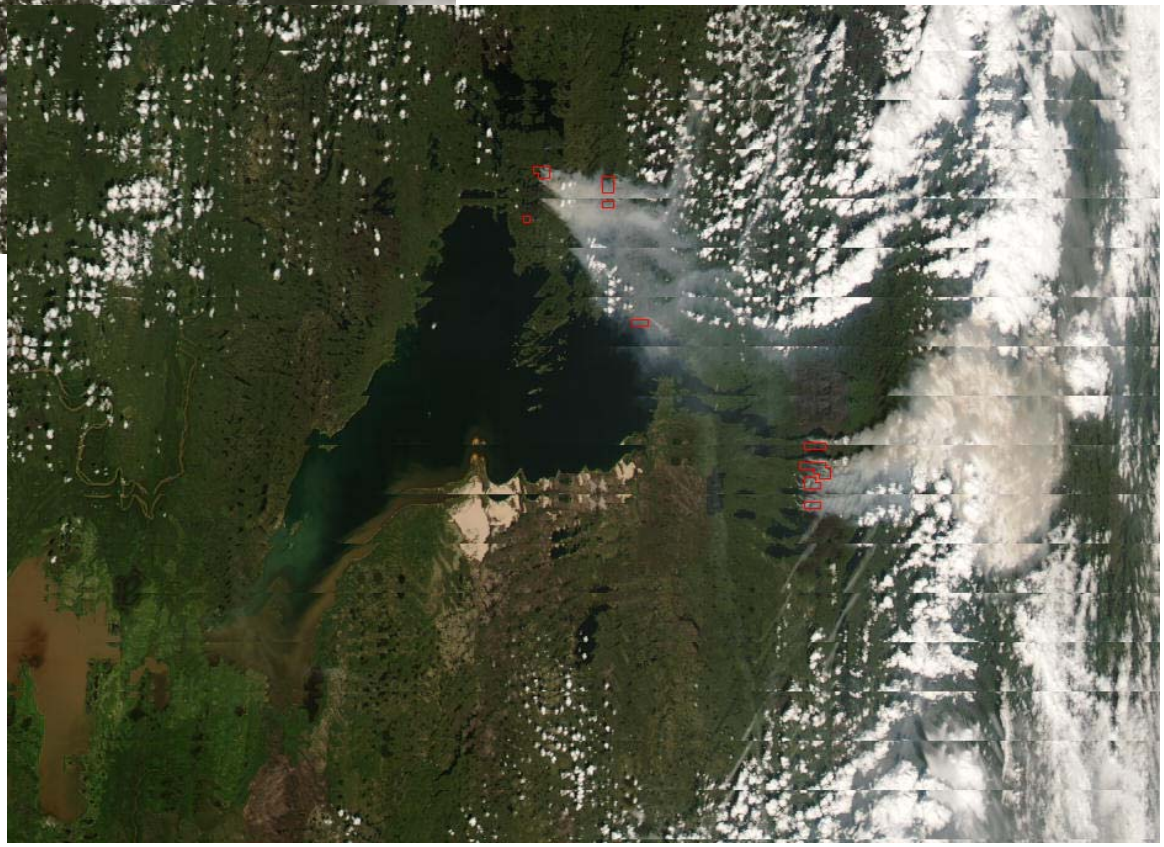



111°
110°
109°
108°
107°
106°
105°
104°
103°
102°
101°
SM-003
CR-004
08SR-EDAY
08SR-TRAIN
08SR-WESTRAY
08SR-CAMSELL
08SR-VIKING
08SR-APISIS
08SR-JANTZ
08SR-STROME
Fond-du-Lac
Stony Rapids
08SR-RICHIE
Fort Chipewyan
08SR-SMALL
Lac Brochet
08SN-WEENES
08SN-WENNES2
08LL-DWIGHT
08LL-DOUGHLES
08LL-NICOLAS
Wollaston Lake
Brochet
08SE-GEORGE
08SE-WILLIS
08SN-DUFFY
08SE-RUSSELL
08SE-WILMA
08SE-MARGARET
MWF-057-2008
08SE-IZZY
08SE-LEONARD
08SE-ROCKY
08SE-OLIVER
08SE-CROZIER
Fort McMurray
Fox Mine
Anzac
La Loche
Turnor Lake
08LX-MCKAYLAKE
08LA-CLINCH
08LA-SIMMER
Southend
08LA-THORESON
08LA-FEIST
Dillon
Buffalo Narrows
Pahsanak
08LA-ZBAR
08LA-HEX
08LA-KING
08LA-SAND
08LA-HAWKINS
08LA-WEAVER
08LA-HAYMAN
Conklin
08LA-RIDGE
Missinipe
Sandy Bay
Pinehouse
Beauval
Stanley Mission
08LA-HODGES
08LA-CLAM
08LA-FOSTER
08LA-MCINTYRE
08LA-MARCUS
08LA-CYCLOID
08PN-MIRONO
Pelican Narrows
Jans Bay
Cole Bay
08LA-PISEW
La Ronge
08PN-HOPPER
08LX-POWERLINE2
08LA-HALL
Deschambault Lake

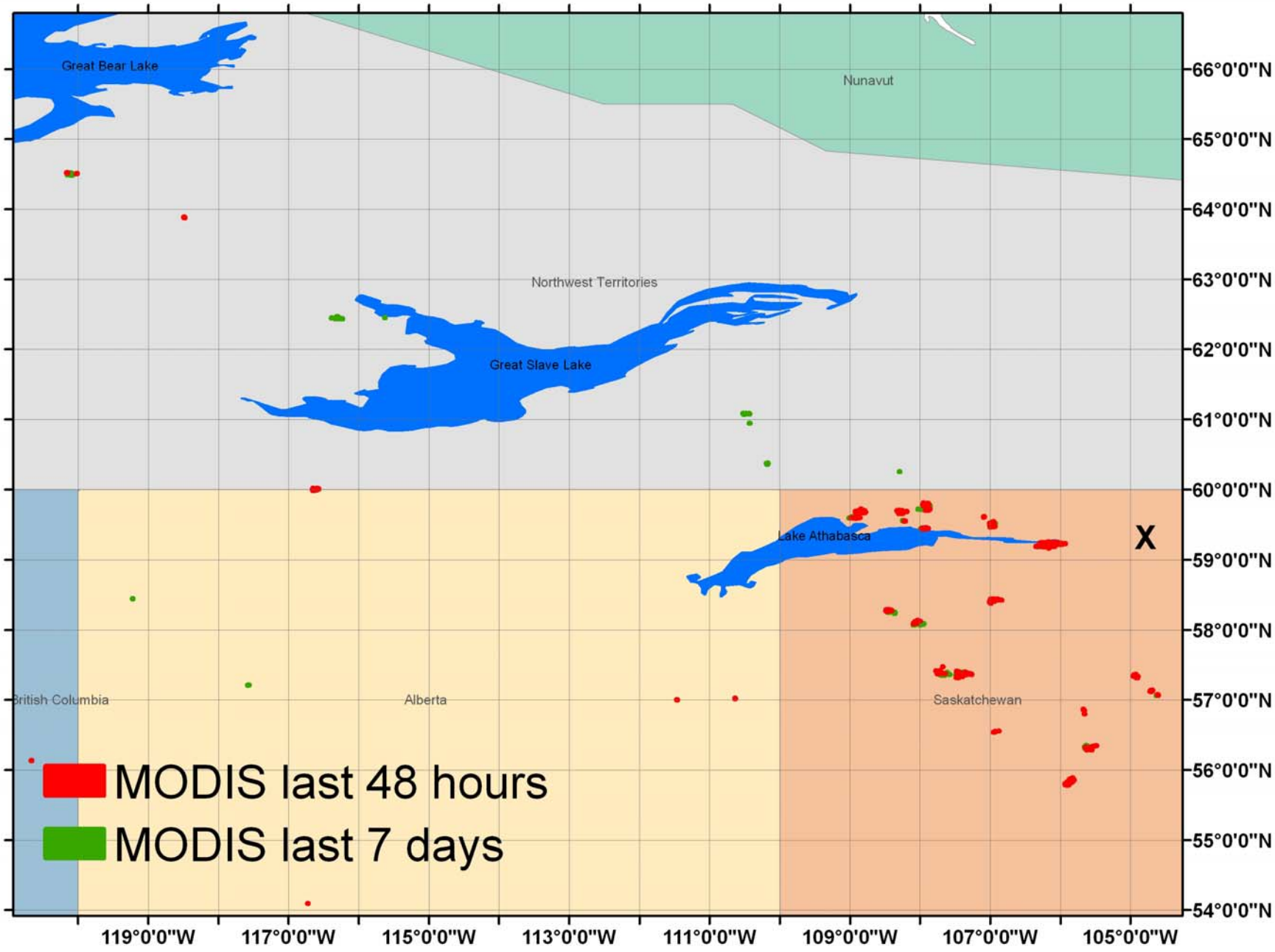

CR-004
59.5/109
OBSR-EDAY
OBSR-TRAIN
OBSR-WESTRAY
OBSR-CAMSELL
OBSR-APISIS
OBSR-VIKING
OBSR-JANTZ
OBSR-STROME
Fond-du-Lac
59/106
Stony Rapids
OBSR-RICHIE



MODIS Terra
18:55 UTC
29 June 2008



MODIS Aqua
20:45 UTC
29 June 2008


Great Bear Lake
Nunavut
Northwest Territories
Great Slave Lake
Lake Athabasca
X
British Columbia
Alberta
Saskatchewan
MODIS last 48 hours
MODIS last 7 days
66°0'0"N
65°0'0"N
64°0'0"N
63°0'0"N
62°0'0"N
61°0'0"N
60°0'0"N
59°0'0"N
58°0'0"N
57°0'0"N
56°0'0"N
55°0'0"N
54°0'0"N
119°0'0"W
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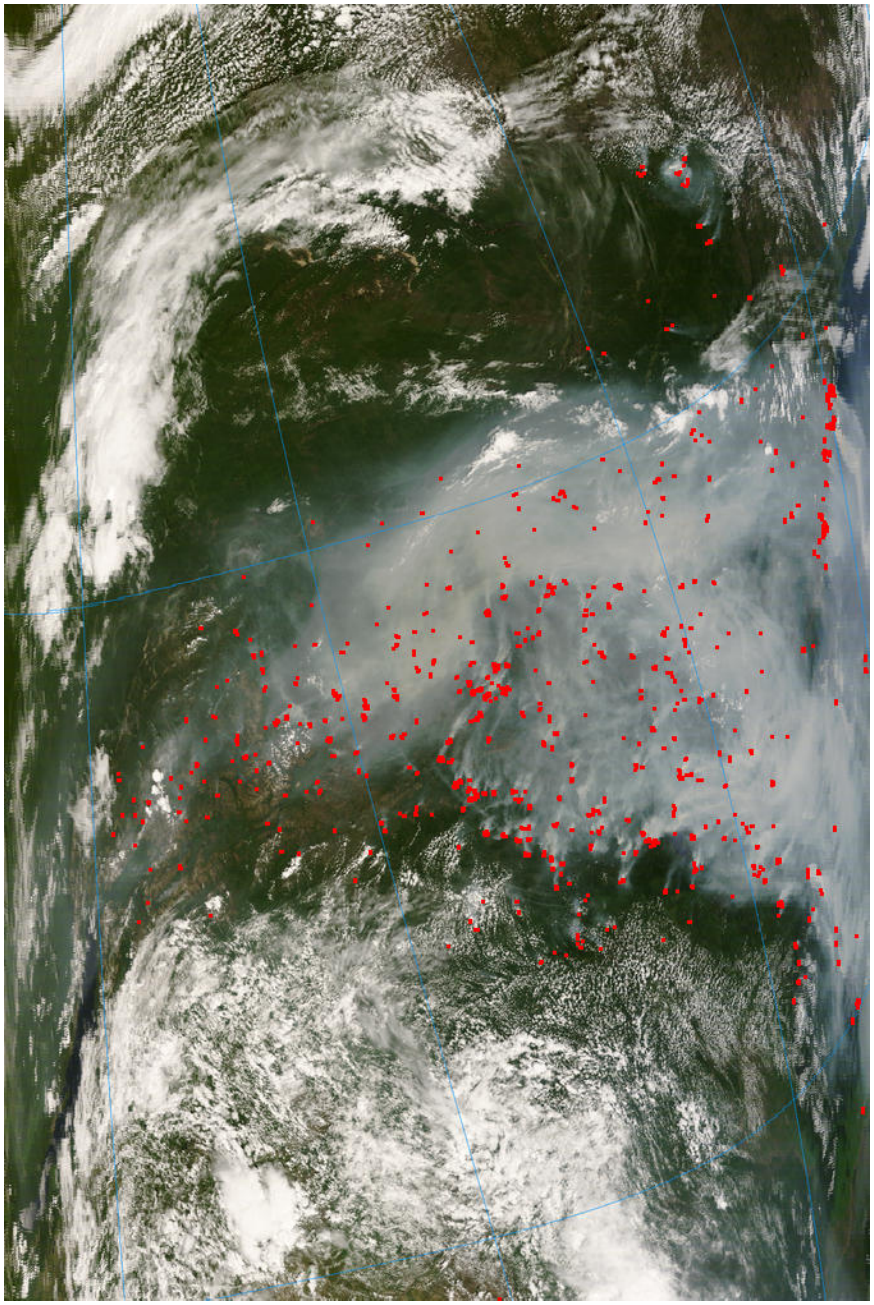
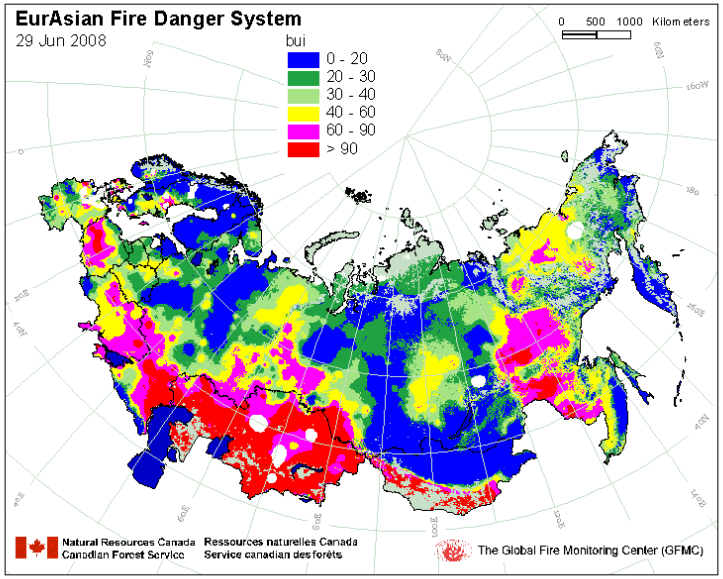
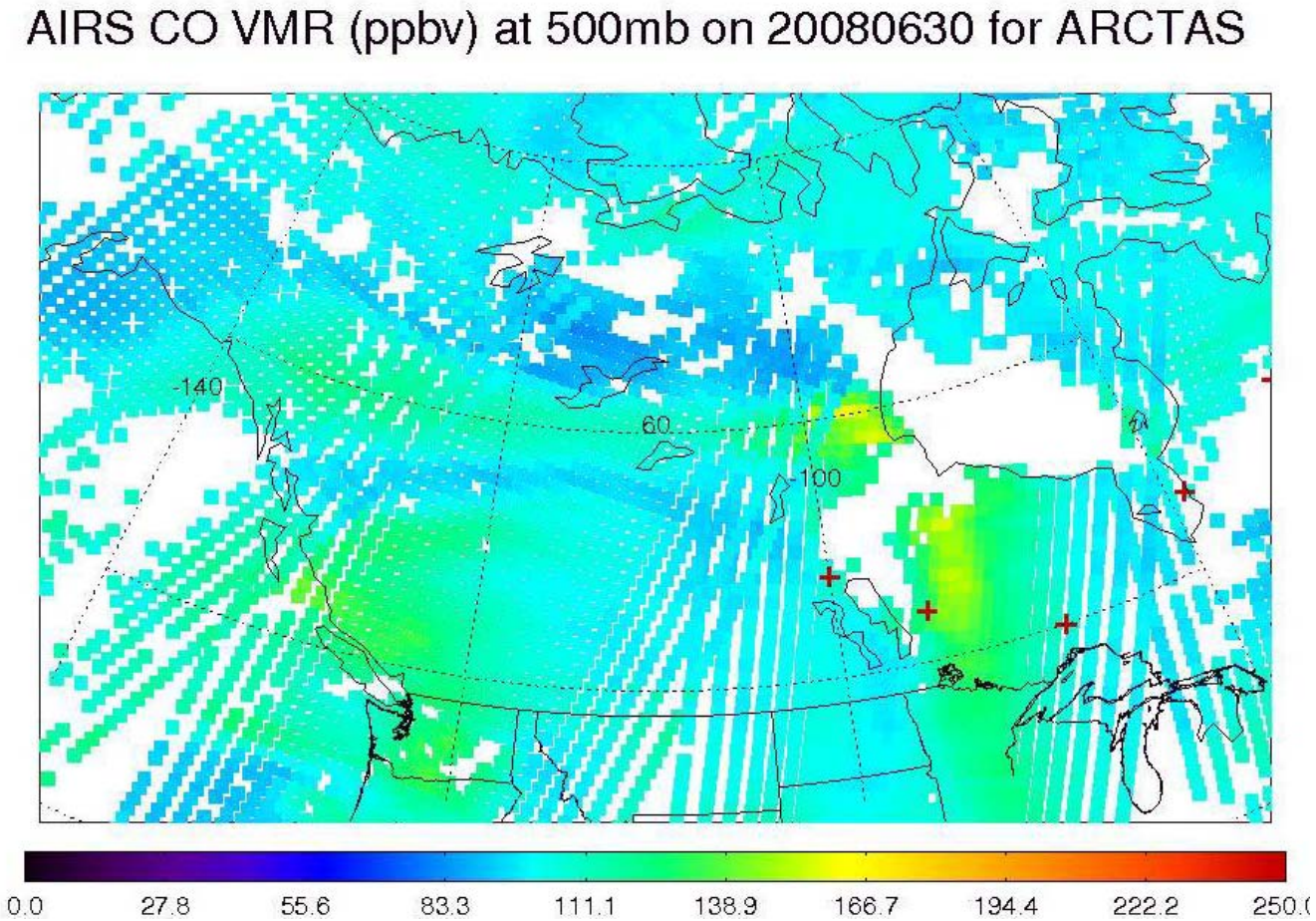
109°0'0"W
107°0'0"W
105°0'0"W



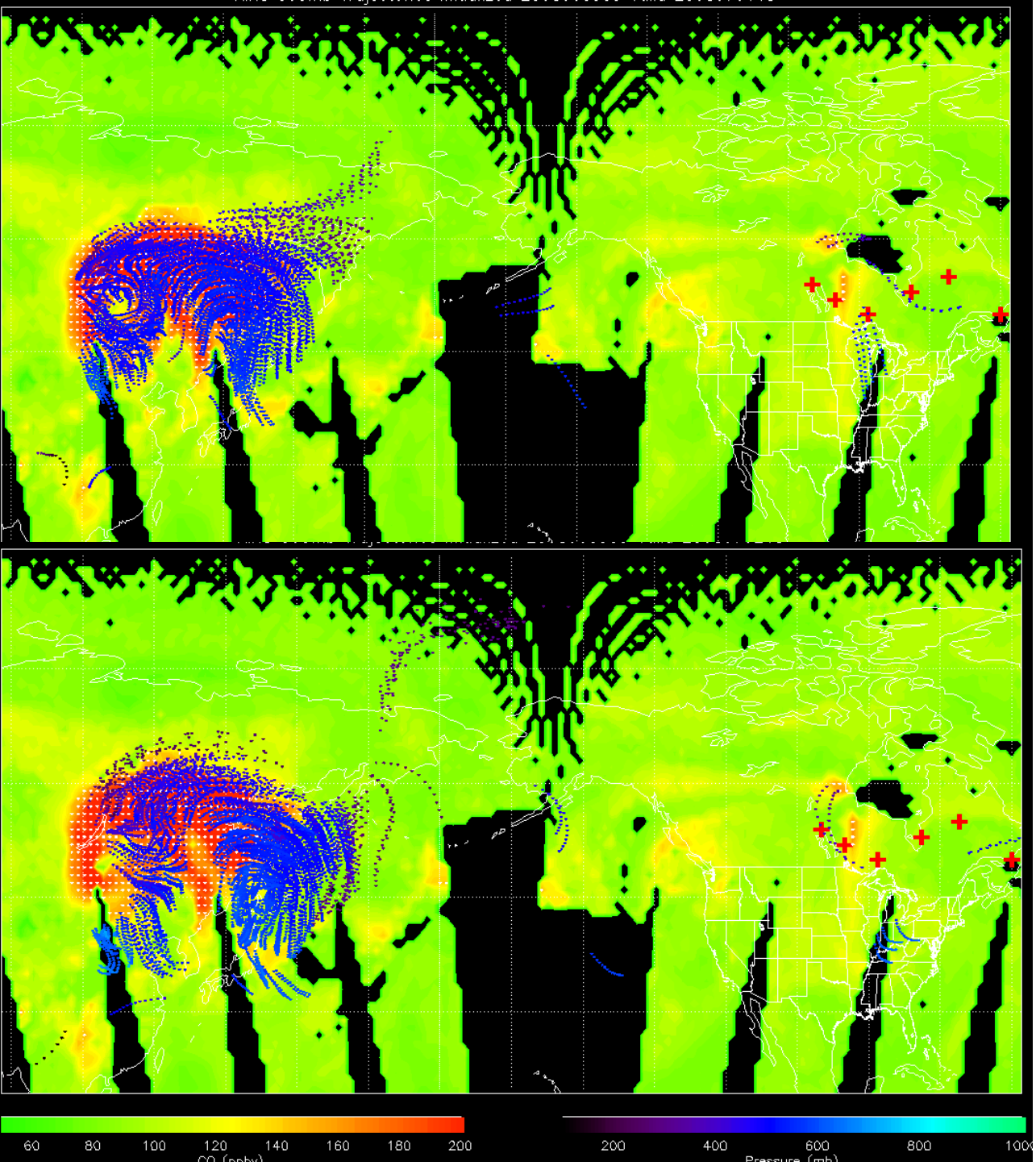

EurAsian Fire Danger System
29 Jun 2008
bui
0 - 20
20 - 30
30 - 40
40 - 60
60 - 90
> 90
0 500 1000 Kilometers
Natural Resources Canada
Canadian Forest Service
Ressources naturelles Canada
Service canadien des forêts
The Global Fire Monitoring Center (GFMC)

AIRS Support for ARCTAS/CARB



Emissions from four locations:

- Siberian long range transport
- CA fire transport
- Canadian (Saskatchewan) fire emissions transporting into US.
- Yukon

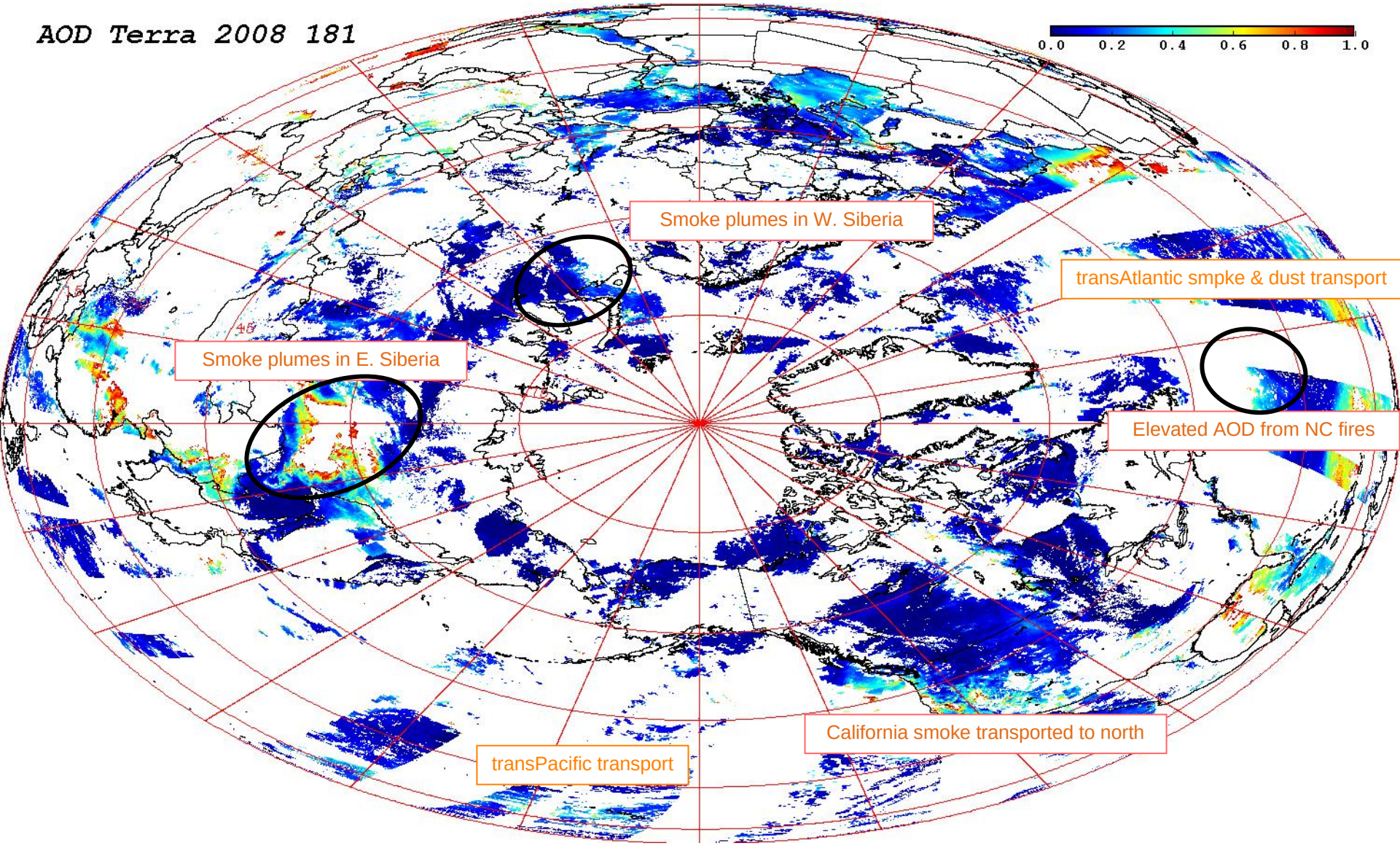


20080701 18z

Canadian CO from biomass burning is transported into Northeast to Mid-Atlantic US.

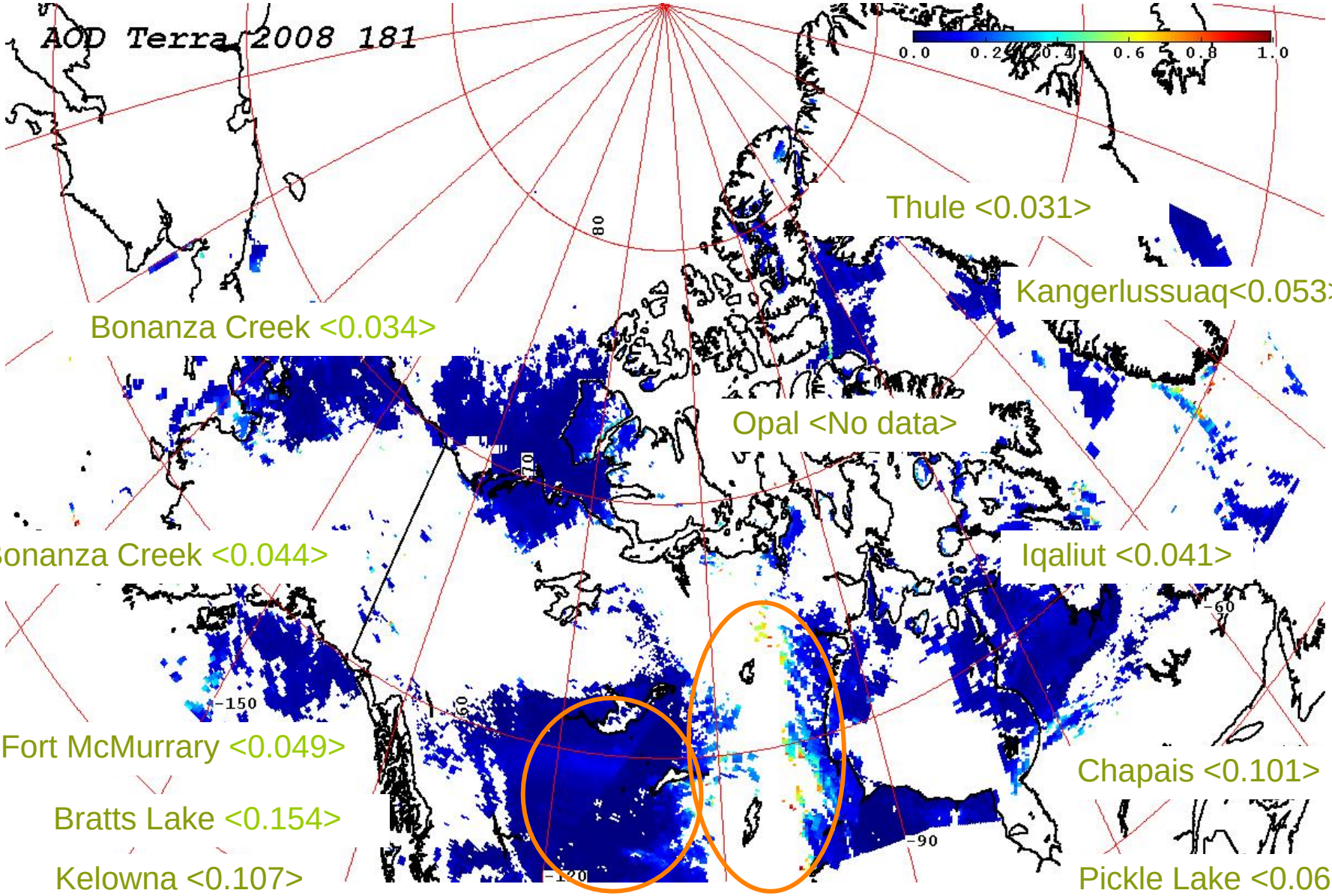
20080702 18z

Day 181 (June 29) Saturday

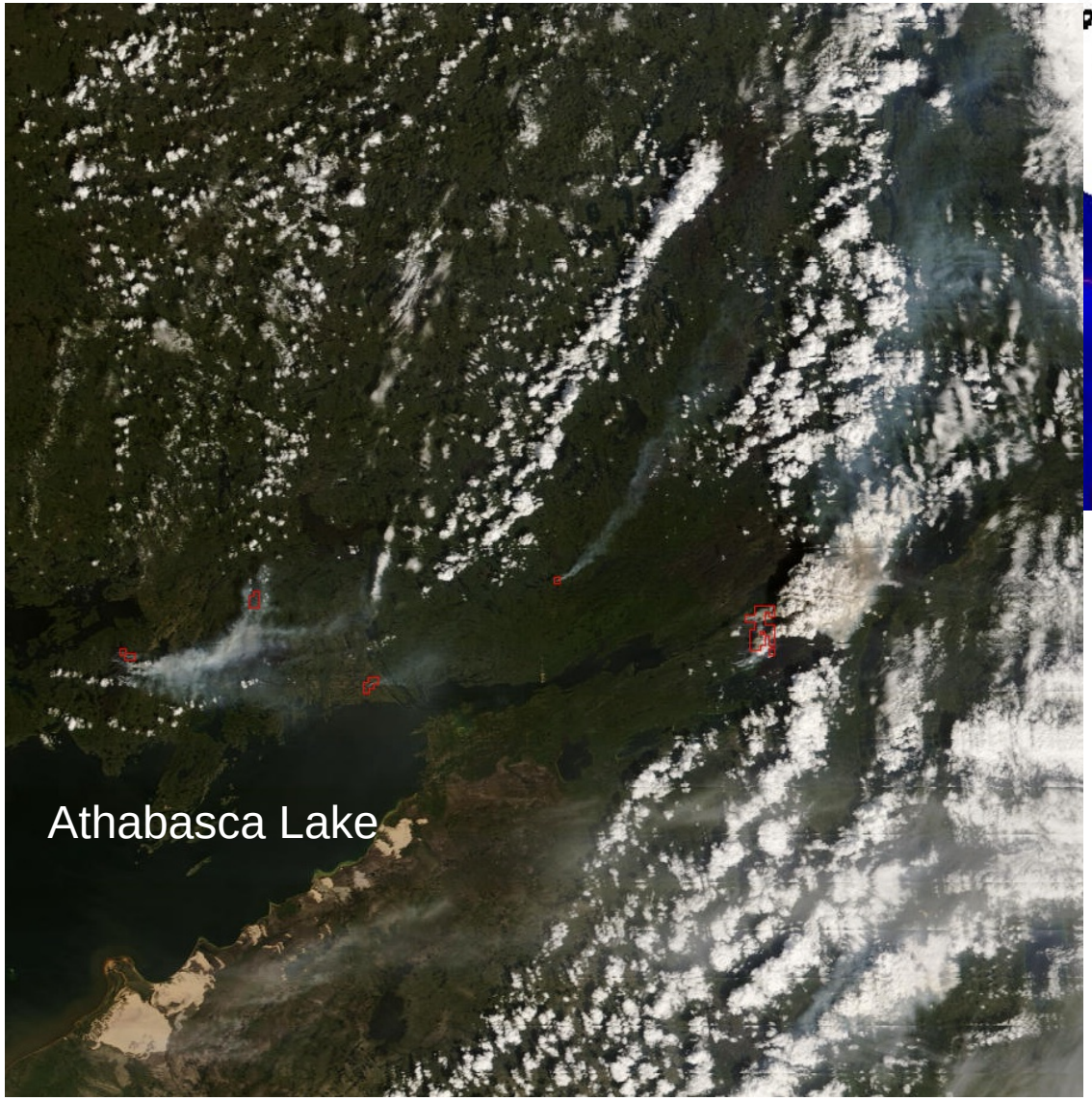


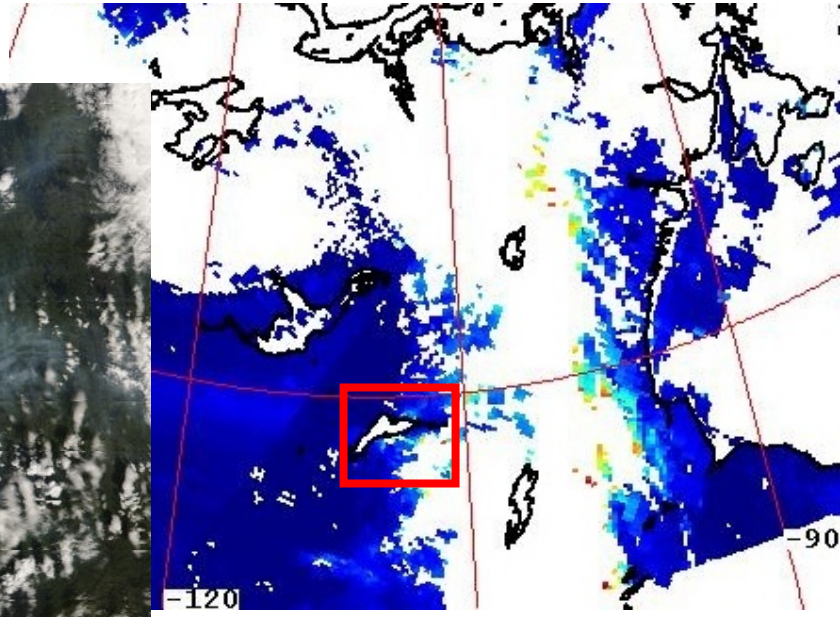
AERNOET daily mean <AOD>

Day 181 (June 29) Sunday

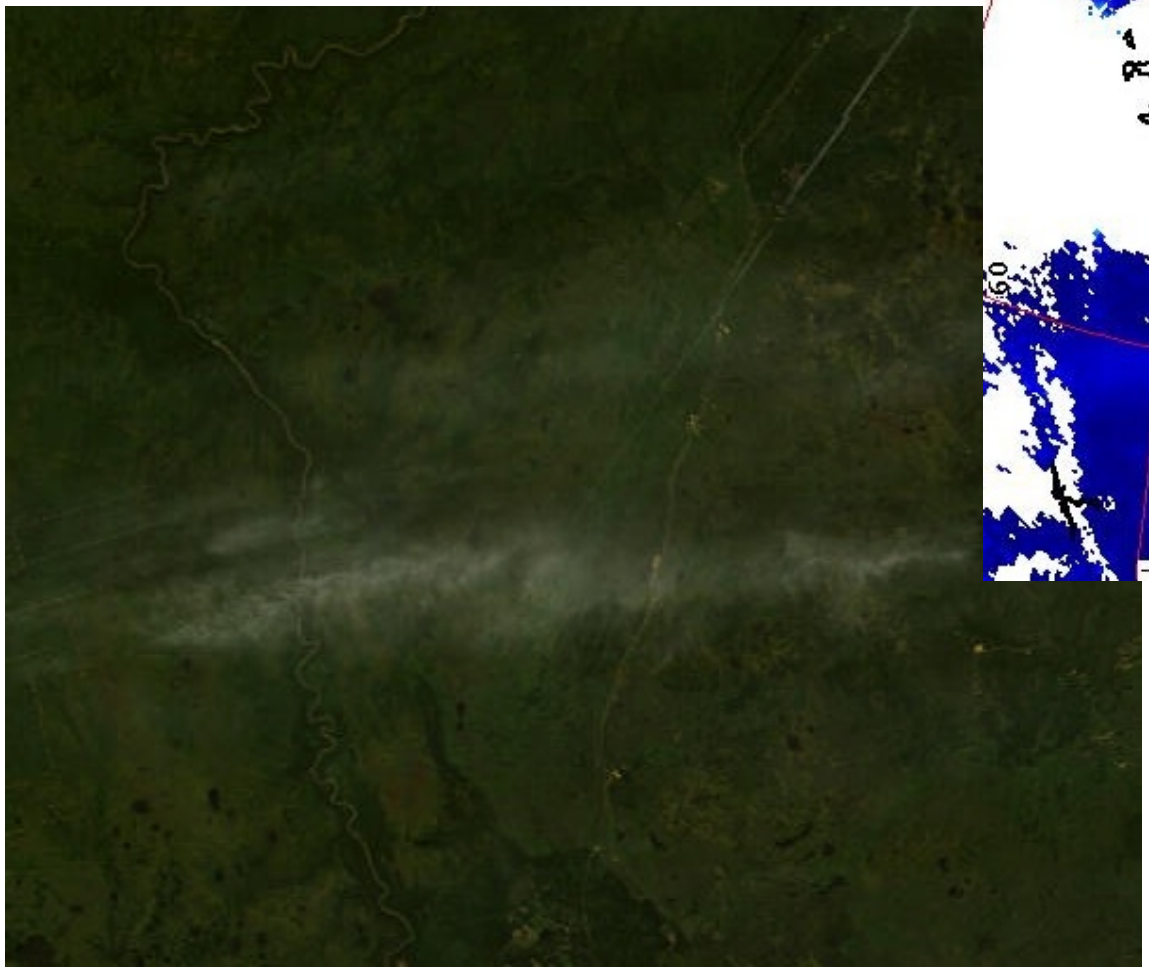


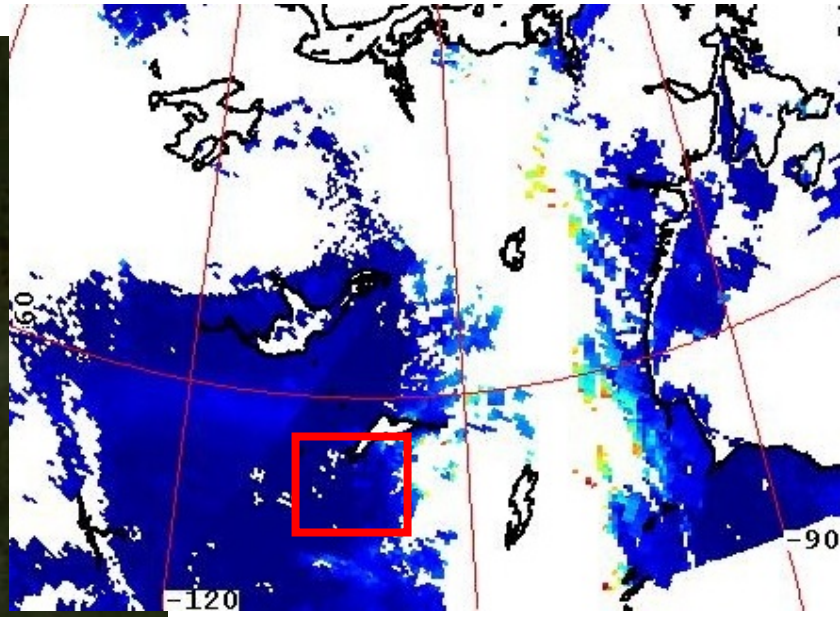
N. Saskatchewan smoke plumes sampled by P3



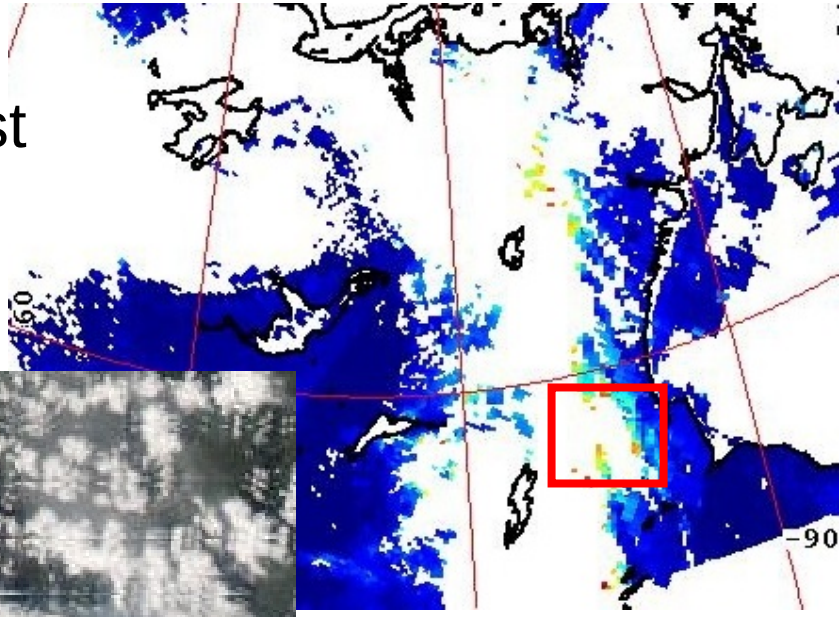


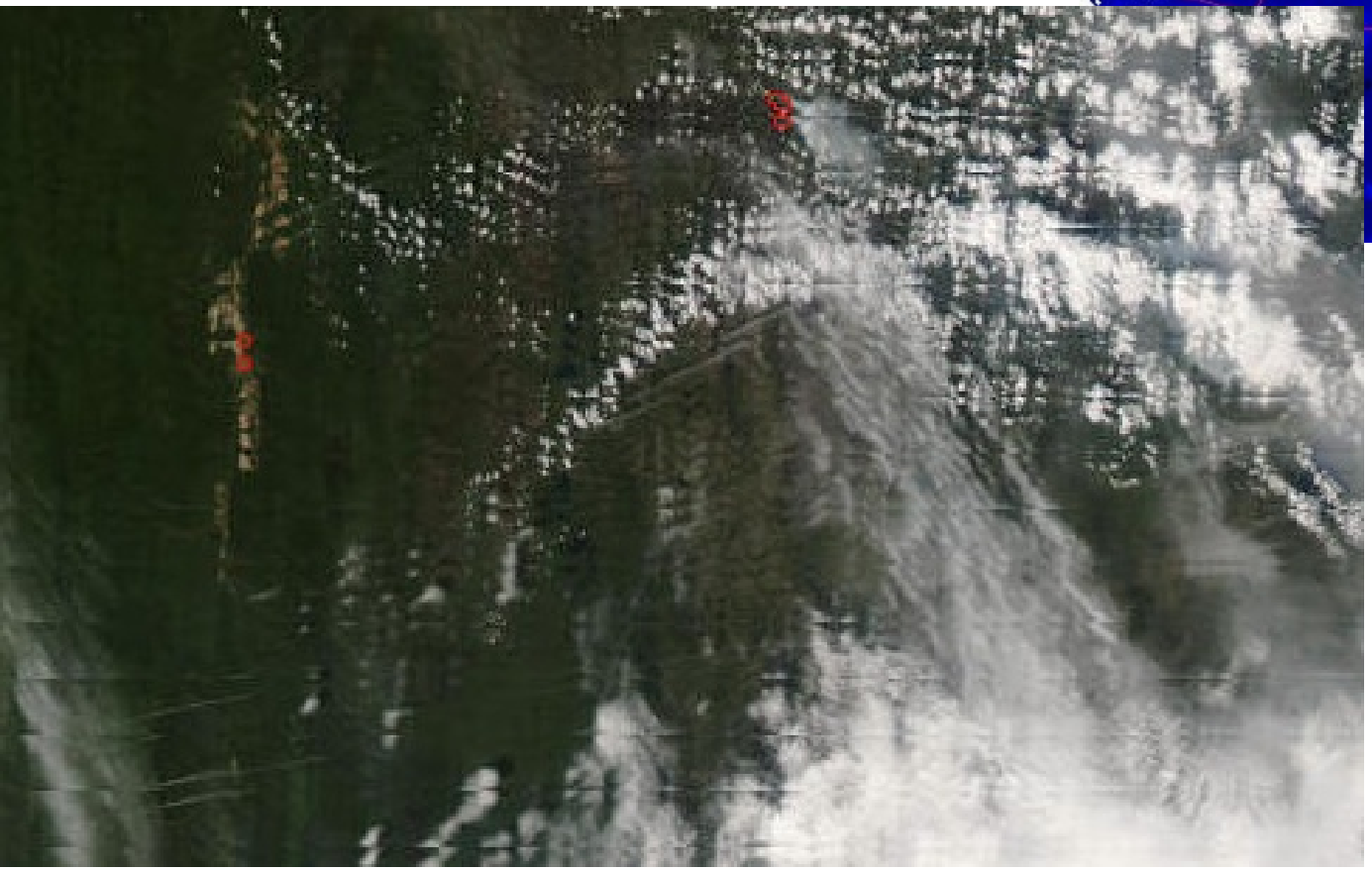
Smoke plumes at the northwest of Cold Lake

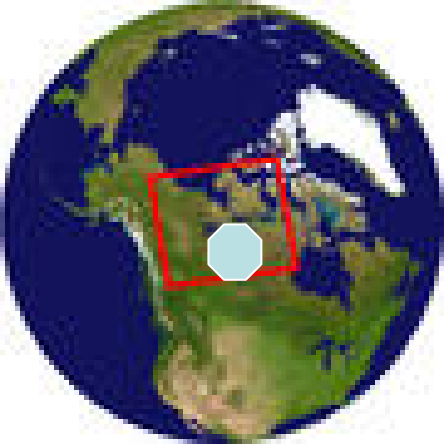




Smoke plumes at the southwest of Hudson Bay

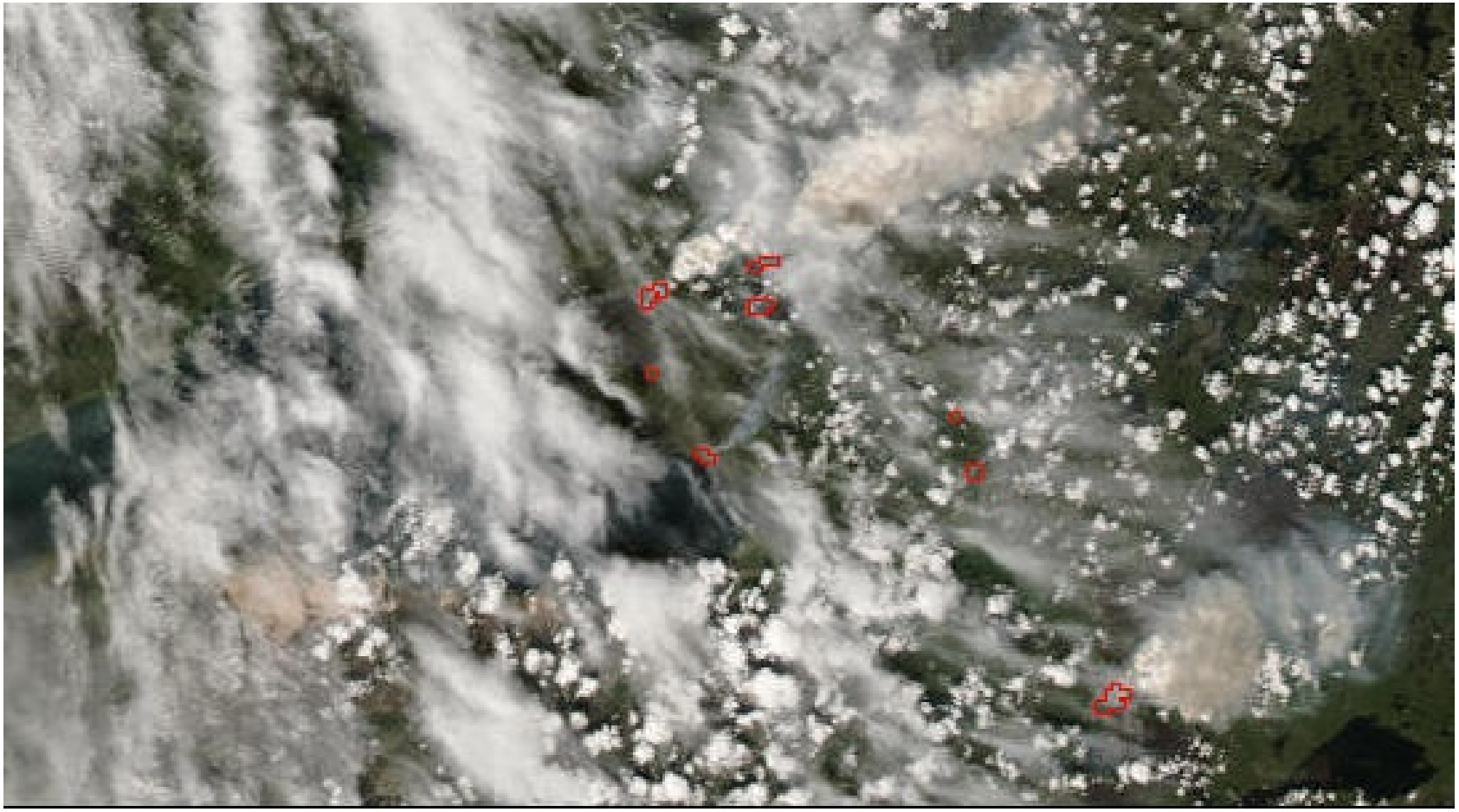


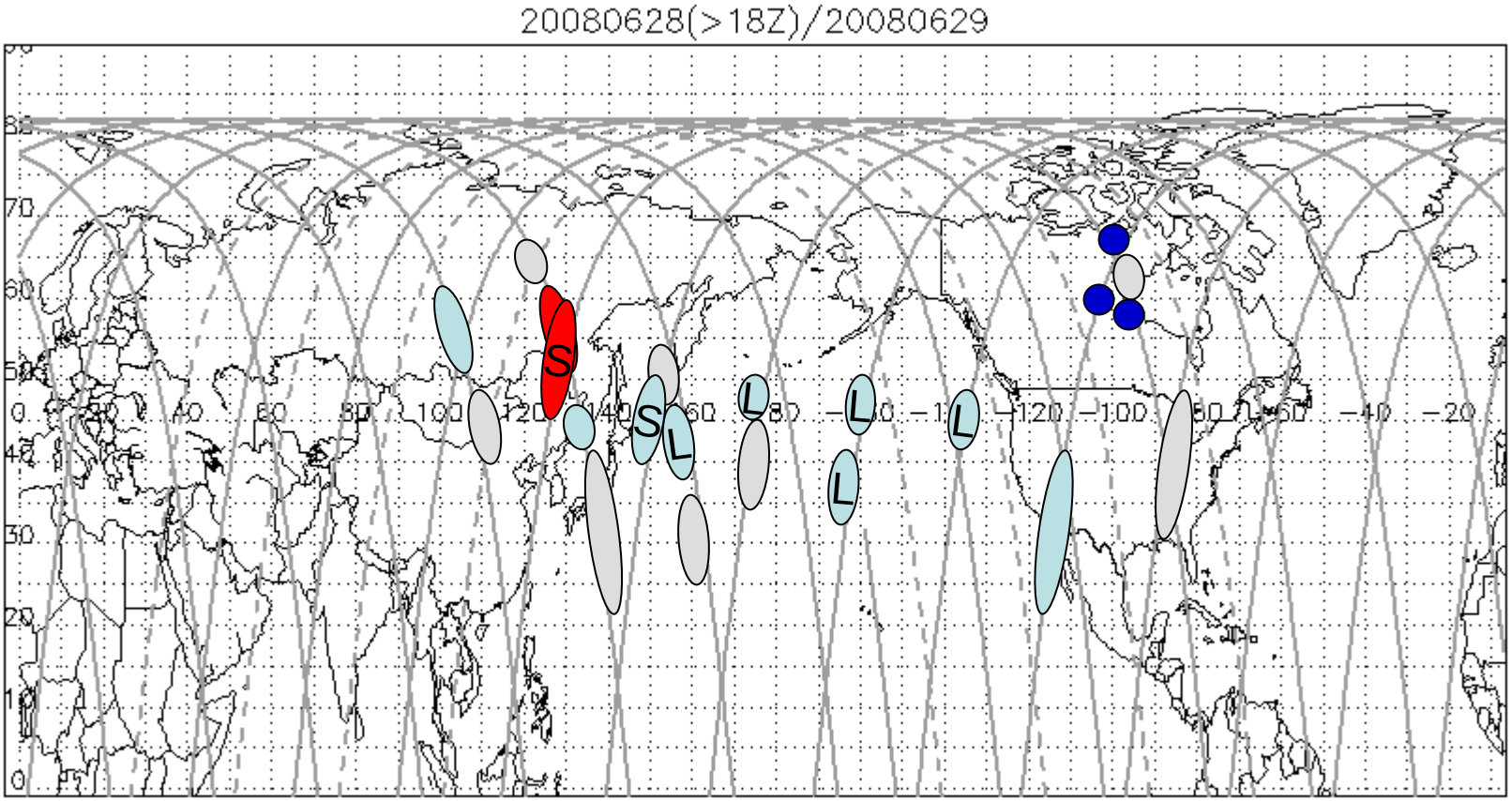




Smoke plumes in Yukon Territory (06/28/2008)

MODIS AOD retrieval missed…because of clouds screening……



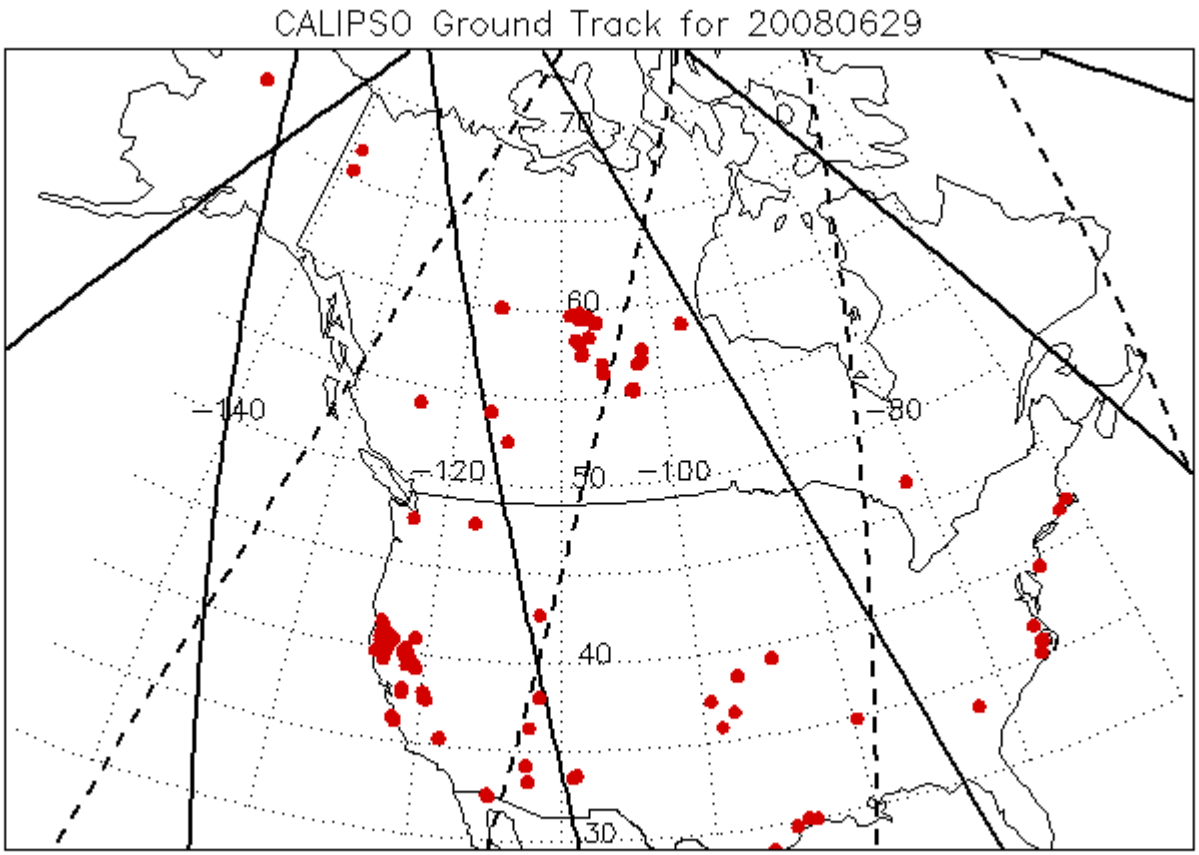


Cloud

Aerosol Layer- low aerosol loading

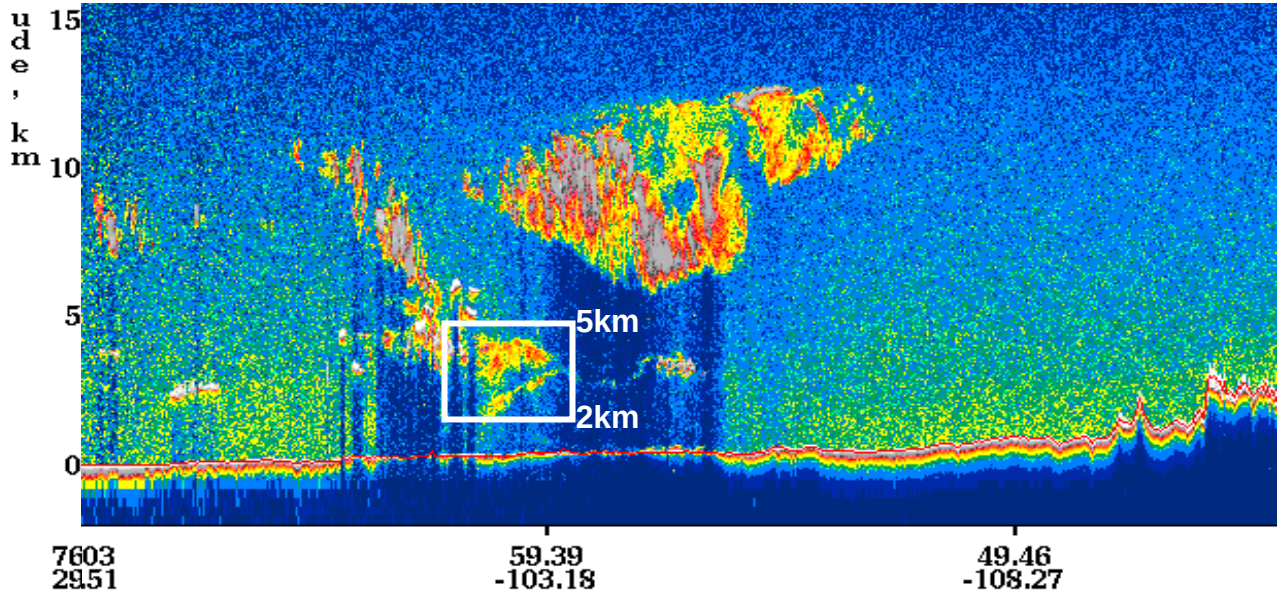
Aerosol Layer- medium aerosol loading

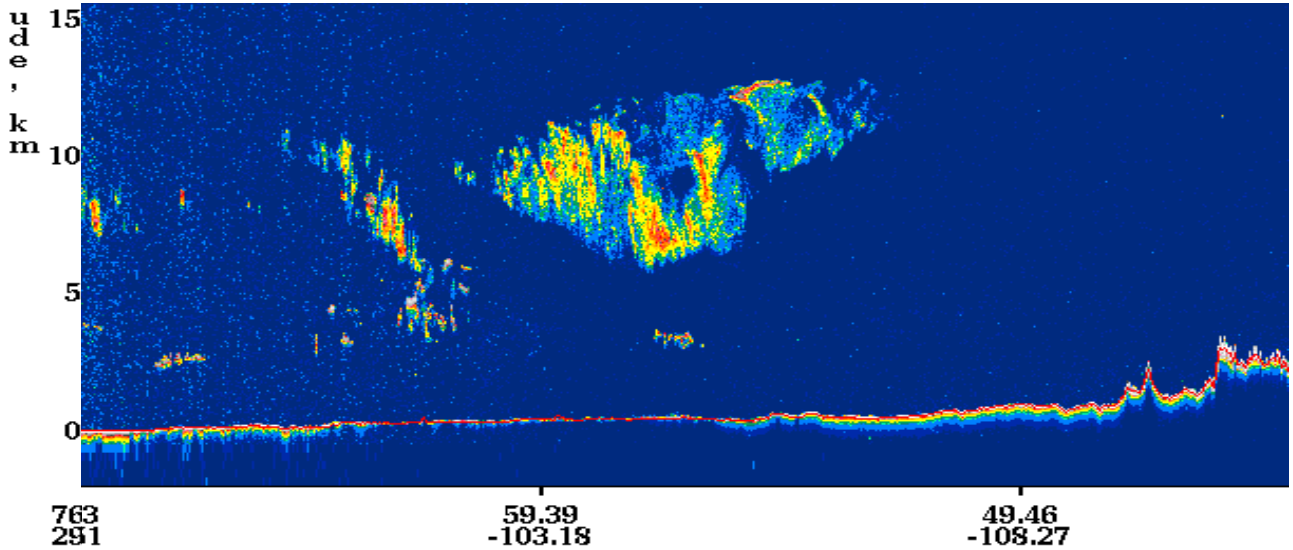
Aerosol Layer- high aerosol loading



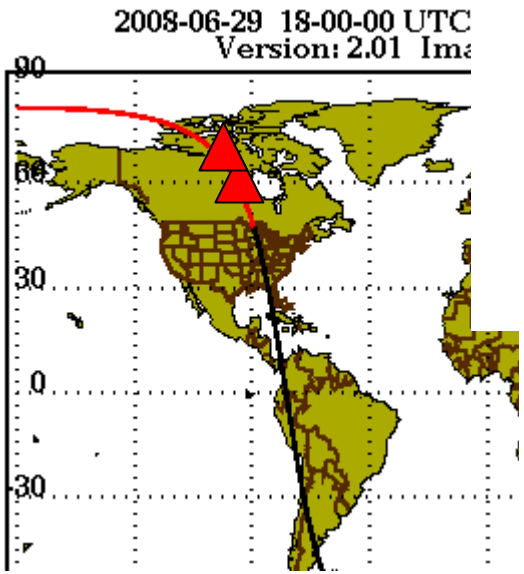
Fire locations from MODIS Terra and Aqua

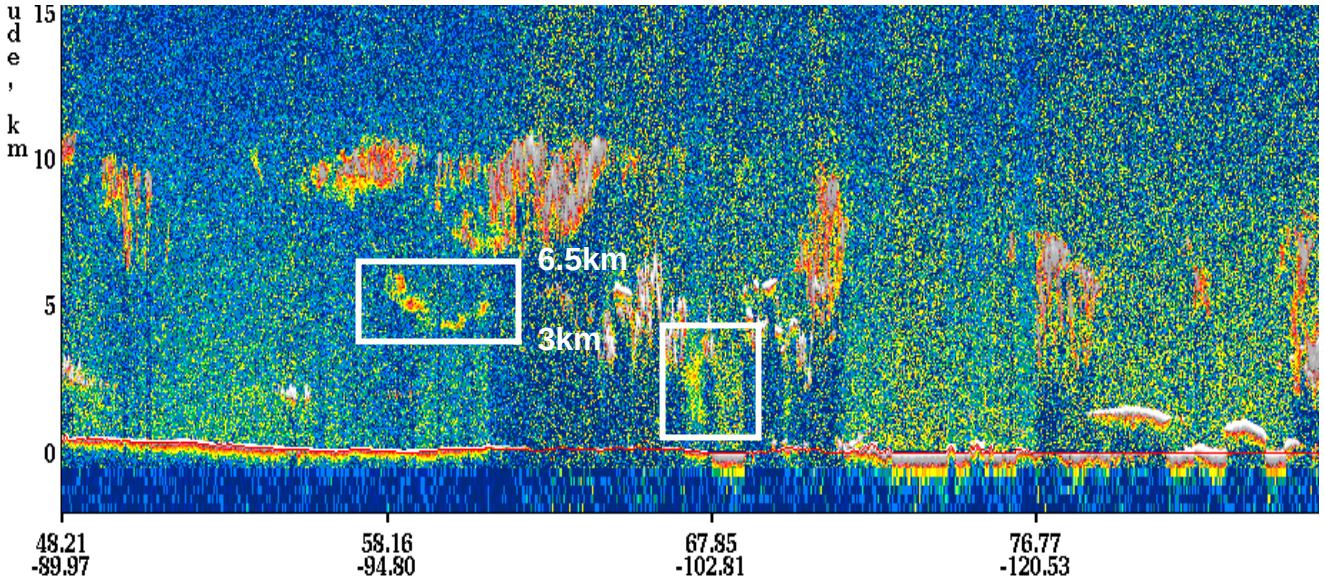
CALIPSO Obs 6/29: Canadian Smoke

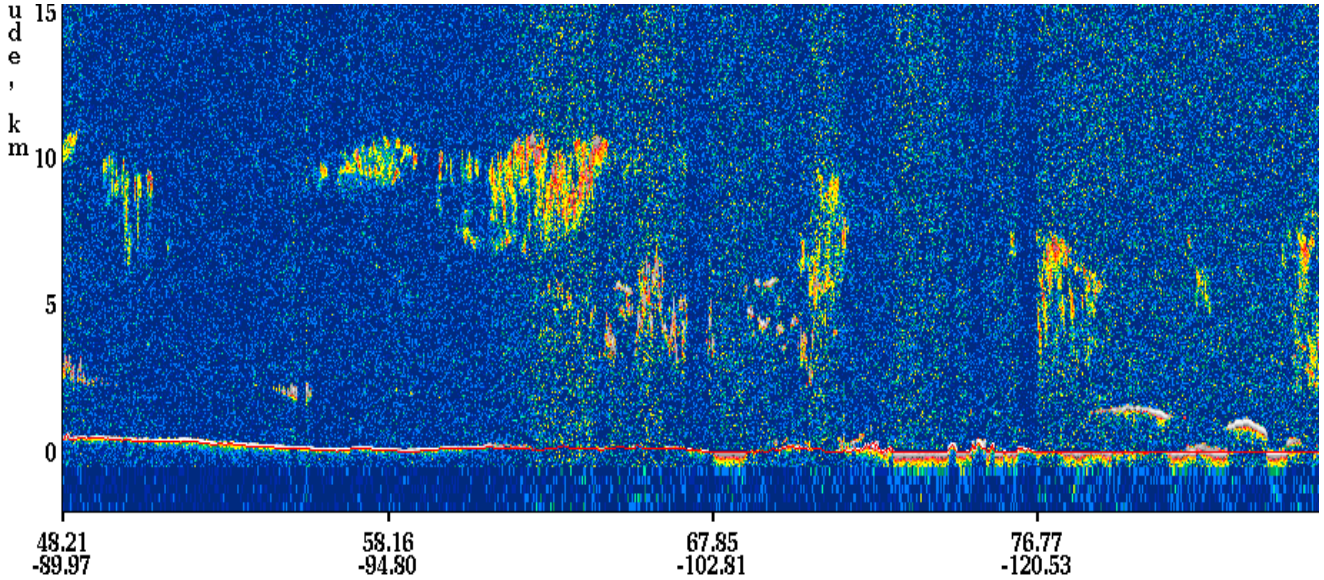




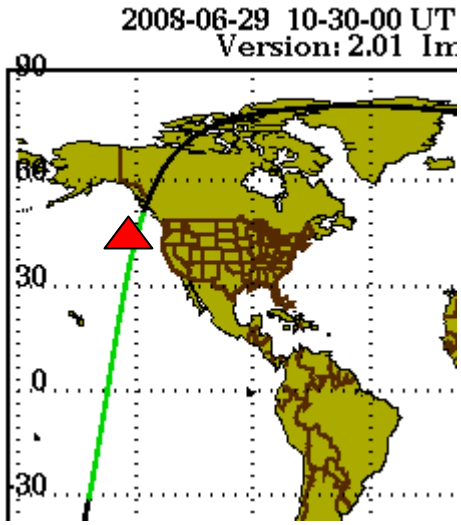
CALIPSO Obs 6/29: Canadian Smoke

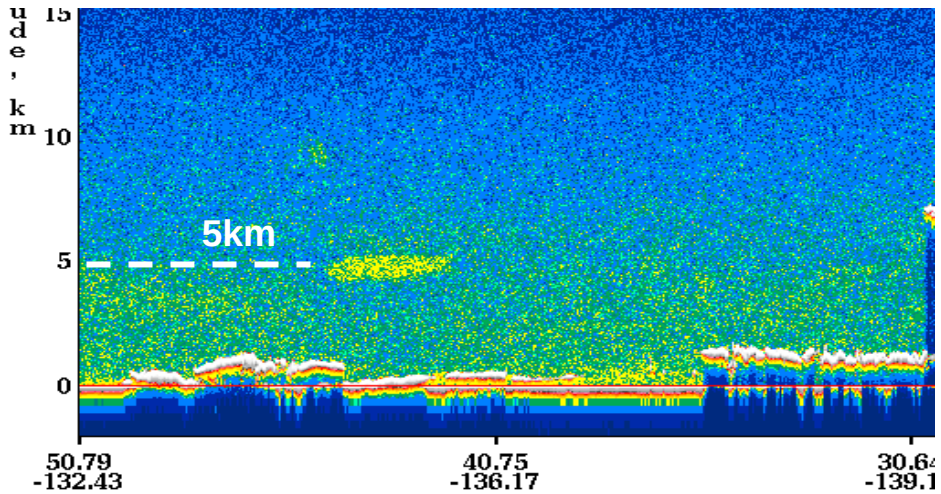


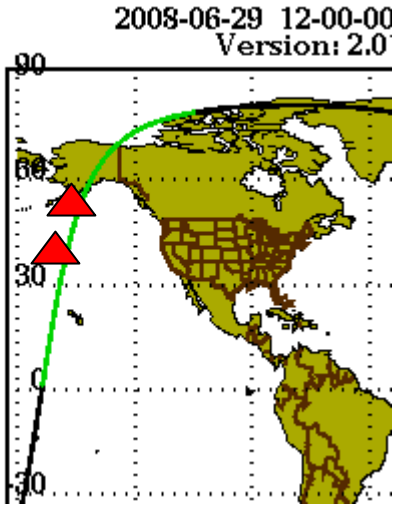


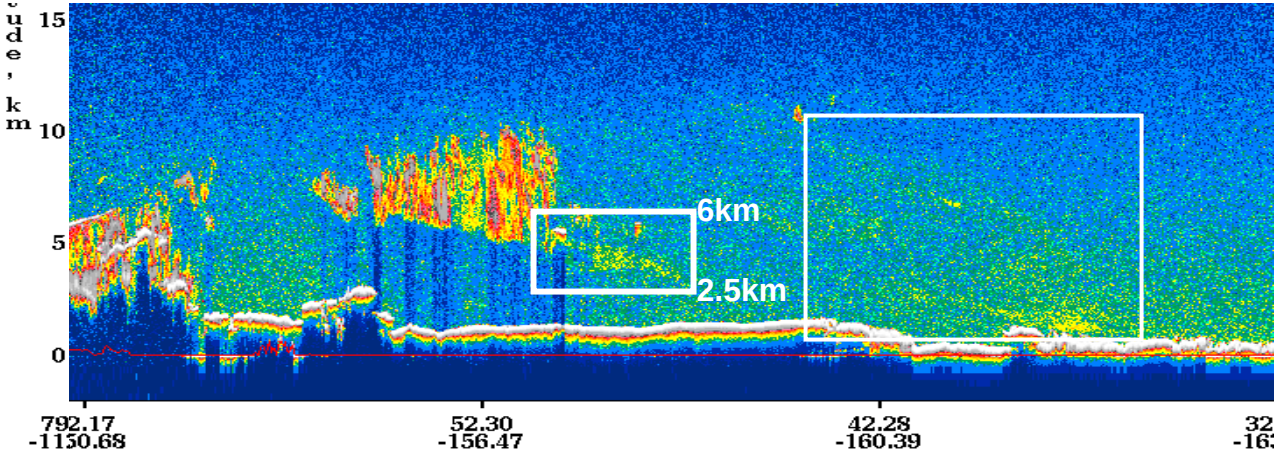


CALIPSO Obs 6/29: Smoke over Pacific

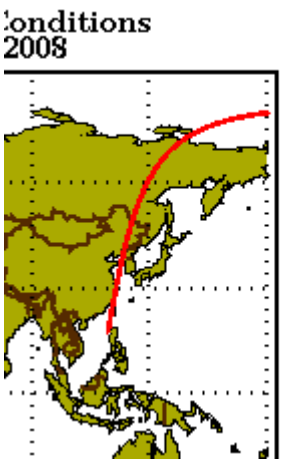


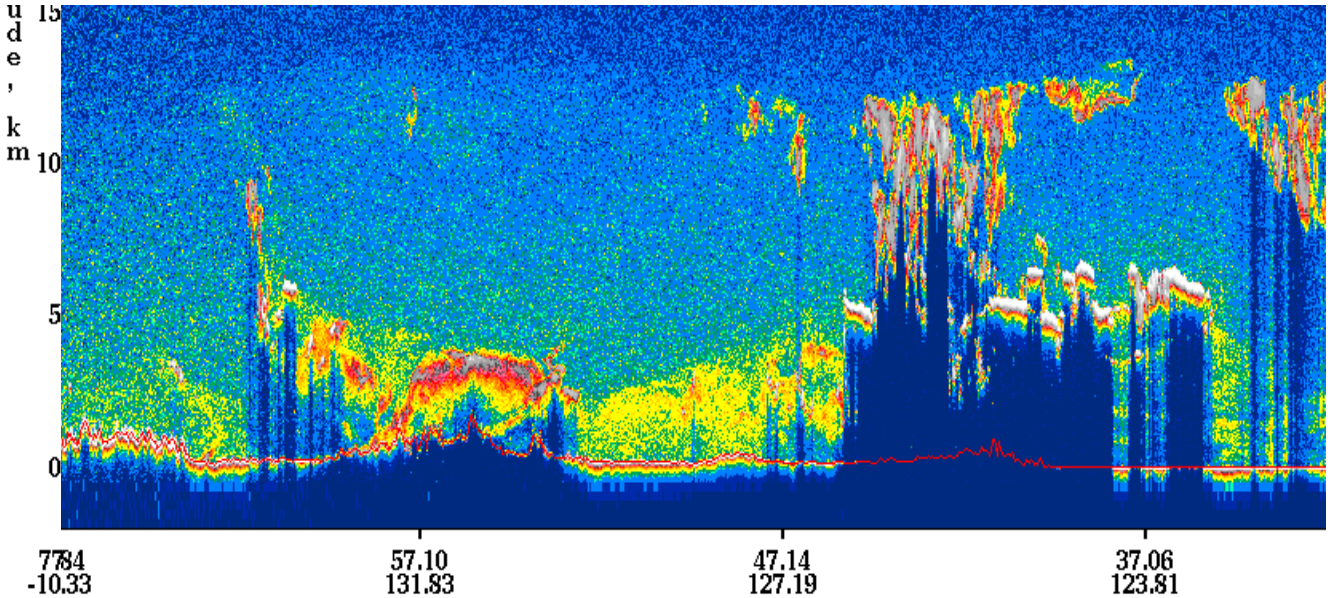




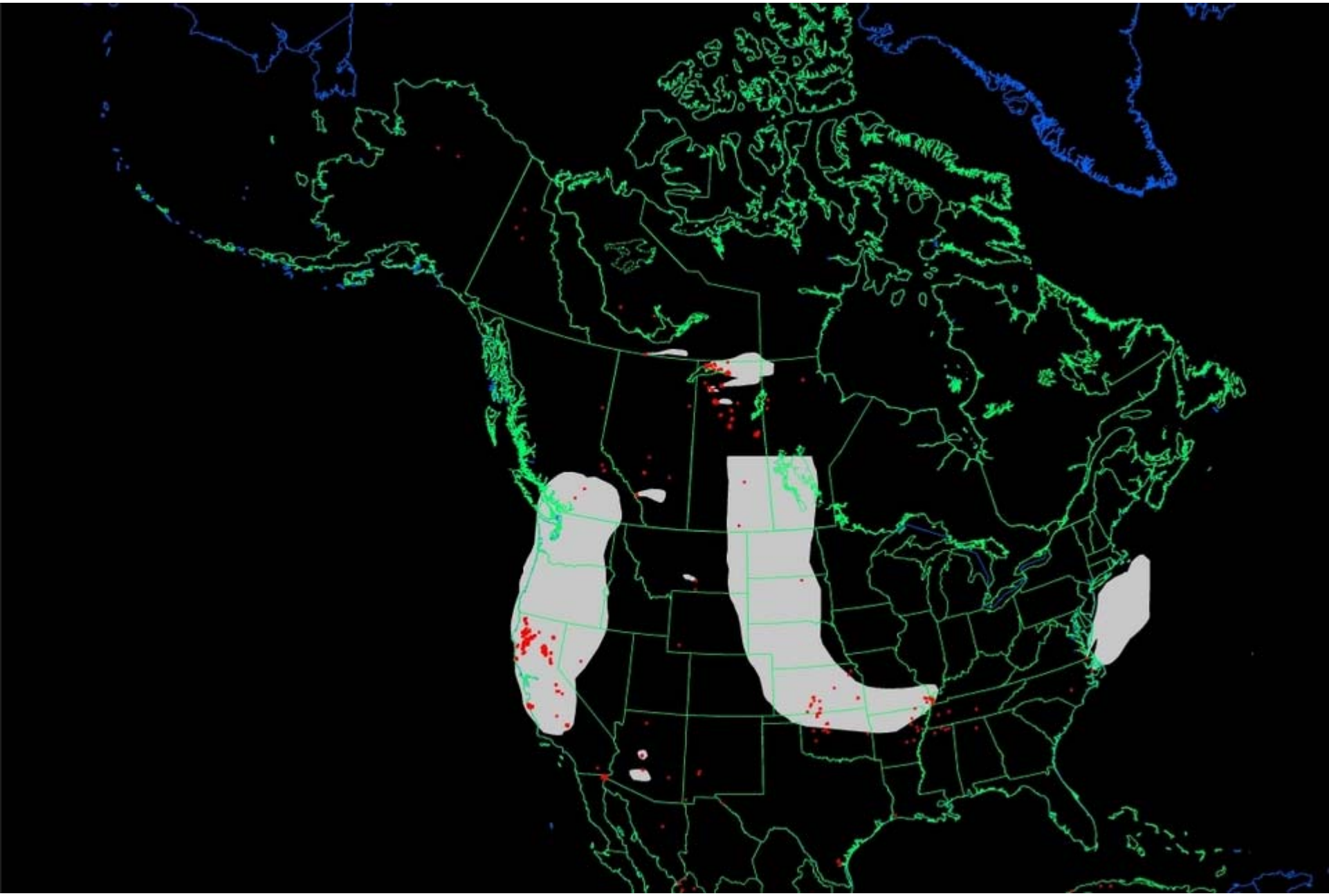


CALIPSO Obs 6/29: Siberian Smoke



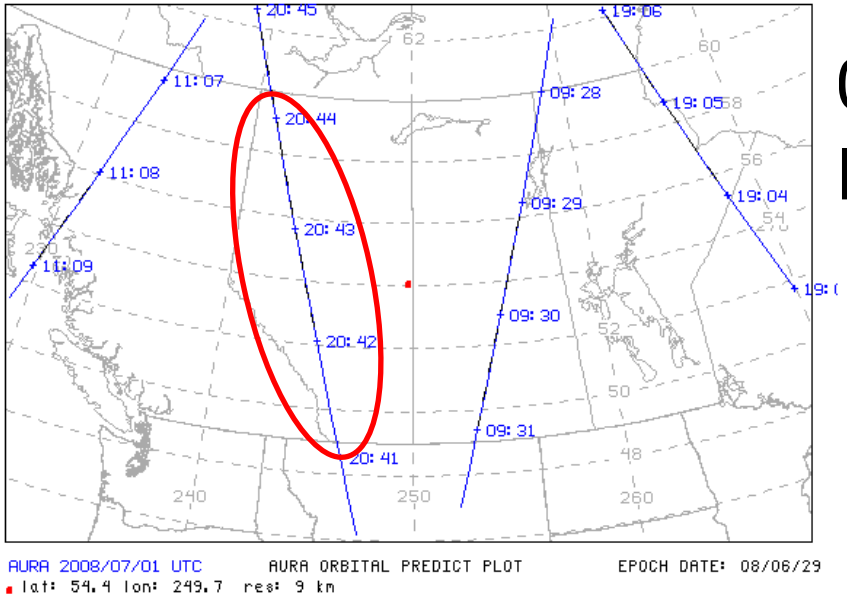


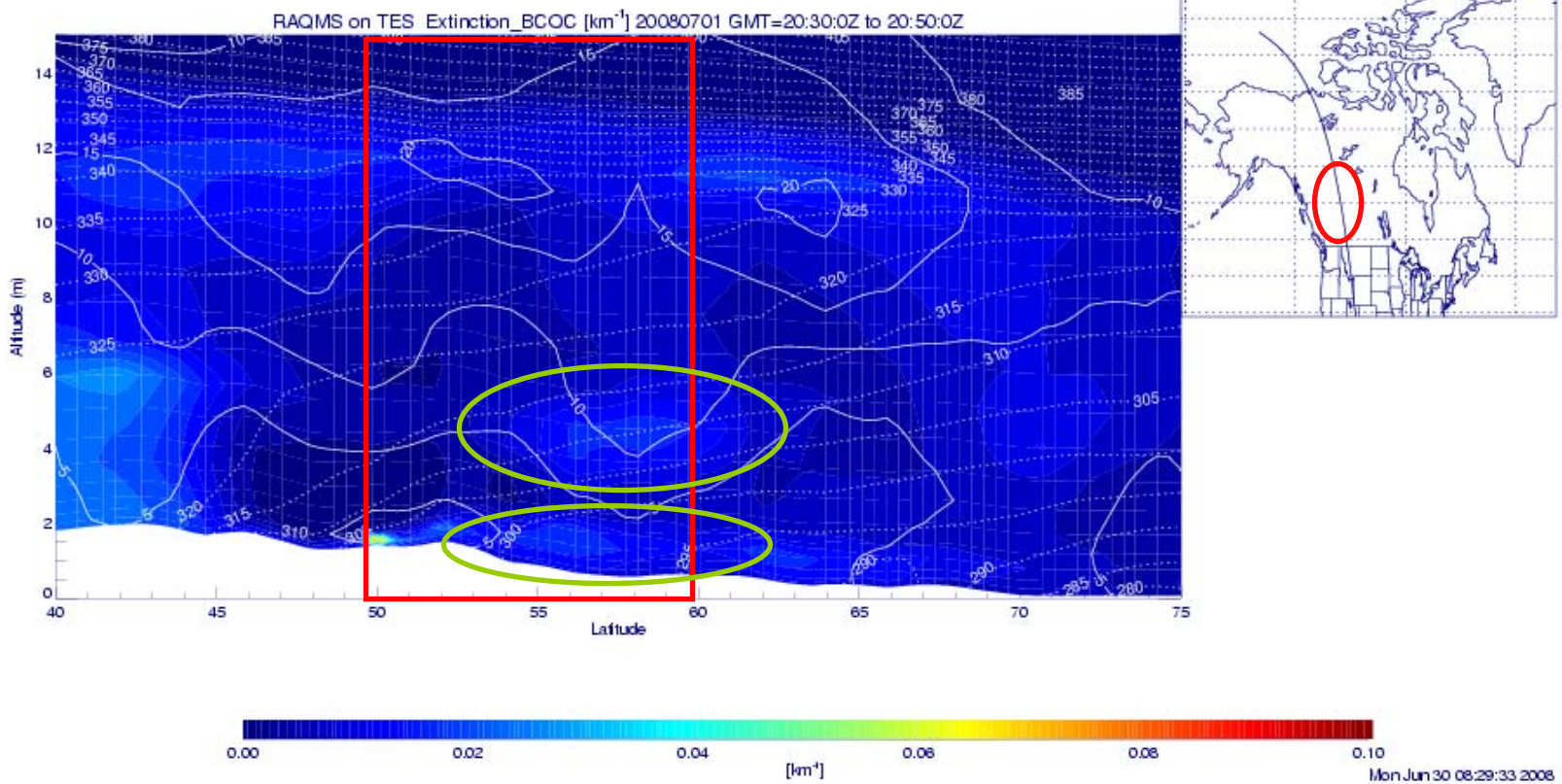
NOAA Hazard Mapping System Fire and Smoke Product



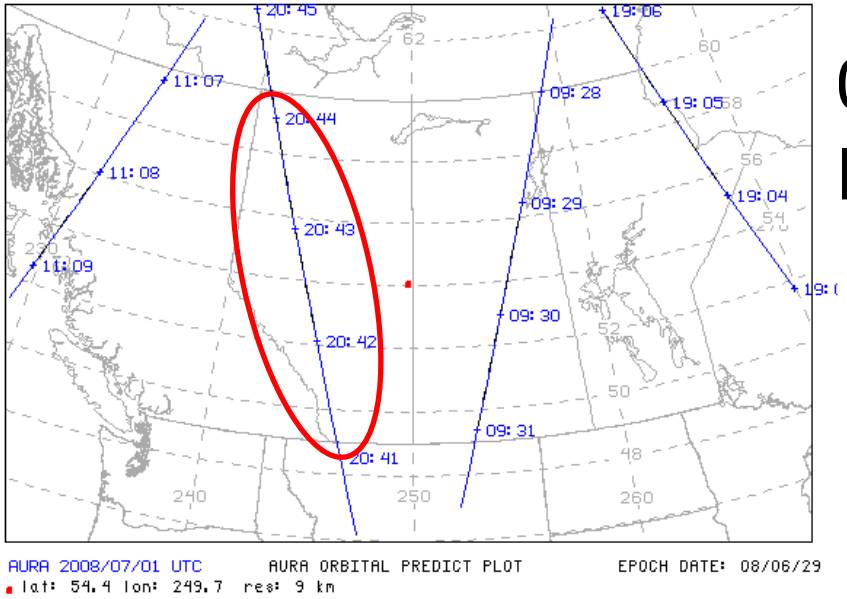
Analysis for day 6/29/2008 last updated at 6/30/2008 11:14:42 GMT

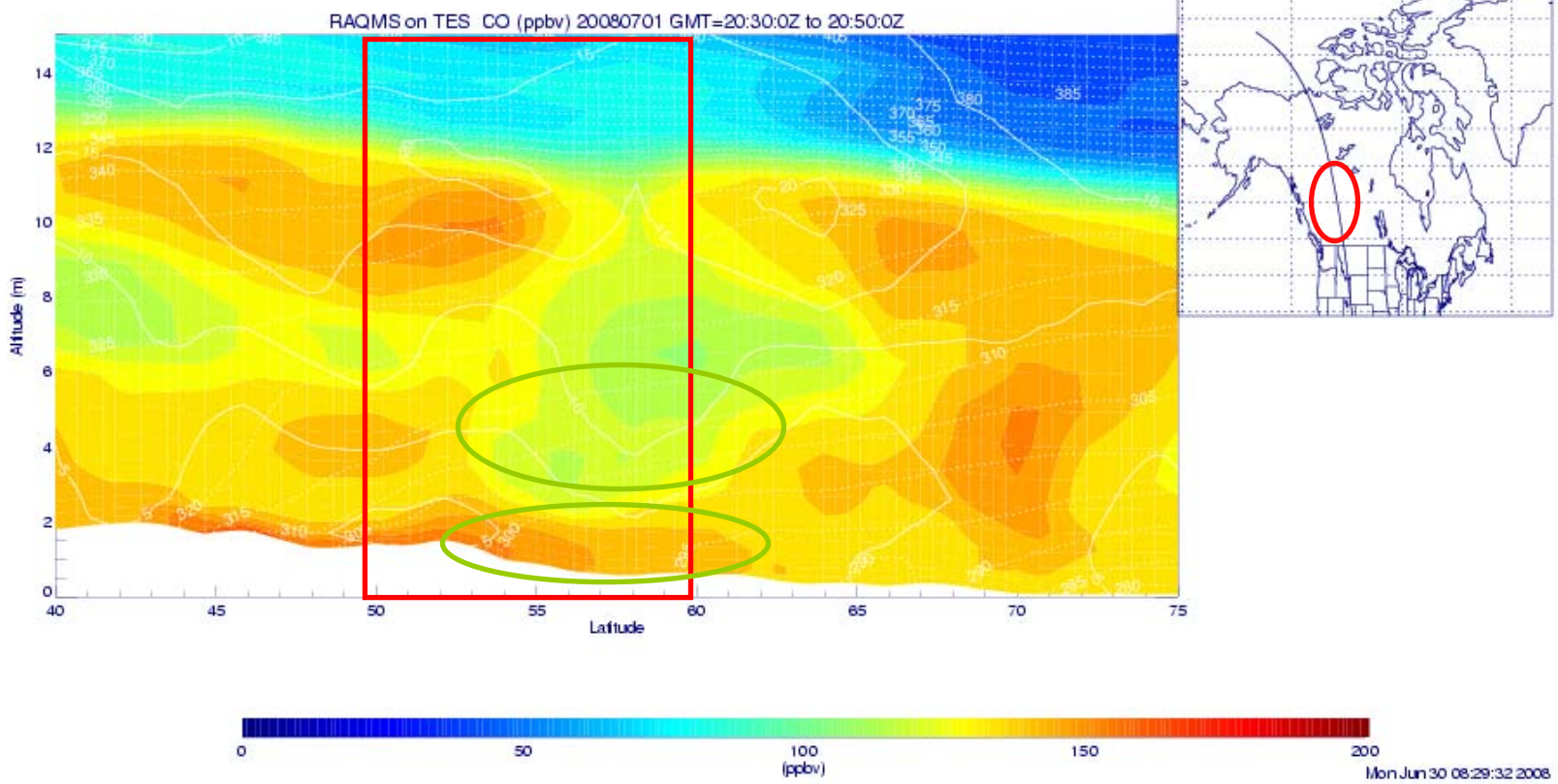
07/01 TES orbit 20:30Z-20:50Z RAQMS BC/OC Prediction



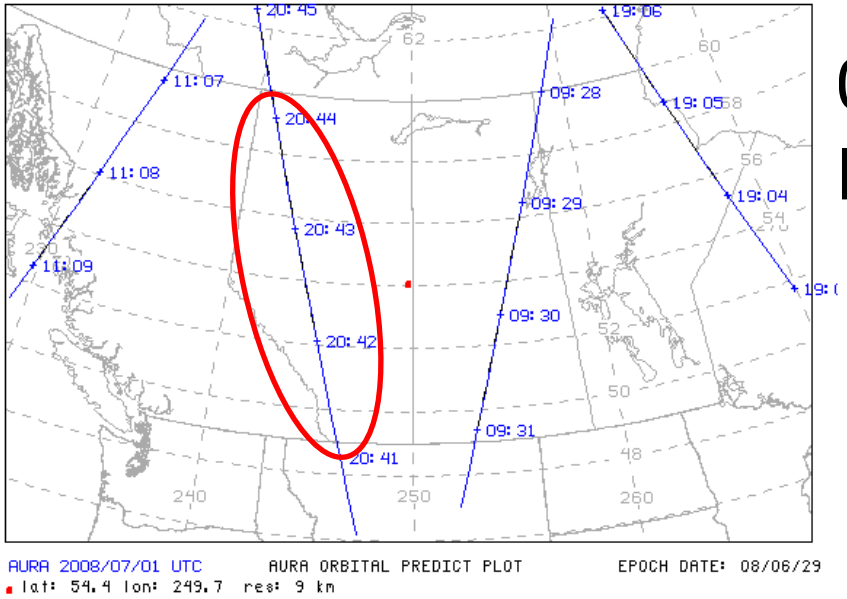


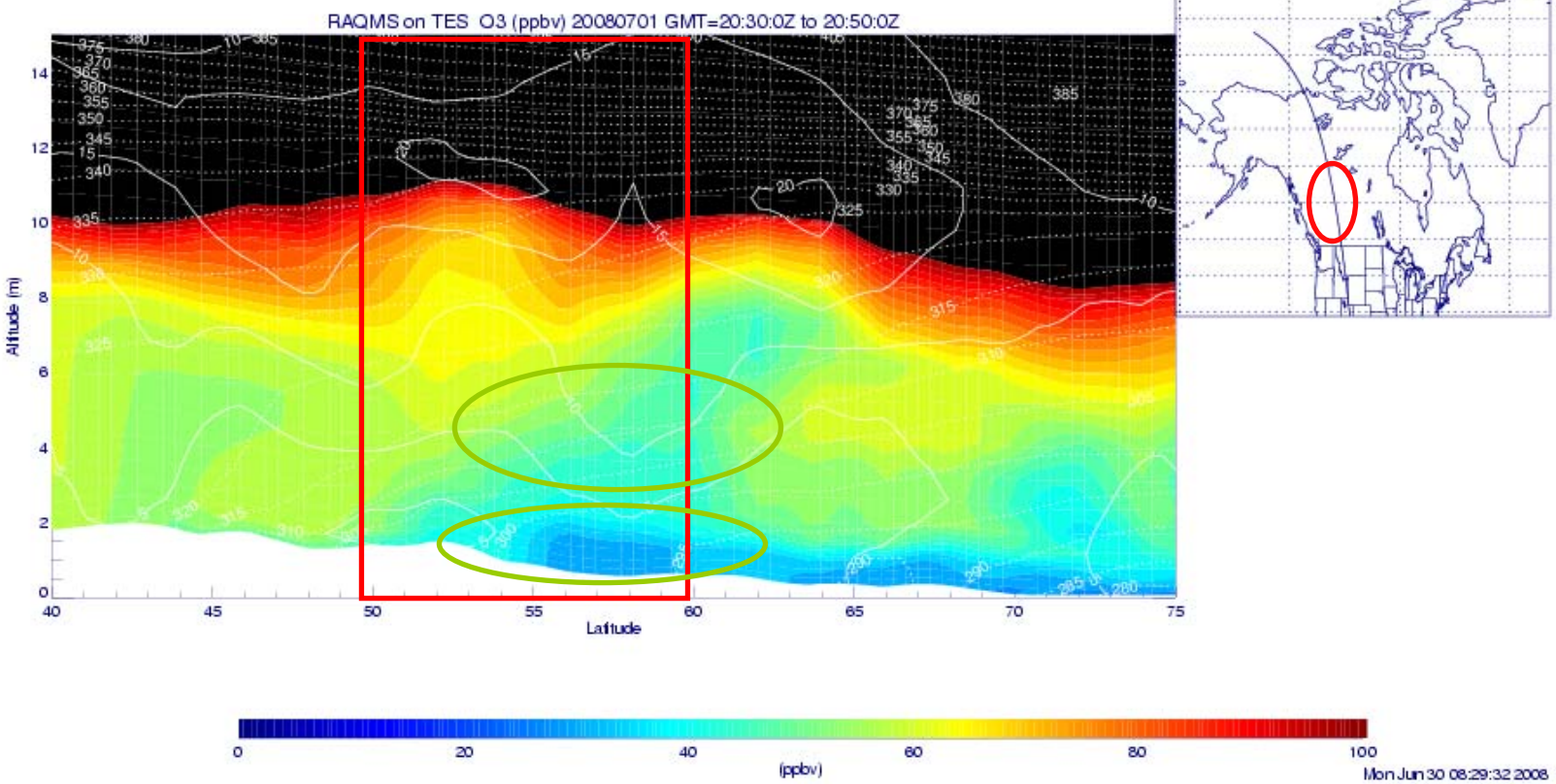
07/01 TES orbit 20:30Z-20:50Z RAQMS CO Prediction



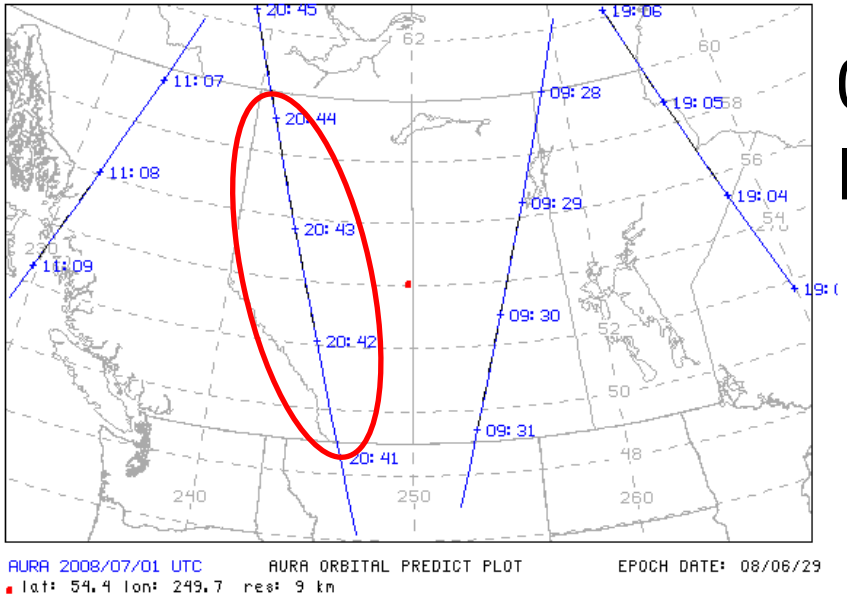


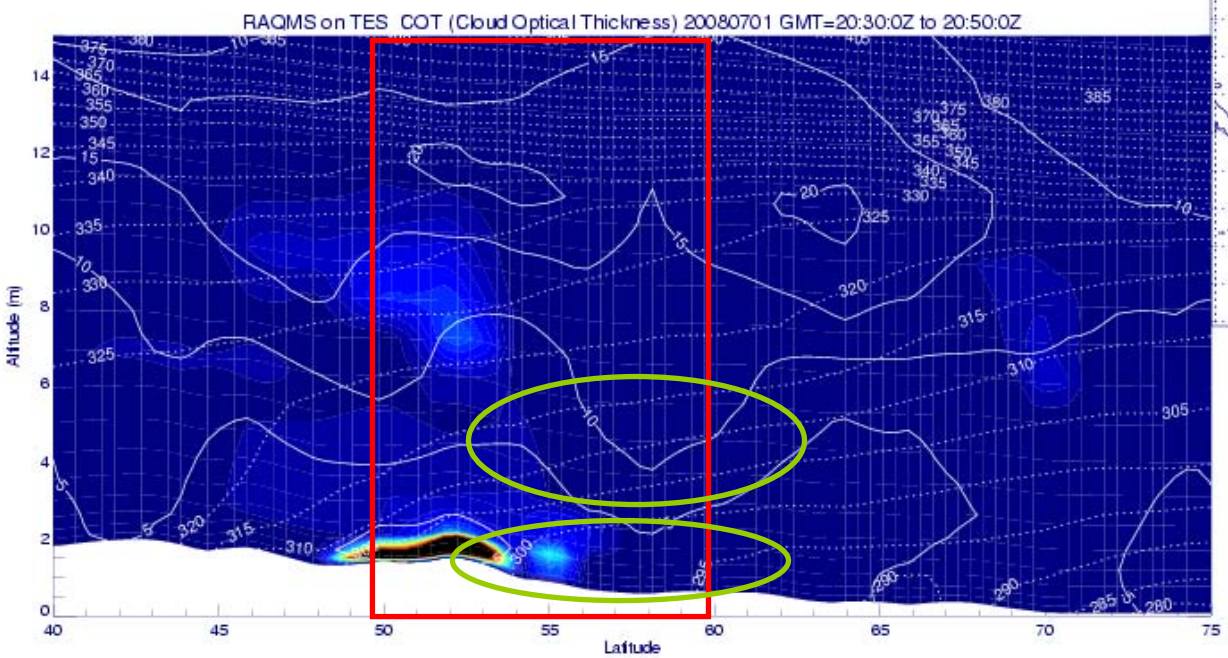
07/01 TES orbit 20:30Z-20:50Z RAQMS O3 Prediction



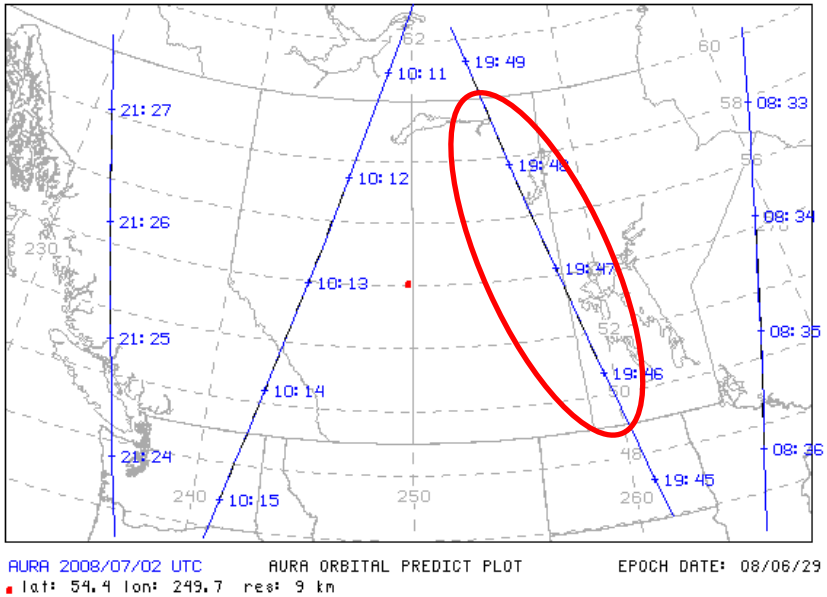


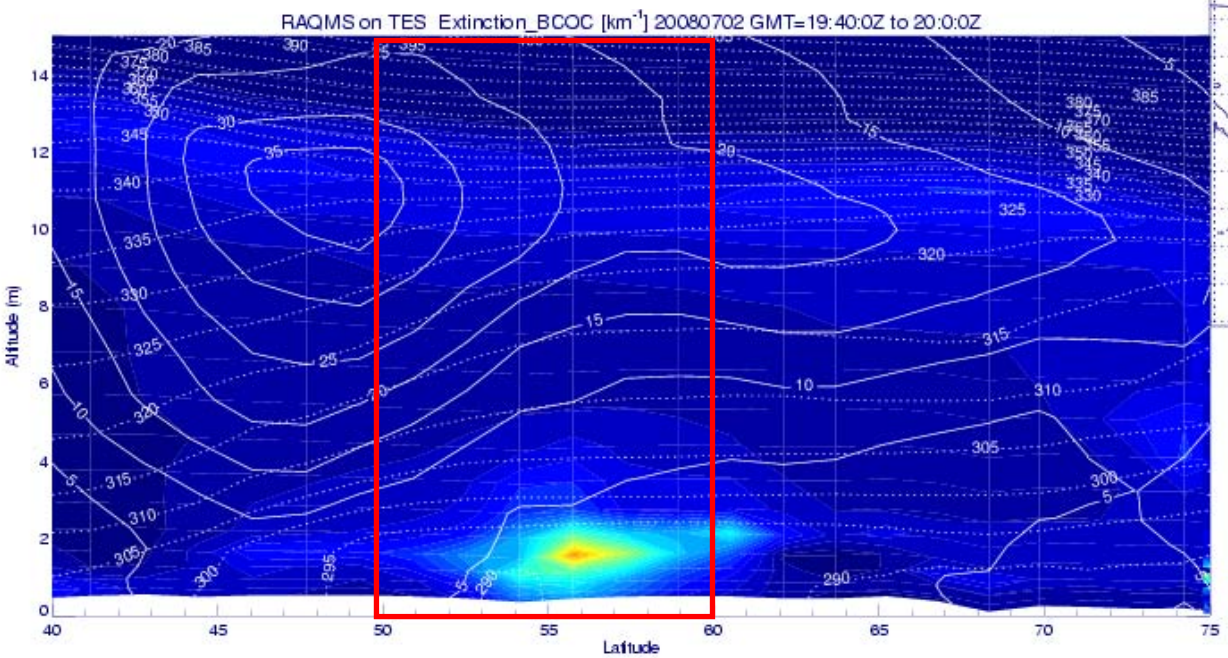
07/01 TES orbit 20:30Z-20:50Z RAQMS Cloud Prediction



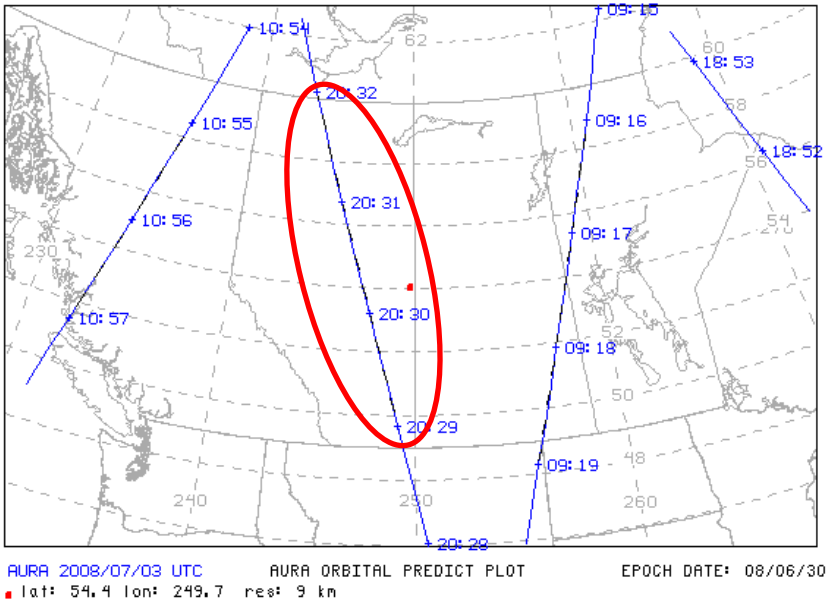


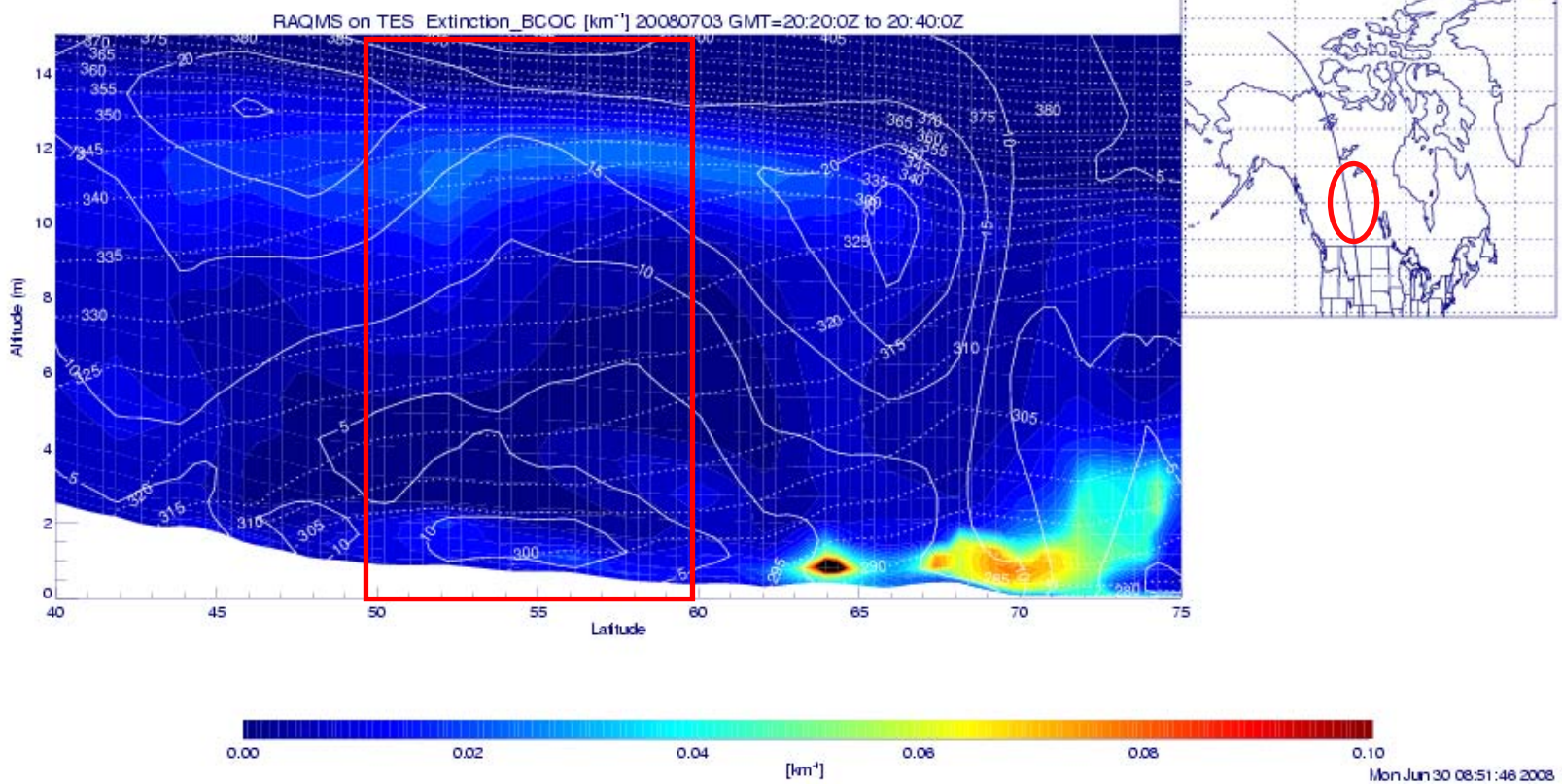
07/02 TES orbit 19:40Z-20:00Z RAQMS BC/OC Prediction



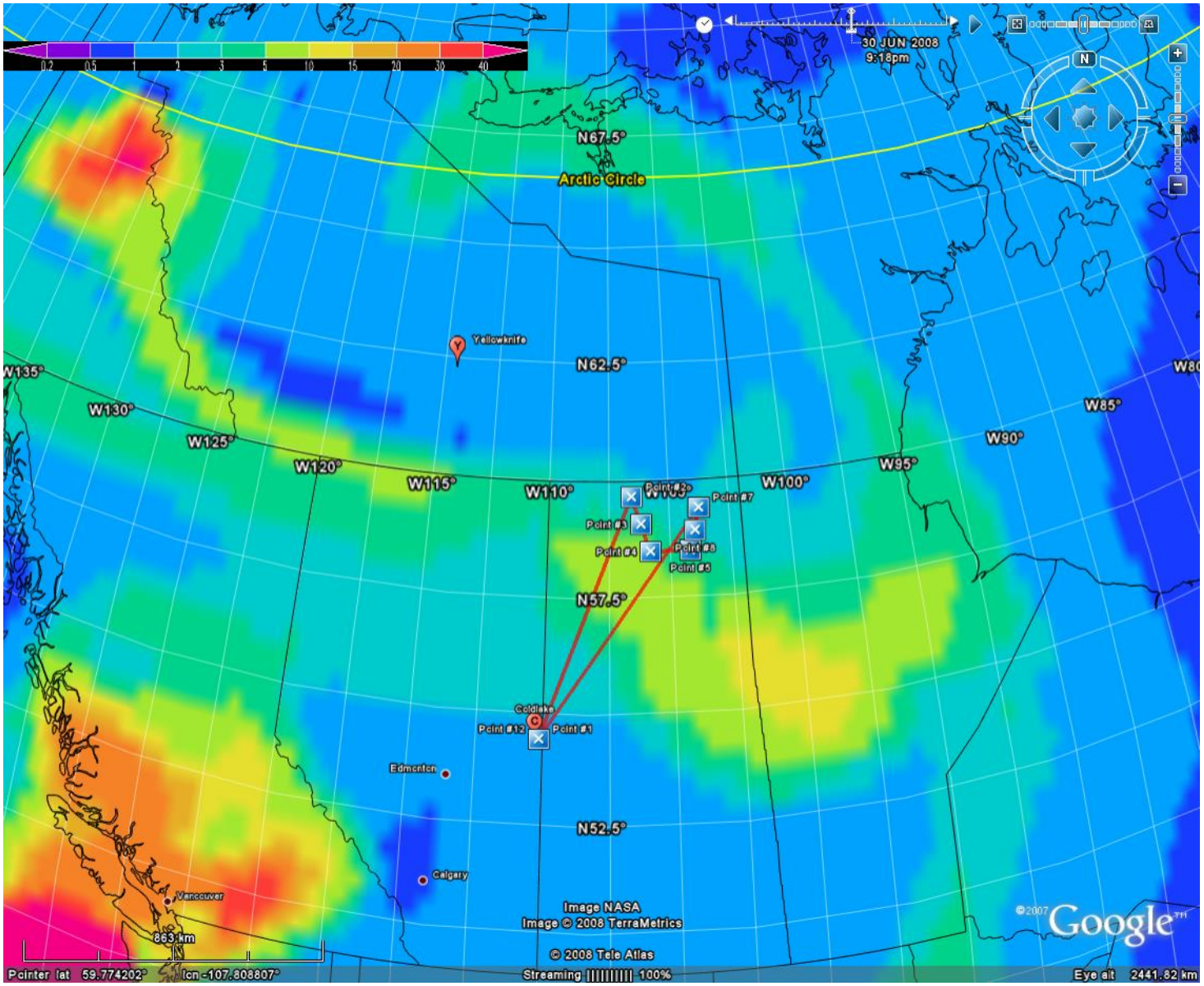


07/03 TES orbit 20:20Z-20:40Z RAQMS BC/OC Prediction

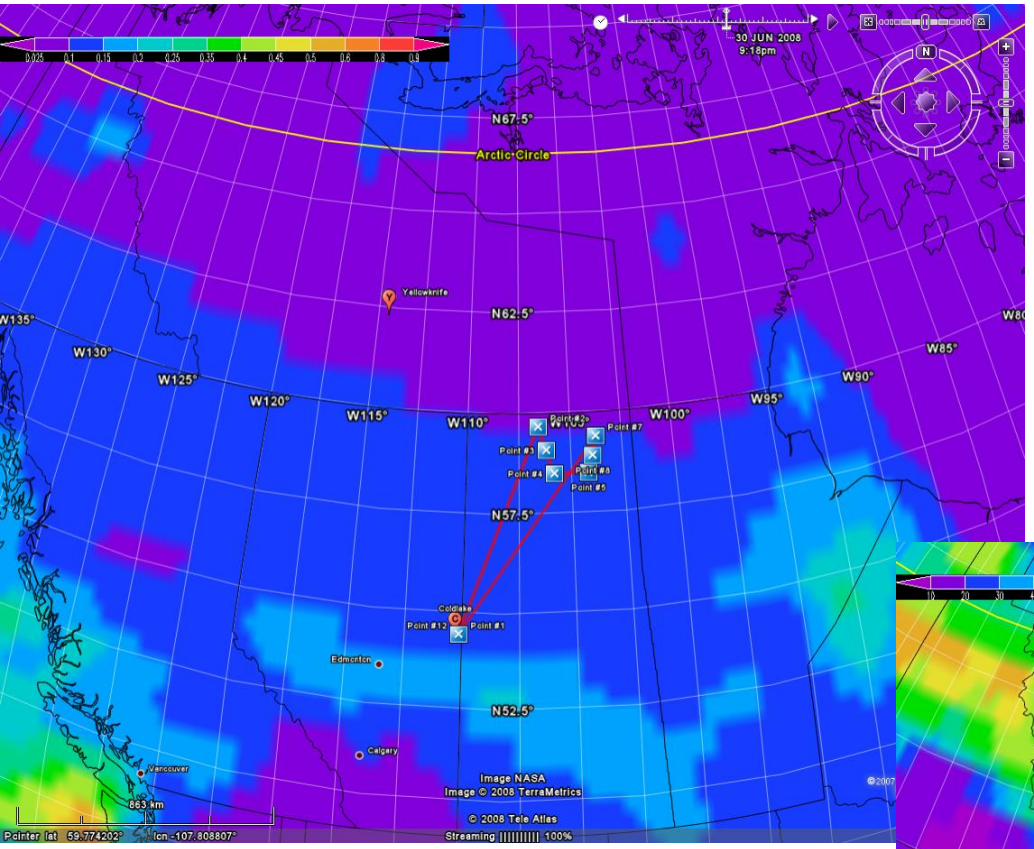




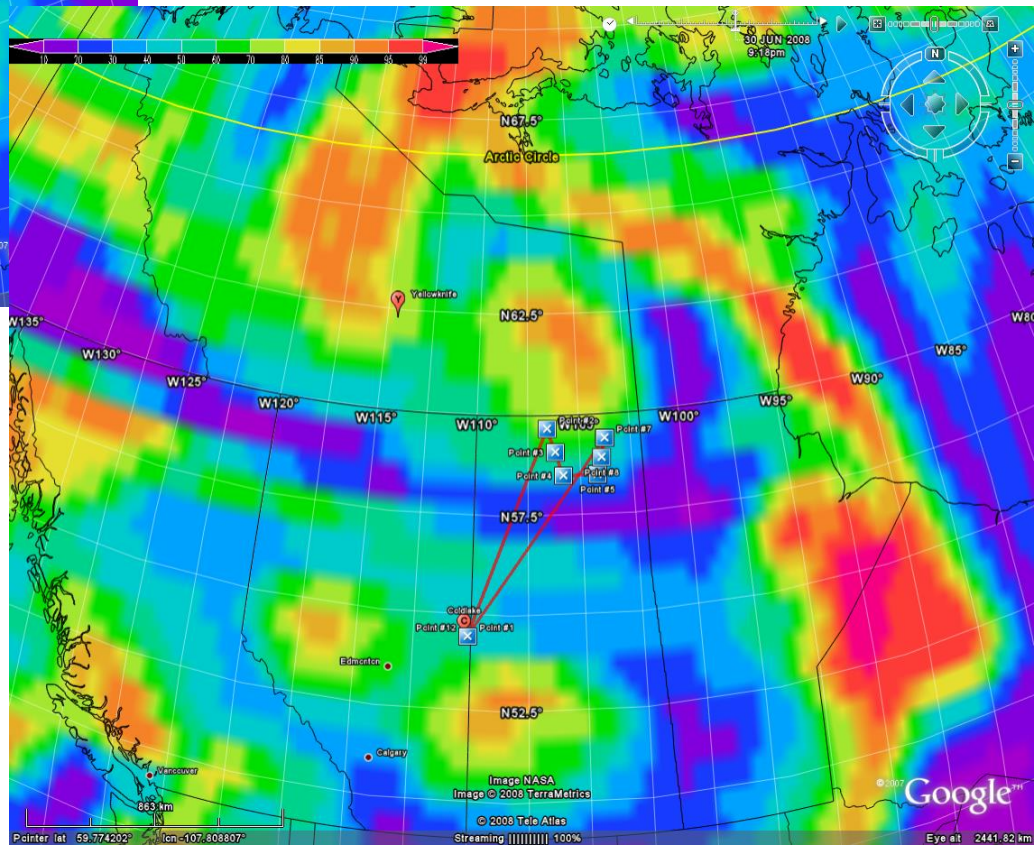
P3 Flight for today



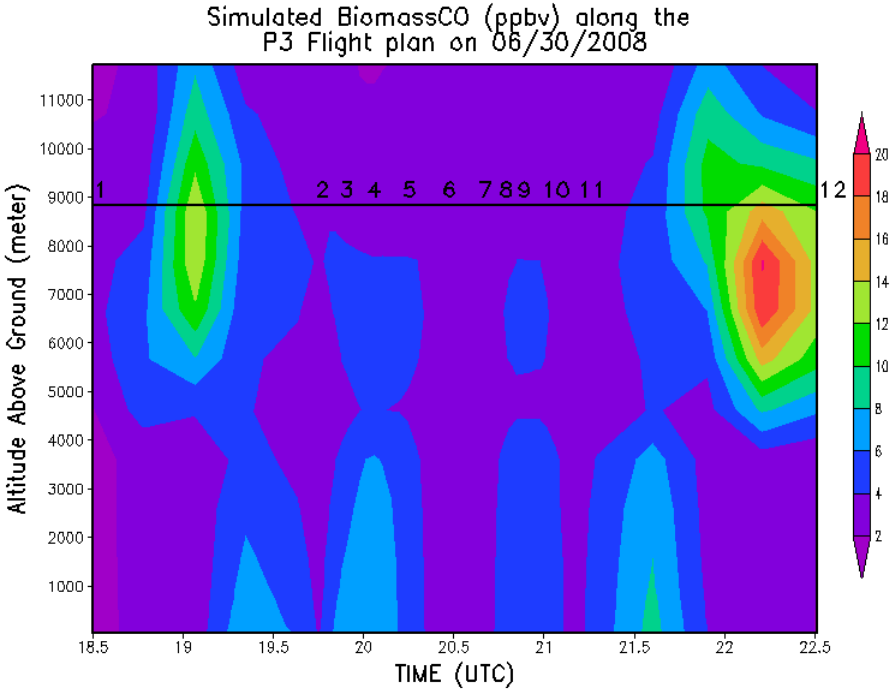
P3 Track for 6-30

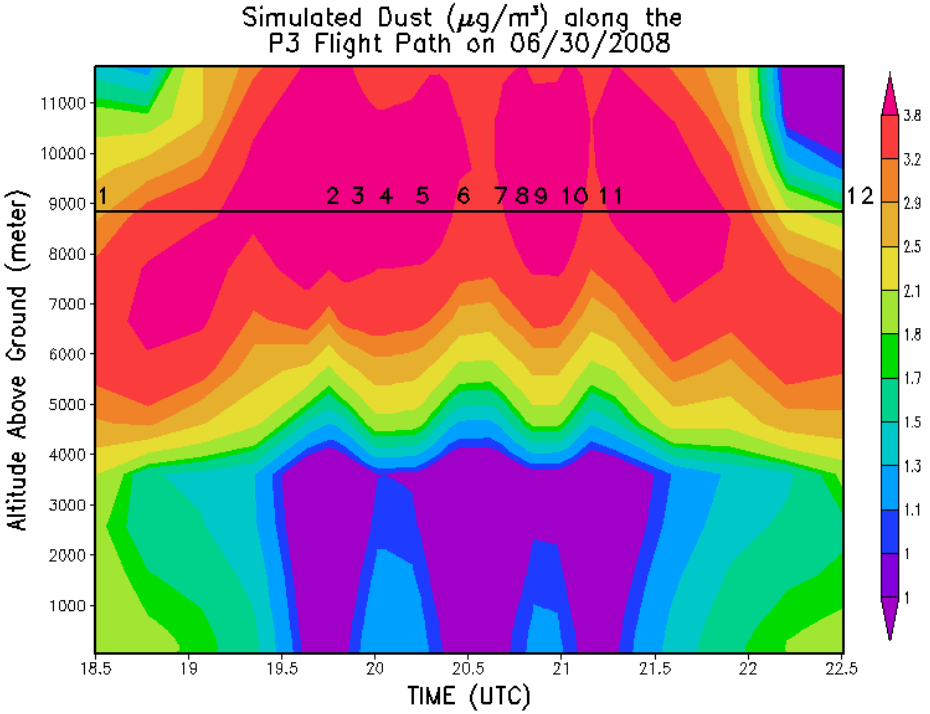


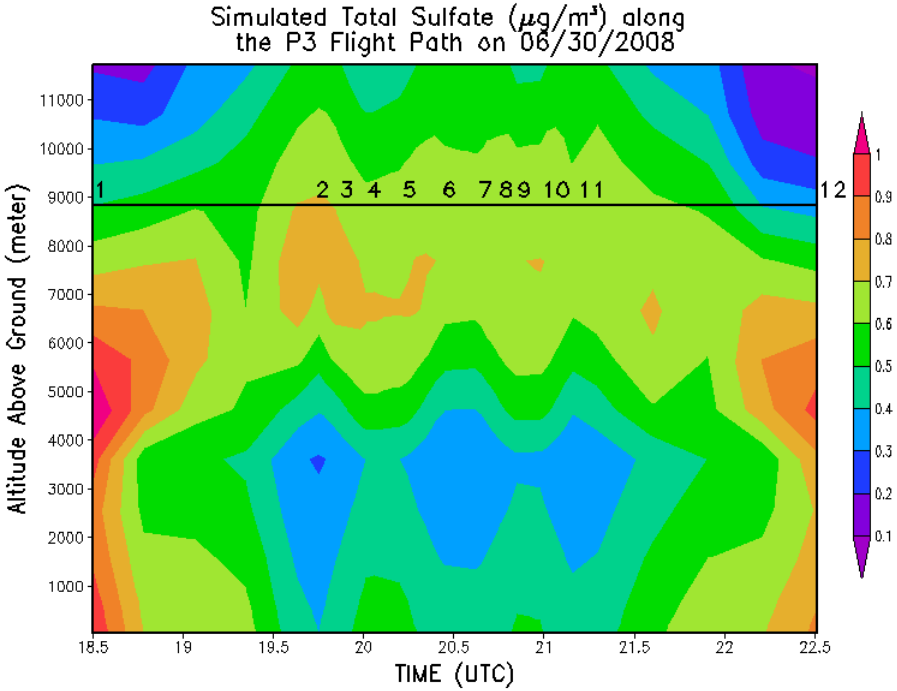
RH, 3.5 km, 18Z

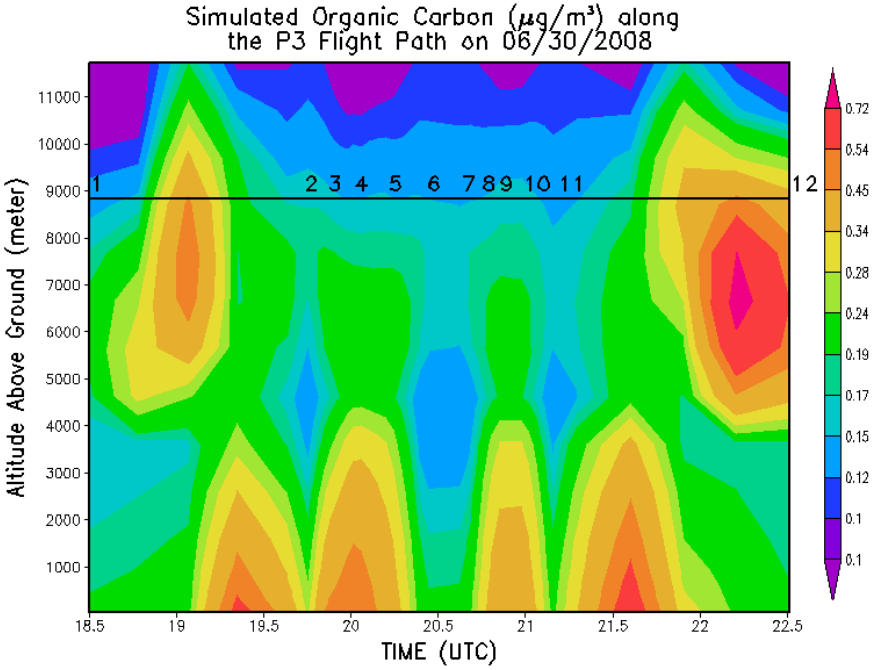


AOD-18z

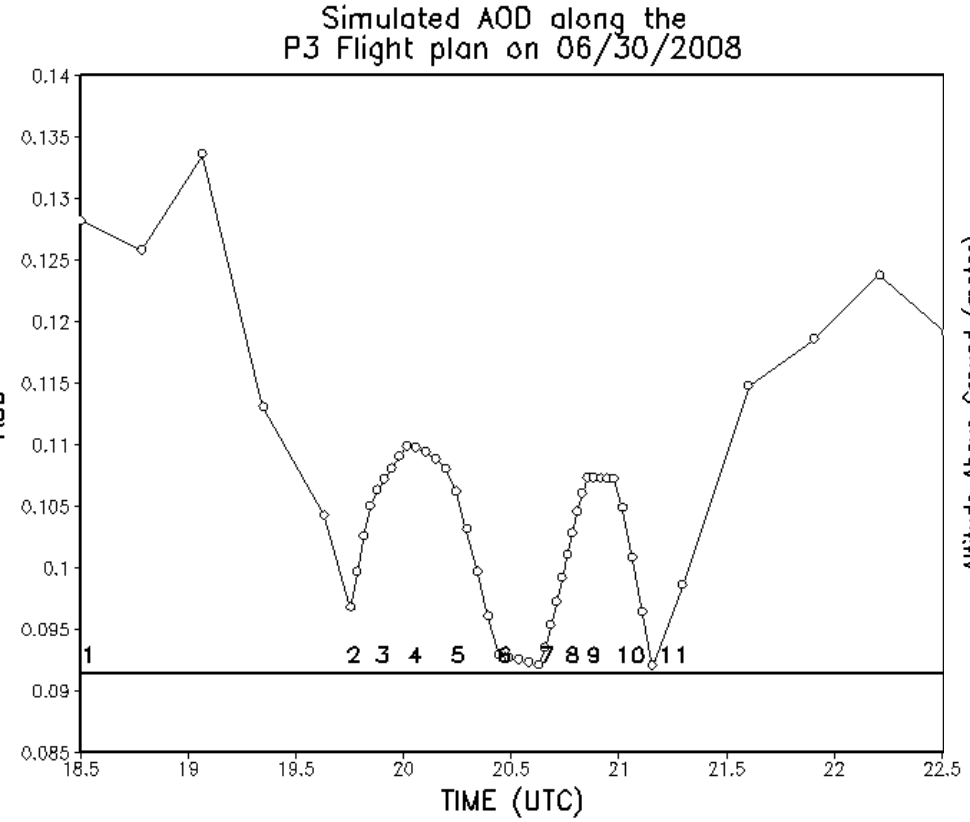

Simulated BiomassCO (ppbv) along the
P3 Flight plan on 06/30/2008
Altitude Above Ground (meter)
TIME (UTC)
1 2 3 4 5 6 7 8 9 10 11 12

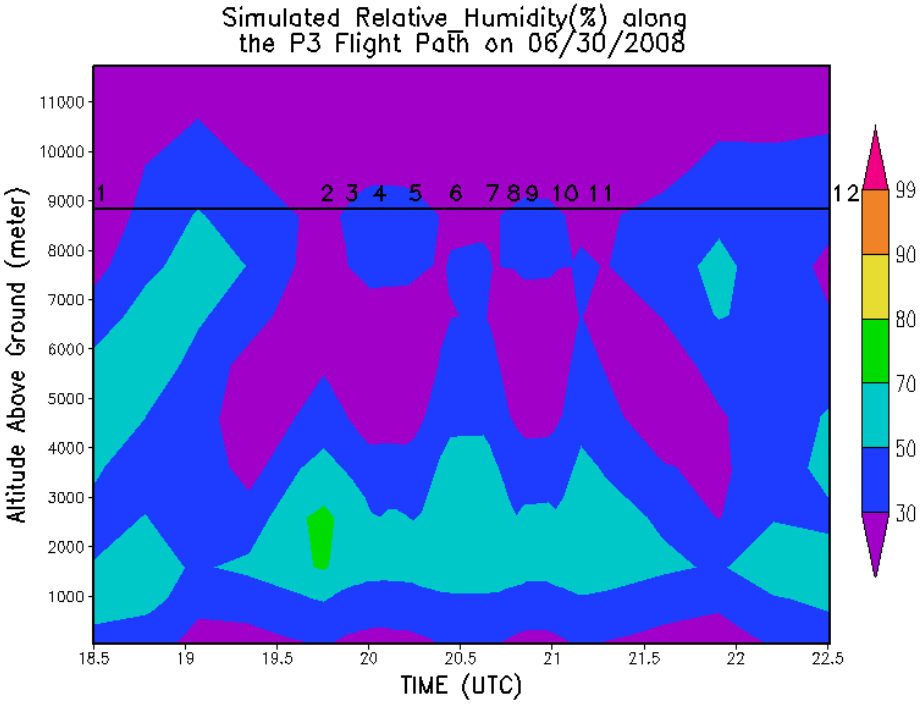

Simulated Dust (μg/m³) along the
P3 Flight Path on 06/30/2008
Altitude Above Ground (meter)
TIME (UTC)
1 2 3 4 5 6 7 8 9 10 11 12


Simulated Total Sulfate (μg/m³) along
the P3 Flight Path on 06/30/2008
Altitude Above Ground (meter)
TIME (UTC)
1 2 3 4 5 6 7 8 9 10 11 12


Simulated Organic Carbon (μg/m³) along
the P3 Flight Path on 06/30/2008
Altitude Above Ground (meter)
TIME (UTC)
1 2 3 4 5 6 7 8 9 10 11 12

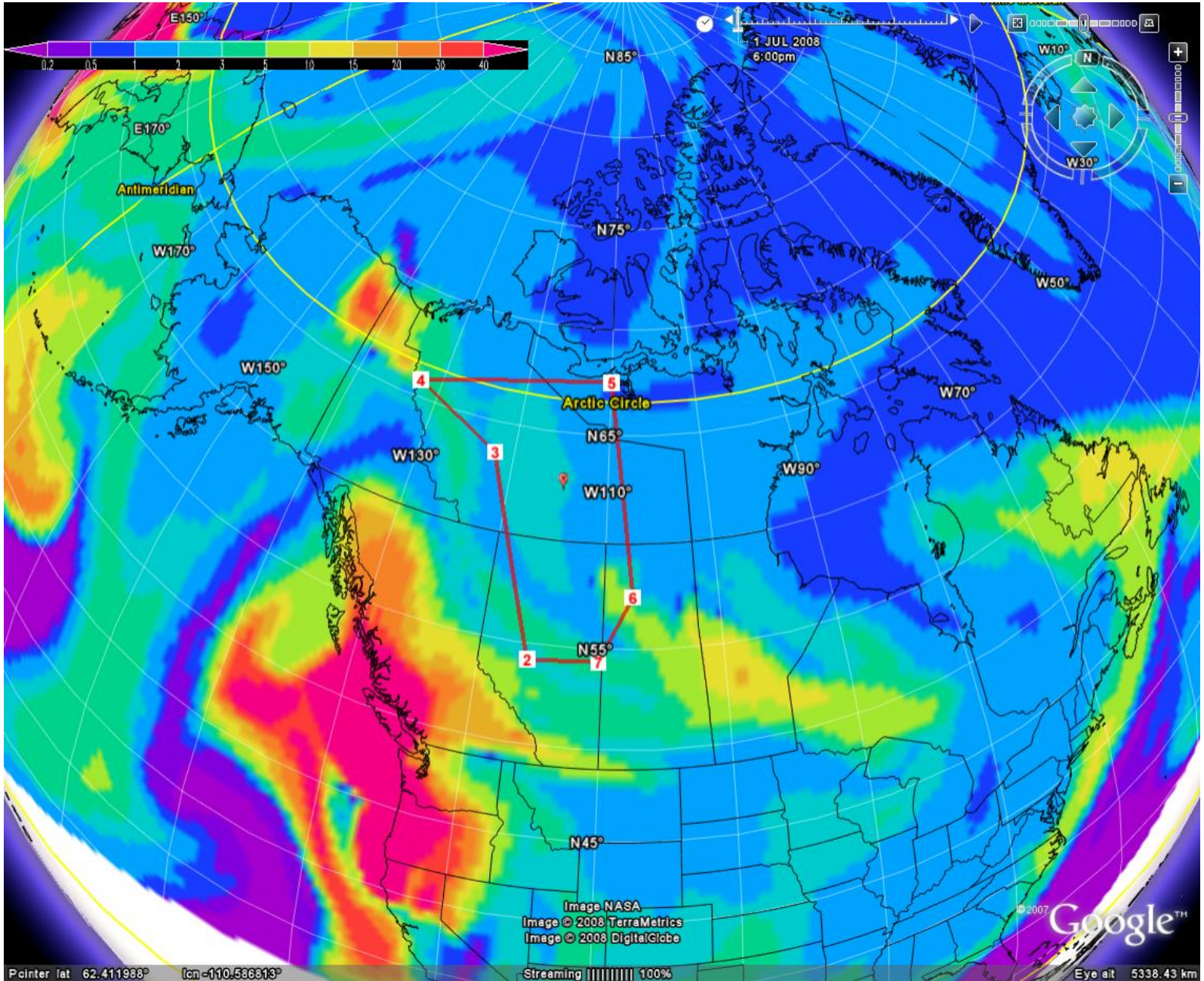
P3 Flight 06-30





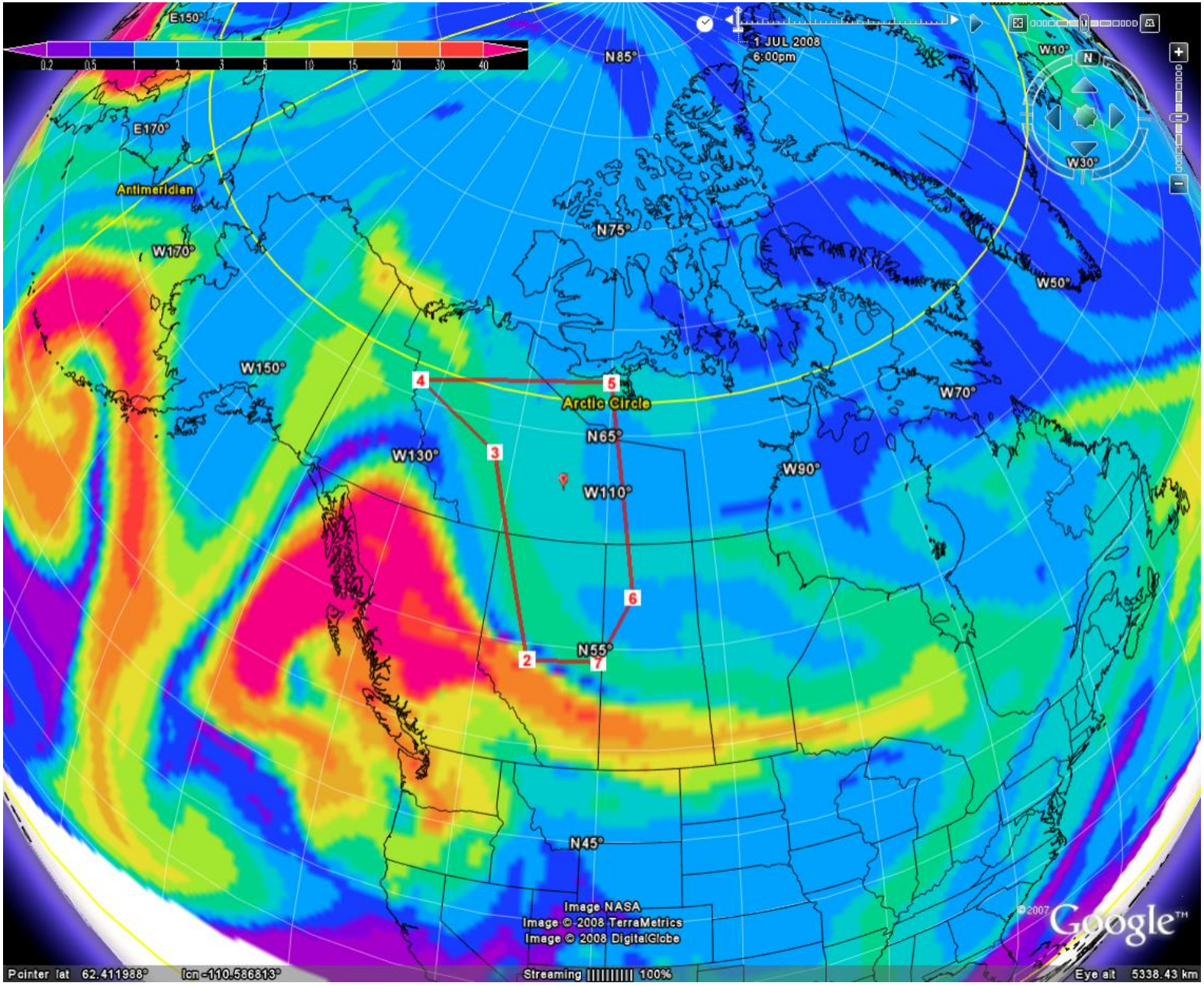
DC-8 July1 flight: 18Z

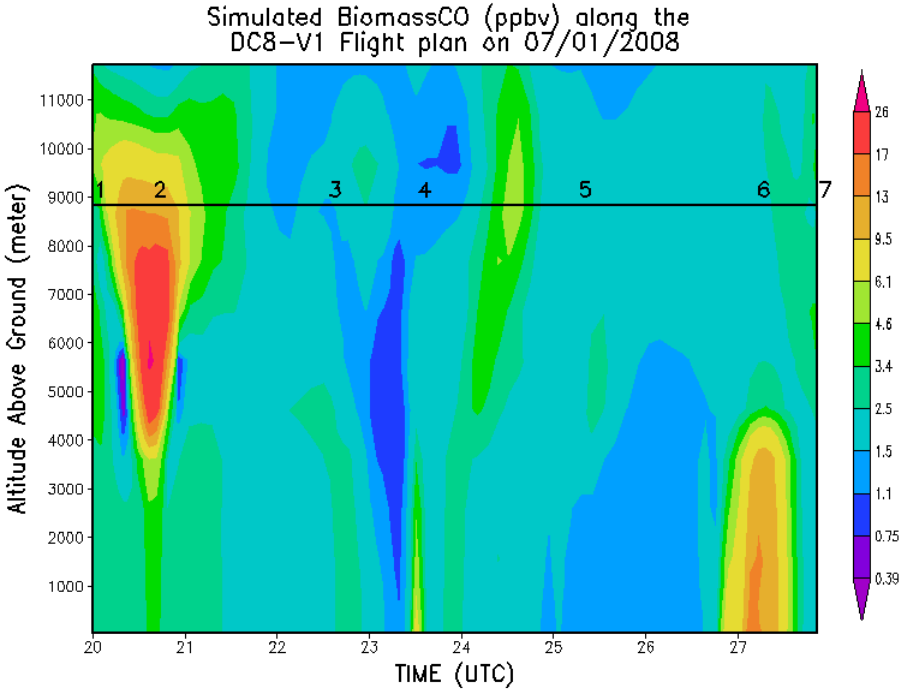
Biomass CO, 1.5km layer

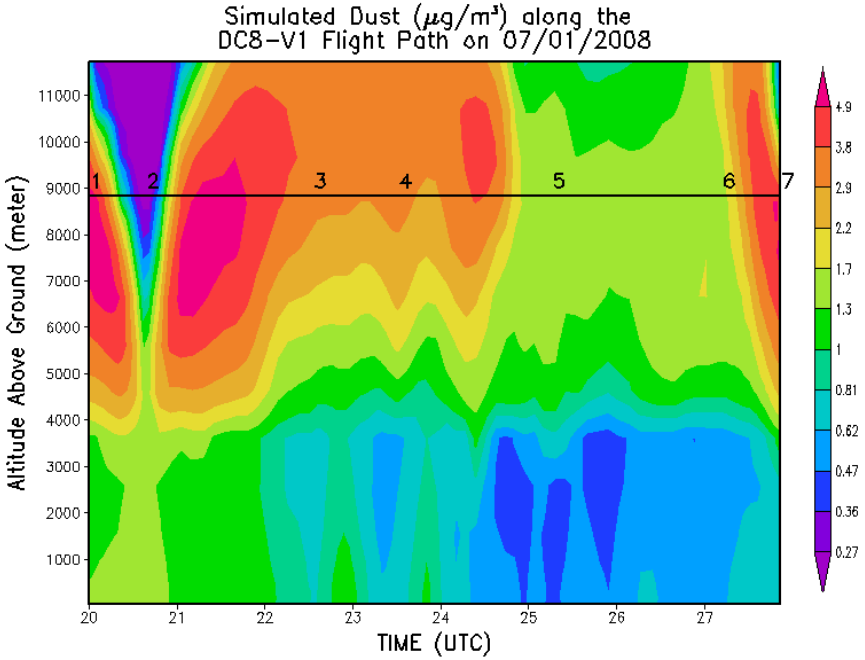


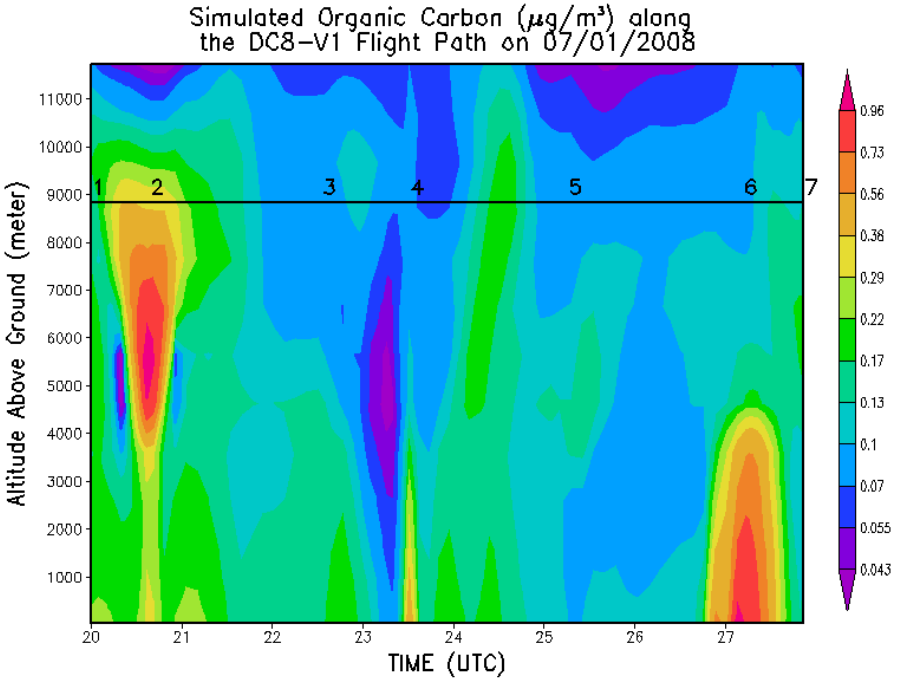
DC-8 July1 flight: 18Z

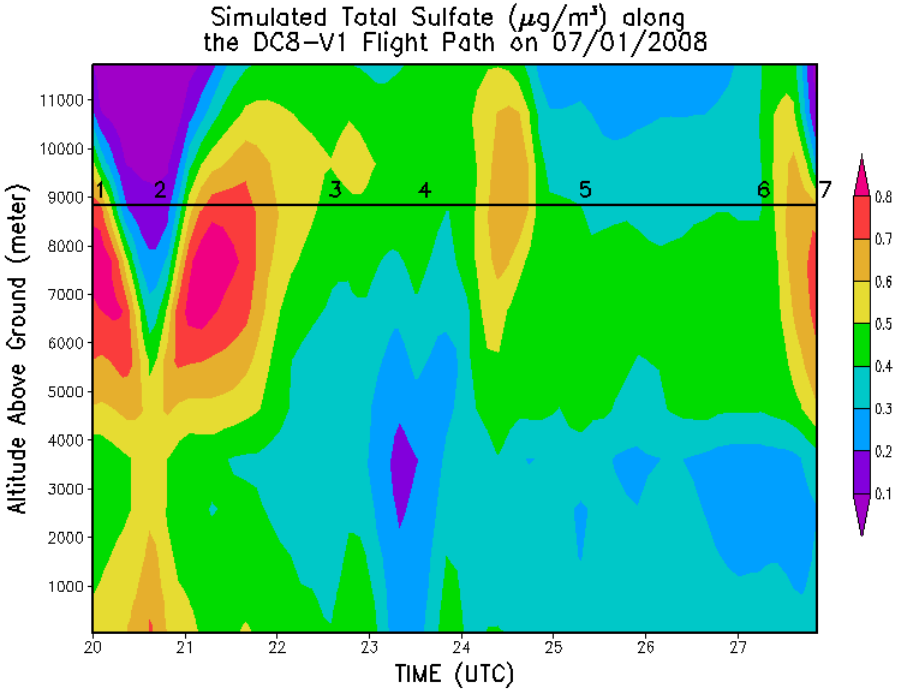
Biomass CO, 5.5km layer




Simulated BiomassCO (ppbv) along the
DC8-V1 Flight plan on 07/01/2008
Altitude Above Ground (meter)
TIME (UTC)
1
2
3
4
5
6
7
26
17
13
9.5
6.1
4.6
3.4
2.5
1.5
1.1
0.75
0.39

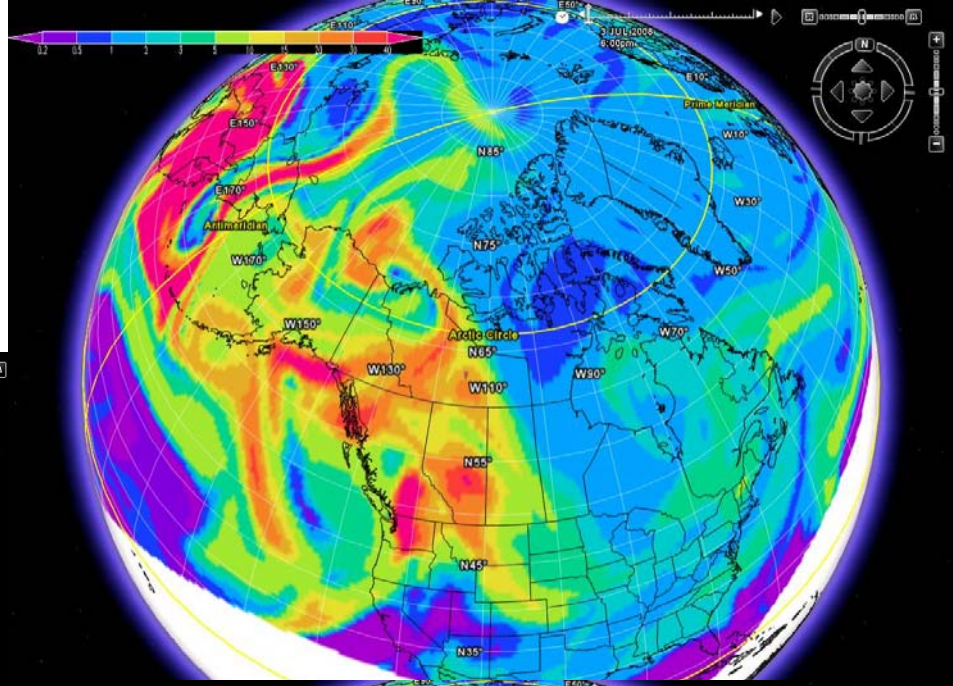

Simulated Dust (μg/m³) along the
DC8-V1 Flight Path on 07/01/2008
Altitude Above Ground (meter)
TIME (UTC)
1
2
3
4
5
6
7
4.9
3.8
2.9
2.2
1.7
1.3
1
0.81
0.62
0.47
0.36
0.27

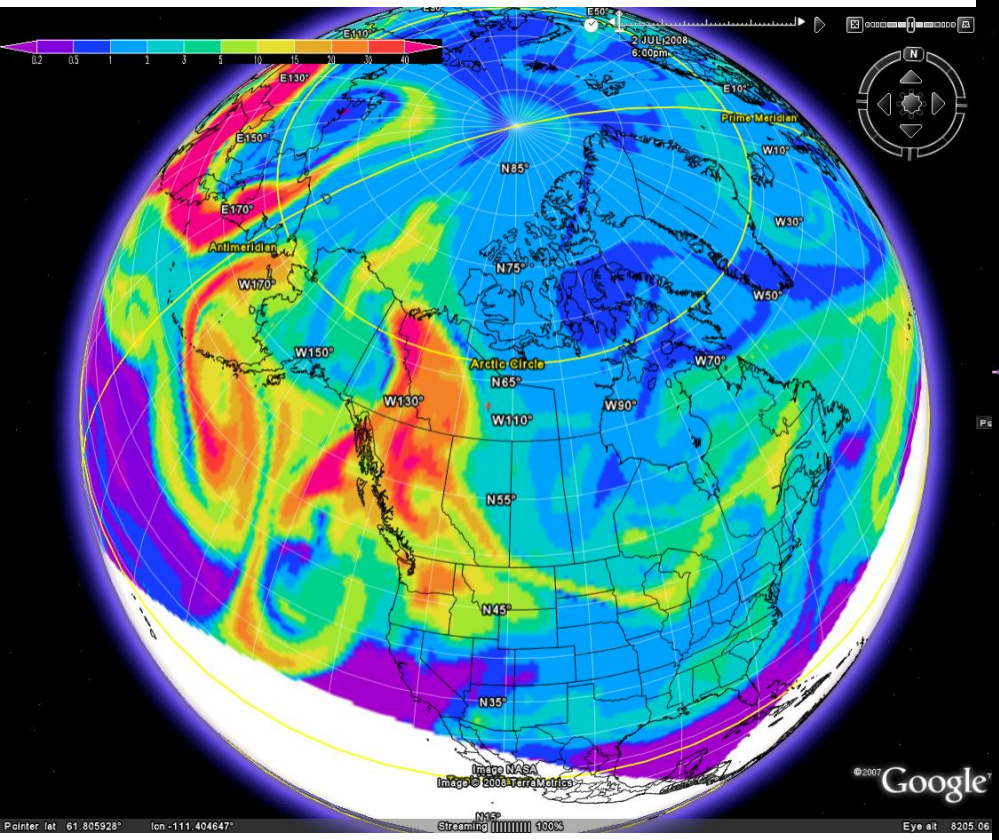

Simulated Organic Carbon (μg/m³) along
the DC8-V1 Flight Path on 07/01/2008
Altitude Above Ground (meter)
TIME (UTC)
1
2
3
4
5
6
7
0.96
0.73
0.56
0.38
0.29
0.22
0.17
0.13
0.1
0.07
0.055
0.043


Simulated Total Sulfate (μg/m³) along
the DC8-V1 Flight Path on 07/01/2008
Altitude Above Ground (meter)
TIME (UTC)
1
2
3
4
5
6
7
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1

DC8:18Z,Biomass CO, 5.5km

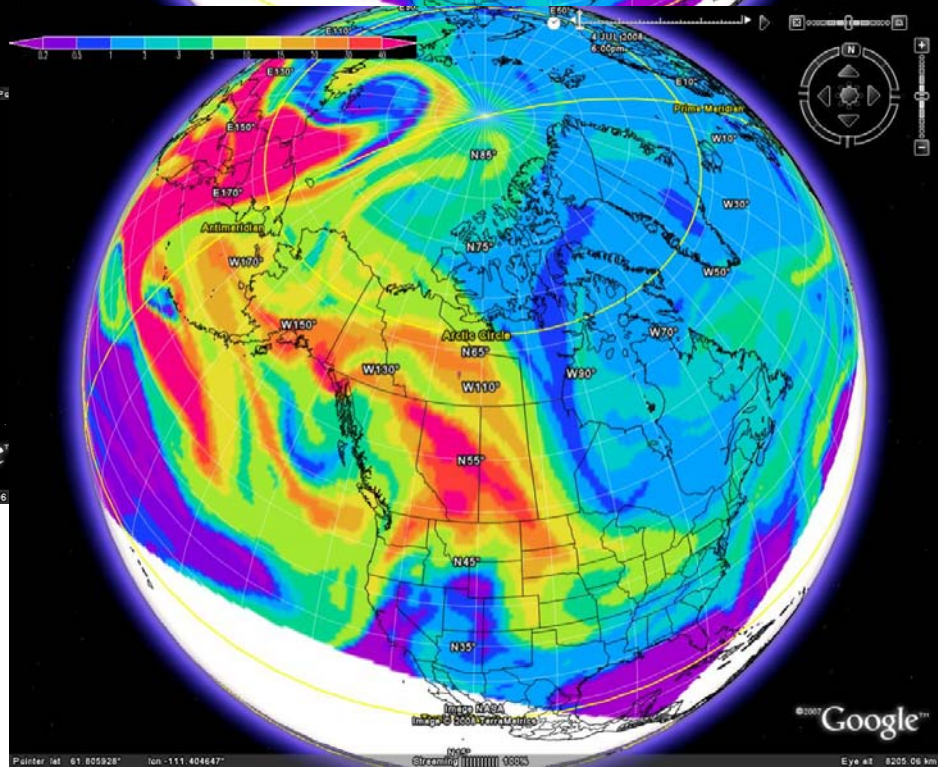
July 3



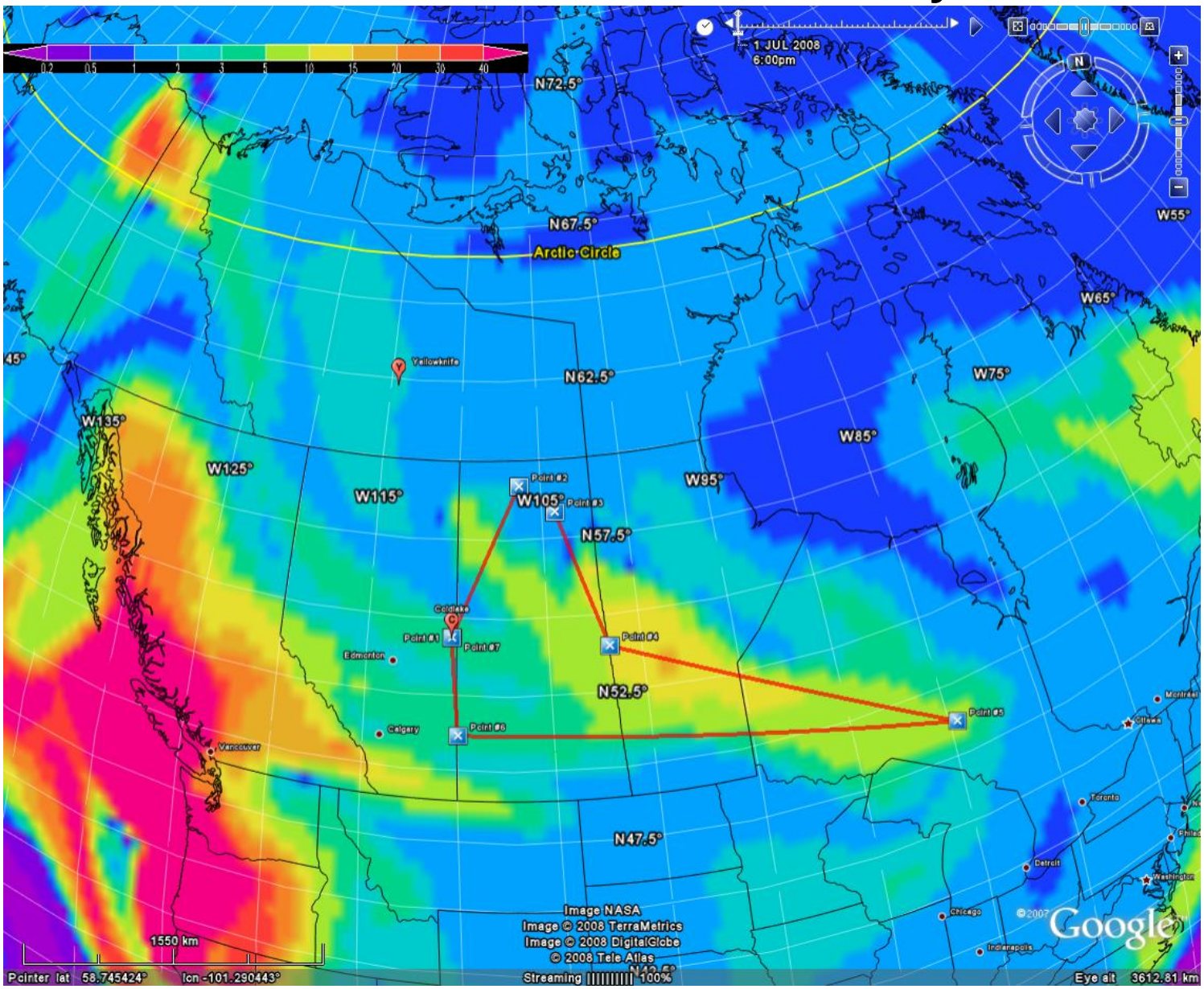


July 2

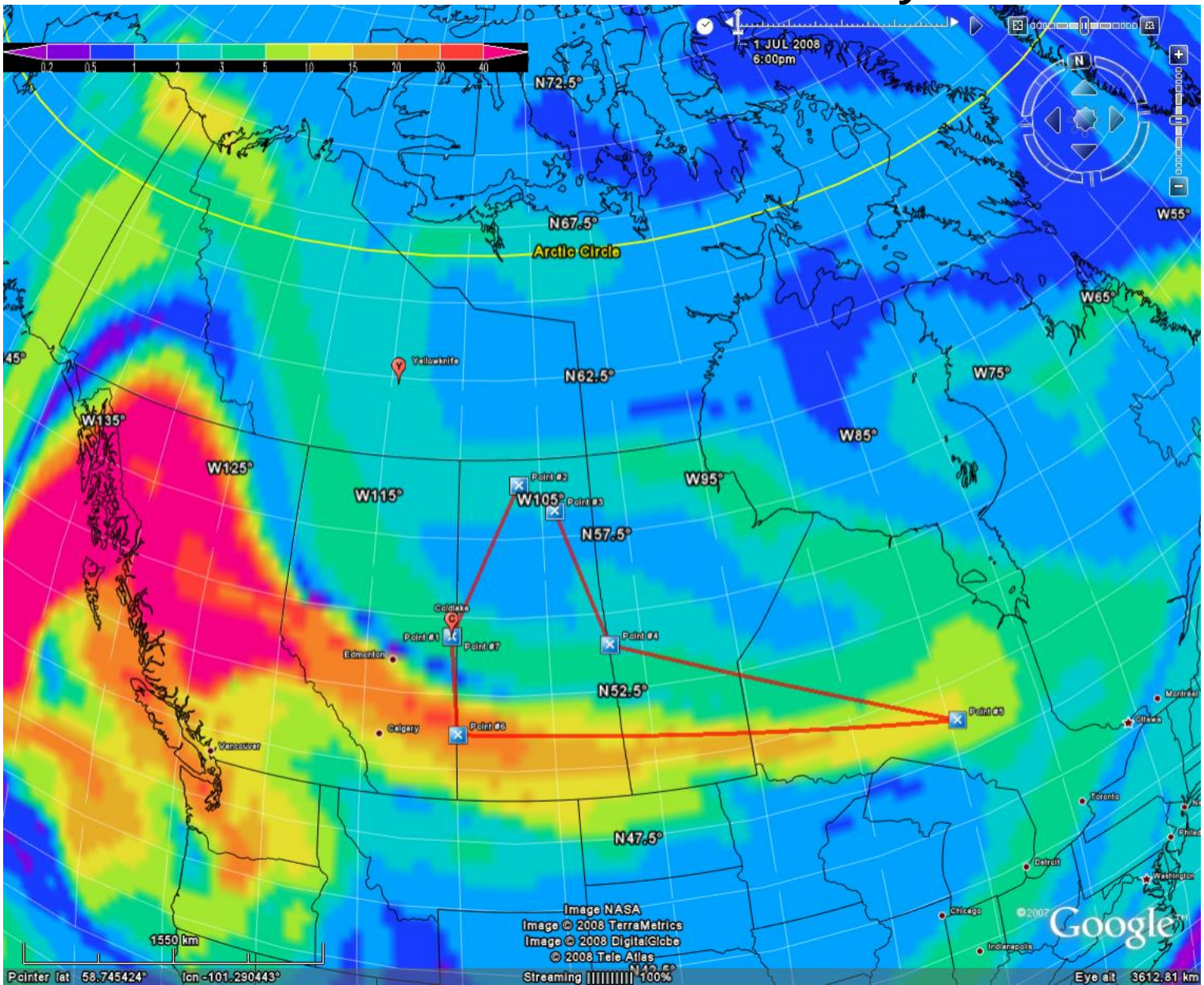
July 4



Proposed DC 8 Plan B-
BioCO at 1.5 km 18Z, July 1



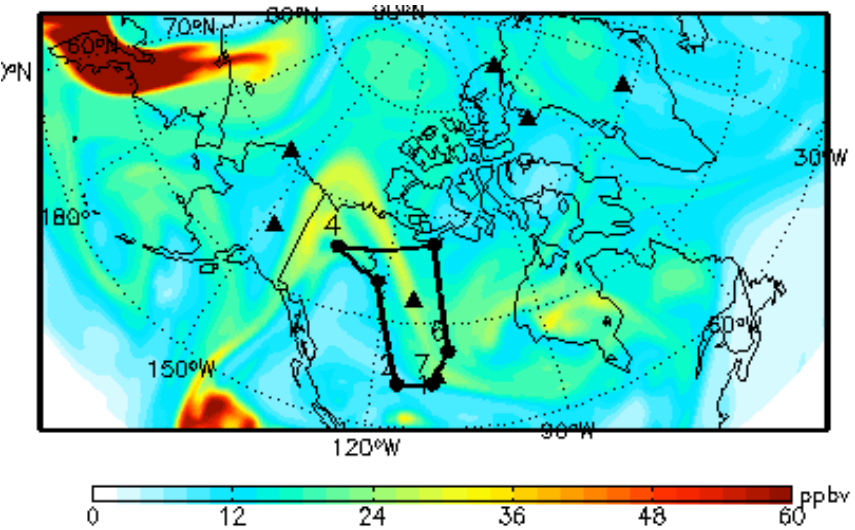
Proposed DC 8 Plan B-
BioCO at 5.5 km 18Z, July 1



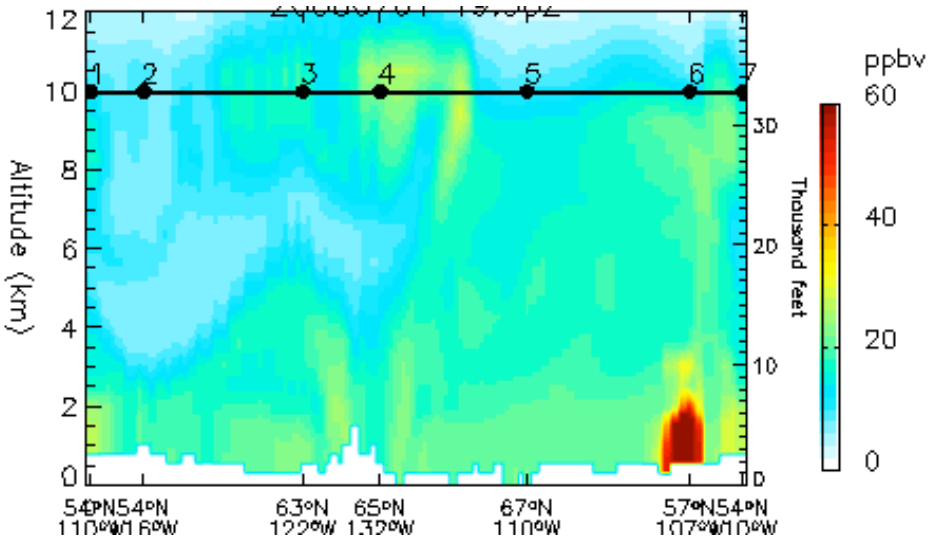
GEOS-5 Forecasts:
7/1 Tentative DC-8 Flight Plan
Supports Plan B

July 1: DC-8 Flight Path A

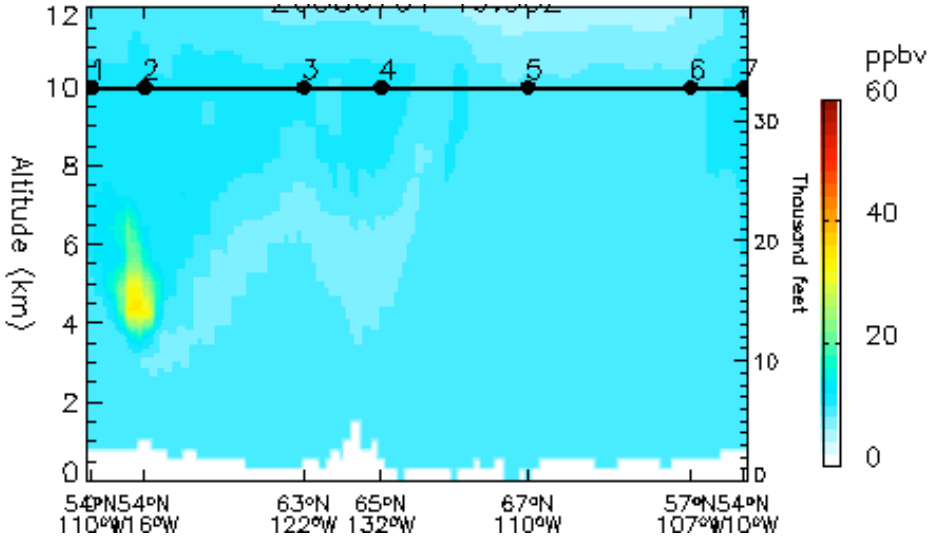
Boreal B.B. CO, 300hPa



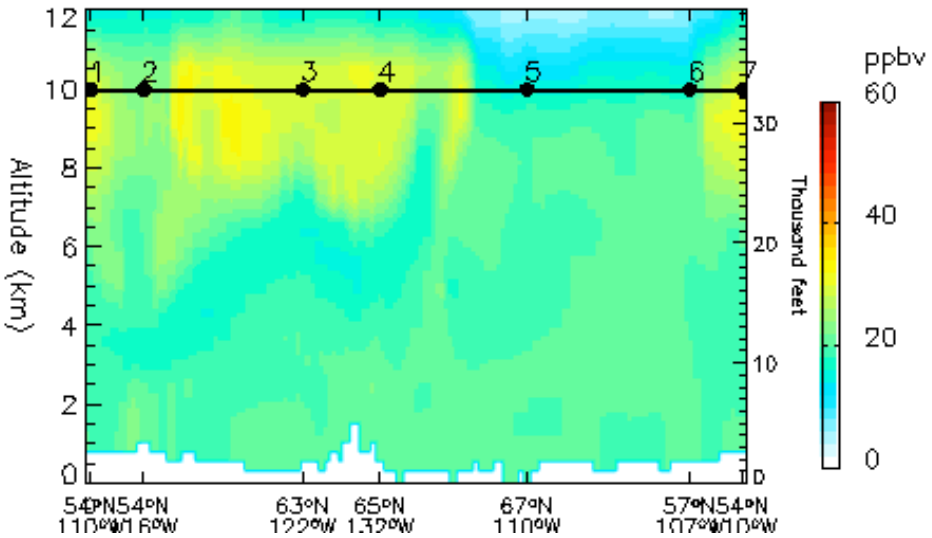
Boreal B.B. CO



Non-Boreal B.B. CO

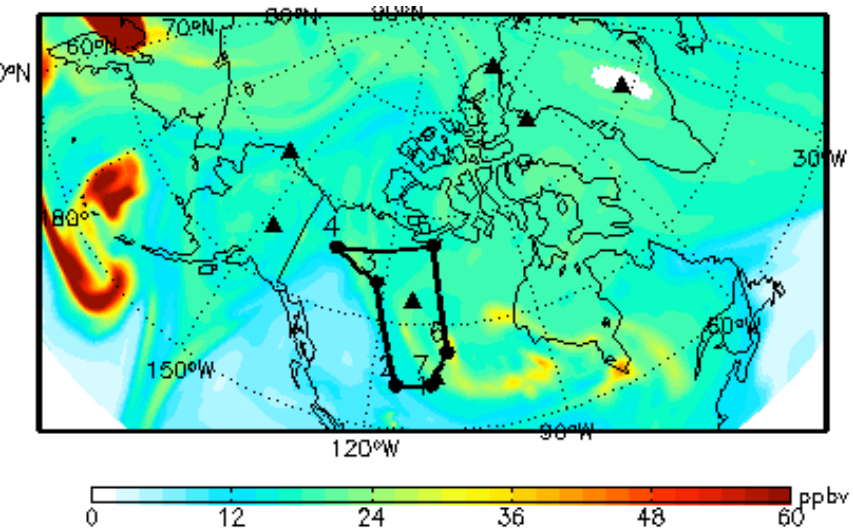


Asian Anthropogenic CO

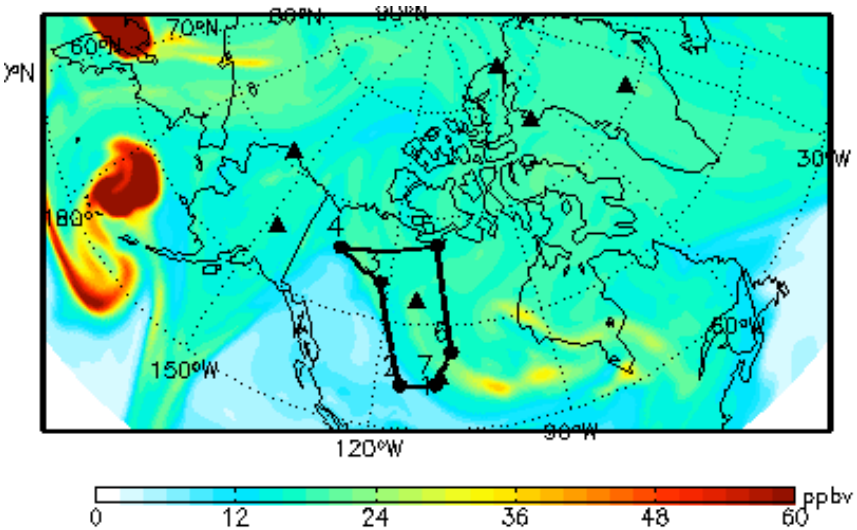


July 1, DC-8 Flight Path A: Boreal BB CO Plots

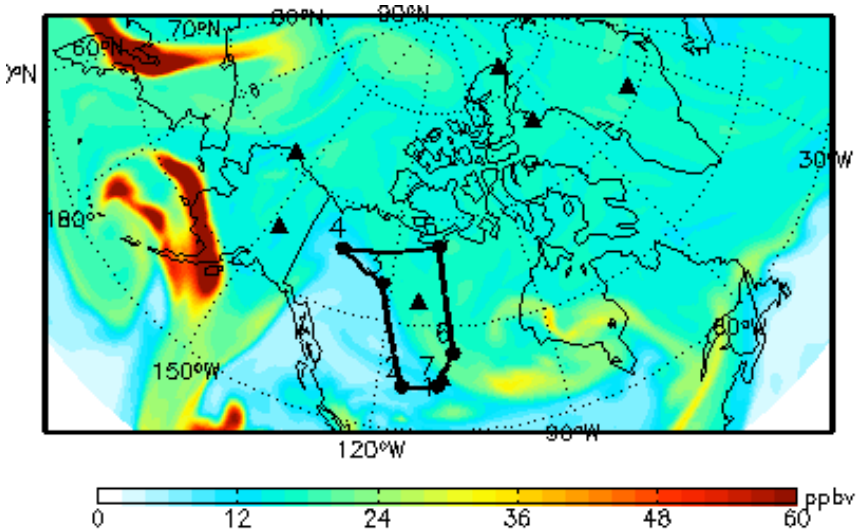
700 hPa (3.0 km)



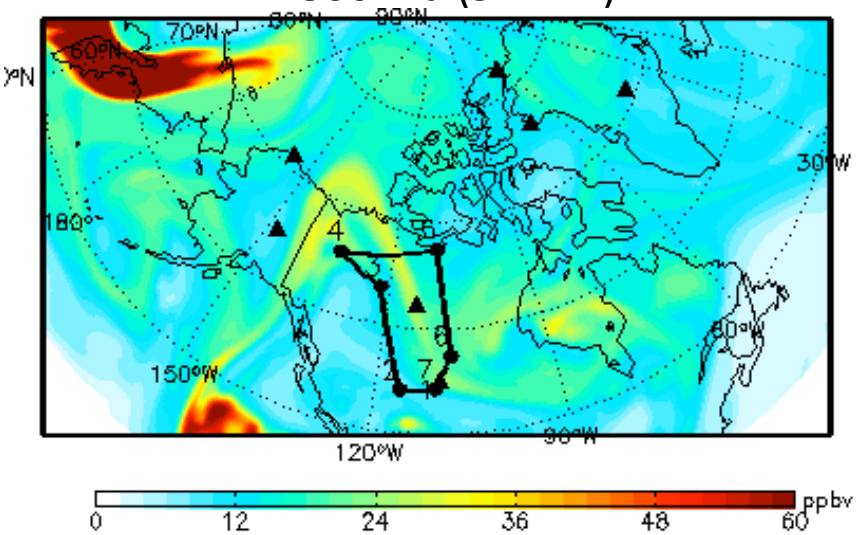
650 hPa (3.6 km)



450 hPa (6.3 km)

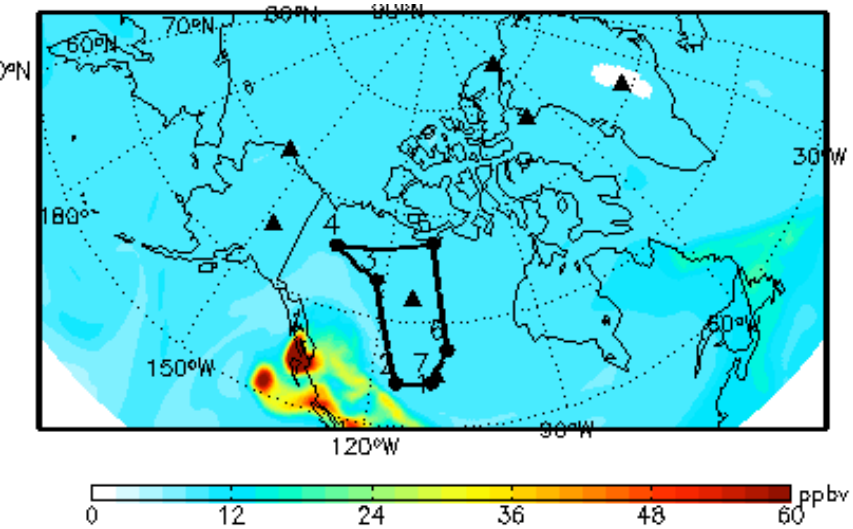


300hPa (9.2 km)

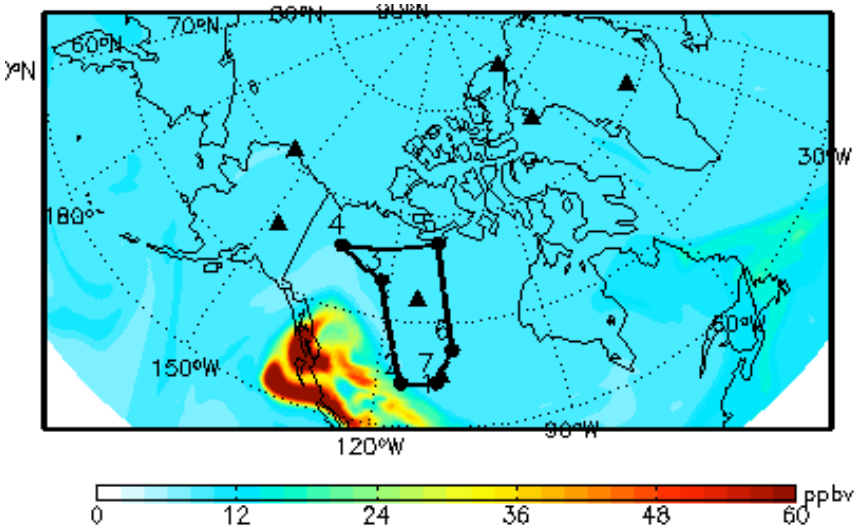


July 1, DC-8 Flight Path A: Non-Boreal BB CO Plots

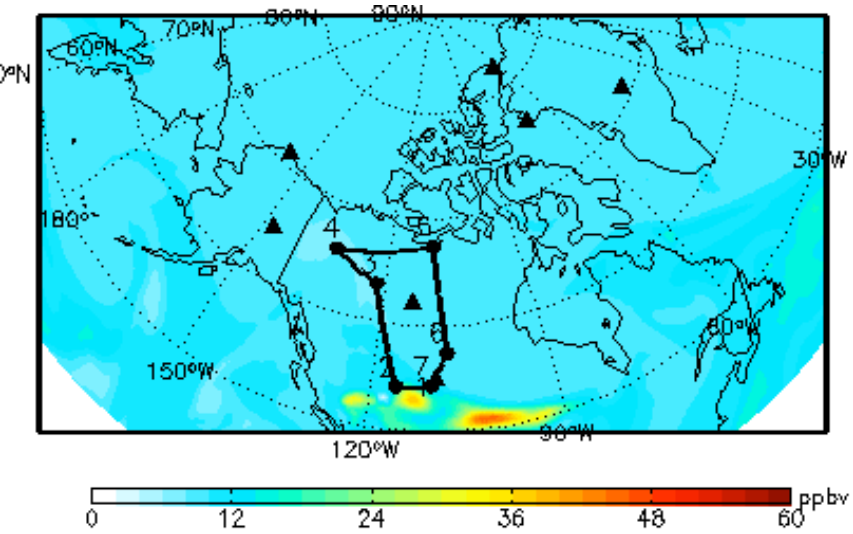
700 hPa (3.0 km)



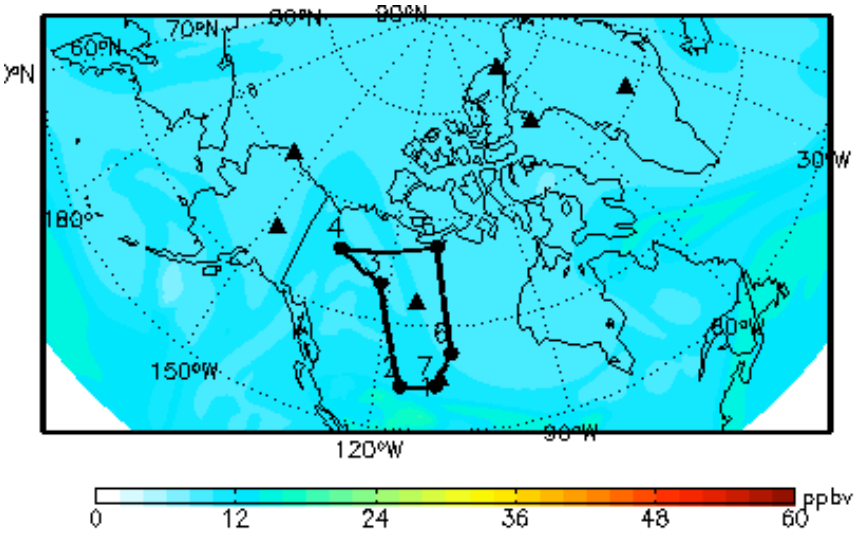
650 hPa (3.6 km)



450 hPa (6.3 km)

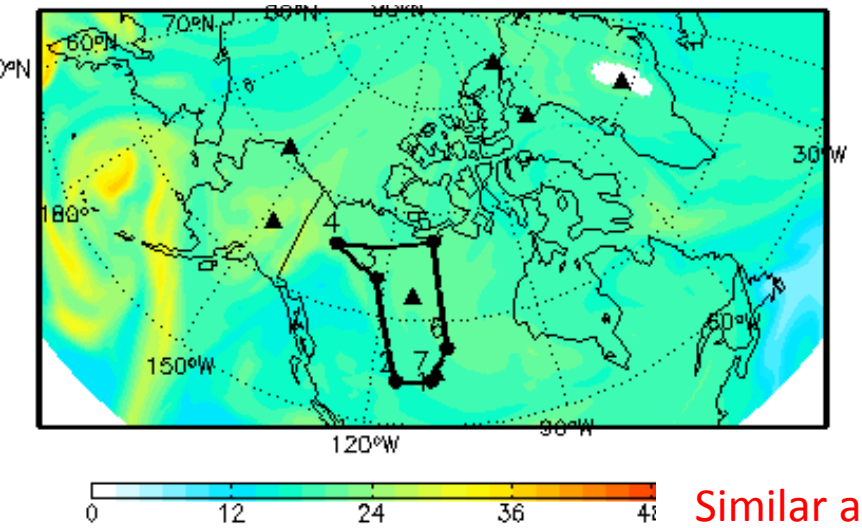


300hPa (9.2 km)

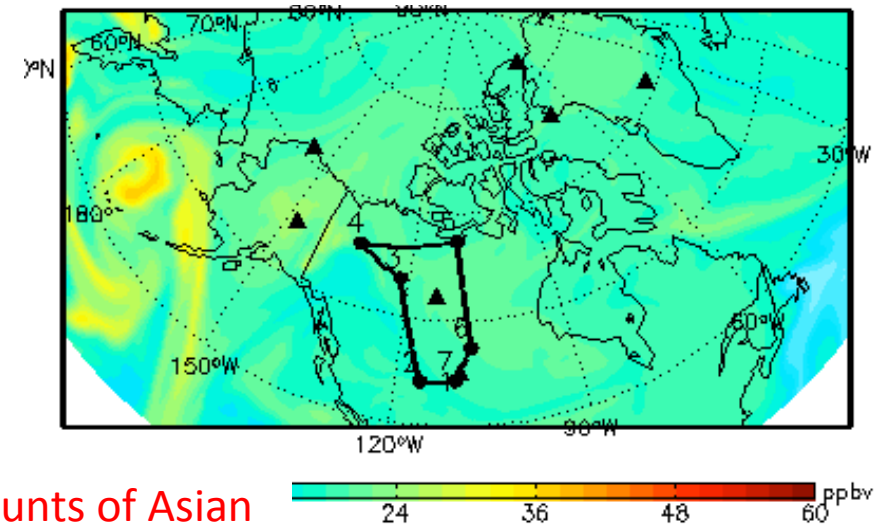


July 1, DC-8 Flight Path A: Asian Anthro. CO Plots

700 hPa (3.0 km)

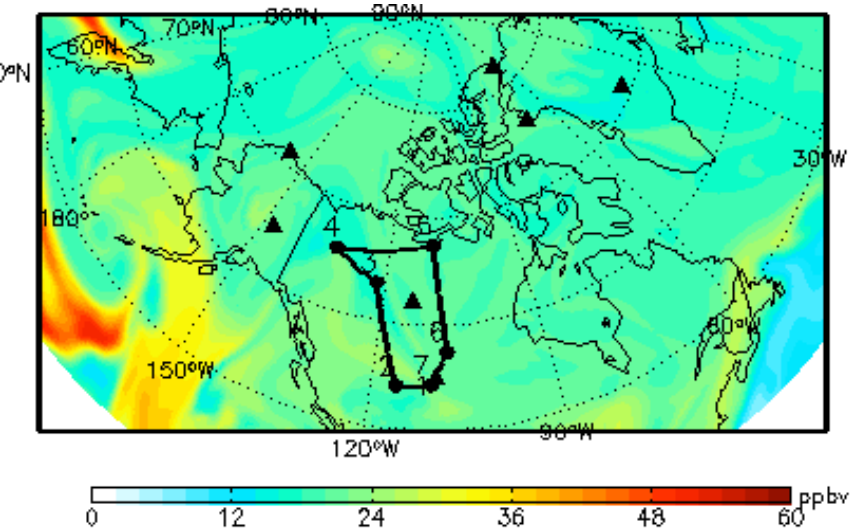


650 hPa (3.6 km)

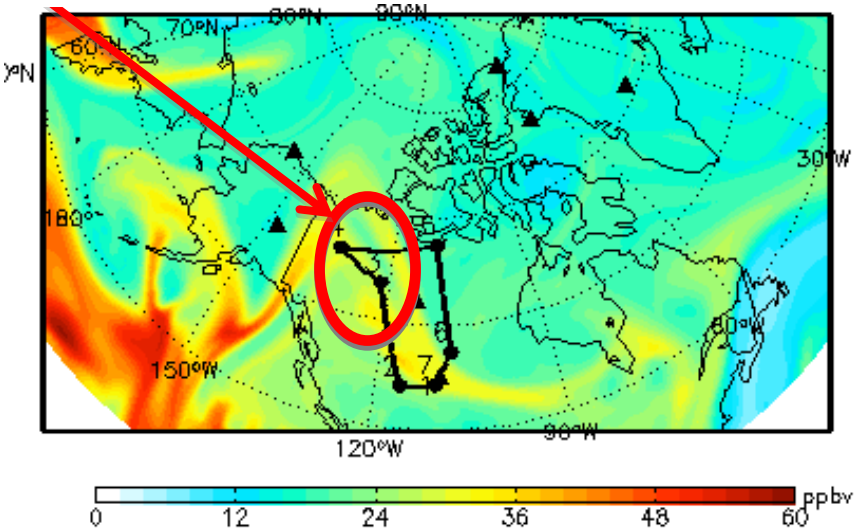


Similar amounts of Asian fossil fuel and Siberian biomass burning CO

450 hPa (6.3 km)



300hPa (9.2 km)



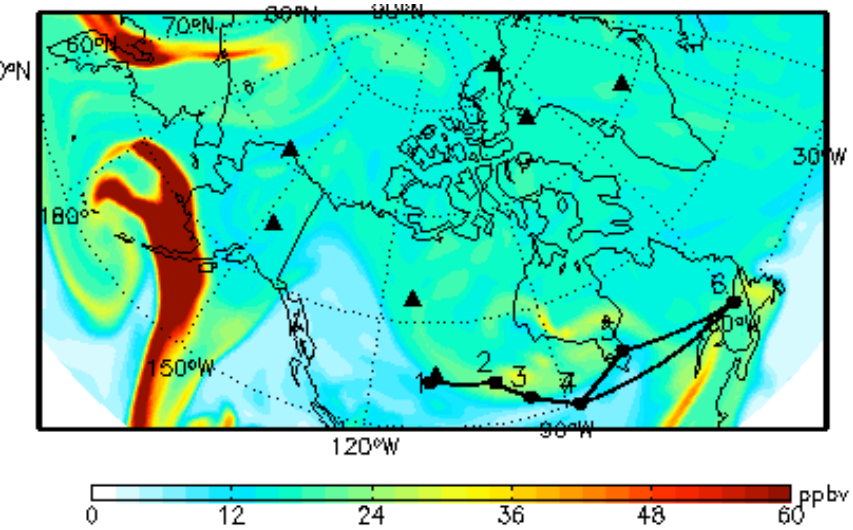
PLAN B? Looks more interesting in GEOS-5

** Caveat: Unless the Fire group see's some more interesting activity brewing in NWT. Then the original flight plan could be more attractive.

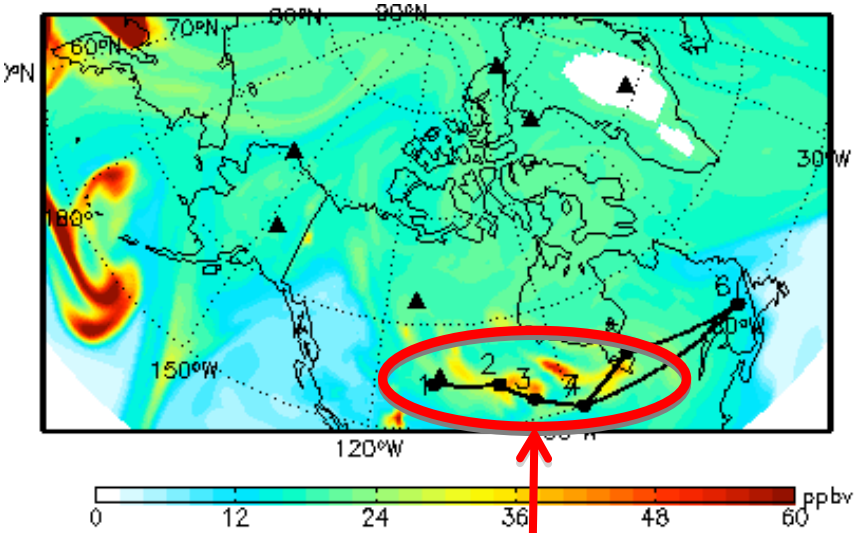
GEOS-5 fire emissions are ~1-2 days behind

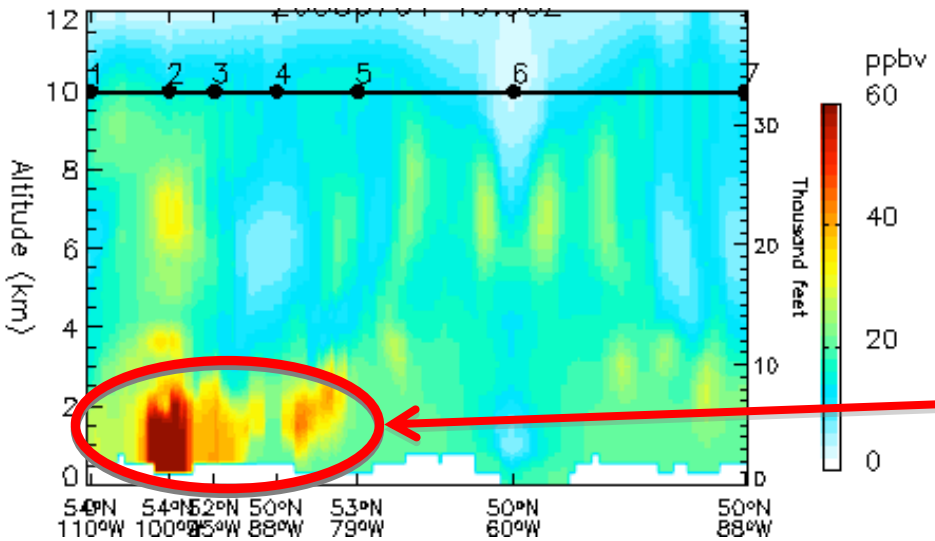
July 1: Plan B prep

Boreal CO, 500 hPa (5.6 km)



Boreal CO, 750 hPa (2.5 km)



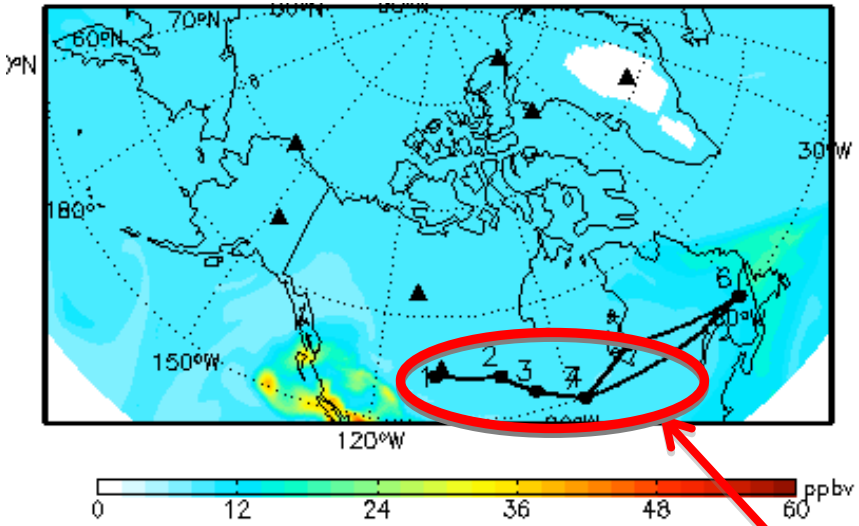


Advection of Plumes:

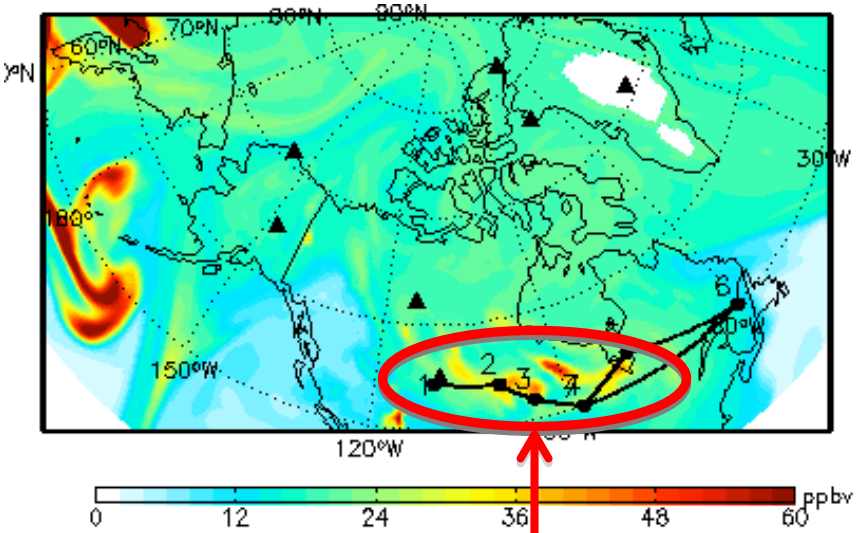
1. Appears to be transported primarily at the surface
2. Advection doesn't really reach Quebec (plus, N. Am. Anthro. will interfere)

July 1: Plan B prep

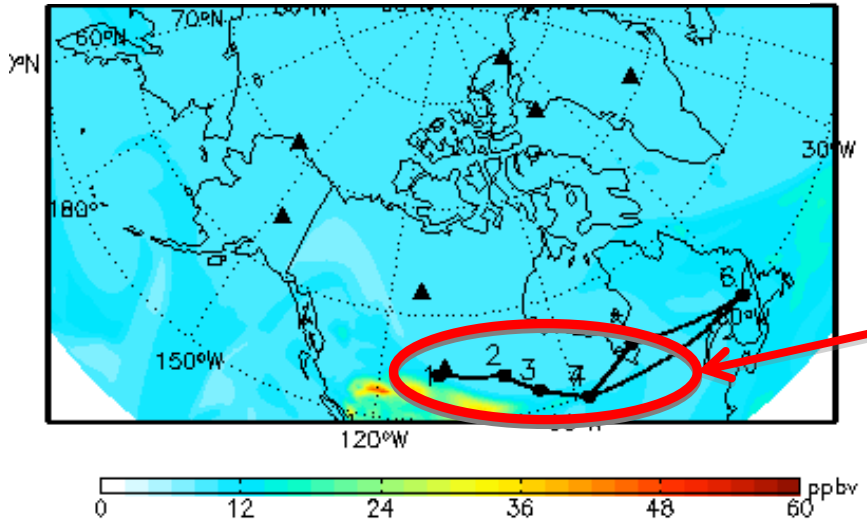
Non-Boreal: 750 hPa (2.5 km)



Boreal: 750 hPa (2.5 km)



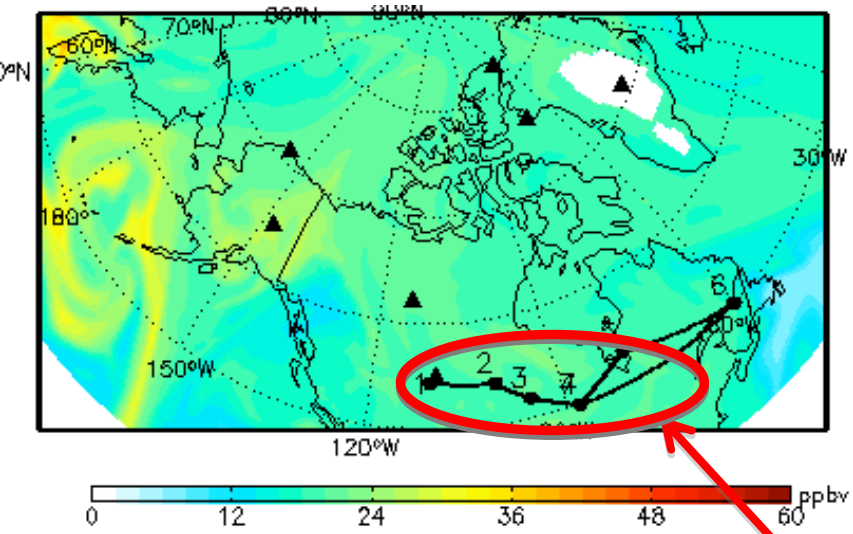
Non-Boreal: 500 hPa (5.6 km)



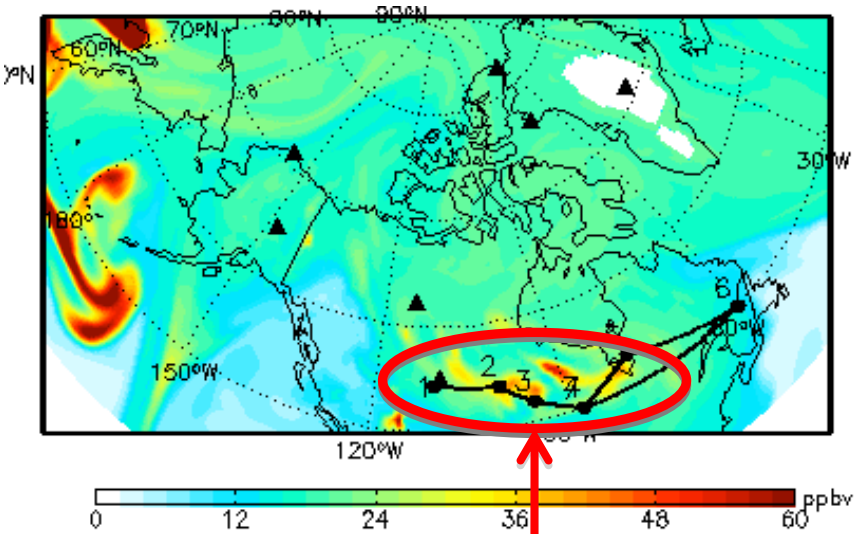
Advection of Manitoba Plumes:
No real interference from Non-Boreal

July 1: Plan B prep

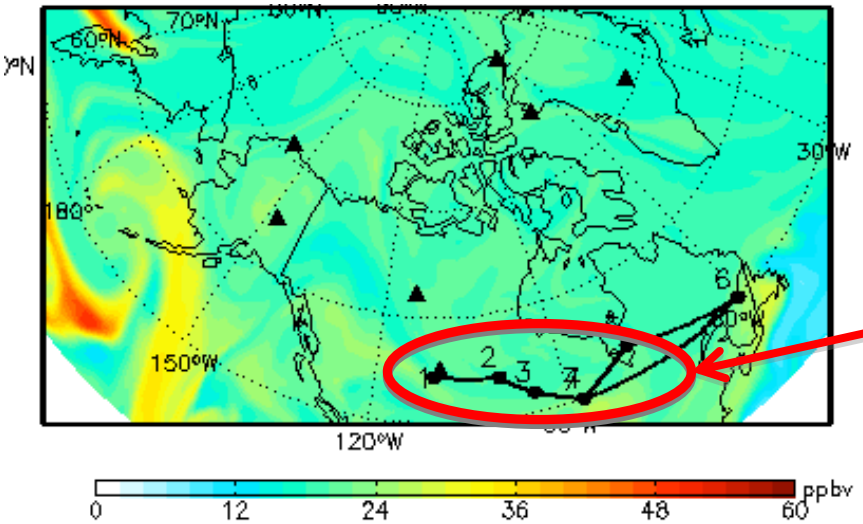
Asian Anthro: 750 hPa (2.5 km)



Boreal: 750 hPa (2.5 km)



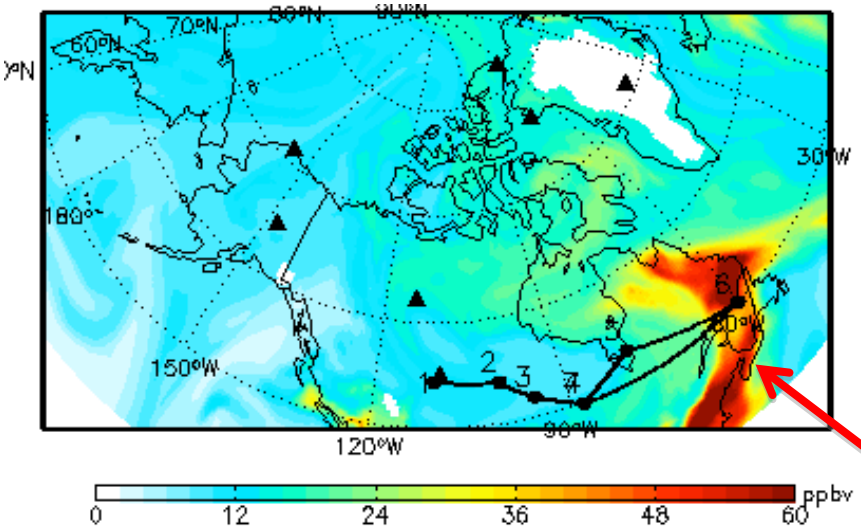
Asian anthro: 500 hPa (5.6 km)



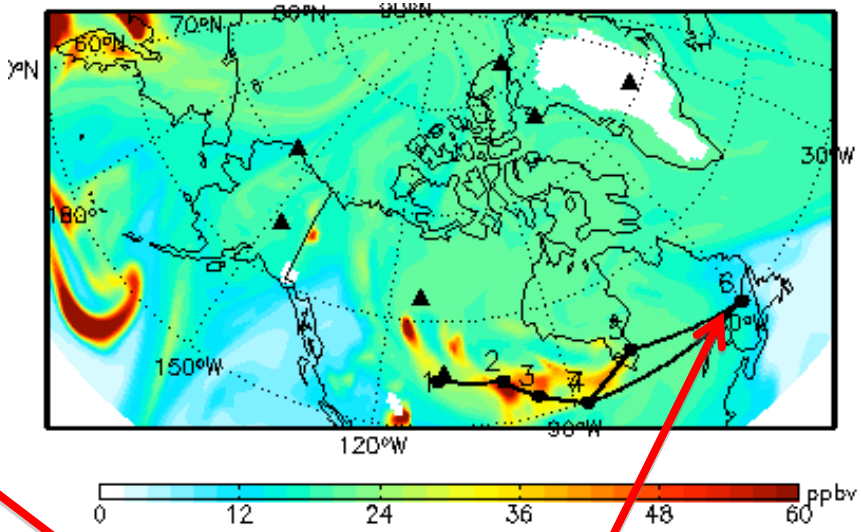
Advection of Manitoba Plumes:
Small interference from Asian Anthropogenic CO.

July 1: Plan B prep

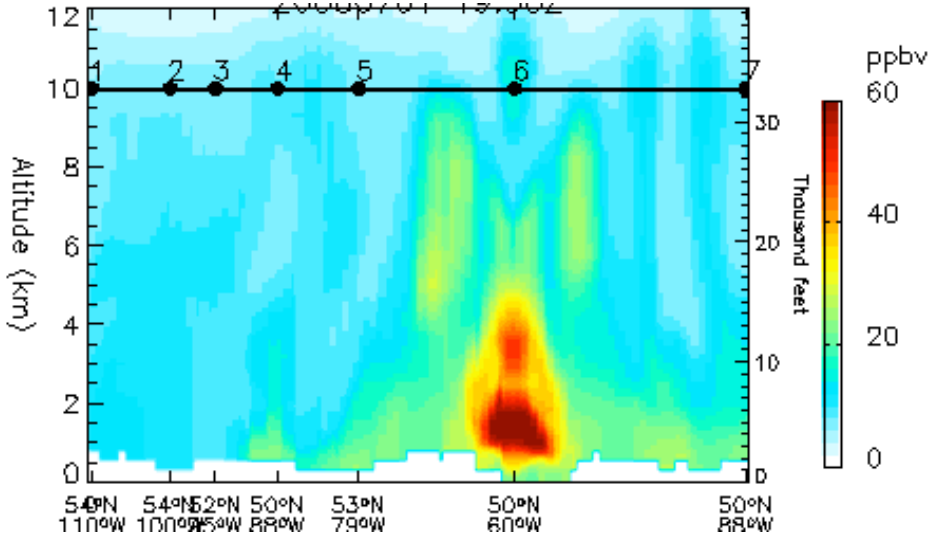
N. Am. Anthro: 800 hPa (2.0 km)



Boreal: 800 hPa (2.0 km)



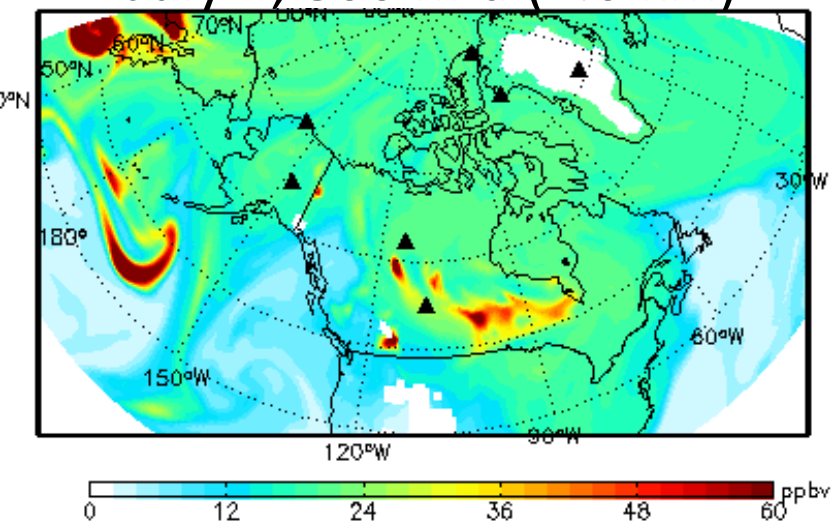
N. Am. Anthro: Curtain



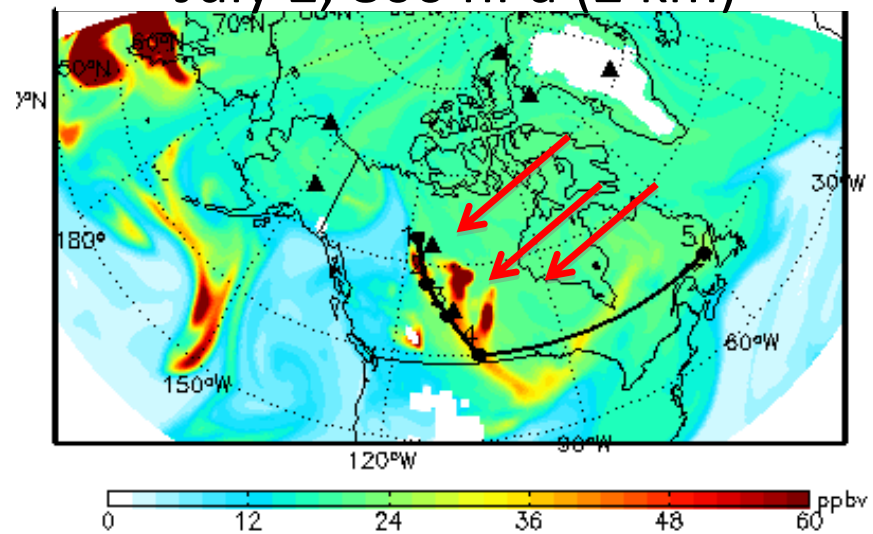
N. Am. Pollution will only contaminate easternmost point

July 1 - July 2: Additional Transport? Boreal CO

July 1, 800 hPa (2.0 km)



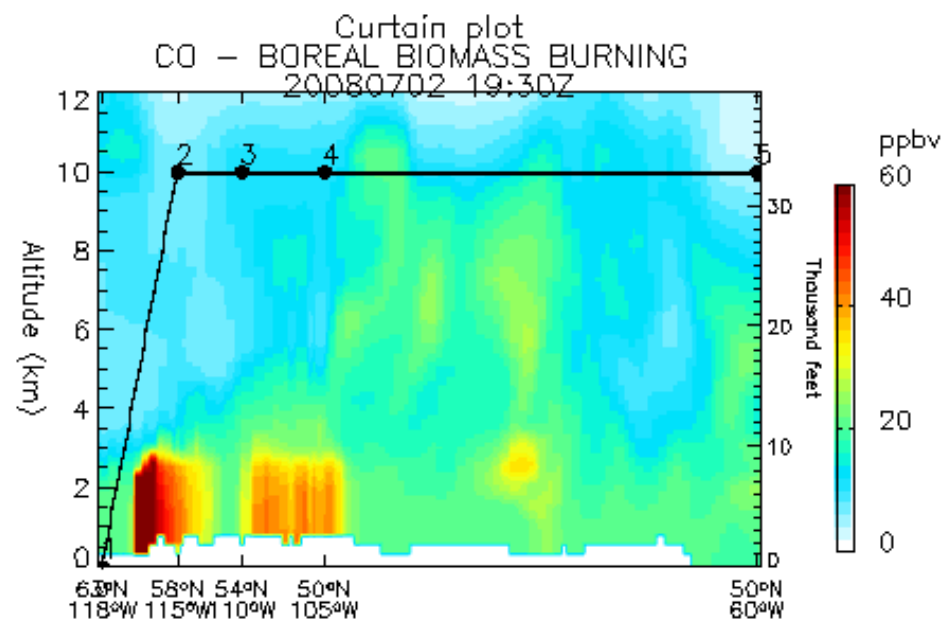
July 2, 800 hPa (2 km)



Strongest Boreal B.B. Signals remain in boundary layer.

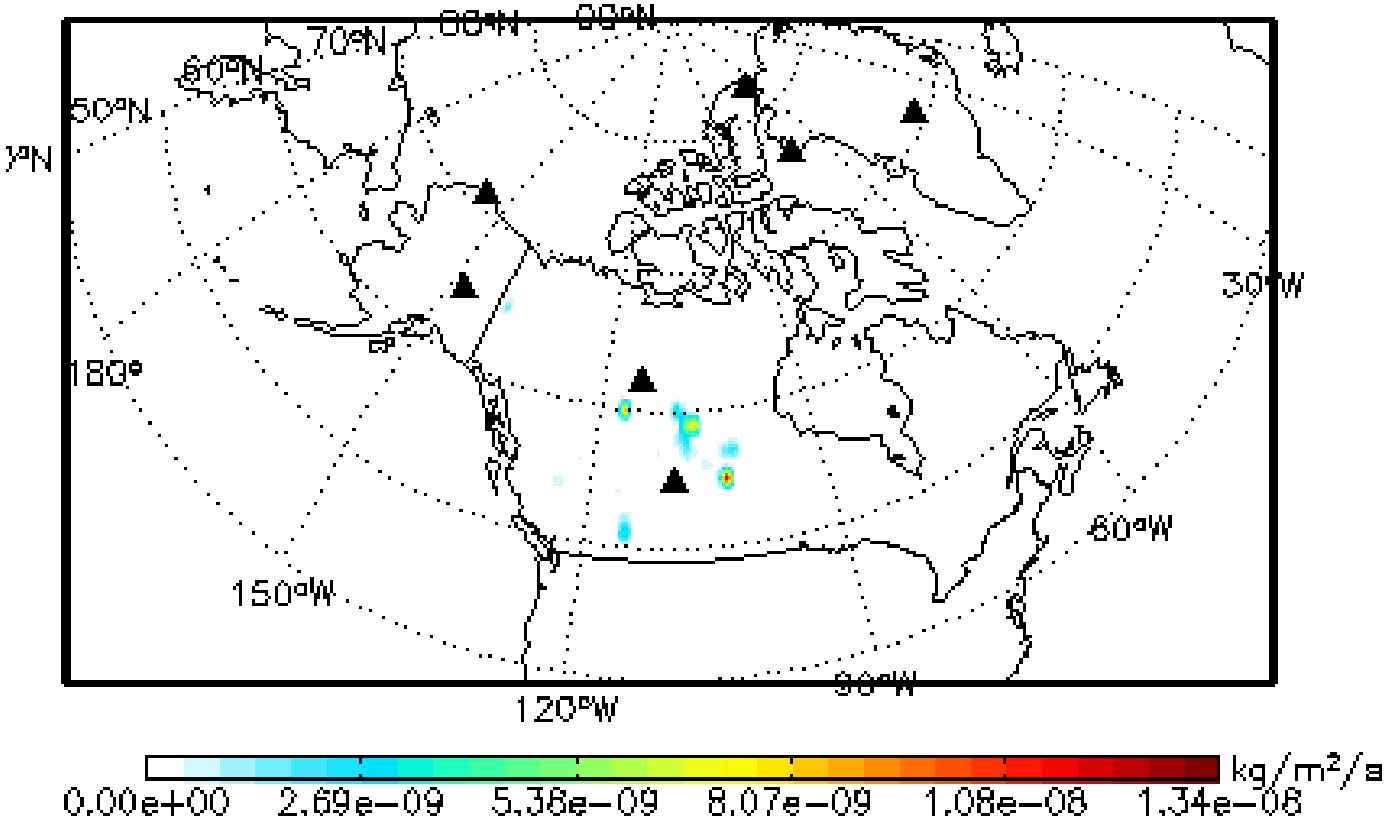
July 2: stronger signals to the south west.

* another flight day might have stronger advection to Quebec.
* keep in mind for Thule Suitcase trip



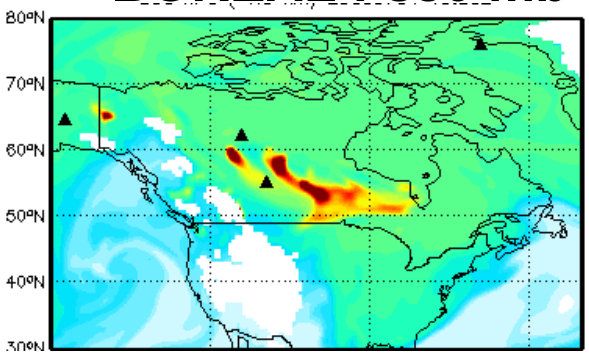
July 1: Emissions

Boreal B.B. Emissions of CO

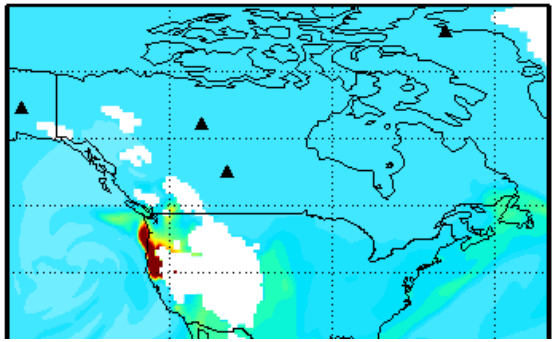


July 1st : 3-levels

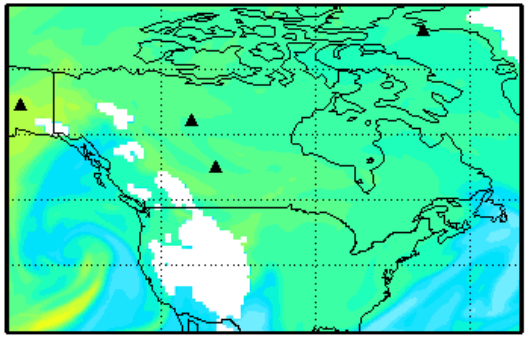
BOREAL : 850 mb



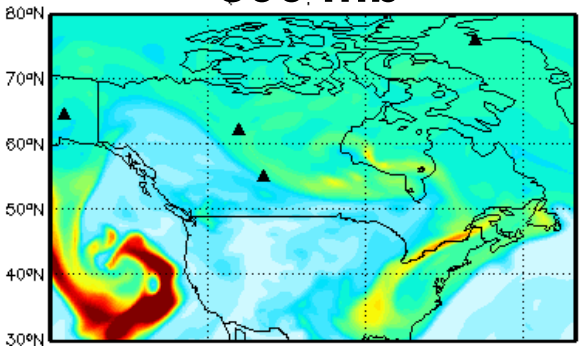
NON-BOREAL : 850 mb



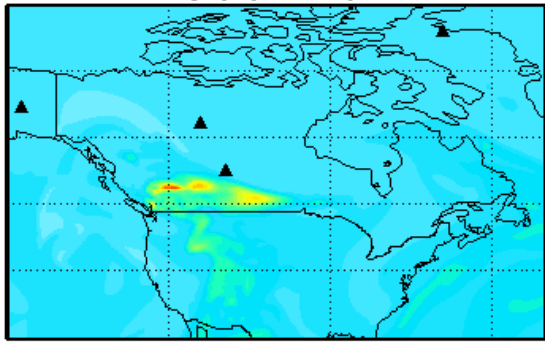
Asian FF/BF : 850 mb



500 mb



500 mb



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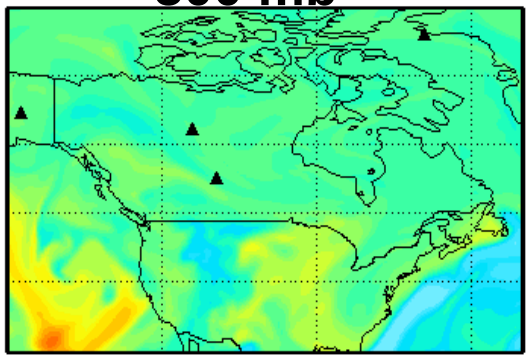
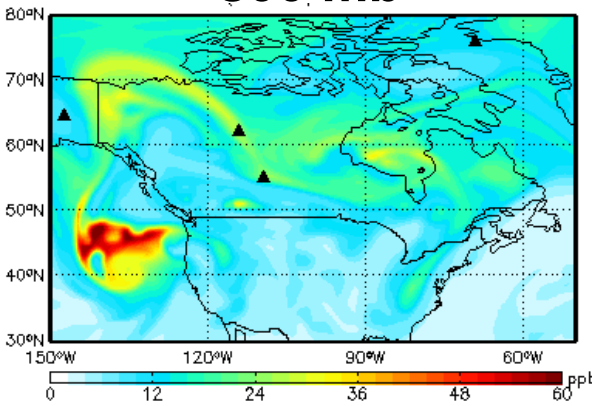


300 mb



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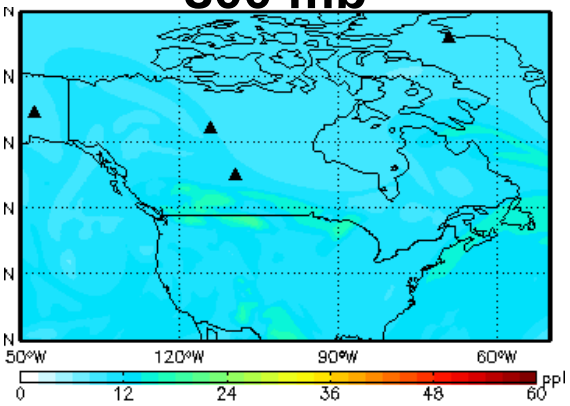

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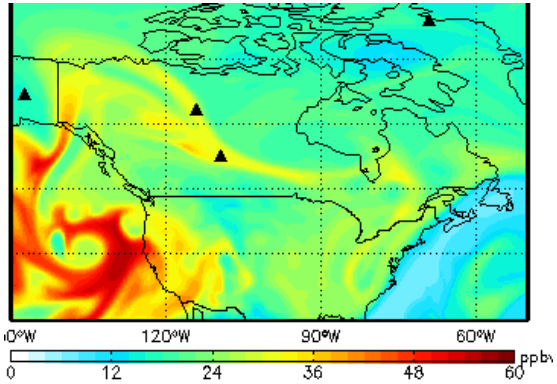
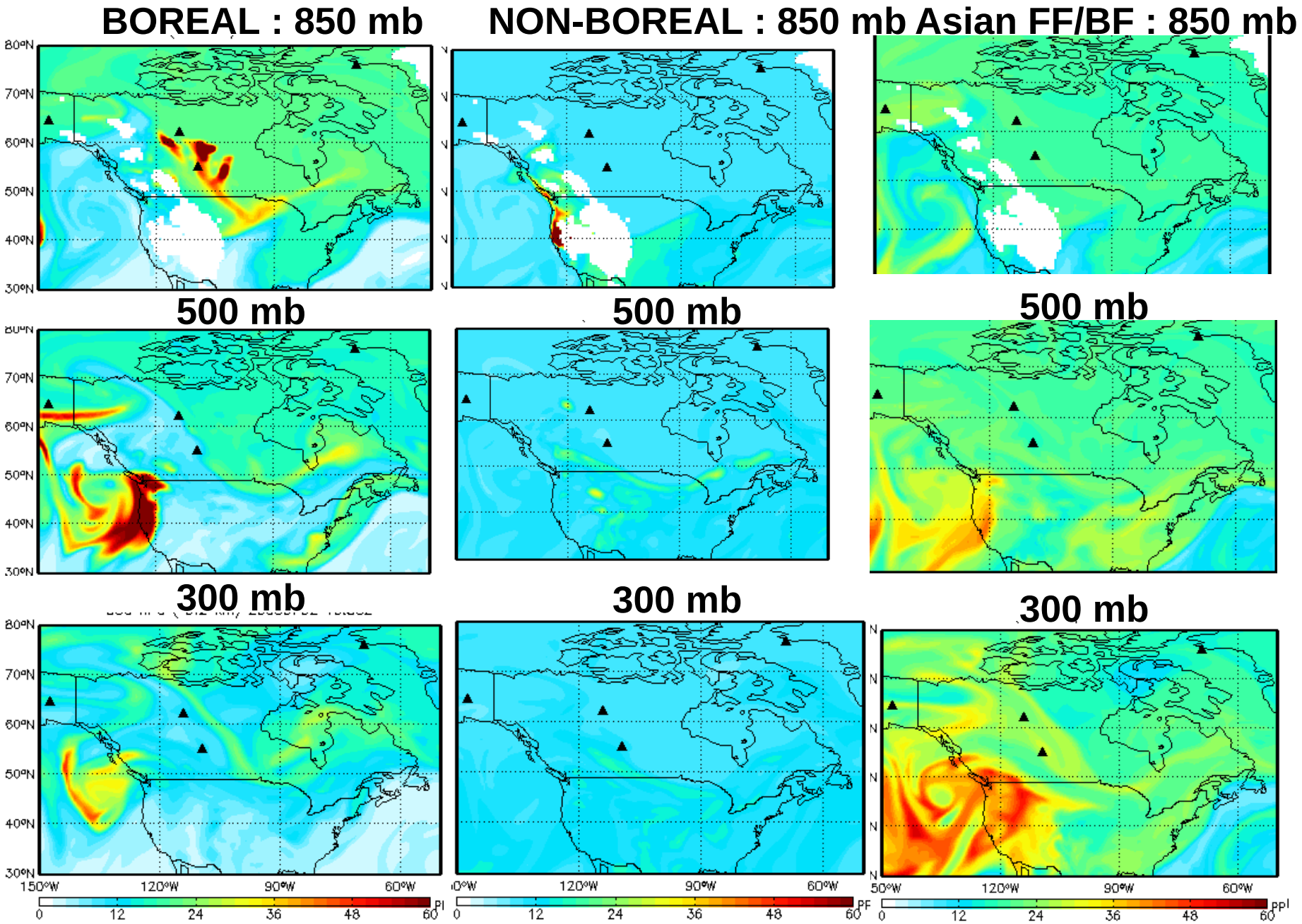
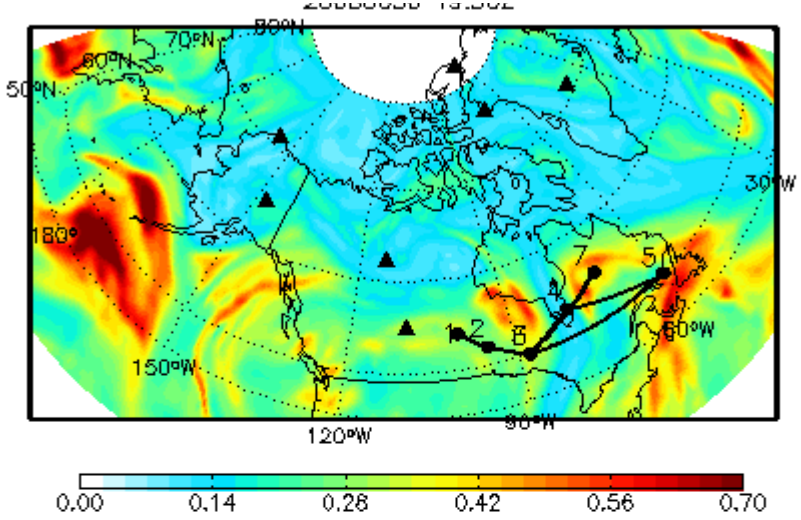


July 2nd : 3-levels

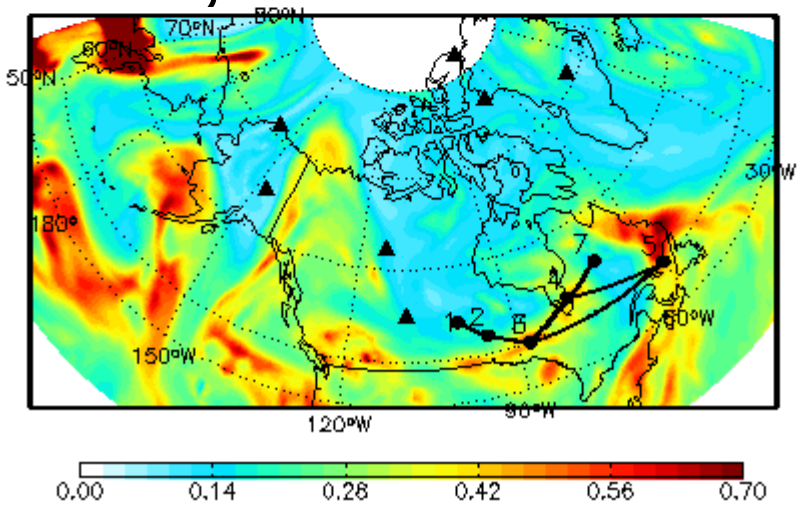


Total AOT, 550nm

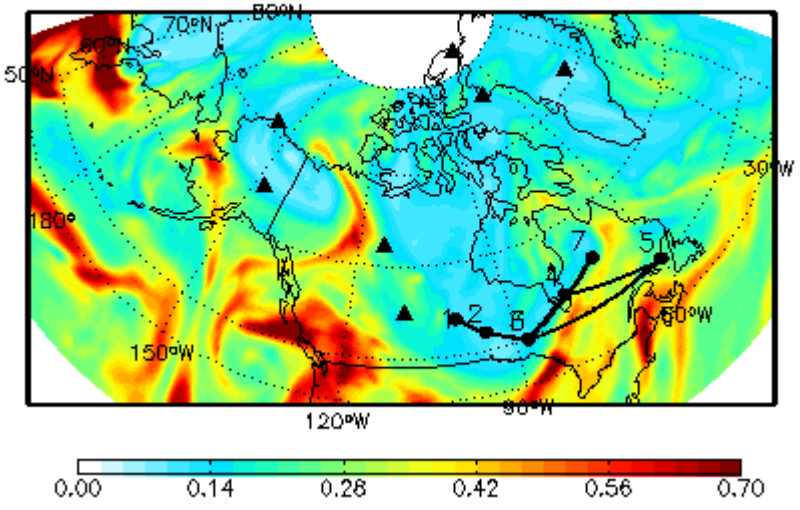
6/30, 19:30z



7/01, 19:30z



7/02, 19:30z

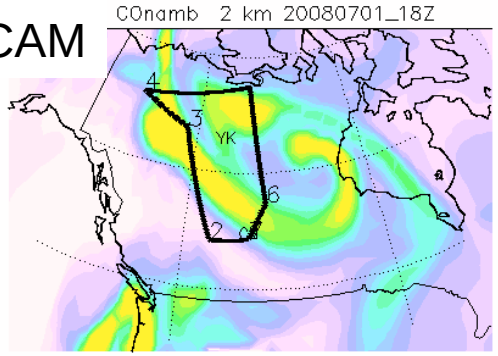


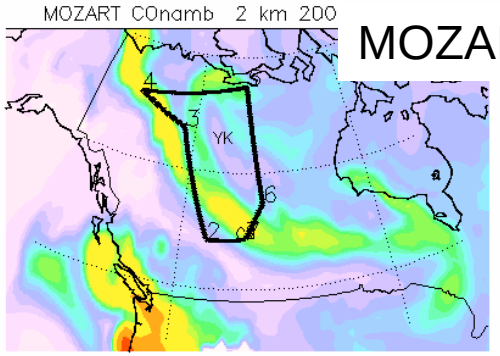
CAM

DC-8 ***Local 2 (v1)*** 07/01(18Z)
CO Namerica BB

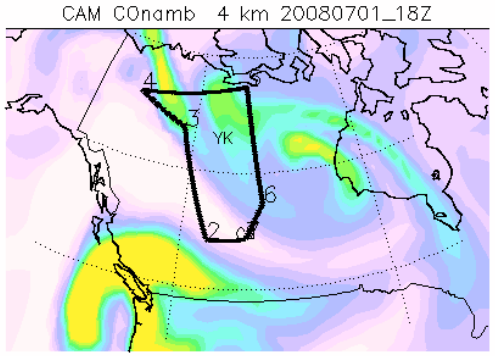
MOZART

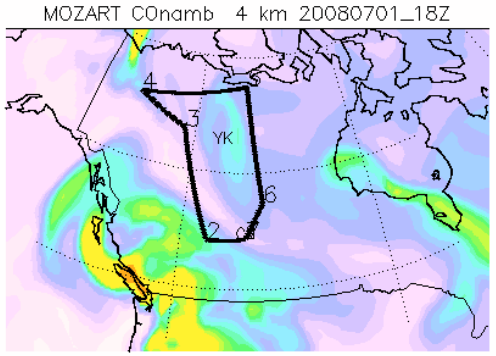
2 km



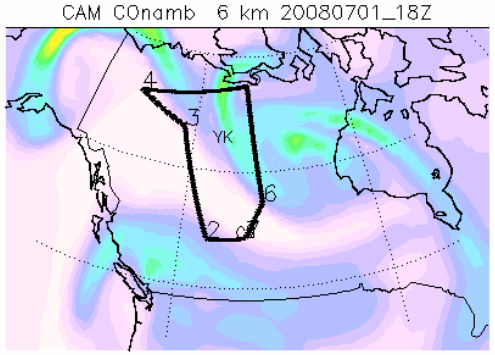


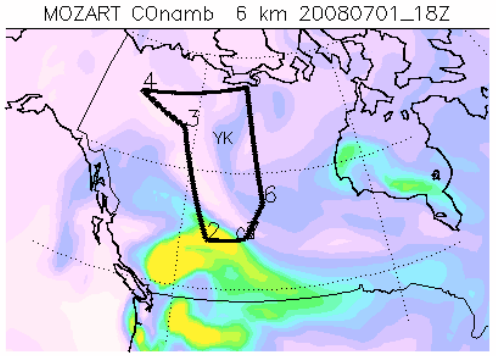
4 km



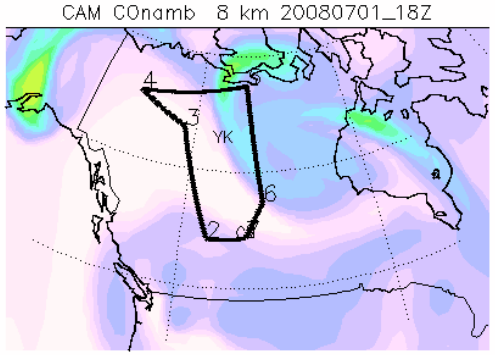


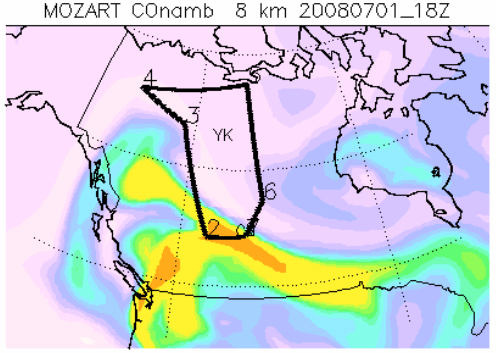
6 km





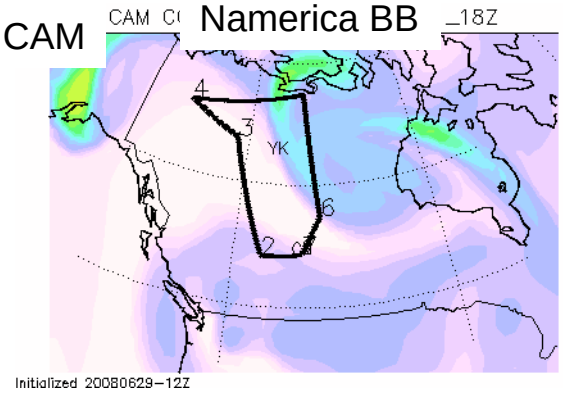
8 km

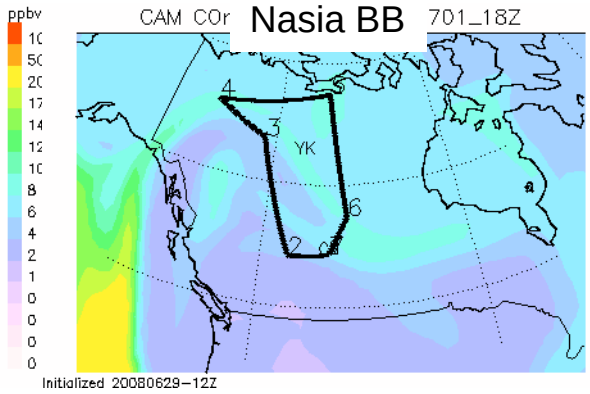


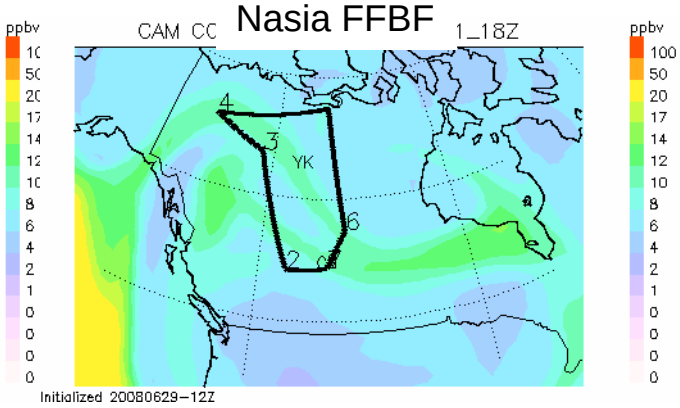


DC-8 ***Local 2 (v1)*** 07/01 (18Z) CO Namerica BB vs. CO Nasia @ 8 km

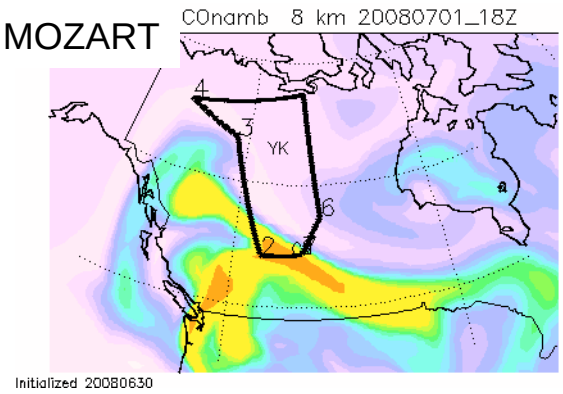
CAM

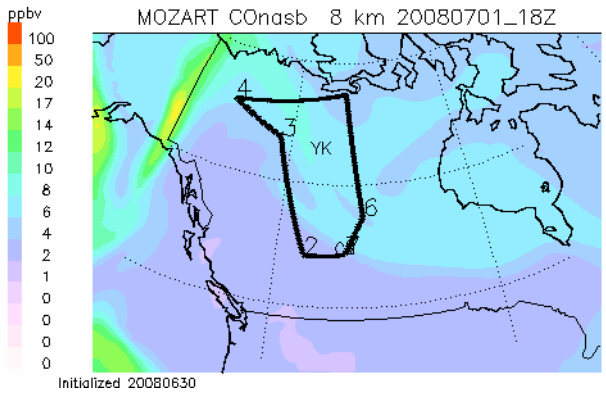


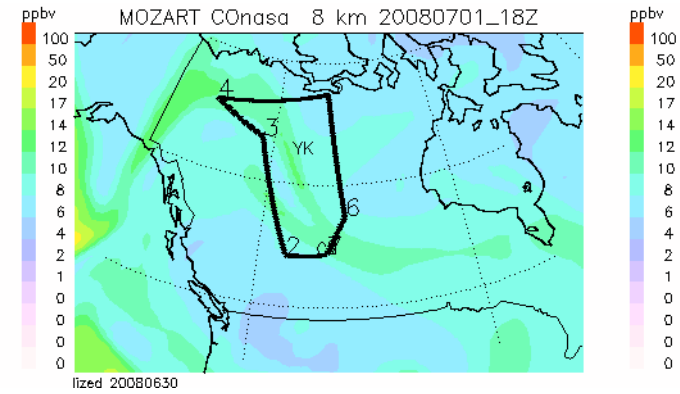




MOZART

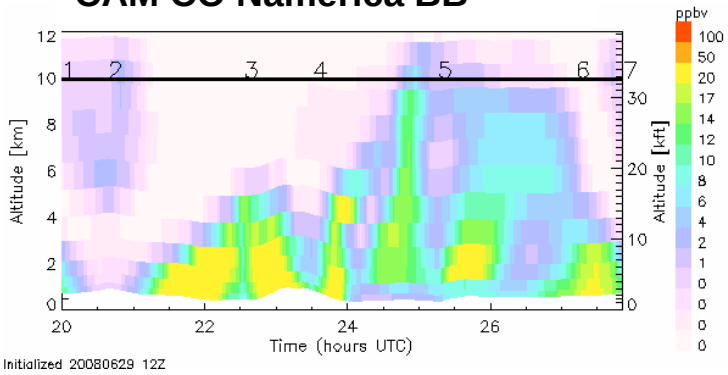




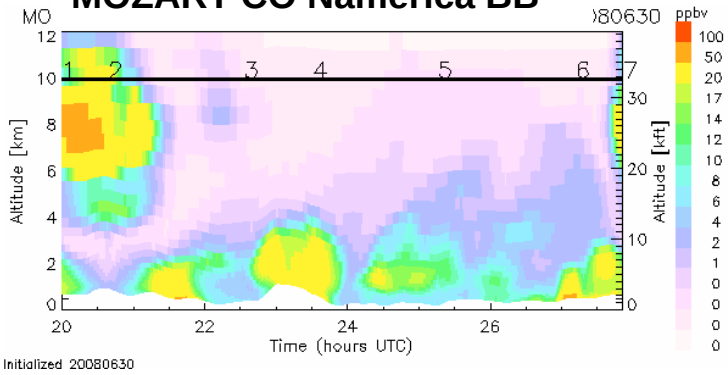


Curtains:

CAM CO Namerica BB



MOZART CO Namerica BB

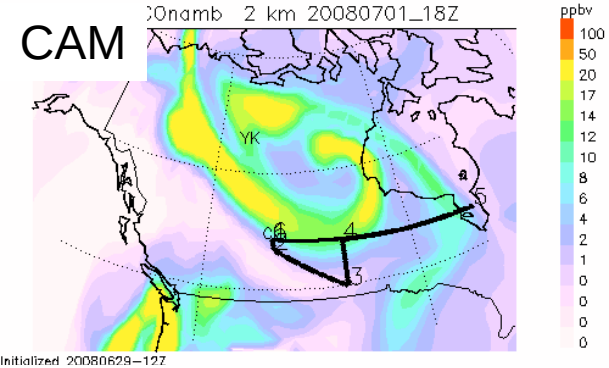


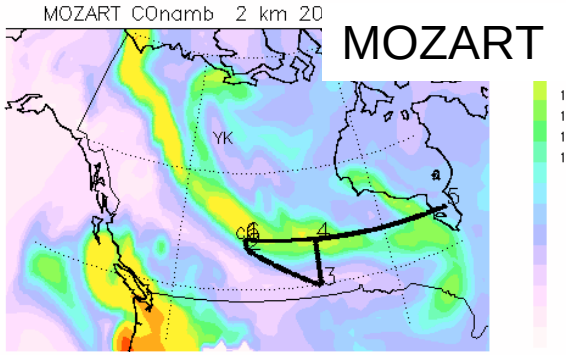
DC-8 ***Local 2 (v2)*** 07/01 (18Z)
CO Namerica BB

CAM

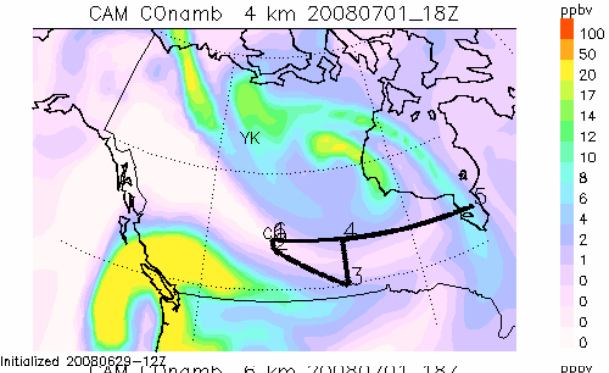
MOZART

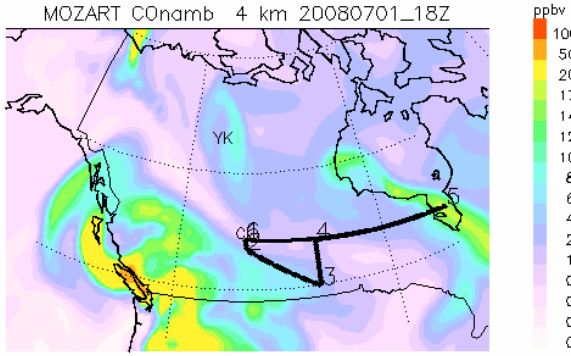
2 km



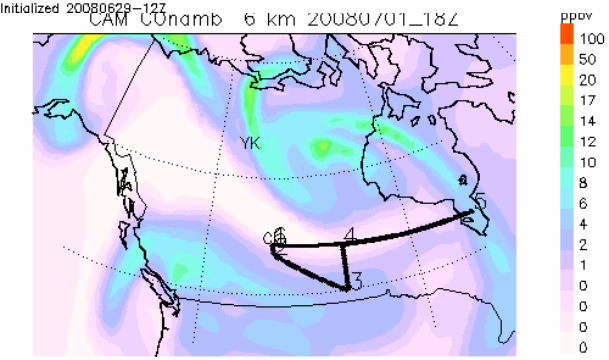


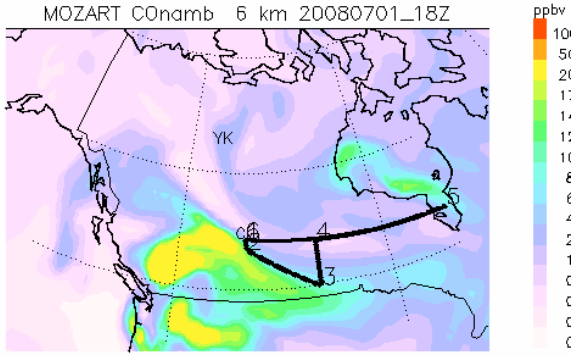
4 km



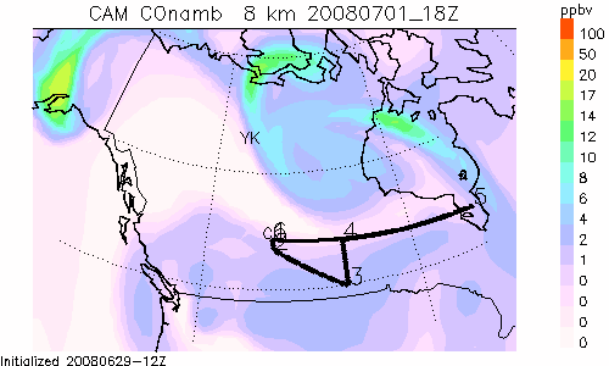


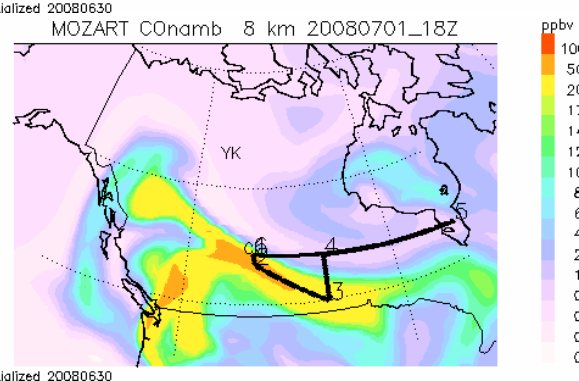
6 km





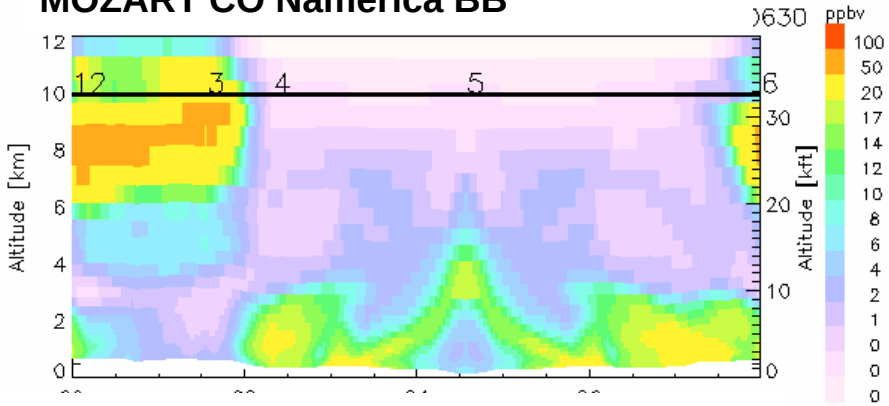
8 km



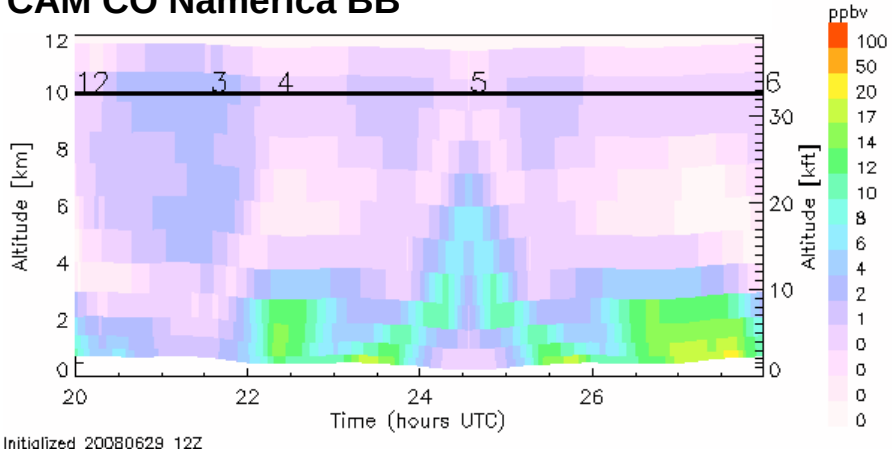


DC-8 Local 2 (v2) 07/01 Curtains

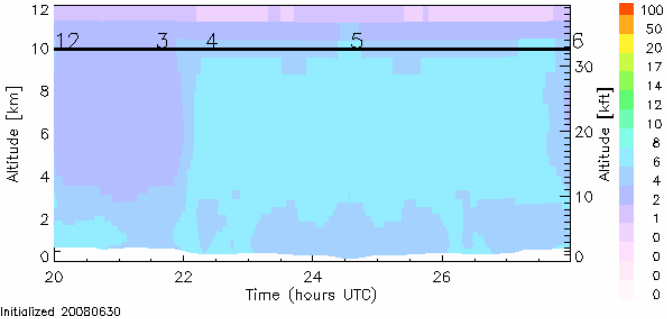
MOZART CO Namerica BB



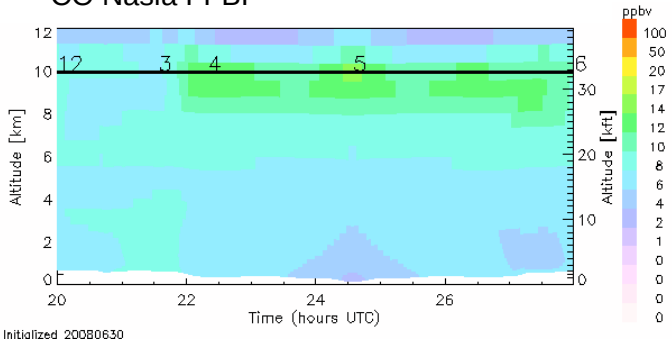
CAM CO Namerica BB



MOZART Curtains: CO Nasia BB



CO Nasia FFBF



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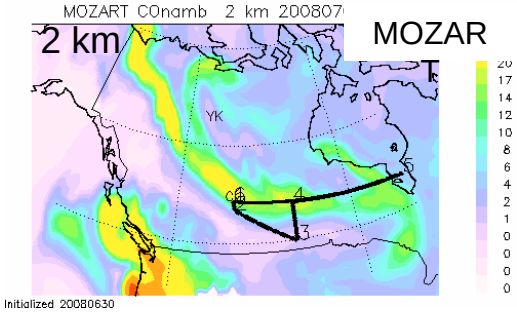
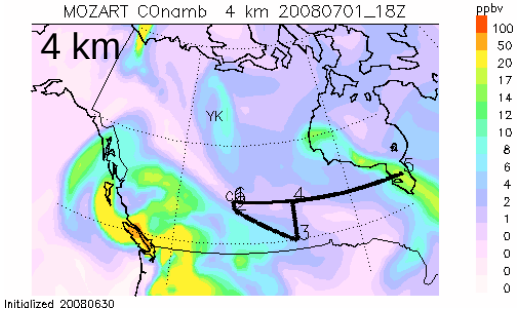
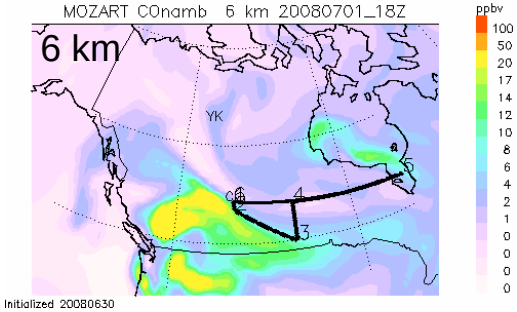
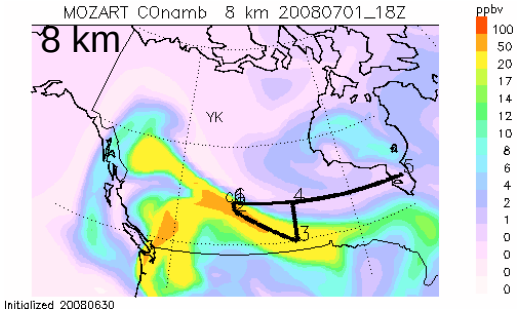




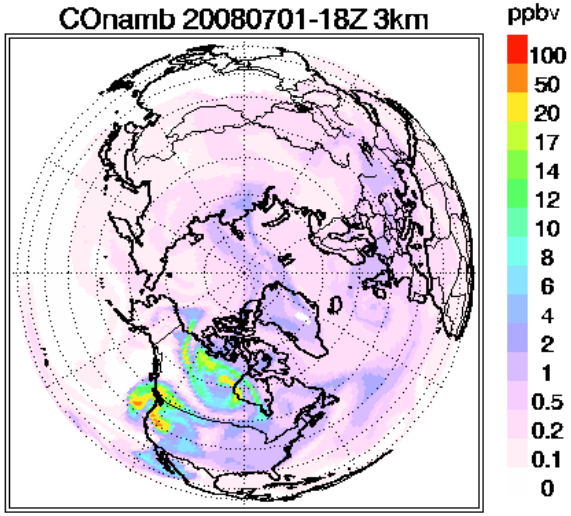


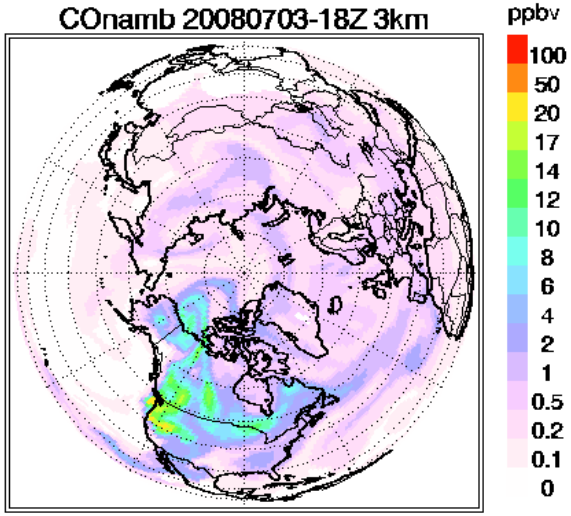


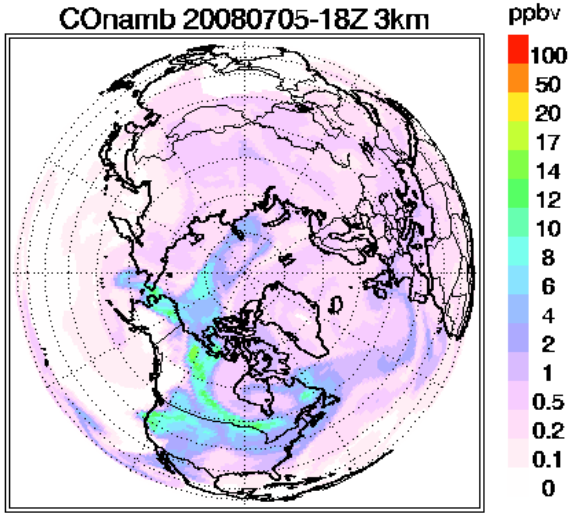
Outlook, CAM Forecast

07/01 07/03 07/05

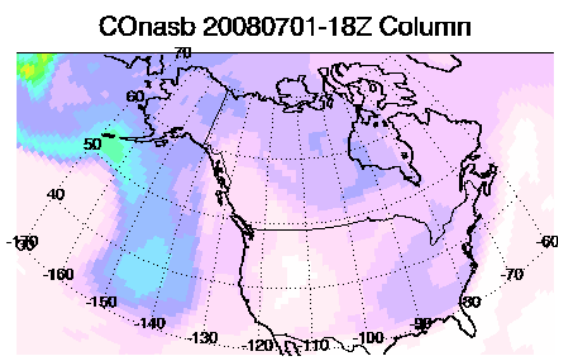
Namerica BB 3km

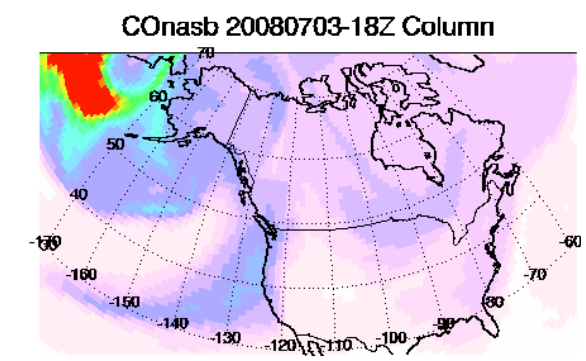


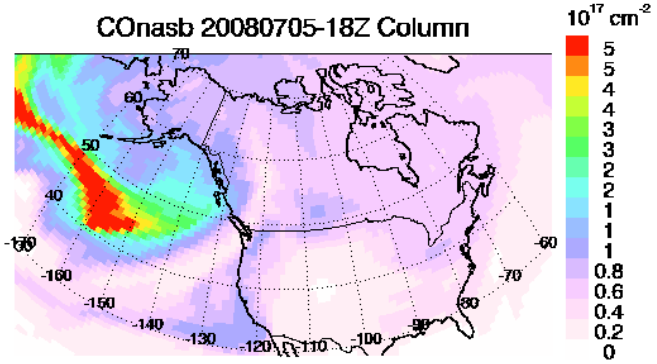




Nasia BB Column







Nasia BB strongest at low altitudes, while FFBF mostly at high alts